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Reference Manual

Command Line Interface (CLI)
MICE Switch Power (MSP)

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Contents

About this Manual

The “Command Line Interface” reference manual contains detailed information on using the Command Line Interface to operate the individual functions of the device.

The “Web-based Interface” reference manual contains detailed information on using the Web interface to operate the individual functions of the device.

The “Basic Configuration” user manual contains the information you need to start operating the device. It takes you step by step from the first startup operation through to the basic settings for operation in your environment.

The “Redundancy Configuration” user manual document contains the information you require to select the suitable redundancy procedure and configure it.

The “Installation” user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.

The Industrial HiVision Network Management Software provides you with additional options for smooth configuration and monitoring:

- Simultaneous configuration of multiple devices
- Graphical user interface with network layout
- Auto-topology discovery
- Event log
- Event handling
- Client/server structure
- Browser interface
- ActiveX control for SCADA integration
- SNMP/OPC gateway.

Key

The designations used in this manual have the following meanings:

▶	List
☐	Work step
■	Subheading
Link	Cross-reference with link
Note:	A note emphasizes an important fact or draws your attention to a dependency.
`Courier`	ASCII representation in user interface

1 Introduction

1.1 Command Line Interface

The Command Line Interface enables you to use the functions of the device via a local or remote connection.

The Command Line Interface provides IT specialists with a familiar environment for configuring IT devices. As an experienced user or administrator, you have knowledge about the basics and about using MICE Switch Power devices.

The “Command Line Interface” reference manual gives you step-by-step information on using the Command Line Interface (CLI) and its commands.

2 Access to CLI

2.1 Preparing the connection

Information for assembling and starting up your MSP device can be found in the “Installation” user manual.

You will find information for configuring your MSP device in the “Configuration” user manual

☐ Connect your MICE Switch Power with the network.
The network parameters must be set correctly for the connection to be successful.

You can access the user interface of the Command Line Interface with the freeware program PuTTY.
This program is located on the product CD.

☐ Install PuTTY on your computer.

2.2 CLI via SSH (Secure Shell)

☐ Start the PuTTY program on your computer.

PuTTY appears with the login screen.

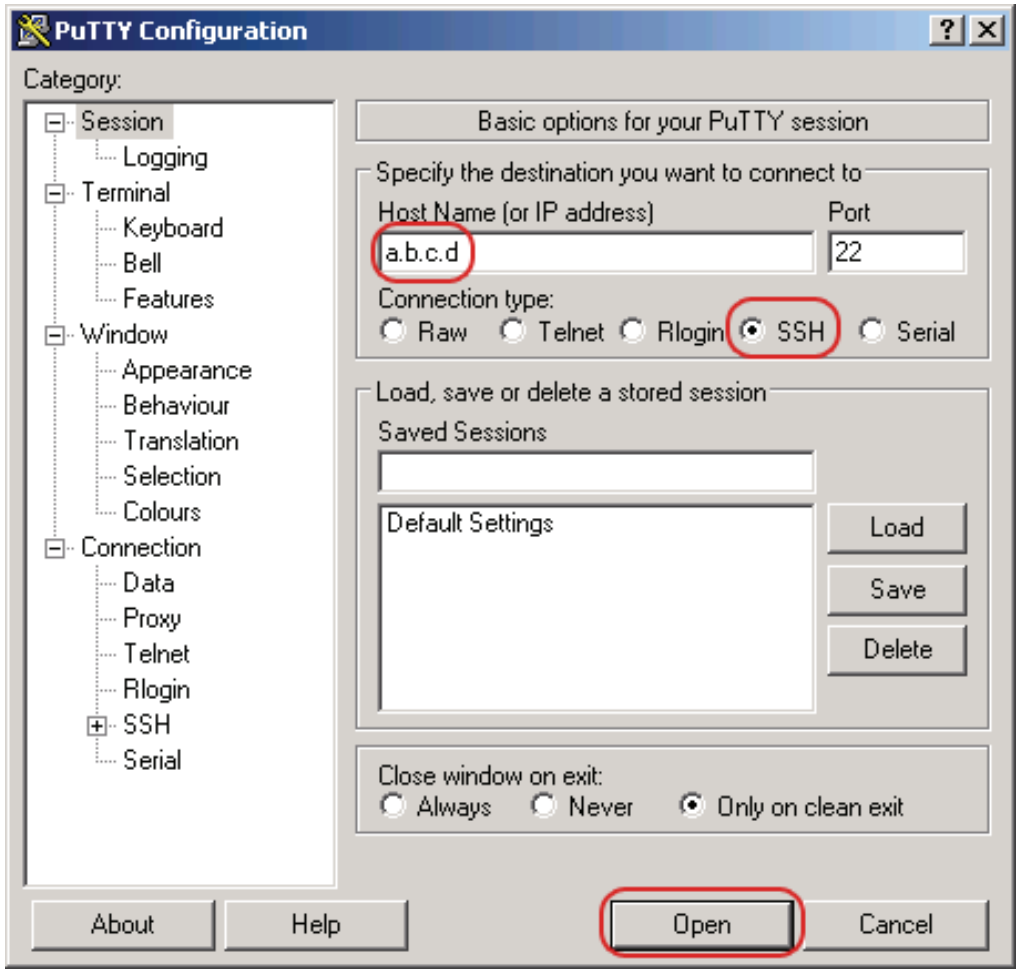

Figure 1: PuTTY input screen

☐ In the `Host Name (or IP address)` input field you enter the IP address of your device.
The IP address (a.b.c.d) consists of four decimal numbers with values from 0 to 255. The four decimal numbers are separated by points.

☐ To select a connection type, click on `SSH` under `Connection type`.

☐ After selecting and setting the required parameters, you can set up the connection via SSH.
Click “Open” to set up the connection to your device. Depending on the device and the time at which SSH was configured, it can take up to a minute to set up the connection.

When you first login to your device, towards the end of the connection setup, PuTTY displays a security alert message and gives you the option of checking the fingerprint of the key.

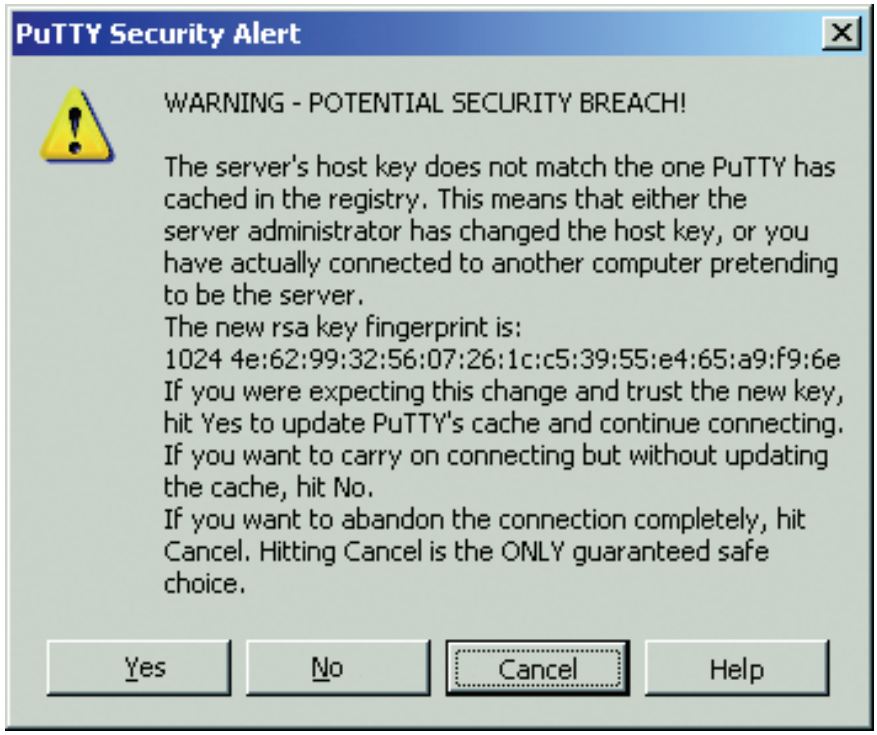

Figure 2: Security alert prompt for the fingerprint

☐ Check the fingerprint to help protect yourself from unwelcome guests.
☐ If the fingerprint matches that of the device key, click “Yes”.

You can read the fingerprints of the device key with the CLI command “show login” or in the Web interface, in the “SSH access” dialog.

Note:
The OpenSSH Suite offers experienced network administrators a further option to access your device via SSH. To set up the connection, enter the following command:

```
ssh admin@10.149.112.53
```

`admin` represents the user name.
`10.149.112.53` is the IP address of your device.

CLI appears on the screen with a window for entering the user name.
Up to five users can access the Command Line Interface at the same time.

```
login as: admin
admin@a.b.c.d's password:
```

Figure 3: Login window in CLI

a.b.c.d is the IP address of your device.

☐ Enter a user name. The default setting for the user name is **admin**.
Press the Enter key.

☐ Enter the password. The default setting for the password is **private**.
Press the Enter key.
You can change the user name and the password later in the Command Line Interface.
These entries are case-sensitive.

The device displays the CLI start screen.

Note: Change the password during the first startup procedure.

```
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                        MSP Release HiOS-2A-02.0.00

                          (Build date 2013-02-20 20:20)

                      System Name   :  MSP-ECE555F63600
                      Management IP :  10.115.45.104
                      Subnet Mask   :  255.255.224.0
                      Base MAC      :  EC:E5:55:F6:36:00
                      System Time   :  2013-02-11 11:14:35


NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

*(MSP)>
```

Figure 4: Start screen of CLI.

Your MSP appears with the command prompt
`MSP >`

2.3 CLI via the V.24 port

A serial interface is provided on the V.24 interface for the local connection of an external management station (VT100 terminal or PC with terminal emulation). This enables you to set up a connection to the Command Line Interface (CLI) and to the system monitor.
The socket housing is electrically connected to the housing of the device.

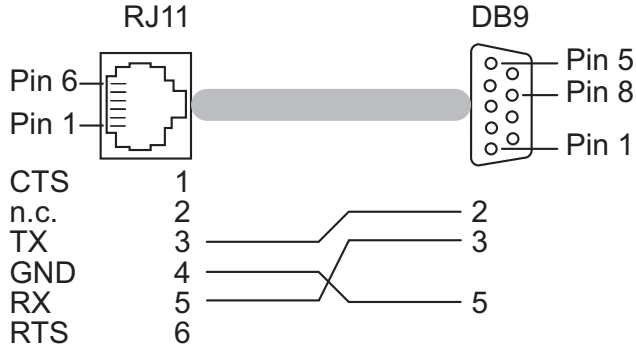

Figure 5: Pin assignment of the V.24 interface and the DB9 connector

VT 100 terminal settings	
Speed	9,600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

Set up the serial configuration parameters of the terminal emulation program as follows:

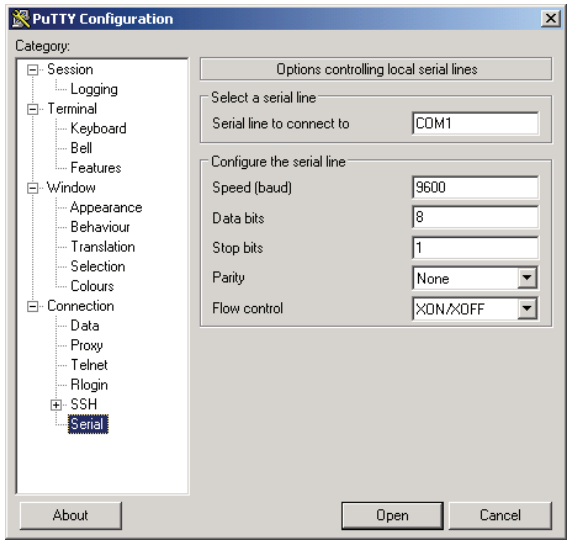

Figure 6: Configuring the serial connection via PuTTY

☐ Connect the device to a terminal via V.24 or to a “COM” port of your PC using terminal emulation based on VT100, and press any key.
☐ Or you set up the serial connection to the MSP via V.24 with PuTTY (see Fig. 7). Press the Enter key.

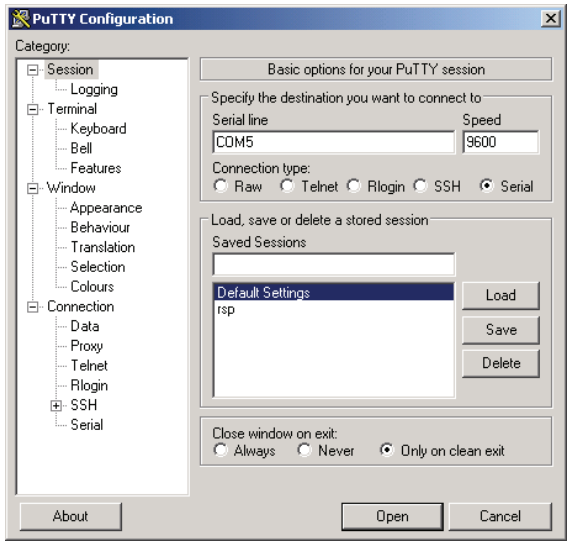

Figure 7: Serial connection via V.24 with PuTTY

After the connection has been made successfully, the device displays a window for entering the user name.

```
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                          MSP Release HiOS-2A-02.0.00

                            (Build date 2013-02-20 20:20)

                       System Name   :  MSP-ECE555F63600
                       Management IP :  10.115.45.104
                       Subnet Mask   :  255.255.224.0
                       Base MAC      :  EC:E5:55:F6:36:00
                       System Time   :  2013-02-11 11:14:35


*(MSP)>

User: admin
Password: *******
```

Figure 8: Logging in to the Command Line Interface program

☐ Enter a user name. The default setting for the user name is **admin**. Press the Enter key.
☐ Enter the password. The default setting for the password is **private**. Press the Enter key.
You can change the user name and the password later in the Command Line Interface.
These entries are case-sensitive.

The device displays the CLI start screen.

```
NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

MSP >
```

Figure 9: CLI screen after login

Note: You can configure the V.24 interface as a terminal/CLI interface. Press any key on your terminal keyboard a number of times until the login screen indicates the CLI mode.

2.4 CLI access via telnet

2.4.1 Telnet connection via Windows

Note: Telnet is only installed as standard in Windows versions before Windows Vista.

▶ **Start screen**

☐ Open the Windows start screen on your computer with `Start>Run... .`

☐ In the `Open:` input field you enter the command `telnet a.b.c.d`. a.b.c.d is the IP address of your MSP. Click `OK` to set up the telnet connection to the MSP.

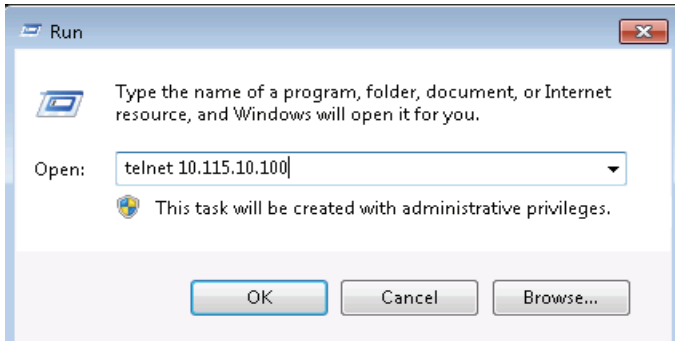

Figure 10: Setting up the telnet connection to the MSP via the Windows entry screen

▶ Command prompt

☐ With Start>Programs>Accessories>Command Prompt you start the DOS command line interpreter on your computer.

☐ Enter the command `telnet a.b.c.d`. a.b.c.d is the IP address of your MSP. Press the Enter key to set up the telnet connection to the MSP.

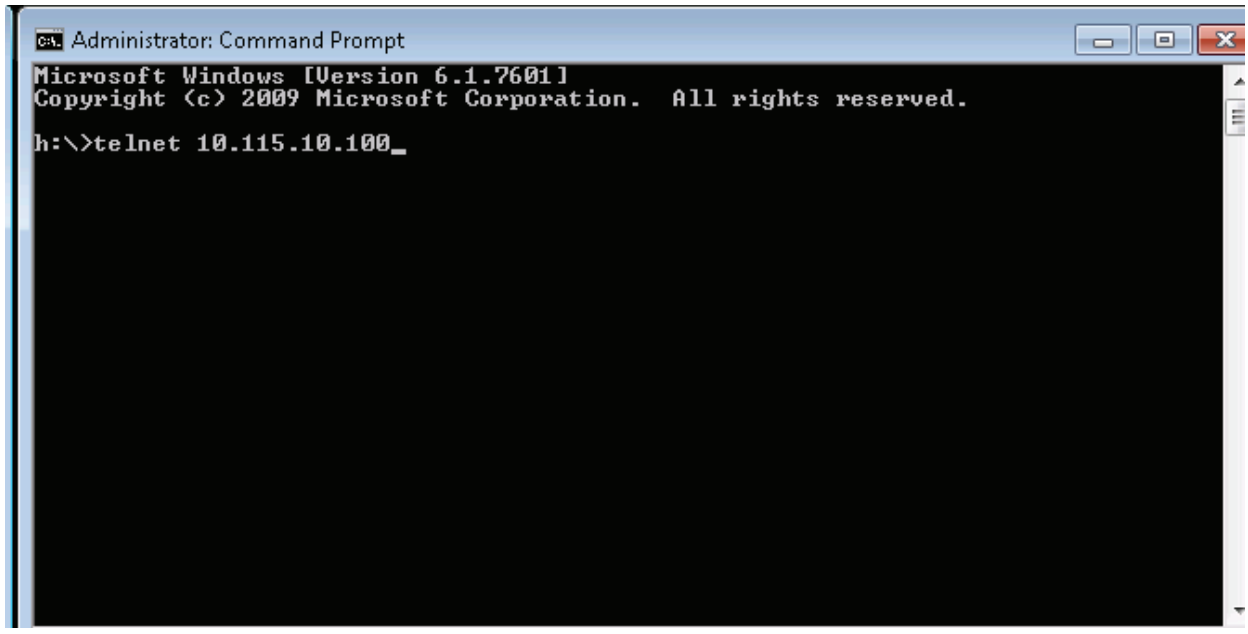

Figure 11: Setting up the telnet connection to the MSP via the DOS command line

2.4.2 Telnet connection via PuTTY

☐ Start the PuTTY program on your computer.

PuTTY appears with the login screen.

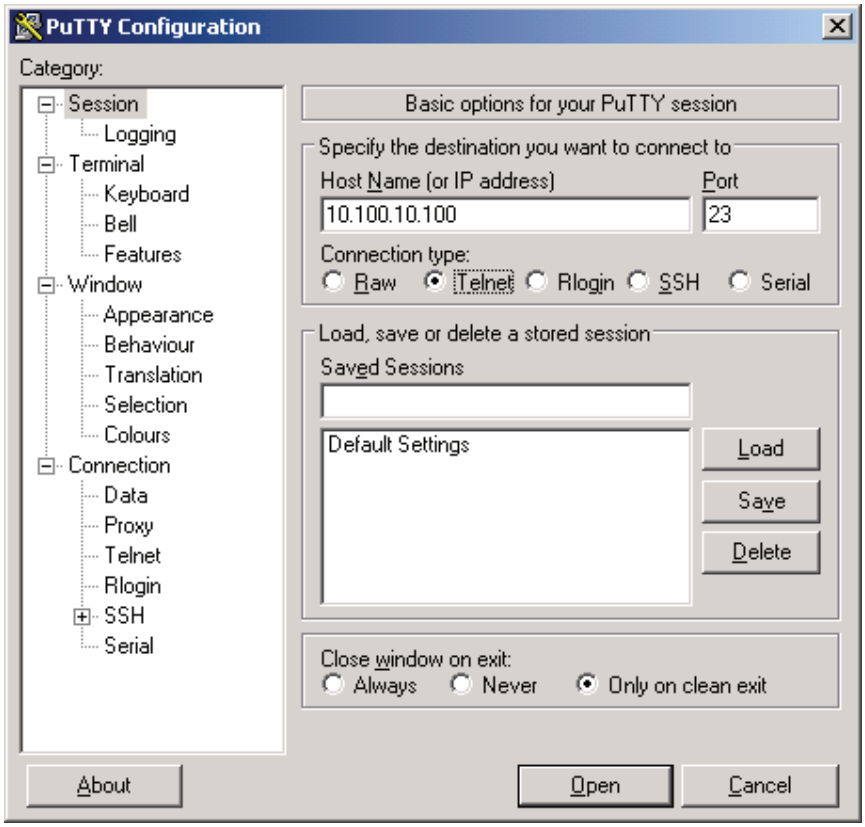

Figure 12: PuTTY input screen

☐ In the `Host Name (or IP address)` input field you enter the IP address of your device.
The IP address (a.b.c.d) consists of four decimal numbers with values from 0 to 255. The four decimal numbers are separated by points.

☐ To select the connection type, click on `Telnet` under `Connection type`.

☐ Click on "Open" to set up the connection to your device.

CLI appears on the screen with a window for entering the user name.
Up to five users can access the Command Line Interface at the same time.

Note: Change the password during the first startup procedure.

☐ Enter a user name. The default setting for the user name is **admin**.
Press the Enter key.
☐ Enter the password. The default setting for the password is **private**.
Press the Enter key.
You can change the user name and the password later in the Command Line Interface.
These entries are case-sensitive.

The device displays the CLI start screen.

```
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                          MSP Release HiOS-2A-02.0.00

                            (Build date 2013-02-20 20:20)

                        System Name   :  MSP-ECE555F63600
                        Management IP :  10.115.45.104
                        Subnet Mask   :  255.255.224.0
                        Base MAC      :  EC:E5:55:F6:36:00
                        System Time   :  2013-02-11 11:14:35


User:admin
Password:*******


NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

(MSP)>
```

Figure 13: Start screen of CLI.

Your MSP appears with the command prompt
`MSP >`

3 Using the CLI

3.1 Mode-based command hierarchy

In the CLI, the commands are grouped in the related modes, according to the type of the command. Every command mode supports specific Hirschmann software commands.

The commands available to you as a user at a specific time depend on your privilege level (administrator, operator, guest) and the mode in which you are currently working. The commands of a specific mode are available to you when you switch to this mode.

The User Exec mode commands are an exception to this. You can also execute these in the Privileged Exec mode.

The following figure shows the modes of the Command Line Interface.

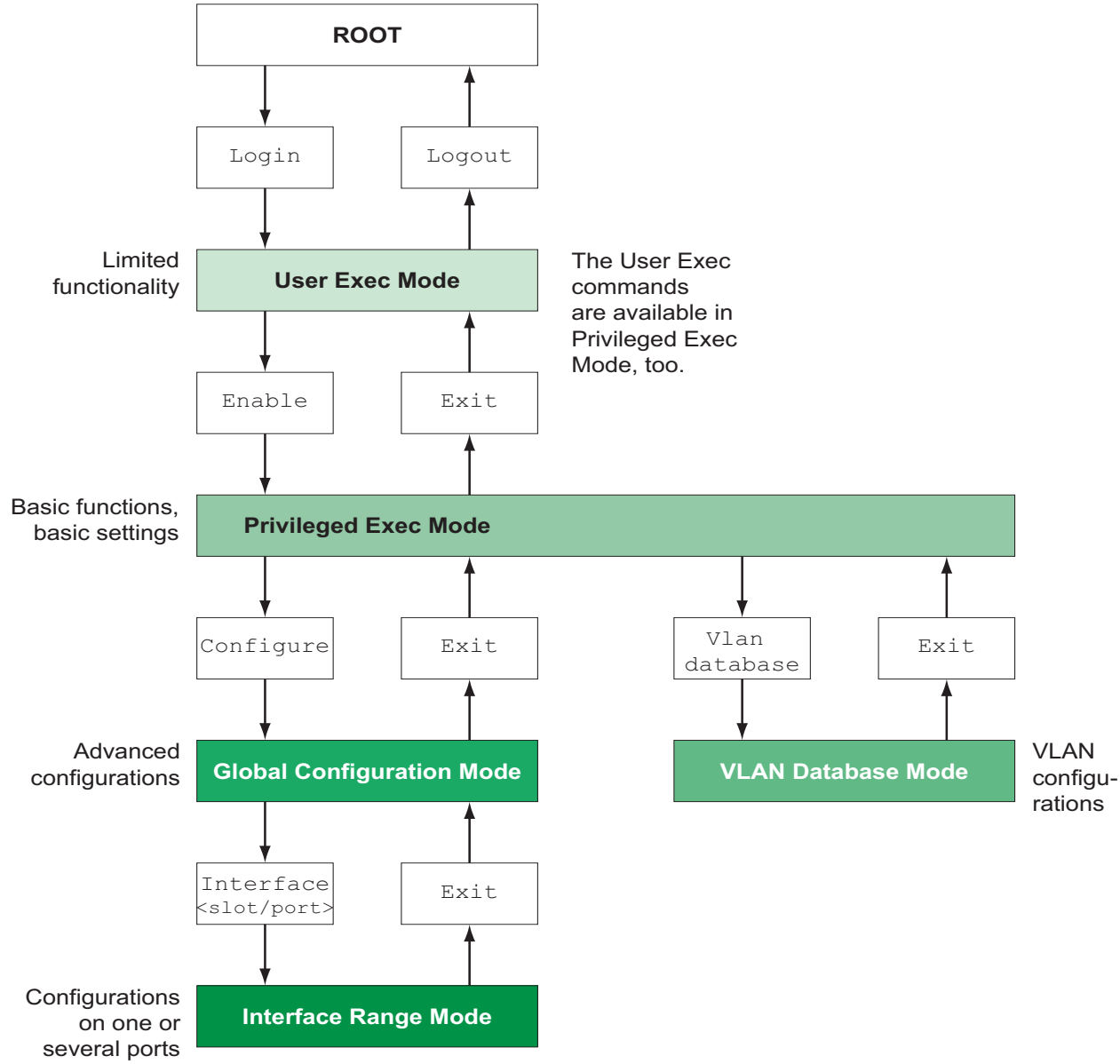

Figure 14: Structure of the CLI

The CLI supports, depending on the user level, the following modes:

- **User Exec mode**
  When you login to the CLI, you first enter the User Exec mode. The User Exec mode contains a limited range of commands.
  Command prompt: `MSP >`
- **Privileged Exec mode**
  To access the entire range of commands, you enter the Privileged Exec mode. To be able to enter the Privileged Exec mode, you have to be authenticated as a privileged user by the login. In the Privileged Exec mode you can execute the User Exec mode commands, too.
  Command prompt: `MSP #`
- **VLAN mode**
  This mode contains VLAN-related commands.
  Command prompt: `MSP (VLAN)#`
  This mode contains VLAN-related commands.
  Command prompt: `MSP (VLAN)#`
- **Global Config mode**
  This mode allows you to perform modifications to the current configuration. In this mode, general setup commands are grouped together.
  Command prompt: `MSP (config)#`
- **Interface Range mode**
  The commands in the Interface Range mode affect a specific port, a selected group of multiple ports or all port of the device. The commands modify a value or switch a function on/off on one or more specific ports.
  - All physical ports on the device
    Command prompt: `MSP ((interface) all)#`
    Example: When you switch from the Global Config mode to the Interface Range mode, the command prompt changes as follows:
    ```
    MSP (config)#interface all
    MSP ((Interface)all)#
    ```
  - A single port on one interface
    Command prompt: `MSP (interface <slot/port>)#`
    Example: When you switch from the Global Config mode to the Interface Range mode, the command prompt changes as follows:
    ```
    MSP (config)#interface 2/1
    MSP (interface 2/1)#
    ```

- A range of ports on one interface
  Command prompt: `MSP (interface <interface range> )#`
  Example: When you switch from the Global Config mode to the Interface Range mode, the command prompt changes as follows:
  ```
  MSP (config)#interface 1/2-1/4
  MSP ((Interface)1/2-1/4)#
  ```
- A list of single ports
  Command prompt: `MSP (interface <interface list>)#`
  Example: When you switch from the Global Config mode to the Interface Range mode, the command prompt changes as follows:
  ```
  MSP (config)#interface 1/2,1/4,1/5
  MSP ((Interface)1/2,1/4,1/5)#
  ```
- A list of port ranges and single ports
  Command prompt: `MSP (interface <complex range>)#`
  Example: When you switch from the Global Config mode to the Interface Range mode, the command prompt changes as follows:
  ```
  MSP (config)#interface 1/2-1/4,1/6-1/9
  MSP ((Interface)1/2-1/4,1/6-1/9)
  ```

The following table shows the command modes, the command prompts (input request characters) visible in the corresponding mode, and the option with which you quit this mode.

Command mode	Access method	Quit or start next mode

User Exec mode	First access level. Perform basic tasks and list system information.	To quit you enter `logout`:
		`(MSP) >logout`
		`Are you sure (Y/N) ?y`

Privileged Exec mode	From the User Exec mode, you enter the command `enable`:
	`(MSP) >enable`
	`(MSP) #`
		To quit the Privileged Exec mode and return to the User Exec mode, you enter `exit`:
		`(MSP) #exit`
		`(MSP) >`

VLAN mode	From the Privileged Exec mode, you enter the command `vlan database`:
	`(MSP) #vlan database`
	`(MSP) (Vlan)#`
		To end the VLAN mode and return to the Privileged Exec mode, you enter `exit` or press Ctrl Z.
		`(MSP) (Vlan)#exit`
		`(MSP) #`

Table 1: Command modes

Command mode	Access method	Quit or start next mode

Global Configuration mode	From the Privileged Exec mode, you enter the command `configure`:
	`(MSP) #configure`
	`(MSP) (config)#`
	From the User Exec mode, you enter the command `enable`, and then in Privileged Exec mode, enter the command `Configure`:
	`(MSP) >enable`
	`(MSP) #configure`
	`(MSP) (config)#`
		To quit the Global Configuration mode and return to the Privileged Exec mode, you enter `exit`:
		`(MSP) (config)#exit`
		`(MSP) #`
		To then quit the Privileged Exec mode and return to the User Exec mode, you enter `exit` again:
		`(MSP) #exit`
		`(MSP) >`

Interface Range mode	From the Global Configuration mode you enter the command `interface {all|<slot/port>|<interface range> |<interface list>|<complex range>}`.
	`(MSP) (config)#interface <slot/port>`
	`(MSP) (interface slot/port)#`
		To quit the Interface Range mode and return to the Global Config mode, you enter “exit”. To return to the Privileged Exec mode, you press Ctrl Z.
		`(MSP) (interface slot/port)#exit`
		`(MSP) #`

Table 1: Command modes

If you enter a question mark (?) after the prompt, the CLI displays a list of the available commands and a short description of the commands.

```
(MSP)>
  cli               Set the CLI preferences.
  enable            Turn on privileged commands.
  help              Display help for various special keys.
  history           Show a list of previously run commands.
  logout            Exit this session.
  ping              Send ICMP echo packets to a specified IP address.
  show              Display device options and settings.
  telnet            Establish a telnet connection to a remote host.

(MSP)>
```

Figure 15: Commands in the User Exec mode

3.2 Executing the commands

3.2.1 Syntax analysis

After you login to the CLI session, you enter the User Exec mode. The `(MSP)>` prompt is displayed on the screen.

When you enter a command and press the Enter key, the CLI starts the syntax analysis. The CLI searches the command tree for the desired command.
If the CLI does not find the command, a message informs you of the detected error.

Example:
The user wants to execute the `show system info` command, but enters „info“ without „f“ and presses the Enter key.
The CLI then displays a message:

```
(MSP)>show system ino
Error: Invalid command 'ino'
```

3.2.2 Command tree

The commands in the CLI are organized in a tree structure. The commands, and, if applicable, the related parameters branch down until the command is completely defined and therefore executable. The CLI checks the input. If you have entered the command and the parameters correctly and completely, you execute the command with the Enter key.

After you have entered the command and the required parameters, the other parameters entered are treated as optional parameters. If one of the parameters is unknown, the CLI displays a syntax message.

The command tree branches for the required parameters until the required parameters have reached the last branch in the structure.
With optional parameters, the command tree branches until the required parameters and the optional parameters have reached the last branch in the structure.

3.2.3 Structure of a command

This section describes the syntax, conventions and terminology, and uses examples to represent them.

Format of commands

Most of the commands are enhanced through parameters.
If the command parameter is missing, the CLI informs you about the detection of an incorrect syntax of the command.

This manual displays the commands and parameters in the `Courier` font, and they must be used as they are shown in the manual.

Parameters

The sequence of the parameters is relevant for the correct syntax of a command.

Parameters can be required values, optional values, selections, or a combination of these things. You recognize this from the way they are represented.

`<command>`	Commands in pointed brackets (<>) are obligatory.
`[command]`	Commands in square brackets (`[]`) are optional.
`<parameter>`	Parameters in pointed brackets (<>) are obligatory.
`[parameter]`	Parameters in square brackets (`[]`) are optional.

Table 2: Parameter and command syntax

`...`	An ellipsis (3 points in sequence without spaces) after an element indicates that you can repeat the element.
`[Choice1 | Choice2]`	A vertical line enclosed in brackets indicates a selection option. Select one value. Elements separated by a vertical line and enclosed in square brackets indicate an optional selection (Option1 or Option2 or no selection).
`{list}`	Curved brackets (`{}`) indicate that a parameter is to be selected from a list of options.
`{Choice1 | Choice2}`	Elements separated by a vertical line and enclosed in curved brackets (`{}`) indicate an obligatory selection option (option1 or option2).
`[param1 {Choice1 | Choice2}]`	Shows an optional parameter that contains an obligatory selection.
`<a.b.c.d>`	Small letters are wild cards. You enter parameters with the notation a.b.c.d with decimal points (e.g. IP addresses)
`<cr>`	You press the Enter key to create a line break (carriage return).

Table 2: Parameter and command syntax

The following list shows the possible parameter values within the Command Line Interface:

Value	Description
IP address	This parameter represents a valid IPv4 address. The address consists of 4 decimal numbers with values from 0 to 255. The 4 decimal numbers are separated by a decimal point. The IP address `0.0.0.0` is a valid entry.
MAC address	This parameter represents a valid MAC address. The address consists of 6 hexadecimal numbers with values from 0 to FF. The numbers are separated by a colon, for example, 00:F6:29:B2:81:40.
string	User-defined text with a length in the specified range, e.g. a maximum of 32 characters.
character string	Use double quotation marks to indicate a character string, e.g. “System name with space character”.
number	Whole integer in the specified range, e.g. `0...999999`.
date	Datum im Format `YYYY-MM-DD`.
time	Zeit im Format `HH:MM:SS`.

Table 3: Parameter values in the Command Line Interface

Network addresses

Network addresses are required for the connection to a remote work station, a server or another network. You distinguish between IP addresses and MAC addresses.

The IP address is an address allocated by the network administrator. Do not use duplicate addresses in one network area.
The MAC addresses are assigned by the hardware manufacturer. MAC addresses are unique worldwide.

The following table shows the representation and the range of the address types:

Address Type	Format	Range	Example
IP Address	nnn.nnn.nnn.nnn	nnn: 0 to 255 (decimal)	192.168.11.110
MAC Address	mm:mm:mm:mm:mm:mm	mm: 00 to ff (hexadecimal number pairs)	A7:C9:89:DD:A9:B3

Table 4: Format and range of network addresses

Strings

A string is indicated by quotation marks. For example, “System name with space character”. Space characters are not valid user-defined strings. You enter a space character in a parameter between quotation marks. Example:

```
*(MSP)#cli prompt Device name
Error: Invalid command 'name'
*(MSP)#cli prompt „Device name“
*(Device name)#
```

Examples of commands

Example 1: clear arp-table-switch

Command for clearing the management agent's ARP table (cache).

`clear arp-table-switch` is the command name. The command does not require any other parameters, and can be executed with the Enter key.

Example 2: radius server timeout

Command to configure the RADIUS server timeout value.

```
(MSP) (config)#radius server timeout
 <1..30>              Timeout in seconds (default: 5).
```

`radius server timeout` is the command name.
The parameter is required. It can have the value `1..30`.

Example 3: radius server auth modify <1..8>

Command to set the parameters for RADIUS authentication server 1.

```
MSP (config)#radius server auth modify 1
 [name]                RADIUS authentication server name.
 [port]                RADIUS authentication server port
                       (default: 1812).
 [msgauth]             Enable or disable the message authenticator
                       attribute for this server.
 [primary]             Configure the primary RADIUS server.
 [status]              Enable or disable a RADIUS authentication
                       server entry.
 [secret]              Configure the shared secret for the RADIUS
                       authentication server.
 [encrypted]           Configure the encrypted shared secret.
  <cr>                 Press Enter to execute the command.
```

“radius server auth modify” is the command name.
The parameter <1..8> (RADIUS server index) is required. It can have the value 1 to 8 (integer).
The parameters [name], [port], [msgauth], [primary], [status], [secret] and [encrypted] are optional.

3.3 Properties of the CLI

3.3.1 Input prompt

- **Command mode**
  With the input prompt, the CLI shows you which of the three modes you are in:
  - `(MSP) >`
    User Exec mode
  - `(MSP) #`
    Privileged Exec mode
  - `(MSP) (config)#`
    Global Configuration mode
  - `(MSP) (vlan)#`
    VLAN Database Mode
  - `(MSP) ((Interface)all)#`
    Interface Range Mode / Alle Ports des Gerätes
  - `(MSP) ((Interface)2/1)#`
    Interface Range Mode / A single port on one interface
  - `(MSP) ((Interface)1/2-1/4)#`
    Interface Range Mode / A range of ports on one interface
  - `(MSP) ((Interface)1/2,1/4,1/5)#`
    Interface Range Mode / A list of single ports
  - `(MSP) ((Interface)1/1-1/2,1/4-1/6)#`
    Interface Range Mode / A list of port ranges and single ports

Asterisk, pound sign and exclamation point

Asterisk "*"
An asterisk "*" in the first or second position of the input prompt shows you that the settings in the volatile memory and the settings in the non-volatile memory are different. In your configuration, the device has detected modifications which have not been saved.

```
*(MSP)>
```

Pound sign "#"
A pound sign "#" at the beginning of the input prompt shows you that the boot parameters and the parameters during the boot phase are different.

```
*#(MSP)>
```

Exclamation point „!"
An exclamation point „!" at the beginning of the input prompt shows you, that the password for the user or admin user account in unchanged from the default setting.

```
!(MSP)>
```

3.3.2 Key combinations

The following key combinations make it easier for you to work with the Command Line Interface:

Key combination	Description
CTRL + H, Backspace	Delete previous character
CTRL + A	Go to beginning of line
CTRL + E	Go to end of line
CTRL + F	Go forward one character
CTRL + B	Go backward one character
CTRL + D	Delete current character
CTRL + U, X	Delete to beginning of line
CTRL + K	Delete to end of line
CTRL + W	Delete previous word
CTRL + P	Go to previous line in history buffer
CTRL + R	Rewrite or paste the line
CTRL + N	Go to next line in history buffer
CTRL + Z	Return to root command prompt
CTRL + G	Aborts running tcpdump session
Tab, <SPACE>	Command line completion
Exit	Go to next lower command prompt
?	List choices

Table 5: Key combinations in the Command Line Interface

With the Help command you can display the possible key combinations in CLI on the screen:

```
MSP #help

HELP:
Special keys:

 Ctrl-H, BkSp delete previous character
  Ctrl-A  .... go to beginning of line
  Ctrl-E  .... go to end of line
  Ctrl-F  .... go forward one character
  Ctrl-B  .... go backward one character
  Ctrl-D  .... delete current character
  Ctrl-U, X .. delete to beginning of line
  Ctrl-K  .... delete to end of line
  Ctrl-W  .... delete previous word
  Ctrl-P  .... go to previous line in history buffer
  Ctrl-R  .... rewrites or pastes the line
  Ctrl-N  .... go to next line in history buffer
  Ctrl-Z  .... return to root command prompt
  Ctrl-G  .... aborts running tcpdump session
  Tab, <SPACE> command-line completion
  Exit    .... go to next lower command prompt
  ?       .... list choices

MSP #
```

Figure 16: Listing the key combinations with the Help command

3.3.3 Data entry elements

Command completion

To facilitate making entries, the CLI gives you the option of command completion (Tab Completion), meaning that you can abbreviate key words.

- Type in the beginning of a keyword. If the characters entered identify a keyword, the CLI will complete the keyword when you press the tab key or the space key. If there is more than one option for completion, enter the letter or the letters being necessary for uniquely identifying the keyword. Press the tab key or the space key again. After that, the system completes the command or parameter.
- If you make a non-unique entry and press “Tab” or “Space” twice, the CLI provides you with a list of options.
- On a non-unique entry and pressing "Tab" or "Space", the CLI completes the command up to the end of the uniqueness, if several commands exist. When “Tab” or “Space” is pressed again, the CLI provides you with a list of options.
  Example:
  If you enter „lo“ and "Tab" or "Space"
  `(MSP) (Config)#lo`
  the CLI completes the command up to the end of the uniqueness to „log“.
  `(MSP) (Config)#log`
  When “Tab” or “Space” is pressed again, the CLI provides you with a list of options (logging, logout).
  ```
  (MSP) (Config)#log
  logging logout
  ```

Possible commands/parameters

You can obtain a list of the commands or the possible parameters by entering “help” or “?”, for example by entering
`(MSP) >show ?`

When you enter the command displayed, you get a list of the parameters available for the command `show`.

When you enter the command without space character in front of the question mark, the device displays the help text for the command itself:

```
!*#(MSP)(Config)#show
   show           Display device options and settings.
```

4 Examples

4.1 Setting the IP address

Task assignment

The following example shows how you find and execute a command for setting the management IP address of your MSP.
The IP address (a.b.c.d) consists of four decimal numbers with values from 0 to 255. The four decimal numbers are separated by points. In the state on delivery, this value is set to 0.0.0.0.

Login to the CLI

☐ Login to the CLI as described above (see on page 12 “Preparing the connection”).

Finding the command mode

You are in the User Exec mode (see on page 28 “Mode-based command hierarchy”).

☐ Enter a question mark `?` to get a list of the commands available in this mode (see fig. 15).

The corresponding command is located in a different mode. The Privileged Exec mode provides a wider range of commands.

☐ To switch to the Privileged Exec mode quickly and easily, you enter “en” and a space. The CLI completes the command to “enable” (see on page 42 “Data entry elements”). Execute the command with the Enter key. The command prompt changes from `(MSP) >` to `(MSP) #`, thus informing you that you are now in the Privileged Exec mode.

```
(MSP) >enable

(MSP) #?
```

☐ Enter a question mark `?` to get a list of the commands available in this mode.

The `network` command is for executing the task.

☐ Enter `n` and a question mark `?` to list the range of commands that begin with “n”.
Enter `ne` and a space. The CLI completes the command to “network”.
`n` and a space is not sufficient in this case, as it is not clear which command you want to execute.

```
(MSP) #n?
network                Show configuration for inband connectivity.
  no                     Enables or Disables a option

(MSP) #ne?
network                Show configuration for inband connectivity.
```

Finding, completing and executing commands

☐ After “network” enter a question mark to display the additional branches of the command.

```
(MSP) #network ?
HiDiscovery          Configure the HiDiscovery settings.
  management           Configure management access, VLAN and address.
parms                  Set network address, netmask and gateway
  protocol             Select DHCP, BootP or none as the network
                       configuration protocol.
```

The `network parms` command is for executing the task.

☐ After `network` enter the letters `pa` and a space. The CLI automatically completes the command to `network parms`.

☐ After `network parms` enter a question mark to display the additional branches of the command.

```
(MSP) #network parms ?
<a.b.c.d>              IP address.
```

☐ After `network parms` enter the desired IP address and a question mark to display the other possible parameters of the command.

```
(MSP) #network parms 10.100.10.100 ?
 <a.b.c.d>              IP subnet mask.

*(MSP)#network parms 10.100.10.100 255.255.255.0 ?
 [a.b.c.d]              IP gateway
  <cr>                  Press Enter to execute the command.

*(MSP)#network parms 10.100.10.100 255.255.255.0 10.0.1.1 ?
  <cr>                  Press Enter to execute the command.

*(MSP)#network parms 10.100.10.100 255.255.255.0 10.0.1.1
```

☐ Execute the command by pressing the Enter key.

Checking the execution with the Show command

☐ Enter `show` to display the possible show commands.

```
(MSP) #show ?
  ...                   ...
  network               Show configuration for inband connectivity.
  ...                   ...


(MSP) #show network ?
  HiDiscovery           Show the HiDiscovery settings.
  management            Show configuration of management access, VLAN
                        and address.
  parms                 Show network settings.

(MSP) #show network parms ?
  <cr>                  Press Enter to execute the command.
```

☐ Then enter “network” and “parms” to list your current network settings. Execute the command by pressing the Enter key.

```
*(MSP)#show network parms

IPv4 Network
------------
Local IP address.............................10.115.10.100
Subnetmask...................................255.255.255.0
Gateway address..............................10.0.1.1
Burned in MAC address........................ec:e5:55:01:55:60
Protocol.....................................none
Management VLAN ID...........................1
Management VLAN priority.....................0
Management IP-DSCP value.....................0

*(MSP)#
```

4.2 Saving the Configuration

To ensure that your password settings and your other configuration changes are kept after the device is reset or after an interruption of the voltage supply, you save the configuration. To save your current configuration, you proceed as follows:

☐ Enter `enable` to switch to the Privileged Exec mode.

☐ Enter the following command:
`copy config running-config nvm [profile]`

☐ Execute the command by pressing the Enter key.

```
(MSP) >enable

(MSP)#copy?
  audittrail            Copy audit trail to envm or file server.
  config                Copy configuration.
  eventlog              Copy different eventlogs.
  firmware              Copy firmware.
  httpscert             Copy X509/PEM certificate.
  script                Copy Script File.
  sfp-white-list        Copy SFP WhiteList to system
  sshkey                Copy SSH key.
  sysinfo               Copy system information for service purpose.
  sysinfoall            Copy system information and event log.
  tcpdumpcap            Copy internal capture file.
  tcpdumpfilter         Copy capture filter.
  traplog               Copy traplog to different destinations.

(MSP)#copy config?
  envm                  Copy configuration from external non-volative
                        memory device to NV memory.
  nvm                   Load configuration from NV memory.
  remote                Copy configuration file from server.
  running-config        Save running configuration.

(MSP)#copy config running-config?
  nvm                   Save running-config to nv memory.
  remote                Save running-config to file server.

(MSP)#copy config running-config nvm?
 [profile]              Save configuration to profile.
  <cr>                  Press Enter to execute the command.

(MSP)#copy config running-config nvm 1
```

4.3 Syntax of the „radius server auth add“ command

Use this command to add a RADIUS authentication server.

- Mode: `Global Config Mode`
- Privilege Level: Administrator
- Format: `radius server auth add <1..8> ip <a.b.c.d>` [name <string>] [port <1..65535>]

`[name]`: RADIUS authentication server name.
`[port]`: RADIUS authentication server port (default: 1813).

Parameter	Meaning	Possible values
`<1..8>`	RADIUS server index.	`1..8`
`<a.b.c.d>`	RADIUS accounting server IP address.	IP address
`<string>`	Enter a user-defined text, max. 32 characters.	
`<1..65535>`	Enter port number between 1 and 65535.	`1..65535`

Mode and Privilege Level:

- You need to be in Global Config mode to be able to execute the command (see chapter 28 “Mode-based command hierarchy”).
- You need to have Administrator Privilege Level to be able to execute the command.

Syntax of commands and parameters:
See table 34 “Parameter and command syntax”

Examples for executable commands:

- `radius server auth add 1 ip 10.115.30.40`
- `radius server auth add 2 ip 10.115.40.50 name radiusserver2`
- `radius server auth add 3 ip 10.115.50.60 port 1813`
- `radius server auth add 4 ip 10.115.60.70 name radiusserver4 port 1814`

5 Maintenance

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Reference Manual

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MICE Switch Power (MSP)

Technical support
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Content

1 IP Address Conflict Detection

1.1 address-conflict

Configure the address conflict settings.

1.1.1 address-conflict operation

Enable the address conflict component.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict operation`

- **no address-conflict operation**
  Disable the address conflict component.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no address-conflict operation`

1.1.2 address-conflict detection-mode

Configure the detection mode.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict detection-mode <P-1>`

Parameter	Value	Meaning
`P-1`	active-and-passive	`Configure active and passive detection. During ip address configuration 'active' is sending ARP or NDP probes into the network and 'passive' is listening continously on the network.`
`P-1`	active-only	`Configure only active detection. During ip address configuration 'active' is sending once ARP or NDP probes into the network.`
`P-1`	passive-only	`Configure passive detection. The device listens passively on the network if another device with an already locally configured ip address appears.`

1.1.3 address-conflict detection-ongoing

Enable the ongoing detection. If enabled, the device sends periodic ARP or NDP probes.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict detection-ongoing`

- **no address-conflict detection-ongoing**
  Disable the ongoing detection. If enabled, the device sends periodic ARP or NDP probes.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no address-conflict detection-ongoing`

1.1.4 address-conflict delay

The maximum detection delay time in milliseconds. Time gap between ARP or NDP probes.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict delay <P-1>`

Parameter	Value	Meaning
`P-1`	20..500	`Time gap between ARP or NDP probes ([ms], default 200).`

1.1.5 address-conflict release-delay

Delay in seconds to the next ARP or NDP probe cycle after an ip address conflict was detected.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict release-delay <P-1>`

Parameter	Value	Meaning
`P-1`	3..3600	`Delay between probe cycles after conflict detection ([sec], default 15).`

1.1.6 address-conflict max-protection

Maximum number of frequent address protections.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict max-protection <P-1>`

Parameter	Value	Meaning
`P-1`	0..100	`Maximun number of frequent address protections (default 3).`

1.1.7 address-conflict protect-interval

Delay in milliseconds between two protections.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict protect-interval <P-1>`

Parameter	Value	Meaning
`P-1`	20..5000	`Delay between two protections ([ms], default 200).`

1.1.8 address-conflict trap-status

If enabled this trap reports an address conflict.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `address-conflict trap-status`

no address-conflict trap-status

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no address-conflict trap-status`

1.2 show

Display device options and settings.

1.2.1 show address-conflict global

Displays the component mode.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show address-conflict global`

1.2.2 show address-conflict detected

Displays the last detected address conflict.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show address-conflict detected`

1.2.3 show address-conflict fault-state

Displays the current conflict status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show address-conflict fault-state`

2 Access Control List (ACL)

2.1 mac

Set MAC parameters.

2.1.1 mac access-list extended name

Create a MAC access-list.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac access-list extended name <P-1> deny src <P-2> dst <P-3> [ethertype <P-4>] [vlan <P-5> <P-6>] [cos <P-7>] [log] [time-range <P-8>] permit src <P-9> dst <P-10> [ethertype <P-11>] [vlan <P-12> <P-13>] [cos <P-14>] [log] [time-range <P-15>] [assign-queue <P-16>] [mirror <P-17>] [redirect <P-18>]`

`deny`: Create a new rule for the current MAC access-list: Specify packets to reject.
`src`: Specify the source MAC and Mask.
`dst`: Specify the destination MAC and Mask
`[ethertype]`: Specify the EtherType
`[vlan]`: Configure a match condition based on a VLAN ID.
`[cos]`: Configure a match condition based on a COS value(VLAN priority).
`[log]`: Enable logging.
`[time-range]`: Activate the rule at an absolute time or periodically.
`permit`: Create a new rule for the current MAC access-list: Specify packets to forward.
`src`: Specify source MAC and Mask
`dst`: Specify the destination MAC and Mask
`[ethertype]`: Specify the Ethertype
`[vlan]`: Configure a match condition based on a VLAN ID.
`[cos]`: Set COS field
`[log]`: Enable logging
`[time-range]`: Activate the rule at an absolute time or periodically.

`[assign-queue]`: Configure the User Priority (VLAN priority)assignment attribute.
`[mirror]`: Set Mirror Interface.

[redirect]: Set Redirect Interface.

Parameter	Value	Meaning
P-1	string	<name> ACL name.
P-2	any	Enter for any source mac address and mask.
P-2	srcmac-macmask	Enter source MAC and source MAC mask (mask in wild-card notation).
P-3	any	Enter for any destination mac address and mask.
P-3	destmac-macmask	Enter destination MAC and destination MAC mask (mask in wild-card notation).
P-4	0x0600-0xffff	Ethertype value
P-4	appletalk	Appletalk
P-4	arp	ARP
P-4	ibmsna	IBMSNA
P-4	ipv4	IPv4
P-4	ipv6	IPv6
P-4	ipx-old	IPX-OLD
P-4	mplsmcast	MPLS Multicast
P-4	mplsucast	MPLS Unicast
P-4	netbios	NetBIOS
P-4	novell	NOVELL
P-4	pppoe	PPPoE
P-4	rarp	RARP
P-5	eq	Specify VLAN value.
P-6	1..4042	Enter the VLAN ID.
P-7	0..7	COS
P-8	string	<name> Time-range name
P-9	any	Enter for any source mac address and mask.
P-9	srcmac-macmask	Enter source MAC and source MAC mask (mask in wild-card notation).
P-10	any	Enter for any destination mac address and mask.
P-10	destmac-macmask	Enter destination MAC and destination MAC mask (mask in wild-card notation).
P-11	0x0600-0xffff	Ethertype value
P-11	appletalk	Appletalk
P-11	arp	ARP
P-11	ibmsna	IBMSNA
P-11	ipv4	IPv4
P-11	ipv6	IPv6
P-11	ipx-old	IPX-OLD
P-11	mplsmcast	MPLS Multicast
P-11	mplsucast	MPLS Unicast
P-11	netbios	NetBIOS
P-11	novell	NOVELL

Parameter	Value	Meaning
P-11	pppoe	PPPoE
P-11	rarp	RARP
P-12	eq	Specify VLAN value.
P-13	1..4042	Enter the VLAN ID.
P-14	0..7	COS
P-15	string	<name> Time-range name
P-16	0..7	User priority (VLAN priority).
P-17	slot no./port no.	
P-18	slot no./port no.	

2.1.2 mac access-list extended rename

Rename an existing MAC access-list

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: mac access-list extended rename <P-1> <P-2>

Parameter	Value	Meaning
P-1	string	<name> ACL name.
P-2	string	<name> ACL name.

2.1.3 mac access-list extended del

Delete a MAC access-list.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: mac access-list extended del <P-1>

Parameter	Value	Meaning
P-1	string	<name> ACL name.

2.1.4 mac access-group name

Associate an ACL identified by name with a VLAN ID.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac access-group name vlan <P-1> <P-2> [sequence <P-3>]`

`vlan`: Vlan ID

`[sequence]`: Indicate the sequence number

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	in	`Inbound direction.`
`P-2`	out	`Outbound direction.`
`P-3`	1..4294967295	`Sequence`

no mac access-group name

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no mac access-group name`

2.1.5 mac access-group del

Deassociate an ACL identified by name with a VLAN ID.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac access-group del vlan <P-1> <P-2> [sequence <P-3>]`

`vlan`: Vlan ID

[sequence]: Indicate the sequence number

Parameter	Value	Meaning
P-1	1..4042	Enter the VLAN ID.
P-2	in	Inbound direction.
P-2	out	Outbound direction.
P-3	1..4294967295	Sequence

no mac access-group del

Disable the option.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: no mac access-group del

2.2 mac

MAC interface commands.

2.2.1 mac access-group name

Associate a specific MAC access-list identified by name with an interface, in a given direction.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mac access-group name <P-1> [sequence <P-2>]`

`[sequence]`: Indicate the sequence number

Parameter	Value	Meaning
`P-1`	in	`Inbound direction.`
`P-1`	out	`Outbound direction.`
`P-2`	1..4294967295	`Sequence`

no mac access-group name

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no mac access-group name`

2.2.2 mac access-group del

Remove a specific MAC access-list identified by name from an interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mac access-group del <P-1> [sequence <P-2>]`

`[sequence]`: Indicate the sequence number

Parameter	Value	Meaning
`P-1`	in	`Inbound direction.`
`P-1`	out	`Outbound direction.`
`P-2`	1..4294967295	`Sequence`

no mac access-group del

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no mac access-group del`

2.3 ip

Set IP parameters.

2.3.1 ip access-list extended name

Create an IP access-list.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip access-list extended name deny src <P-1> [eq <P-2>] dst <P-3> [eq <P-4>] proto <P-5> [precedence <P-6>] [log] [time-range <P-7>] [assign-queue <P-8>] [tos <P-9> <P-10>] [log] [time-range <P-11>] [assign-queue <P-12>] [dscp <P-13>] [log] [time-range <P-14>] [assign-queue <P-15>] every [log] [time-range <P-16>] [assign-queue <P-17>] permit src <P-18> [eq <P-19>] dst <P-20> [eq <P-21>] proto <P-22> [precedence <P-23>] [log] [time-range <P-24>] [mirror <P-25>] [redirect <P-26>] [tos <P-27> <P-28>] [log] [time-range <P-29>] [assign-queue <P-30>] [mirror <P-31>] [redirect <P-32>] [dscp <P-33>] [log] [time-range <P-34>] [assign-queue <P-35>] [mirror <P-36>] [redirect <P-37>] every [log] [time-range <P-38>] [assign-queue <P-39>] [mirror <P-40>] [redirect <P-41>]`

`deny`: Create a new rule for the current IP access-list: Specify packets to reject.
`src`: Specify the source IP and Mask
`[eq]`: Port Number
`dst`: Specify the destination IP and Mask
`[eq]`: Port Number
`proto`: Specify the protocol
`[precedence]`: Precedence
`[log]`: Enable logging
`[time-range]`: Activate the rule at an absolute time or periodically.

[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
[tos]: TOS
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
[dscp]: DSCP
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
every: Every pachet regardless the content.
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
permit: Create a new rule for the current IP access-list: Specify packets to forward.
src: Specify the source IP and Mask
[eq]: Port Number
dst: Specify destination IP and Mask
[eq]: Port Number
proto: Specify the protocol
[precedence]: Precedence
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[mirror]: Set Mirror Interface
[redirect]: Set Redirect Interface
[tos]: TOS
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
[mirror]: Set Mirror Interface
[redirect]: Set Redirect Interface
[dscp]: DSCP
[log]: Enable logging
[time-range]: Activate the rule at an absolute time or periodically.
[assign-queue]: Configure the User Priority (VLAN priority)assignment attribute.
[mirror]: Set Mirror Interface

`[redirect]`: Set Redirect Interface
`every`: Every pachet regardless the content.
`[log]`: Enable logging
`[time-range]`: Activate the rule at an absolute time or periodically.
`[assign-queue]`: Configure the User Priority (VLAN priority)assignment attribute.
`[mirror]`: Set Mirror Interface

[redirect]: Set Redirect Interface

Parameter	Value	Meaning
P-1	any	Enter for any source ip address and mask.
P-1	a.b.c.d-e.f.g.h	Source IP address and mask (mask in wild-card notation).
P-2	domain	Domain
P-2	echo	Echo
P-2	ftp	FTP
P-2	ftpdata	FTP Data
P-2	http	HTTP
P-2	smtp	SMTP
P-2	snmp	SNMP
P-2	telnet	Telnet
P-2	tftp	TFTP
P-2	www	WWW
P-2	1-65535	Port number
P-3	any	Enter for any destination ip address and mask.
P-3	a.b.c.d-e.f.g.h	Destination IP address and mask (mask in wild-card notation) e.g 192.168.1.1-255.255.255.0 .
P-4	domain	Domain
P-4	echo	Echo
P-4	ftp	FTP
P-4	ftpdata	FTP Data
P-4	http	HTTP
P-4	smtp	SMTP
P-4	snmp	SNMP
P-4	telnet	Telnet
P-4	tftp	TFTP
P-4	www	WWW
P-4	1-65535	Port number
P-5	icmp	ICMP
P-5	igmp	IGMP
P-5	ip-in-ip	IP-in-IP
P-5	tcp	TCP
P-5	udp	UDP
P-5	ip	Any IP protocol
P-5	1-255	Protocol number
P-6	0..7	IP Precedence
P-7	string	<name> Time-range name
P-8	0..7	User priority (VLAN priority).
P-9	0..255	TOS
P-10	0..255	TOS Mask
P-11	string	<name> Time-range name

Parameter	Value	Meaning
P-12	0..7	User priority (VLAN priority).
P-13	0..63	DSCP
P-14	string	<name> Time-range name
P-15	0..7	User priority (VLAN priority).
P-16	string	<name> Time-range name
P-17	0..7	User priority (VLAN priority).
P-18	any	Enter for any source ip address and mask.
P-18	a.b.c.d-e.f.g.h	Source IP address and mask (mask in wild-card notation).
P-19	domain	Domain
P-19	echo	Echo
P-19	ftp	FTP
P-19	ftpdata	FTP Data
P-19	http	HTTP
P-19	smtp	SMTP
P-19	snmp	SNMP
P-19	telnet	Telnet
P-19	tftp	TFTP
P-19	www	WWW
P-19	1-65535	Port number
P-20	any	Enter for any destination ip address and mask.
P-20	a.b.c.d-e.f.g.h	Destination IP address and mask (mask in wild-card notation) e.g 192.168.1.1-255.255.255.0 .
P-21	domain	Domain
P-21	echo	Echo
P-21	ftp	FTP
P-21	ftpdata	FTP Data
P-21	http	HTTP
P-21	smtp	SMTP
P-21	snmp	SNMP
P-21	telnet	Telnet
P-21	tftp	TFTP
P-21	www	WWW
P-21	1-65535	Port number
P-22	icmp	ICMP
P-22	igmp	IGMP
P-22	ip-in-ip	IP-in-IP
P-22	tcp	TCP
P-22	udp	UDP
P-22	ip	Any IP protocol
P-22	1-255	Protocol number
P-23	0..7	IP Precedence

Parameter	Value	Meaning
P-24	string	<name> Time-range name
P-25	slot no./port no.	
P-26	slot no./port no.	
P-27	0..255	TOS
P-28	0..255	TOS Mask
P-29	string	<name> Time-range name
P-30	0..7	User priority (VLAN priority).
P-31	slot no./port no.	
P-32	slot no./port no.	
P-33	0..63	DSCP
P-34	string	<name> Time-range name
P-35	0..7	User priority (VLAN priority).
P-36	slot no./port no.	
P-37	slot no./port no.	
P-38	string	<name> Time-range name
P-39	0..7	User priority (VLAN priority).
P-40	slot no./port no.	
P-41	slot no./port no.	

- **no ip access-list extended name**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip access-list extended name`

2.3.2 ip access-list extended rename

Rename an existing IP access-list.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip access-list extended rename <P-1> <P-2>`

Parameter	Value	Meaning
P-1	string	<name> ACL name.
P-2	string	<name> ACL name.

2.3.3 ip access-list extended del

Delete an IP access-list.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip access-list extended del <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<name> ACL name.`

2.3.4 ip access-group name

Associate an ACL identified by name with a VLAN ID.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip access-group name vlan <P-1> <P-2> [sequence <P-3>]`

`vlan`: Vlan ID

`[sequence]`: Indicate the sequence number

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	in	`Inbound direction.`
`P-2`	out	`Outbound direction.`
`P-3`	1..4294967295	`Sequence`

no ip access-group name

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip access-group name`

2.3.5 ip access-group del

Deassociate an ACL identified by name with a VLAN ID.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip access-group del vlan <P-1> <P-2> [sequence <P-3>]`

`vlan`: Vlan ID

`[sequence]`: Indicate the sequence number

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	in	`Inbound direction.`
`P-2`	out	`Outbound direction.`
`P-3`	1..4294967295	`Sequence`

no ip access-group del

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip access-group del`

2.4 ip

IP interface commands.

2.4.1 ip access-group name

Associate a specific IP access-list identified by name with an interface, in a given direction.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip access-group name <P-1> [sequence <P-2>]`

`[sequence]`: Indicate the order

Parameter	Value	Meaning
`P-1`	in	`Inbound direction.`
`P-1`	out	`Outbound direction.`
`P-2`	1..4294967295	`Sequence`

no ip access-group name

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip access-group name`

2.4.2 ip access-group del

Remove a specific IP access-list identified by name from an interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip access-group del <P-1> [sequence <P-2>]`

`[sequence]`: Indicate the order

Parameter	Value	Meaning
`P-1`	in	`Inbound direction.`
`P-1`	out	`Outbound direction.`
`P-2`	1..4294967295	`Sequence`

no ip access-group del

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip access-group del`

2.5 show

Display device options and settings.

2.5.1 show access-list global

Display the next free index for both Mac and IPv4 based access-lists.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show access-list global`

2.5.2 show access-list mac

Display all information for a specific MAC based access-list.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show access-list mac [<P-1>] [<P-2>]`

Parameter	Value	Meaning
`P-1`	10000..10099	`Access-list index.`
`P-2`	1..1023	`Access-list rule index.`

2.5.3 show access-list ip

Display all information for a specific IP based access-list.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show access-list ip [<P-1>] [<P-2>]`

Parameter	Value	Meaning
`P-1`	1000..1099	`Access-list index.`
`P-2`	1..1023	`Access-list rule index.`

2.5.4 show access-list assignment ip

Display assignments of existing IP ACLs

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show access-list assignment ip <P-1>`

Parameter	Value	Meaning
`P-1`	1000..1099	`Access-list index.`

2.5.5 show access-list assignment mac

Display assignments of existing MAC ACLs

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show access-list assignment mac <P-1>`

Parameter	Value	Meaning
`P-1`	10000..10099	`Access-list index.`

3 Application List

3.1 appllists

Configure an application list.

3.1.1 appllists set-authlist

Set an authentication list reference that shall be used by given application.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `appllists set-authlist <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	string	`<application> Name of an application list.`
`P-2`	string	`<authlist_name> Name of referenced authentication list.`

3.1.2 appllists enable

Activate a login application list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `appllists enable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<application> Name of an application list.`

3.1.3 applists disable

Deactivate a login application list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `applists disable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<application> Name of an application list.`

3.2 show

Display device options and settings.

3.2.1 show appllists

Display ordered methods for application lists.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show appllists`

4 Authentication List

4.1 authlists

Configure an authentication list.

4.1.1 authlists add

Create a new login authentication list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authlists add <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<authlist_name> Name of an authentication list.`

4.1.2 authlists delete

Delete an existing login authentication list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authlists delete <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<authlist_name> Name of an authentication list.`

4.1.3 authlists set-policy

Set the policies of a login authentication list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authlists set-policy <P-1> <P-2> [<P-3>] [<P-4>] [<P-5>] [<P-6>]`

Parameter	Value	Meaning
P-1	string	<authlist_name> Name of an authentication list.
P-2	reject	Authentication is rejected / not allowed
P-2	local	Authentication by local user DB
P-2	radius	Authentication by RADIUS server
P-2	ias	Authentication by IAS server
P-3	reject	Authentication is rejected / not allowed
P-3	local	Authentication by local user DB
P-3	radius	Authentication by RADIUS server
P-3	ias	Authentication by IAS server
P-4	reject	Authentication is rejected / not allowed
P-4	local	Authentication by local user DB
P-4	radius	Authentication by RADIUS server
P-4	ias	Authentication by IAS server
P-5	reject	Authentication is rejected / not allowed
P-5	local	Authentication by local user DB
P-5	radius	Authentication by RADIUS server
P-5	ias	Authentication by IAS server
P-6	reject	Authentication is rejected / not allowed
P-6	local	Authentication by local user DB
P-6	radius	Authentication by RADIUS server
P-6	ias	Authentication by IAS server

4.1.4 authlists enable

Activate a login authentication list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authlists enable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<authlist_name> Name of an authentication list.`

4.1.5 authlists disable

Deactivate a login authentication list.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authlists disable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<authlist_name> Name of an authentication list.`

4.2 show

Display device options and settings.

4.2.1 show authlists

Display ordered methods for authentication lists.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show authlists`

5 Auto Disable

5.1 auto-disable

Configure the Auto Disable condition settings.

5.1.1 auto-disable reason

Enables port Recovery by reason on this device.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `auto-disable reason <P-1>`

Parameter	Value	Meaning
`P-1`	link-flap	`Enable/disable link-flap`
`P-1`	crc-error	`Enable/disable crc-error`
`P-1`	duplex-missmatch	`Enable/disable duplex-missmatch`
`P-1`	dhcp-snooping	`Enable/disable dhcp-snooping`
`P-1`	arp-rate	`Enable/disable arp-rate`

no auto-disable reason

Disables port Recovery by reason on this device.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no auto-disable reason`

5.2 auto-disable

Configure the Auto Disable condition settings.

5.2.1 auto-disable timer

Timer value in seconds after a deactivated port is activated again. Possible values are: 30-4294967295. A value of 0 disables the timer.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `auto-disable timer <P-1>`

Parameter	Value	Meaning
`P-1`	0..4294967295	`Enter a number in the given range. Possible values are: 30-4294967295. A value of 0 disables the timer.`

5.2.2 auto-disable reset

Reset the specific interface and reactivate the port

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `auto-disable reset`

no auto-disable reset

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no auto-disable reset`

5.3 show

Display device options and settings.

5.3.1 show auto-disable brief

Display Auto Disable summary by interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show auto-disable brief`

5.3.2 show auto-disable reasons

Display summary of Auto Disable error reasons

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show auto-disable reasons`

6 TP Cable Diagnosis

6.1 cable-test

Select port on which to perform the cable test.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `cable-test`

7 Class Of Service

7.1 classofservice

Class of service configuration.

7.1.1 classofservice ip-dscp-mapping

ip-dscp-mapping configuration

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `classofservice ip-dscp-mapping <P-1> <P-2>`

Parameter	Value	Meaning
P-1	af11	
P-1	af12	
P-1	af13	
P-1	af21	
P-1	af22	
P-1	af23	
P-1	af31	
P-1	af32	
P-1	af33	
P-1	af41	
P-1	af42	
P-1	af43	
P-1	be	
P-1	cs0	
P-1	cs1	
P-1	cs2	
P-1	cs3	
P-1	cs4	
P-1	cs5	
P-1	cs6	
P-1	cs7	
P-1	ef	
P-1	0	
P-1	1	
P-1	2	
P-1	3	
P-1	4	
P-1	5	
P-1	6	
P-1	7	
P-1	8	
P-1	9	
P-1	10	
P-1	11	
P-1	12	
P-1	13	
P-1	14	

Parameter	Value	Meaning
P-1	15	
P-1	16	
P-1	17	
P-1	18	
P-1	19	
P-1	20	
P-1	21	
P-1	22	
P-1	23	
P-1	24	
P-1	25	
P-1	26	
P-1	27	
P-1	28	
P-1	29	
P-1	30	
P-1	31	
P-1	32	
P-1	33	
P-1	34	
P-1	35	
P-1	36	
P-1	37	
P-1	38	
P-1	39	
P-1	40	
P-1	41	
P-1	42	
P-1	43	
P-1	44	
P-1	45	
P-1	46	
P-1	47	
P-1	48	
P-1	49	
P-1	50	
P-1	51	
P-1	52	
P-1	53	
P-1	54	
P-1	55	
P-1	56	
P-1	57	

Parameter	Value	Meaning
P-1	58	
P-1	59	
P-1	60	
P-1	61	
P-1	62	
P-1	63	
P-2	0..7	Enter the Traffic Class value.

7.1.2 classofservice dot1p-mapping

Enter a VLAN priority and the traffic class it should be mappped to.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `classofservice dot1p-mapping <P-1> <P-2>`

Parameter	Value	Meaning
P-1	0..7	Enter the 802.1p priority.
P-2	0..7	Enter the Traffic Class value.

7.2 classofservice

Interface classofservice configuration.

7.2.1 classofservice trust

trust configuration

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `classofservice trust <P-1>`

Parameter	Value	Meaning
`P-1`	untrusted	`Sets the class of service trust mode to untrusted`
`P-1`	dot1p	`Sets the class of service trust mode to dot1p.`
`P-1`	ip-dscp	`Sets the class of service trust mode to IP DSCP.`

7.3 show

Display device options and settings.

7.3.1 show classofservice ip-dscp-mapping

Show ip-dscp-mapping configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show classofservice ip-dscp-mapping`

7.3.2 show classofservice dot1p-mapping

Display a table containing the vlan priority to traffic class mappings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show classofservice dot1p-mapping`

7.3.3 show classofservice trust

Show a table containing the trust mode of all interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show classofservice trust`

7.3.4 show cos-queue

Show cosqueue parameters

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show cos-queue`

7.4 cos-queue

COS queue configuration

7.4.1 cos-queue strict

strict priority scheduler (default)

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `cos-queue strict <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter a Queue Id from 0 to 7.`

7.4.2 cos-queue weighted

weighted scheduler

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `cos-queue weighted <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter a Queue Id from 0 to 7.`

7.4.3 cos-queue min-bandwidth

Minimum bandwidth when in weighted mode

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `cos-queue min-bandwidth <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter a Queue Id from 0 to 7.`
`P-2`	0..100	`Enter a number in the given range.`

8 CLI

8.1 cli

Set the CLI preferences.

8.1.1 cli serial-timeout

Set login timeout for serial line connection to CLI.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `cli serial-timeout <P-1>`

Parameter	Value	Meaning
`P-1`	0..160	`Enter a number in the given range.`

8.1.2 cli prompt

Change the system prompt.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `cli prompt <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

8.1.3 cli numlines

Set the number of lines for 'more'.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `cli numlines <P-1>`

Parameter	Value	Meaning
`P-1`	0..250	`Screen size for 'more' (23 = default, 0 = unlimited).`

8.1.4 cli banner operation

Enable the CLI login banner.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `cli banner operation`

no cli banner operation

Disable the CLI login banner.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `no cli banner operation`

8.1.5 cli banner text

Set the text for the CLI login banner (C printf format syntax allowed: \\n \\t).

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `cli banner text <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 1024 characters (allowed charaters are from ASCII 32 to 127).`

8.2 show

Display device options and settings.

8.2.1 show cli global

Display CLI preferences.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show cli global`

8.2.2 show cli command-tree

Show a list of all commands.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show cli command-tree`

8.3 logging

Logging configuration.

8.3.1 logging cli-command

Enable the CLI command logging.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging cli-command`

- **no logging cli-command**
  Disable the CLI command logging.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging cli-command`

8.4 show

Display device options and settings.

8.4.1 show logging cli-command

Show the CLI command logging preferences.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging cli-command`

9 Time

9.1 clock

Configure local and DST clock settings.

9.1.1 clock set

Edit current local time.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock set <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	YYYY-MM-DD	`Local date (range: 2004-01-01 - 2037-12-31).`
`P-2`	HH:MM:SS	`Local time.`

9.1.2 clock timezone offset

Local time offset (in minutes) with respect\nto UTC (positive values for locations east of\nGreenwich).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock timezone offset <P-1>`

Parameter	Value	Meaning
`P-1`	-780..840	`Edit the timezone offset (in minutes).`

9.1.3 clock timezone zone

Edit the timezone acronym (max. 4 characters).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock timezone zone <P-1>`

Parameter	Value	Meaning
P-1	string	Edit the timezone acronym (max 4 characters).

9.1.4 clock summer-time mode

Configure summer-time mode parameters.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock summer-time mode <P-1>`

Parameter	Value	Meaning
P-1	disable	Disable recurring summer-time mode.
P-1	recurring	Enable recurring summer-time mode.
P-1	eu	Enable recurring summer-time used in most parts of the European Union.
P-1	usa	Enable recurring summer-time used in most parts of the USA.

9.1.5 clock summer-time recurring start

Edit the starting date and time for daylight saving time.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock summer-time recurring start <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	none	
P-1	first	
P-1	second	
P-1	third	
P-1	fourth	
P-1	last	
P-2	none	
P-2	sun	Sunday
P-2	mon	Monday
P-2	tue	Tuesday
P-2	wed	Wednesday
P-2	thu	Thursday
P-2	fri	Friday
P-2	sat	Saturday
P-3	none	
P-3	jan	January
P-3	feb	February
P-3	mar	March
P-3	apr	April
P-3	may	May
P-3	jun	June
P-3	jul	July
P-3	aug	August
P-3	sep	September
P-3	oct	October
P-3	nov	November
P-3	dec	December
P-4	string	<hh:mm> Present time in hh:mm format (00:00-23:59).

9.1.6 clock summer-time recurring end

Edit the ending date and time for daylight saving time.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock summer-time recurring end <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	none	
P-1	first	
P-1	second	
P-1	third	
P-1	fourth	
P-1	last	
P-2	none	
P-2	sun	Sunday
P-2	mon	Monday
P-2	tue	Tuesday
P-2	wed	Wednesday
P-2	thu	Thursday
P-2	fri	Friday
P-2	sat	Saturday
P-3	none	
P-3	jan	January
P-3	feb	February
P-3	mar	March
P-3	apr	April
P-3	may	May
P-3	jun	June
P-3	jul	July
P-3	aug	August
P-3	sep	September
P-3	oct	October
P-3	nov	November
P-3	dec	December
P-4	string	<hh:mm> Present time in hh:mm format (00:00-23:59).

9.1.7 clock summer-time zone

Edit timezone acronym for summer-time (max. 4 characters).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `clock summer-time zone <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Edit the timezone acronym (max 4 characters).`

9.2 show

Display device options and settings.

9.2.1 show clock

Display the current time information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show clock [summer-time]`

`[summer-time]`: Display summer-time parameters.

10 Configure

10.1 copy

Copy different kinds of items.

10.1.1 copy sysinfo system envm

Copy system information for service purpose to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sysinfo system envm [filename <P-1>]`

`[filename]`: Enter filename (filename xyz.html) on external non-volative memory device.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

10.1.2 copy sysinfoall system envm

Copy system information and event log to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sysinfoall system envm`

10.1.3 copy firmware envm

Copy firmware from external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy firmware envm <P-1> system`

`system`: Copy firmware from external non-volatile memory device to system memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.1.4 copy firmware remote

Copy firmware image from server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy firmware remote <P-1> system`

`system`: Copy firmware from file server to system memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.1.5 copy firmware system envm

Copy firmware to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy firmware system envm <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

10.1.6 copy firmware system remote

Copy firmware to file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy firmware system remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.1.7 copy config running-config nvm

Save running-config to nv memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy config running-config nvm [profile <P-1>]`

`[profile]`: Save configuration to profile.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

10.1.8 copy config running-config remote

Save running-config to file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy config running-config remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.1.9 copy config nvm

Load configuration from NV memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy config nvm [profile <P-1>] running-config remote <P-2>`

`[profile]`: Load configuration from profile.
`running-config`: (Re)-load configuration from NV memory.
`remote`: Copy configuration from nvm to server.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`
`P-2`	string	`Enter a user-defined text, max. 128 characters.`

10.1.10 copy config envm

Copy configuration from external non-volative memory device to NV memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy config envm [profile <P-1>] nvm [profile]`

`[profile]`: Copy profile from external non-volative memory device to NV memory.
`nvm`: Copy profile from external non-volative memory device to NV memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

10.1.11 copy config remote

Copy configuration file from server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy config remote <P-1> nvm [profile <P-2>] running-config`

`nvm`: Copy configuration file from server to NV memory.
`[profile]`: Copy configuration from server to named NV memory profile.
`running-config`: Copy configuration file from server to running-config.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`
`P-2`	string	`Enter a user-defined text, max. 32 characters.`

10.1.12 copy sfp-white-list remote

Copy SFP WhiteList from server to system memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sfp-white-list remote <P-1> nvm`

`nvm`: Copy SFP WhiteList from file server to system memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.1.13 copy sfp-white-list envm

Copy SFP WhiteList from external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sfp-white-list envm <P-1> nvm`

`nvm`: Copy SFP WhiteList from external non-volatile memory device to system memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

10.2 save

Save configuration.

10.2.1 save profile

Save configuration to profile.

- Mode: `All Privileged Modes`
- Privilege Level: `Operator`
- Format: `save profile <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

10.3 clear

Clear several items.

10.3.1 clear config

Clear running configuration.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear config`

10.3.2 clear factory

Set device back to factory settings (use with care).

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear factory`

10.3.3 clear sfp-white-list

Clear SFP WhiteList

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear sfp-white-list`

10.4 show

Display device options and settings.

10.4.1 show running-config xml

Show the currently running configuration (XML file).

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show running-config xml`

10.4.2 show running-config script

Show the currently running configuration (CLI script).

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show running-config script [all]`

`[all]`: Show the currently running configuration (CLI script).

10.5 show

Display device options and settings.

10.5.1 show config envm settings

Show External Memory Devices Settings
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show config envm settings`

10.5.2 show config envm properties

Show External Memory Devices Properties
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show config envm properties`

10.5.3 show config watchdog

Show the Auto Configuration Undo settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show config watchdog`

10.5.4 show config encryption

Show the settings for config encryption.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show config encryption`

10.5.5 show config profiles

Show configuration profiles.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show config profiles <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	nvm	`non-volative memory`
`P-1`	envm	`external non-volative memory device`
`P-2`	1..20	`Index of the profile entry.`

10.5.6 show config status

Show sync Status of running-config with NV and ACA.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show config status`

10.6 config

Configure the Configuration Saving settings.

10.6.1 config watchdog admin-state

Enable the Configuration Undo feature.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `config watchdog admin-state`

- **no config watchdog admin-state**
  Disable the Configuration Undo feature.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no config watchdog admin-state`

10.6.2 config watchdog timeout

Configure the Configuration Undo timeout (unit: seconds).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `config watchdog timeout <P-1>`

Parameter	Value	Meaning
`P-1`	30..600	`Enter a number in the given range.`

10.6.3 config encryption password set

Set the configuration file password.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config encryption password set [<P-1>] [<P-2>]`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 64 characters.`
`P-2`	string	`Enter a user-defined text, max. 64 characters.`

10.6.4 config encryption password clear

Clear the configuration file password.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config encryption password clear`

10.6.5 config envm auto-update

Allow automatic firmware updates with this memory device.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config envm auto-update <P-1>`

Parameter	Value	Meaning
`P-1`	sd	`SD-Card`
`P-1`	usb	`USB Storage Device`

- **no config envm auto-update**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no config envm auto-update`

10.6.6 config envm config-save

Allow the configuration to be saved to this memory device.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config envm config-save <P-1>`

Parameter	Value	Meaning
`P-1`	sd	`SD-Card`
`P-1`	usb	`USB Storage Device`

- **no config envm config-save**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no config envm config-save`

10.6.7 config envm load-priority

Configure the order of configuration load attempts from memory devices at boot time. If one load succeeds, the others are ignored.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config envm load-priority <P-1> <P-2>`

Parameter	Value	Meaning
P-1	sd	SD-Card
P-1	usb	USB Storage Device
P-2	disable	Config will not be loaded at all
P-2	first	Config will be loaded first. If successful, no other config will be tried.
P-2	second	Config will be loaded if first one does not succeed.

10.6.8 config profile select

Select a configuration profile to be the active one.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config profile select <P-1> <P-2>`

Parameter	Value	Meaning
P-1	nvm	You can only select nvm for this command.
P-2	1..20	Index of the profile entry.

10.6.9 config profile delete

Delete configuration profile.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config profile delete <P-1> num <P-2> profile <P-3>`

`num`: Select the index of the profile to delete.
`profile`: Select the name of the profile to delete.

Parameter	Value	Meaning
P-1	nvm	non-volative memory
P-1	envm	external non-volative memory device
P-2	1..20	Index of the profile entry.
P-3	string	Enter a user-defined text, max. 32 characters.

10.6.10 config fingerprint verify

Verify the fingerprint of the selected profile.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config fingerprint verify <P-1> profile <P-2> <P-3> num <P-4> <P-5>`

`profile`: Select name of profile to be verified.
`num`: Select index of profile to be verified.

Parameter	Value	Meaning
P-1	nvm	non-volative memory
P-1	envm	external non-volative memory device
P-2	string	Enter a user-defined text, max. 32 characters.
P-3	string	Enter hash as 40 hexa-decimal characters.
P-4	1..20	Index of the profile entry.
P-5	string	Enter hash as 40 hexa-decimal characters.

10.7 swap

Swap software images.

10.7.1 swap firmware system system

Swap the main and backup images.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `swap firmware system system`

11 Dynamic ARP Inspection

11.1 ip

Set IP parameters.

11.1.1 ip arp-inspection verify src-mac

If enabled verifies the source MAC address in the ethernet packet against the sender MAC address in a ARP request/response packet body. If disabled does not perform this additional security check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection verify src-mac`

- **no ip arp-inspection verify src-mac**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip arp-inspection verify src-mac`

11.1.2 ip arp-inspection verify dst-mac

If enabled verifies the destination MAC address in the (unicast) ethernet packet against the MAC address in a ARP response packet body. If disabled does not perform this additional security check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection verify dst-mac`

- **no ip arp-inspection verify dst-mac**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip arp-inspection verify dst-mac`

11.1.3 ip arp-inspection verify ip

If enabled validates the sender protocol address (always) and the target protocol address (response) in the ARP packet body to be a public unicast IP address. Such addresses exclude 0.0.0.0, multicast/broadcast addresses, reserved addresses and loopback addresses. If disabled does not perform this additional security check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection verify ip`

- **no ip arp-inspection verify ip**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip arp-inspection verify ip`

11.1.4 ip arp-inspection access-list add

This command creates a new ARP ACL (and optionally activates it).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list add <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`
`P-2`	active	`Activate the option.`
`P-2`	inactive	`Inactivate the option.`

11.1.5 ip arp-inspection access-list delete

This command deletes an ARP ACL (and all rules associated with it).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list delete <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`

11.1.6 ip arp-inspection access-list mode

This command activates or deactivates an ARP ACL.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list mode <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`
`P-2`	active	`Activate the option.`
`P-2`	inactive	`Inactivate the option.`

11.1.7 ip arp-inspection access-list rule add

This command creates a new ARP ACL rule, associated with an ACL name and a MAC/IP address. Notice that the number of active ACL rules in an ACL is limited to 20.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list rule add <P-1> <P-2> <P-3> [<P-4>]`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`
`P-2`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-3`	A.B.C.D	`IP address.`
`P-4`	active	`Activate the option.`
`P-4`	inactive	`Inactivate the option.`

11.1.8 ip arp-inspection access-list rule delete

This command deletes an ARP ACL rule, associated with a ACL name and MAC/IP address.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list rule delete <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`
`P-2`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-3`	A.B.C.D	`IP address.`

11.1.9 ip arp-inspection access-list rule mode

This command activates or deactivates a configured ARP ACL rule, associated with a ACL name and MAC/IP address.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list rule mode <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`
`P-2`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-3`	A.B.C.D	`IP address.`
`P-4`	active	`Activate the option.`
`P-4`	inactive	`Inactivate the option.`

11.2 clear

Clear several items.

11.2.1 clear ip arp-inspection statistics

This command clears the Dynamic ARP Inspection (DAI) statistics on all VLANs.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear ip arp-inspection statistics`

11.3 ip

IP commands.

11.3.1 ip arp-inspection mode

Enables Dynamic ARP Inspection (DAI) on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip arp-inspection mode <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no ip arp-inspection mode

Disables Dynamic ARP Inspection (DAI) on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no ip arp-inspection mode`

11.3.2 ip arp-inspection log

Enables DAI logging on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip arp-inspection log <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no ip arp-inspection log

Disables DAI logging on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no ip arp-inspection log`

11.3.3 ip arp-inspection bind-check

Enables or disables the DAI binding-check on a VLAN. If enabled, an ARP frame received on an untrusted port (in a DAI enabled VLAN) is checked. This test starts when a ARP ACL exists but the condition dont match in the rule table and the ACL strict flag is not set or when the ARP ACL not exist.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip arp-inspection bind-check <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no ip arp-inspection bind-check

Disable the option.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no ip arp-inspection bind-check`

11.3.4 ip arp-inspection access-list strict

Enables or disables the strict DAI ACL check on a VLAN. If an ARP ACL is defined for the VLAN and there is no match for the received ARP packet, then (if this option is enabled) the packet is dropped without consulting the DHCP Snooping bindings database.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list strict <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no ip arp-inspection access-list strict
Disable the option.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no ip arp-inspection access-list strict`

11.3.5 ip arp-inspection access-list assign

(Un) Configure the ARP ACL used to filter ARP packets on a VLAN. If the ARP ACL name is omitted, then no ACL is assigned to this VLAN. If the ARP ACL name does not exist in the ACL table, then it depends on the DHCP Snooping bindings database and/or it's configured usage whether an ARP packet is forwarded or dropped.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip arp-inspection access-list assign <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	string	`<acl-name> Name of ACL.`

11.4 ip

IP interface commands.

11.4.1 ip arp-inspection trust

This command configures an interface as trusted or untrusted. Dynamic ARP Inspection (DAI) forwards valid ARP packets on trusted interfaces without inspection. On un-trusted interfaces ARP packets will be subject to ARP inspection.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection trust`

- **no ip arp-inspection trust**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no ip arp-inspection trust`

11.4.2 ip arp-inspection auto-disable

Enables the auto-disable feature for an interface, applicable when the ARP packet rate exceeds the limit.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection auto-disable`

- **no ip arp-inspection auto-disable**
  Disables the auto-disable feature for an interface, applicable when the ARP packet rate exceeds the limit.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no ip arp-inspection auto-disable`

11.4.3 ip arp-inspection limit

This command configures an interface for a maximum ARP packet rate in a burst interval, or disables it. If the rate of ARP packets exceed this limit in consecutive intervals then all further packets are dropped. If that happens and additionally the auto-disable feature is enabled, then the port is disabled automatically.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip arp-inspection limit <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	-1..300	`Specifies the rate limit value (in packets per seconds, pps) for Dynamic ARP Inspection (DAI) purposes. The value -1 switches rate limiting off.`
`P-2`	1..15	`Specifies the burst interval value for Dynamic ARP Inspection (DAI) purposes. Because this parameter is optional it leaves unchanged if omitted.`

11.5 show

Display device options and settings.

11.5.1 show ip arp-inspection global

This command displays the global Dynamic ARP Inspection (DAI) configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection global`

11.5.2 show ip arp-inspection statistics dropped

This command lists statistics for ARP packets dropped by Dynamic ARP Inspection (DAI).

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection statistics dropped`

11.5.3 show ip arp-inspection statistics forwarded

This command lists statistics for ARP packets forwarded by Dynamic ARP Inspection (DAI).

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection statistics forwarded`

11.5.4 show ip arp-inspection access-list names

This command displays a list of all existing ARP ACLs.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection access-list names`

11.5.5 show ip arp-inspection access-list rules

This command displays all ACL rules of a dedicated ARP ACL.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection access-list rules <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<acl-name> Name of ACL.`

11.5.6 show ip arp-inspection interfaces

This command shows the Dynamic ARP Inspection (DAI) status of all interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection interfaces`

11.5.7 show ip arp-inspection vlan

This command displays the VLAN based Dynamic ARP Inspection (DAI) status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip arp-inspection vlan`

12 Debug

12.1 debug

Different tools to assist in debugging the device.

12.1.1 debug tcpdump help

Display help file for the tcpdump tool.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump help`

12.1.2 debug tcpdump start cpu

Start capture with default values.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump start cpu [filter <P-1>] [parms <P-2>]`

`[filter]`: Start capture with values from a filter file.
`[parms]`: Start capture with the tcpdump parameters (for details see tcpdump help).

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`
`P-2`	string	`Enter a user-defined text, max. 255 characters.`

12.1.3 debug tcpdump stop

Abort capture of network traffic.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump stop`

12.1.4 debug tcpdump filter show

Display a known filter file.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump filter show <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`

12.1.5 debug tcpdump filter list

Display all available filter files.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump filter list`

12.1.6 debug tcpdump filter delete

Delete a known filter file.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `debug tcpdump filter delete <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`

12.2 copy

Copy different kinds of items.

12.2.1 copy tcpdumpcap nvm envm

Copy capture file from non-volatile memory to external non-volatile memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy tcpdumpcap nvm envm [<P-1>]`

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`

12.2.2 copy tcpdumpcap nvm remote

Copy internal capture file from device to the server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy tcpdumpcap nvm remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

12.2.3 copy tcpdumpfilter remote

Copy filter file from one memory location to another.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy tcpdumpfilter remote <P-1> nvm <P-2>`

`nvm`: Copy filter file from server to non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`
`P-2`	string	`<filename> Enter a valid filename.`

12.2.4 copy tcpdumpfilter envm

Copy capture filter from external non-volatile memory device to non-volatile memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy tcpdumpfilter envm <P-1> nvm [<P-2>]`

`nvm`: Copy capture filter from external non-volatile memory device to non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`
`P-2`	string	`<filename> Enter a valid filename.`

12.2.5 copy tcpdumpfilter nvm

Copy capture filter from non-volatile memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy tcpdumpfilter nvm <P-1> envm [<P-2>] remote <P-3>`

`envm`: Copy capture filter from non-volatile memory to external non-volatile memory.

`remote`: Copy capture file from non-volatile memory to the server.

Parameter	Value	Meaning
`P-1`	string	`<filename> Enter a valid filename.`
`P-2`	string	`<filename> Enter a valid filename.`
`P-3`	string	`Enter a user-defined text, max. 128 characters.`

13 Device Status

13.1 device-status

Configure various device conditions to be monitored.

13.1.1 device-status monitor link-failure

Enable monitor state of network connection(s).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor link-failure`

- **no device-status monitor link-failure**
  Disable monitor state of network connection(s).
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor link-failure`

13.1.2 device-status monitor temperature

Enable monitoring of the device temperature.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor temperature`

- **no device-status monitor temperature**
  Disable monitoring of the device temperature.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor temperature`

13.1.3 device-status monitor module-removal

Enable monitoring the presence of modules.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor module-removal`

- **no device-status monitor module-removal**
  Disable monitoring the presence of modules.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor module-removal`

13.1.4 device-status monitor envm-removal

Enable monitoring the presence of the external non-volative memory.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor envm-removal`

- **no device-status monitor envm-removal**
  Disable monitoring the presence of the external non-volative memory.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor envm-removal`

13.1.5 device-status monitor envm-not-in-sync

Enable monitoring synchronzation between the external non-volative memory\n and the running configuration.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor envm-not-in-sync`

- **no device-status monitor envm-not-in-sync**
  Disable monitoring synchronzation between the external non-volative memory\n and the running configuration.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor envm-not-in-sync`

13.1.6 device-status monitor ring-redundancy

Enable monitoring if ring-redundancy is present.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor ring-redundancy`

- **no device-status monitor ring-redundancy**
  Disable monitoring if ring-redundancy is present.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor ring-redundancy`

13.1.7 device-status monitor power-supply

Enable monitoring the condition of the power supply(s).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status monitor power-supply <P-1>`

Parameter	Value	Meaning
`P-1`	1..2	`Number of power supply.`

- **no device-status monitor power-supply**
  Disable monitoring the condition of the power supply(s).
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor power-supply`

13.1.8 device-status trap

Configure the device to send a trap when the device status\nchanges.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status trap`

- **no device-status trap**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status trap`

13.1.9 device-status module

Configure the monitoring of the specific module.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `device-status module <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

- **no device-status module**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status module`

13.2 show

Display device options and settings.

13.2.1 show device-status monitor

Display the device monitoring configurations.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status monitor`

13.2.2 show device-status state

Display the current state of the device.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status state`

13.2.3 show device-status trap

Display the device trap information and configurations.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status trap`

13.2.4 show device-status link-alarm

Display the monitor configurations of the network ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status link-alarm`

13.2.5 show device-status module

Display the monitor configurations of the modules.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status module`

13.2.6 show device-status all

Display the configurable device status settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show device-status all`

13.3 device-status

Configure various device conditions to be monitored.

13.3.1 device-status link-alarm

Configure the monitor settings of the port link.
- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `device-status link-alarm`

- **no device-status link-alarm**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status link-alarm`

14 Security Status

14.1 security-status

Configure the security status settings.

14.1.1 security-status monitor pwd-change

Sets the monitoring of default password change for\n'user' and 'admin'.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor pwd-change`

- **no security-status monitor pwd-change**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor pwd-change`

14.1.2 security-status monitor pwd-min-length

Sets the monitoring of minimum length of the password\n(smaller 8).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor pwd-min-length`

- **no security-status monitor pwd-min-length**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor pwd-min-length`

14.1.3 security-status monitor pwd-str-not-config

Sets the monitoring whether the password minimum\nstrength check is configured.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor pwd-str-not-config`

- **no security-status monitor pwd-str-not-config**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor pwd-str-not-config`

14.1.4 security-status monitor bypass-pwd-strength

Sets the monitoring whether at least one user is\nconfigured to bypass strength check.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor bypass-pwd-strength`

- **no security-status monitor bypass-pwd-strength**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor bypass-pwd-strength`

14.1.5 security-status monitor telnet-enabled

Sets the monitoring of the activation of telnet on\nthe switch.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor telnet-enabled`

- **no security-status monitor telnet-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor telnet-enabled`

14.1.6 security-status monitor http-enabled

Sets the monitoring of the activation of http on the switch.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor http-enabled`

- **no security-status monitor http-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor http-enabled`

14.1.7 security-status monitor snmp-unsecure

Sets the monitoring of SNMP security\n(SNMP v1/v2 is enabled or v3 encryption is disabled).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor snmp-unsecure`

- **no security-status monitor snmp-unsecure**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor snmp-unsecure`

14.1.8 security-status monitor sysmon-enabled

Sets the monitoring of the activation of System Monitor 1 on the switch.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor sysmon-enabled`

- **no security-status monitor sysmon-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor sysmon-enabled`

14.1.9 security-status monitor extnvm-upd-enabled

Sets the monitoring of activation of the configuration\n saving to external non volatile memory.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor extnvm-upd-enabled`

- **no security-status monitor extnvm-upd-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor extnvm-upd-enabled`

14.1.10 security-status monitor no-link-enabled

Sets the monitoring of no link detection.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor no-link-enabled`

- **no security-status monitor no-link-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor no-link-enabled`

14.1.11 security-status monitor hidisc-write-enabled

Sets the monitoring of HiDiscovery write enabled.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor hidisc-write-enabled`

- **no security-status monitor hidisc-write-enabled**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor hidisc-write-enabled`

14.1.12 security-status monitor extnvm-load-unsecure

Sets the monitoring of security of the configuration loading from extnvm.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor extnvm-load-unsecure`

- **no security-status monitor extnvm-load-unsecure**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor extnvm-load-unsecure`

14.1.13 security-status trap

Configure if a trap is sent when the security status\nchanges.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status trap`

- **no security-status trap**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status trap`

14.2 show

Display device options and settings.

14.2.1 show security-status monitor

Display the security status monitoring settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show security-status monitor`

14.2.2 show security-status state

Display the current security status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show security-status state`

14.2.3 show security-status no-link

Display the settings of the monitoring of the specific\nnetwork ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show security-status no-link`

14.2.4 show security-status trap

Display the security status trap information and settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show security-status trap`

14.2.5 show security-status all

Display all security status settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show security-status all`

14.3 security-status

Configure the security status interface settings.

14.3.1 security-status no-link

Configure the monitoring of the specific ports.
- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `security-status no-link`

- **no security-status no-link**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status no-link`

15 Dynamic Host Configuration Protocol (DHCP)

15.1 dhcp-server

Modify DHCP Server parameters.

15.1.1 dhcp-server operation

Enable the DHCP server on this port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server operation`

- **no dhcp-server operation**
  Disable the DHCP server on this port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no dhcp-server operation`

15.2 dhcp-server

Modify DHCP Server parameters.

15.2.1 dhcp-server operation

Enable the DHCP server globally.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server operation`

- **no dhcp-server operation**
  Disable the DHCP server globally.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dhcp-server operation`

15.2.2 dhcp-server pool add

Add a pool

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server pool add <P-1> dynamic <P-2> <P-3> static <P-4>`

`dynamic`: Add a dynamic pool (one or more IPs).

`static`: Add a static pool (one IP).

Parameter	Value	Meaning
`P-1`	1..128	`Pool ID.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	A.B.C.D	`IP address.`
`P-4`	A.B.C.D	`IP address.`

15.2.3 dhcp-server pool modify

Modify the dynamic address pool

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server pool modify <P-1> mode interface <P-2> mac <P-3> clientid <P-4> remoteid <P-5> circuitid <P-6> relay <P-7> vlan <P-8> leasetime <P-9> option configpath <P-10> gateway <P-11> netmask <P-12> wins <P-13> dns <P-14> hostname <P-15>`

`mode`: Pool mode settings.
`interface`: Interface mode.
`mac`: MAC mode.
`clientid`: Clientid mode.
`remoteid`: Remoteid mode.
`circuitid`: Circuitid mode.
`relay`: Relay mode.
`vlan`: VLAN mode.
`leasetime`: Enter the leasetime in seconds.
`option`: Configuration option.
`configpath`: Configpath in 'tftp://<servername>/<file>' format.
`gateway`: Default gateway.
`netmask`: Option netmask.
`wins`: Option wins.
`dns`: Option dns.

`hostname`: Option hostname.

Parameter	Value	Meaning
P-1	1..128	Pool ID.
P-2	all or slot no./port no.	
P-3	none	Remove MAC mode.
P-3	aa:bb:cc:dd:ee:ff	MAC address.
P-4	none	Remove ID mode.
P-4	xx:xx:...:xx	Enter ID in hexadecimal format.
P-5	none	Remove ID mode.
P-5	xx:xx:...:xx	Enter ID in hexadecimal format.
P-6	none	Remove ID mode.
P-6	xx:xx:...:xx	Enter ID in hexadecimal format.
P-7	none	Remove relay mode.
P-7	ipaddr	Enter IP address of the relay.
P-8	-1..4042	VLAN ID. A value of -1 corresponds to management vlan (the default), any other value (1-4042) represents a specific VLAN
P-9	infinite	Infinite leasetime.
P-9	seconds	Leasetime in seconds.
P-10	tftp://%*s	tftp://<servername>/<file> Configuration path; empty string ("") to clear value.
P-10		
P-11	A.B.C.D	IP address.
P-12	A.B.C.D	IP address.
P-13	A.B.C.D	IP address.
P-14	A.B.C.D	IP address.
P-15	string	Enter a user-defined text, max. 64 characters.

15.2.4 dhcp-server pool mode

Pool enable.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server pool mode <P-1>`

Parameter	Value	Meaning
P-1	1..128	Pool ID.

- **no dhcp-server pool mode**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dhcp-server pool mode`

15.2.5 dhcp-server pool delete

Pool delete.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server pool delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..128	`Pool ID.`

15.3 show

Display device options and settings.

15.3.1 show dhcp-server operation

Display DHCP Server global information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-server operation`

15.3.2 show dhcp-server pool

Show DHCP Server pool entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-server pool [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..128	`Pool ID.`

15.3.3 show dhcp-server interface

Show DHCP Server per interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-server interface [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

15.3.4 show dhcp-server lease

Show DHCP Server lease entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-server lease`

16 DHCP L2 Relay

16.1 dhcp-l2relay

Configure DHCP Layer 2 Relay.

16.1.1 dhcp-l2relay mode

Enables DHCP Layer 2 Relay globally.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay mode`

- **no dhcp-l2relay mode**
  Disables DHCP Layer 2 Relay globally.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dhcp-l2relay mode`

16.2 clear

Clear several items.

16.2.1 clear dhcp-l2relay statistics

This command clears the DHCP Layer 2 Relay statistics.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear dhcp-l2relay statistics`

16.3 dhcp-l2relay

Group of commands that configure DHCP Layer 2 Relay on existing VLANs.

16.3.1 dhcp-l2relay mode

Enables DHCP Layer 2 Relay on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay mode <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no dhcp-l2relay mode

Disables DHCP Layer 2 Relay on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no dhcp-l2relay mode`

16.3.2 dhcp-l2relay circuit-id

This commands enables setting the Option-82 Circuit ID in DHCP messages to an interface descriptor.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay circuit-id <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no dhcp-l2relay circuit-id
Disable the option.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no dhcp-l2relay circuit-id`

16.3.3 dhcp-l2relay remote-id ip

This commands sets the Option-82 Remote ID to the IP address of device (if any assigned, else fails).

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay remote-id ip <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

16.3.4 dhcp-l2relay remote-id mac

This commands sets the Option-82 Remote ID to the MAC address of device.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay remote-id mac <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

16.3.5 dhcp-l2relay remote-id client-id

This commands sets the Option-82 Remote ID to the system name (sysName) of device.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay remote-id client-id <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

16.3.6 dhcp-l2relay remote-id other

This commands sets the Option-82 Remote ID manually. If it is omitted then only the Circuit ID is inserted into a relayed DHCP message.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay remote-id other <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	string	`<remote-id>\tOption 82 Remote ID`

16.4 dhcp-l2relay

Configure DHCP Layer 2 Relay for an interface (list/range)

16.4.1 dhcp-l2relay mode

Enables DHCP Layer 2 Relay on an interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay mode`

- **no dhcp-l2relay mode**
  Disables DHCP Layer 2 Relay on an interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no dhcp-l2relay mode`

16.4.2 dhcp-l2relay trust

This command configures an interface as trusted (typically connected to a DHCP server) or untrusted.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dhcp-l2relay trust`

no dhcp-l2relay trust

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dhcp-l2relay trust`

16.5 show

Display device options and settings.

16.5.1 show dhcp-l2relay global

This command displays the global DHCP Layer 2 Relay configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-l2relay global`

16.5.2 show dhcp-l2relay statistics

This command displays interface statistics specific to DHCP Layer 2 Relay.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-l2relay statistics`

16.5.3 show dhcp-l2relay interfaces

This command displays the DHCP Layer 2 Relay status of all interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-l2relay interfaces`

16.5.4 show dhcp-l2relay vlan

This command displays the VLAN based DHCP Layer 2 Relay status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dhcp-l2relay vlan`

17 DHCP Snooping

17.1 ip

Set IP parameters.

17.1.1 ip dhcp-snooping verify-mac

If enabled verifies the source MAC address in the ethernet packet against the client hardware address in the received DHCP Message. If disabled does not perform this additional security check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping verify-mac`

- **no ip dhcp-snooping verify-mac**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip dhcp-snooping verify-mac`

17.1.2 ip dhcp-snooping mode

Enable DHCP Snooping.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping mode`

- **no ip dhcp-snooping mode**
  Disable DHCP Snooping.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip dhcp-snooping mode`

17.1.3 ip dhcp-snooping database storage

This command specifies a location for the persistent DHCP Snooping bindings database. This can be a local file or a remote file on a given host.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping database storage <P-1>`

Parameter	Value	Meaning
`P-1`	local	`Save persistent DHCP Snooping bindings database to a local file.`
`P-1`	tftp-loc	`Save persistent DHCP Snooping bindings database to a remote file: <tftp-loc> := tftp://<ip-addr>/<filename>.`

17.1.4 ip dhcp-snooping database write-delay

This command configures the interval in seconds at which the DHCP Snooping binding database will be saved (persistent).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping database write-delay <P-1>`

Parameter	Value	Meaning
`P-1`	15..86400	`Interval in seconds at which the persistent DHCP Snooping binding database will be saved. The interval value ranges from 15 to 86400 seconds.`

17.1.5 ip dhcp-snooping binding add

This command creates a new static DHCP Snooping binding (and optionally an associated dynamic IP Source Guard binding) between a MAC address and an IP address, for a specific VLAN at a particular interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping binding add <P-1> <P-2> <P-3> <P-4> [<P-5>]`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	slot no./port no.	
`P-4`	1..4042	`Enter the VLAN ID.`
`P-5`	active	`Activate the option.`
`P-5`	inactive	`Inactivate the option.`

17.1.6 ip dhcp-snooping binding delete all

This command deletes all static DHCP Snooping bindings (and optionally all associated dynamic IP Source Guard bindings) at all interfaces.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping binding delete all`

17.1.7 ip dhcp-snooping binding delete interface

This command deletes all static DHCP Snooping bindings (and optionally all associated dynamic IP Source Guard bindings), associated with a particular interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping binding delete interface <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

17.1.8 ip dhcp-snooping binding delete mac

This command deletes one DHCP Snooping binding (and optionally the associated dynamic IP Source Guard binding), associated with a MAC address.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping binding delete mac <P-1>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`

17.1.9 ip dhcp-snooping binding mode

This command activates or deactivates a configured static DHCP Snooping binding, associated with a MAC address.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping binding mode <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	active	`Activate the option.`
`P-2`	inactive	`Inactivate the option.`

17.2 clear

Clear several items.

17.2.1 clear ip dhcp-snooping bindings

This command clears all dynamic DHCP Snooping (and IP Source Guard) bindings on all interfaces or on a specific interface.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear ip dhcp-snooping bindings [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

17.2.2 clear ip dhcp-snooping statistics

This command clears the DHCP Snooping statistics.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear ip dhcp-snooping statistics`

17.3 ip

IP commands.

17.3.1 ip dhcp-snooping mode

Enables DHCP Snooping on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping mode <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

no ip dhcp-snooping mode

Disables DHCP Snooping on a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no ip dhcp-snooping mode`

17.4 ip

IP interface commands.

17.4.1 ip dhcp-snooping trust

This command configures an interface as trusted (typically connected to a DHCP server) or un-trusted. DHCP Snooping forwards valid DHCP client messages on trusted interfaces. On un-trusted interfaces the application compares the receive interface with the clients interface in the binding database.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping trust`

- **no ip dhcp-snooping trust**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no ip dhcp-snooping trust`

17.4.2 ip dhcp-snooping log

This command configures an interface to log invalid DHCP messages, or not to log.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping log`

no ip dhcp-snooping log
Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip dhcp-snooping log`

17.4.3 ip dhcp-snooping auto-disable

Enables the auto-disable feature for an interface, applicable when the DHCP packet rate exceeds the limit.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping auto-disable`

no ip dhcp-snooping auto-disable
Disables the auto-disable feature for an interface, applicable when the DHCP packet rate exceeds the limit.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip dhcp-snooping auto-disable`

17.4.4 ip dhcp-snooping limit

This command configures an interface for a maximum DHCP packet rate in a burst interval, or disables it. If the rate of DHCP packets exceed this limit in consecutive intervals then all further packets are dropped. If that happens and additionally the auto-disable feature is enabled, then the port is disabled automatically.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip dhcp-snooping limit <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	-1..150	`Specifies the rate limit value (in packets per seconds, pps) for DHCP snooping purposes. The value -1 switches rate limiting off.`
`P-2`	1..15	`Specifies the burst interval value for DHCP snooping purposes. Because this parameter is optional it leaves unchanged if omitted.`

17.5 show

Display device options and settings.

17.5.1 show ip dhcp-snooping global

This command displays the global DHCP Snooping configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip dhcp-snooping global`

17.5.2 show ip dhcp-snooping statistics

This command displays statistics for DHCP Snooping security violations on untrusted ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip dhcp-snooping statistics`

17.5.3 show ip dhcp-snooping interfaces

This command shows the DHCP Snooping status of all interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip dhcp-snooping interfaces`

17.5.4 show ip dhcp-snooping vlan

This command displays the VLAN based DHCP Snooping status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip dhcp-snooping vlan`

17.5.5 show ip dhcp-snooping bindings

This command displays the DHCP Snooping binding entries from the static and/or dynamic bindings table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip dhcp-snooping bindings [<P-1>] [interface <P-2>] [vlan <P-3>]`

`[interface]`: Restrict the output based on a specific interface.

[vlan]: Restrict the output based on VLAN.

Parameter	Value	Meaning
P-1	static	Restrict the output based on static bindings.
P-1	dynamic	Restrict the output based on dynamic bindings.
P-2	slot no./port no.	
P-3	1..4042	Enter the VLAN ID.

18 Differentiated Services (DiffServ)

18.1 diffserv

Enable or disable DiffServ.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `diffserv`

18.2 class-map

Manage DiffServ classes.

18.2.1 class-map name

Configure a Diffserv class.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `class-map name <P-1> match any ethertype <P-2> cos <P-3> secondary-cos <P-4> destination-address <P-5> <P-6> <P-7> source-address <P-8> <P-9> <P-10> dstip <P-11> <P-12> srcip <P-13> <P-14> dstl4port <P-15> srcl4port <P-16> ip dscp <P-17> precedence <P-18> tos <P-19> <P-20> protocol <P-21> vlan <P-22> secondary-vlan <P-23> class-map <P-24> <P-25>`

`match`: Add a match rule for the class.
`any`: Match any packet.
`ethertype`: Add a match condition based on the ethertype value.
`cos`: Add a match condition based on the COS value.
`secondary-cos`: Add a match condition based on the secondary COS value.
`destination-address`: Add a match condition based on the destination mac address.
`source-address`: Add a match condition based on the source mac address.
`dstip`: Add a match condition based on the destination IP address.
`srcip`: Add a match condition based on the source IP address.
`dstl4port`: Add a match condition based on the layer 4 destination port.
`srcl4port`: Add a match condition based on the layer 4 source port.
`ip`: Add a match condition based on IP DSCP, precedence or TOS fields.
`dscp`: Add a match condition based on the IP DSCP field.
`precedence`: Add a match condition based on the IP precedence field.
`tos`: Add a match condition based on the IP TOS field.

`protocol`: Add a match condition based on the IP protocol field.
`vlan`: Add a match condition based on the VLAN field.
`secondary-vlan`: Add a match condition based on the secondary VLAN field.

`class-map`: Add/remove a set of match condition defined for another class.

Parameter	Value	Meaning
P-1	string	Enter the DiffServ class name, max. 31 characters.
P-2	0x0600-0xffff	ethertype
P-2	appletalk	appletalk
P-2	arp	arp
P-2	ibmsna	ibmsna
P-2	ipv4	ipv4
P-2	ipv6	ipv6
P-2	ipx	ipx
P-2	mplsmcast	mplsmcast
P-2	mplsucast	mplsucast
P-2	netbios	netbios
P-2	novell	novell
P-2	pppoe	pppoe
P-2	rarp	rarp
P-3	0..7	COS value.
P-4	0..7	COS value.
P-5	mac	mac.
P-6	aa:bb:cc:dd:ee:ff	MAC address.
P-7	aa:bb:cc:dd:ee:ff	MAC address.
P-8	mac	mac.
P-9	aa:bb:cc:dd:ee:ff	MAC address.
P-10	aa:bb:cc:dd:ee:ff	MAC address.
P-11	A.B.C.D	IP address.
P-12	A.B.C.D	IP address.
P-13	A.B.C.D	IP address.
P-14	A.B.C.D	IP address.
P-15	domain	domain
P-15	echo	echo
P-15	ftp	ftp
P-15	ftpdata	ftpdata
P-15	http	http
P-15	smtp	smtp
P-15	snmp	snmp
P-15	telnet	telnet
P-15	tftp	tftp
P-15	www	www
P-15	0-65535	Port number
P-16	domain	domain

Parameter	Value	Meaning
P-16	echo	echo
P-16	ftp	ftp
P-16	ftpdata	ftpdata
P-16	http	http
P-16	smtp	smtp
P-16	snmp	snmp
P-16	telnet	telnet
P-16	tftp	tftp
P-16	www	www
P-16	0-65535	Port number
P-17	0-63	Decimal value
P-17	af11	af11
P-17	af12	af12
P-17	af13	af13
P-17	af21	af21
P-17	af22	af22
P-17	af23	af23
P-17	af31	af31
P-17	af32	af32
P-17	af33	af33
P-17	af41	af41
P-17	af42	af42
P-17	af43	af43
P-17	be	be
P-17	cs0	cs0
P-17	cs1	cs1
P-17	cs2	cs2
P-17	cs3	cs3
P-17	cs4	cs4
P-17	cs5	cs5
P-17	cs6	cs6
P-17	cs7	cs7
P-17	ef	ef
P-18	0..7	Ip precedence value.
P-19	string	<00-ff> Tos bits/mask.
P-20	string	<00-ff> Tos bits/mask.
P-21	icmp	icmp
P-21	igmp	igmp
P-21	ip	ip
P-21	tcp	tcp
P-21	udp	udp
P-21	0-255	Protocol number
P-22	1..4042	Enter the VLAN ID.

Parameter	Value	Meaning
P-23	1..4042	Enter the VLAN ID.
P-24	string	Enter the DiffServ class name, max. 31 characters.
P-25	enable	Enable the option.
P-25	disable	Disable the option.

18.2.2 class-map rename

Rename an existing class.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: class-map rename <P-1> <P-2>

Parameter	Value	Meaning
P-1	string	Enter the DiffServ class name, max. 31 characters.
P-2	string	Enter the DiffServ class name, max. 31 characters.

18.2.3 class-map match-all

Create a new match-all class.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: class-map match-all <P-1>

Parameter	Value	Meaning
P-1	string	Enter the DiffServ class name, max. 31 characters.

18.2.4 class-map remove

Remove a Diffserv class.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `class-map remove <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ class name, max. 31 characters.`

18.3 policy-map

Manage DiffServ policies.

18.3.1 policy-map create

Create a DiffServ policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map create <P-1> { in | out }`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	in	`Traffic direction in.`
`P-2`	out	`Traffic direction out.`

18.3.2 policy-map name class add

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class add <string>`

`class`: Manage DiffServ policy-class instances.
`add`: Add a policy-class instance.

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.3.3 policy-map name class name assign-queue

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class name <string> assign-queue <0..7>`

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`assign-queue`: Modify the queue id to which the associated traffic stream is assigned.

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-3`	0..7	`Assign queue id.`

18.3.4 policy-map name class name conform-color

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class name <string> conform-color <string>`

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`conform-color`: Enable color-aware traffic policing and define the conform-color class.

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-3`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.3.5 policy-map name class name drop

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class name <string> drop`

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`drop`: All packets for the associated traffic stream are dropped at ingress.

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.3.6 policy-map name class name mark

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          mark {cos <0..7> |
                cos-as-sec-cos |
                ip-dscp <af11|af12|af13|af21|af22|
                         af23|af31|af32|af33|af41|
                         af42|af43|be|cs0|cs1|cs2|
                         cs3|cs4|cs5|cs6|cs7|ef>|
                ip-precedence <0..7>}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`mark`: Add a mark attribute.
`cos`: Marks all packets with the specified COS value.
`cos-as-sec-cos`: Use secondary COS as COS.
`ip-dscp`: Marks all packets with the specified IP DSCP value.
`ip-precedence`: Marks all packets with the specified IP precedence value.

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	0..7	COS value.
P-4	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-5	0..7	Ip precedence value.

18.3.7 policy-map name class name mirror

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class name <string> mirror < 1/1 | 1/2 | 1/3 | 1/4 | 2/1 | 2/2 | 2/3 | 2/4 | 3/1 | 3/2 | 3/3 | 3/4 | 4/1 | 4/2 | 4/3 | 4/4 | 5/1 | 5/2 | 5/3 | 5/4 >`

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`mirror`: All incoming packets for the associated traffic stream are copied to a specific egress interface.

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1/1	slot 1 / port 1
	1/2	slot 1 / port 2
	1/3	slot 1 / port 3
	1/4	slot 1 / port 4
	2/1	slot 2 / port 1
	2/2	slot 2 / port 2
	2/3	slot 2 / port 3
	2/4	slot 2 / port 4
	3/1	slot 3 / port 1
	3/2	slot 3 / port 2
	3/3	slot 3 / port 3
	3/4	slot 3 / port 4
	4/1	slot 4 / port 1
	4/2	slot 4 / port 2
	4/3	slot 4 / port 3
	4/4	slot 4 / port 4
	5/1	slot 5 / port 1
	5/2	slot 5 / port 2
	5/3	slot 5 / port 3
	5/4	slot 5 / port 4

18.3.8 policy-map name class name police-simple conform action drop violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
           police-simple
             < 1..4294967295> <1..128> conform-action
                  drop violate-action
                      {drop |
                       set-cos-as-sec-cos |
                       set-cos-transmit <0..7> |
                       set-dscp-transmit
                          <af11|af12|af13|af21|af22|
                           af23|af31|af32|af33|af41|
                           af42|af43|be|cs0|cs1|cs2|
                           cs3|cs4|cs5|cs6|cs7|ef> |
                       set-prec-transmit <0..7> |
                       set-sec-cos-transmit <0..7> |
                       transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	COS value.
P-6	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-7	0..7	Ip precedence value.
P-8	0..7	COS value.

18.3.9 policy-map name class name police-simple conform action set-cos-as-sec-cos violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-simple <1..4294967295> <1..128>
             conform-action set-cos-as-sec-cos
                violate-action
                   {drop |
                    set-cos-as-sec-cos |
                    set-cos-transmit <0..7> |
                    set-dscp-transmit
                       <af11|af12|af13|af21|af22|
                        af23|af31|af32|af33|af41|
                        af42|af43|be|cs0|cs1|cs2|
                        cs3|cs4|cs5|cs6|cs7|ef> |
                    set-prec-transmit <0..7> |
                    set-sec-cos-transmit <0..7> |
                    transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	COS value.
P-6	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-7	0..7	Ip precedence value.
P-8	0..7	COS value.

18.3.10 policy-map name class name police-simple conform action set-cos-transmit violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-simple <1..4294967295> <1..128>
             conform-action set-cos-transmit <0..7>
                violate-action
                   {drop |
                    set-cos-as-sec-cos |
                    set-cos-transmit <0..7> |
                    set-dscp-transmit
                       <af11|af12|af13|af21|af22|
                        af23|af31|af32|af33|af41|
                        af42|af43|be|cs0|cs1|cs2|
                        cs3|cs4|cs5|cs6|cs7|ef> |
                    set-prec-transmit <0..7> |
                    set-sec-cos-transmit <0..7> |
                    transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	COS value.
P-6	0..7	COS value.
P-7	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-8	0..7	Ip precedence value.
P-9	0..7	COS value.

18.3.11 policy-map name class name police-simple conform action set-dscp-transmit violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
        police-simple <1..4294967295> <1..128>
           conform-action set-dscp-transmit
             <af11|af12|af13|af21|af22|
              af23|af31|af32|af33|af41|
              af42|af43|be|cs0|cs1|cs2|
              cs3|cs4|cs5|cs6|cs7|ef>
                 violate-action
                   {drop |
                    set-cos-as-sec-cos |
                    set-cos-transmit <0..7> |
                    set-dscp-transmit
                       <af11|af12|af13|af21|af22|
                        af23|af31|af32|af33|af41|
                        af42|af43|be|cs0|cs1|cs2|
                        cs3|cs4|cs5|cs6|cs7|ef> |
                    set-prec-transmit <0..7> |
                    set-sec-cos-transmit <0..7> |
                    transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-6	0..7	COS value.

Parameter	Value	Meaning
P-7	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-8	0..7	Ip precedence value.
P-9	0..7	COS value.

18.3.12 policy-map name class name police-simple conform action set-prec-transmit violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-simple <1..4294967295> <1..128>
             conform-action set-prec-transmit <0..7>
                violate-action
                   {drop |
                    set-cos-as-sec-cos |
                    set-cos-transmit <0..7> |
                    set-dscp-transmit
                       <af11|af12|af13|af21|af22|
                        af23|af31|af32|af33|af41|
                        af42|af43|be|cs0|cs1|cs2|
                        cs3|cs4|cs5|cs6|cs7|ef> |
                    set-prec-transmit <0..7> |
                    set-sec-cos-transmit <0..7> |
                    transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	Ip precedence value..
P-6	0..7	COS value.
P-7	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-8	0..7	Ip precedence value.
P-9	0..7	COS value.

18.3.13 policy-map name class name police-simple conform action set-sec-cos-transmit violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-simple <1..4294967295> <1..128>
             conform-action set-sec-cos-transmit <0..7>
                 violate-action
                    {drop |
                     set-cos-as-sec-cos |
                     set-cos-transmit <0..7> |
                     set-dscp-transmit
                        <af11|af12|af13|af21|af22|
                         af23|af31|af32|af33|af41|
                         af42|af43|be|cs0|cs1|cs2|
                         cs3|cs4|cs5|cs6|cs7|ef> |
                     set-prec-transmit <0..7> |
                     set-sec-cos-transmit <0..7> |
                     transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	COS value.
P-6	0..7	COS value.
P-7	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-8	0..7	Ip precedence value.
P-9	0..7	COS value.

18.3.14 policy-map name class name police-simple conform action transmit violate-action

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-simple <1..4294967295> <1..128>
             conform-action transmit violate-action
                 {drop |
                  set-cos-as-sec-cos |
                  set-cos-transmit <0..7> |
                  set-dscp-transmit
                     <af11|af12|af13|af21|af22|
                      af23|af31|af32|af33|af41|
                      af42|af43|be|cs0|cs1|cs2|
                      cs3|cs4|cs5|cs6|cs7|ef> |
                  set-prec-transmit <0..7> |
                  set-sec-cos-transmit <0..7> |
                  transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-simple`: Establish the traffic policing style for the specified class.
`conform-action`: Conform action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	0..7	COS value.
P-6	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-7	0..7	Ip precedence value.
P-8	0..7	COS value.

18.3.15 policy-map name class name police-two-rate conform-action ... exceed-action ... violate-action ...

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format:

```
policy-map name <string> class name <string>
          police-two-rate <1..4294967295> <1..128>
            <1..4294967295> <1..128>
              conform-action *)
                exceed-action *)
                  violate-action *)

                  *){drop |
                     set-cos-as-sec-cos |
                     set-cos-transmit <0..7> |
                     set-dscp-transmit
                        <af11|af12|af13|af21|af22|
                         af23|af31|af32|af33|af41|
                         af42|af43|be|cs0|cs1|cs2|
                         cs3|cs4|cs5|cs6|cs7|ef> |
                     set-prec-transmit <0..7> |
                     set-sec-cos-transmit <0..7> |
                     transmit}
```

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`police-two-rate`: Establish the two-rate traffic policing style for the specified class.
`conform-action`: Conform action.
`exceed-action`: Exceed action.
`violate-action`: Violate action.
`drop`: Drop.
`set-cos-as-sec-cos`: set-cos-as-sec-cos
`set-cos-transmit`: set-cos-transmit
`set-sec-cos-transmit`: set-sec-cos-transmit
`set-prec-transmit`: set-prec-transmit
`set-dscp-transmit`: set-dscp-transmit
`transmit`: transmit

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1..4294967295	Data rate (Kbps).
P-4	1..128	Burst size (KB).
P-5	1..4294967295	Data rate (Kbps).
P-6	1..128	Burst size (KB).
P-7	0..7	COS value.
P-8	af11	af11
	af12	af12
	af13	af13
	af21	af21
	af22	af22
	af23	af23
	af31	af31
	af32	af32
	af33	af33
	af41	af41
	af42	af42
	af43	af43
	be	be
	cs0	cs0
	cs1	cs1
	cs2	cs2
	cs3	cs3
	cs4	cs4
	cs5	cs5
	cs6	cs6
	cs7	cs7
	ef	ef
P-9	0..7	Ip precedence value.
P-10	0..7	COS value.

18.3.16policy-map name class name redirect

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class name <string> redirect < 1/1 | 1/2 | 1/3 | 1/4 | 2/1 | 2/2 | 2/3 | 2/4 | 3/1 | 3/2 | 3/3 | 3/4 | 4/1 | 4/2 | 4/3 | 4/4 | 5/1 | 5/2 | 5/3 | 5/4 >`

`class`: Manage DiffServ policy-class instances.
`name`: Configure a policy-class instance.
`remove`: Remove a policy-class instance.
`redirect`: All incoming packets for the associated traffic stream are redirected to a specific egress interface.

Parameter	Value	Meaning
P-1	string	Enter the DiffServ policy name, max. 31 characters.
P-2	string	Enter the DiffServ policy name, max. 31 characters.
P-3	1/1	slot 1 / port 1
	1/2	slot 1 / port 2
	1/3	slot 1 / port 3
	1/4	slot 1 / port 4
	2/1	slot 2 / port 1
	2/2	slot 2 / port 2
	2/3	slot 2 / port 3
	2/4	slot 2 / port 4
	3/1	slot 3 / port 1
	3/2	slot 3 / port 2
	3/3	slot 3 / port 3
	3/4	slot 3 / port 4
	4/1	slot 4 / port 1
	4/2	slot 4 / port 2
	4/3	slot 4 / port 3
	4/4	slot 4 / port 4
	5/1	slot 5 / port 1
	5/2	slot 5 / port 2
	5/3	slot 5 / port 3
	5/4	slot 5 / port 4

18.3.17 policy-map name class remove

Configure a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map name <string> class remove <string>`

`class`: Manage DiffServ policy-class instances.
`remove`: Remove a policy-class instance.

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.3.18 policy-map rename

Rename an existing DiffServ policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map rename <string> <string>`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`
`P-2`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.3.19 policy-map remove

Remove a Diffserv policy.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `policy-map remove <string>`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.4 service-policy

Assign/detach a DiffServ traffic conditioning policy to/from an interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `service-policy`

18.5 service-policy

Assign/detach a DiffServ traffic conditioning policy to/from an interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `service-policy`

18.6 show

Display device options and settings.

18.6.1 show diffserv global

Show DiffServ global information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show diffserv global`

18.6.2 show diffserv service brief

Display DiffServ policy summary information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show diffserv service brief`

18.6.3 show diffserv service interface

Display policy service information for the specified interface and direction.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show diffserv service interface <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	in	`Traffic direction in.`
`P-2`	out	`Traffic direction out.`

18.6.4 show class-map

Show existing DiffServ classes or display information for a specified class.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show class-map [<P-1>]`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ class name, max. 31 characters.`

18.6.5 show policy-map all

Show all Diffserv policies.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show policy-map all`

18.6.6 show policy-map interface

Show the policies attached to the specified interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show policy-map interface <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	in	`Traffic direction in.`
`P-2`	out	`Traffic direction out.`

18.6.7 show policy-map name

Show information for the specified policy.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show policy-map name <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter the DiffServ policy name, max. 31 characters.`

18.6.8 show service-policy

Display a summary of policy-oriented statistics information for all interfaces in the specified direction.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show service-policy <P-1>`

Parameter	Value	Meaning
`P-1`	in	`Traffic direction in.`
`P-1`	out	`Traffic direction out.`

19 Domain Name System (DNS)

19.1 show

Display device options and settings.

19.1.1 show dns cache status

Show DNS cache status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dns cache status`

19.1.2 show dns client hosts

Show the DNS Client hosts table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dns client hosts`

19.1.3 show dns client info

Show DNS Client related information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dns client info`

19.1.4 show dns client servers

Show the DNS Client servers.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dns client servers [<P-1>]`

Parameter	Value	Meaning
`P-1`	extern	`Show the DNS Client servers received from external sources.`

19.2 dns

Set DNS parameters.

19.2.1 dns cache adminstate

Enable DNS cache.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns cache adminstate`

- **no dns cache adminstate**
  Disable DNS cache.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dns cache adminstate`

19.2.2 dns cache flush

Flush the DNS cache.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns cache flush <P-1>`

Parameter	Value	Meaning
`P-1`	action	`Flush the DNS cache.`

19.2.3 dns client adminstate

Enable DNS Client.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client adminstate`

- **no dns client adminstate**
  Disable DNS Client.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dns client adminstate`

19.2.4 dns client domain-name

DNS Client default domain name.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client domain-name <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Hostname`

19.2.5 dns client host add

Add a new DNS client host entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client host add <P-1> name <P-2> ip <P-3>`

`name`: Enter the DNS host name.
`ip`: Enter the DNS host address.

Parameter	Value	Meaning
`P-1`	1..64	`DNS Client hosts index.`
`P-2`	string	`Hostname`
`P-3`	A.B.C.D	`IP address.`

19.2.6 dns client host delete

Delete a DNS host entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client host delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..64	`DNS Client hosts index.`

19.2.7 dns client host modify

Mofify a DNS client host entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client host modify <P-1> name <P-2> ip <P-3> status`

`name`: Enter the DNS host name.
`ip`: Enter the DNS host address.
`status`: Enter the status of the DNS host.

Parameter	Value	Meaning
`P-1`	1..64	`DNS Client hosts index.`
`P-2`	string	`Hostname`
`P-3`	A.B.C.D	`IP address.`

- **no dns client host modify**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dns client host modify`

19.2.8 dns client source

DNS Client configuration source.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client source <P-1>`

Parameter	Value	Meaning
`P-1`	user	`Use the DNS servers defined by the user.`
`P-1`	mgmt-dhcp	`Use the DNS servers received by DHCP on the management interface.`
`P-1`	provider	

19.2.9 dns client servers add

Add a new DNS server.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client servers add <P-1> ip <P-2>`

`ip`: Enter the DNS server address.

Parameter	Value	Meaning
`P-1`	1..4	`DNS Client servers index.`
`P-2`	A.B.C.D	`IP address.`

19.2.10 dns client servers delete

Delete a DNS server.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client servers delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..4	`DNS Client servers index.`

19.2.11 dns client servers modify

Modify a DNS server entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client servers modify <P-1> ip <P-2> status`

`ip`: Change the DNS server address.
`status`: Change the status of this DNS server.

Parameter	Value	Meaning
`P-1`	1..4	`DNS Client servers index.`
`P-2`	A.B.C.D	`IP address.`

no dns client servers modify

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dns client servers modify`

19.2.12 dns client timeout

Set the timeout before retransmitting a request to the server.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client timeout <P-1>`

Parameter	Value	Meaning
`P-1`	0..3600	`The timeout before retransmitting a request to the server (default: 3).`

19.2.13 dns client retry

Set the number of times the request is retransmitted.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client retry <P-1>`

Parameter	Value	Meaning
`P-1`	0..100	`The number of times the request is retransmitted (default: 2).`

20 DoS Mitigation

20.1 dos

Manage DoS Mitigation

20.1.1 dos tcp-null

Enables TCP Null scan protection - all TCP flags and TCP sequence number zero.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-null`

- **no dos tcp-null**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-null`

20.1.2 dos tcp-xmas

Enables xmas scan protection - TCP FIN, URG, PSH equal 1 and SEQ equals 0.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-xmas`

- **no dos tcp-xmas**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-xmas`

20.1.3 dos tcp-syn-fin

Enables TCP SYN/FIN scan protection - TCP with SYN and FIN flags set.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-syn-fin`

- **no dos tcp-syn-fin**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-syn-fin`

20.1.4 dos tcp-min-header

Enables TCP minimal header size check.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-min-header`

- **no dos tcp-min-header**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-min-header`

20.1.5 dos icmp-fragmented

Enables fragmented ICMP protection.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos icmp-fragmented`

- **no dos icmp-fragmented**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos icmp-fragmented`

20.1.6 dos icmp payload-check

Enables ICMP max payload size protection for IPv4 and IPv6.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos icmp payload-check`

- **no dos icmp payload-check**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos icmp payload-check`

20.1.7 dos icmp payload-size

Configures maximum ICMP payload size (default: 512).
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos icmp payload-size <P-1>`

Parameter	Value	Meaning
`P-1`	0..1472	`Max. ICMP payload size (default: 512)`

20.1.8 dos ip-land

Enables IP LAND attack protection - source IP equals destination IP.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos ip-land`

- **no dos ip-land**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos ip-land`

20.1.9 dos tcp-offset

Enables TCP offset check - ingress TCP packets with fragment offset 1 are dropped.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-offset`

- **no dos tcp-offset**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-offset`

20.1.10 dos tcp-syn

Enables TCP SYN and L4 source port smaller than 1024 protection.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos tcp-syn`

- **no dos tcp-syn**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos tcp-syn`

20.1.11 dos l4-port

Enables UDP or TCP L4 source port equals L4 destination port check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos l4-port`

no dos l4-port
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dos l4-port`

20.1.12 dos icmp-smurf-attack

Enables ICMP smurf attack protection check.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos icmp-smurf-attack`

no dos icmp-smurf-attack
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dos icmp-smurf-attack`

20.2 show

Display device options and settings.

20.2.1 show dos

Show DoS Mitigation parameters

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dos`

21 802.1X Port Authentication

21.1 dot1x

Configure 802.1X parameters.

21.1.1 dot1x dynamic-vlan

Creates VLANs dynamically when a RADIUS-assigned VLAN does not exist.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dot1x dynamic-vlan`

- **no dot1x dynamic-vlan**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dot1x dynamic-vlan`

21.1.2 dot1x system-auth-control

Enable or disable 802.1X authentication support on the switch.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dot1x system-auth-control`

- **no dot1x system-auth-control**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dot1x system-auth-control`

21.1.3 dot1x monitor

Enable or disable 802.1X monitor mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dot1x monitor`

- **no dot1x monitor**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dot1x monitor`

21.2 show

Display device options and settings.

21.2.1 show dot1x global

Display global 802.1X configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x global`

21.2.2 show dot1x auth-history

Display 802.1X authentication events and information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x auth-history [<P-1>] [<P-2>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..4294967294	`802.1X history log entry index. This can be specified only if interface is provided.\nParameter Usage:[ <slot/port> [index] ]`

21.2.3 show dot1x detail

Display the detailed 802.1X configuration for the specified port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x detail <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

21.2.4 show dot1x summary

Display summary information of the 802.1X configuration for a specified port or all ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x summary [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

21.2.5 show dot1x clients

Display 802.1X client information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x clients [<P-1>]`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`

21.2.6 show dot1x statistics

Display the 802.1X statistics for the specified port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show dot1x statistics <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

21.3 dot1x

Configure 802.1X interface parameters.

21.3.1 dot1x guest-vlan

Configure a VLAN as 802.1X guest VLAN.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x guest-vlan <P-1>`

Parameter	Value	Meaning
`P-1`	0..4042	`Enter the VLAN ID. Entering of ID 0 disables the feature.`

21.3.2 dot1x max-req

Configure the maximum number of requests to be sent.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x max-req <P-1>`

Parameter	Value	Meaning
`P-1`	1..10	`Maximum number of requests (default: 2).`

21.3.3 dot1x max-users

Configure the maximum number of supplicants on a port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x max-users <P-1>`

Parameter	Value	Meaning
`P-1`	1..16	`Maximum number of supplicants on a port (default: 16).`

21.3.4 dot1x mac-auth-bypass

Configure MAC-Authentication bypass for the port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x mac-auth-bypass`

no dot1x mac-auth-bypass

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dot1x mac-auth-bypass`

21.3.5 dot1x port-control

Set the authentication mode on the specified port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x port-control <P-1>`

Parameter	Value	Meaning
`P-1`	auto	`Port is actually controlled by protocol.`
`P-1`	force-authorized	`Port is authorized unconditionally (default).`
`P-1`	force-unauthorized	`Port is unauthorized unconditionally.`
`P-1`	multi-client	`If more than one client is attached to the port, then each client needs to authenticate separately.`

21.3.6 dot1x re-authentication

Enable re-authentication for the given interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x re-authentication`

no dot1x re-authentication

Disable re-authentication for the given interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dot1x re-authentication`

21.3.7 dot1x unauthenticated-vlan

Configure a VLAN as 802.1X unauthenticated VLAN.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x unauthenticated-vlan <P-1>`

Parameter	Value	Meaning
`P-1`	0..4042	`Enter the VLAN ID. Entering of ID 0 disables the feature.`

21.3.8 dot1x timeout guest-vlan-period

Configure the guest-vlan period value.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout guest-vlan-period <P-1>`

Parameter	Value	Meaning
`P-1`	1..300	`Guest-vlan timeout in seconds (default: 90).`

21.3.9 dot1x timeout reauth-period

Configure the re-authentication period.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout reauth-period <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Timeout in seconds.`

21.3.10 dot1x timeout quiet-period

Configure the quiet period value.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout quiet-period <P-1>`

Parameter	Value	Meaning
`P-1`	0..65535	`Quiet period in seconds (default: 60).`

21.3.11 dot1x timeout tx-period

Configure the transmit timeout period.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout tx-period <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Timeout in seconds.`

21.3.12 dot1x timeout supp-timeout

Configure the supplicant timeout period.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout supp-timeout <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Timeout in seconds.`

21.3.13 dot1x timeout server-timeout

Configure the server timeout period.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x timeout server-timeout <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Timeout in seconds.`

21.3.14 dot1x initialize

Begins the initialization sequence on the specified port (port-control mode must be 'auto').

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x initialize`

no dot1x initialize

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dot1x initialize`

21.3.15 dot1x re-authenticate

Begins the re-authentication sequence on the specified port (port-control mode must be 'auto').

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dot1x re-authenticate`

no dot1x re-authenticate

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dot1x re-authenticate`

21.4 clear

Clear several items.

21.4.1 clear dot1x statistics port

Resets the 802.1X statistics for specified port.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear dot1x statistics port <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

21.4.2 clear dot1x statistics all

Resets the 802.1X statistics for all ports.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear dot1x statistics all`

21.4.3 clear dot1x auth-history port

Clears the 802.1X authentication history for specified port.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear dot1x auth-history port <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

21.4.4 clear dot1x auth-history all

Clears the 802.1X authentication history for all ports.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear dot1x auth-history all`

22 Filter for MAC Addresses

22.1 mac-filter

static mac filter configuration

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac-filter`

22.2 show

Display device options and settings.

22.2.1 show mac-filter-table static

Displays mac address filter table

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mac-filter-table static`

22.3 bridge

bridge configuration

22.3.1 bridge aging-time

aging time configuration

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `bridge aging-time <P-1>`

Parameter	Value	Meaning
`P-1`	10..500000	`Enter a number in the given range.`

22.4 show

Display device options and settings.

22.4.1 show bridge aging-time

address aging time

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show bridge aging-time`

22.5 show

Display device options and settings.

22.5.1 show mac-addr-table

Displays the MAC address table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mac-addr-table [<P-1>]`

Parameter	Value	Meaning
`P-1`	a:b:c:d:e:f	`Enter a MAC address.`
`P-1`	1..4042	`Enter a VLAN ID.`

22.6 clear

Clear several items.

22.6.1 clear mac-addr-table

Clears the MAC address table.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear mac-addr-table`

23 HiDiscovery

23.1 network

Configure the inband connectivity.

23.1.1 network hidiscovery operation

Enable the HiDiscovery protocol on this device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network hidiscovery operation`

- **no network hidiscovery operation**
  Disable the HiDiscovery protocol on this device.
  - Mode: `Privileged Exec Mode`
  - Privilege Level: `Operator`
  - Format: `no network hidiscovery operation`

23.1.2 network hidiscovery mode

Set the access level for HiDiscovery.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network hidiscovery mode <P-1>`

Parameter	Value	Meaning
`P-1`	read-write	`Allow detection and configuration.`
`P-1`	read-only	`Allow only detection, no configuration.`

23.1.3 network hidiscovery blinking

Enable the HiDiscovery blinking sequence on this device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network hidiscovery blinking`

no network hidiscovery blinking

Disable the HiDiscovery blinking sequence on this device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `no network hidiscovery blinking`

23.2 show

Display device options and settings.

23.2.1 show network hidiscovery

Show the HiDiscovery settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show network hidiscovery`

24 Hypertext Transfer Protocol (HTTP)

24.1 http

Set HTTP parameters.

24.1.1 http port

Set the HTTP port number.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `http port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Port number of the HTTP server (default: 80).`

24.1.2 http server

Enable the HTTP server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `http server`

- **no http server**
  Disable the HTTP server.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no http server`

24.2 show

Display device options and settings.

24.2.1 show http

Show HTTP server information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show http`

25 HTTP Secure (HTTPS)

25.1 https

Set HTTPS parameters.

25.1.1 https server

Enable the HTTPS server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `https server`

- **no https server**
  Disable the HTTPS server.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no https server`

25.1.2 https port

Set the HTTPS port number.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `https port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Port number of the web server (default: 443).`

25.1.3 https certificate

Generate/Delete HTTPS X509/PEM certificate.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `https certificate <P-1>`

Parameter	Value	Meaning
`P-1`	generate	`Generates the item`
`P-1`	delete	`Deletes the item`

25.2 copy

Copy different kinds of items.

25.2.1 copy httpscert remote

Copy X509/PEM certificate from server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy httpscert remote <P-1> nvm`

`nvm`: Copy HTTPS certificate (PEM) from the remote server to the NV memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

25.3 show

Display device options and settings.

25.3.1 show https

Show HTTPS server information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show https`

26 Integrated Authentification Server (IAS)

26.1 ias-users

Manage IAS Users and User Accounts.

26.1.1 ias-users add

Add a new IAS user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ias-users add <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`

26.1.2 ias-users delete

Delete an existing IAS user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ias-users delete <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`

26.1.3 ias-users enable

Enable IAS user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ias-users enable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`

26.1.4 ias-users disable

Disable IAS user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ias-users disable <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`

26.1.5 ias-users password

Change IAS user password.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ias-users password <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`
`P-2`	string	`Enter a user-defined text, max. 64 characters.`

26.2 show

Display device options and settings.

26.2.1 show ias-users

Display IAS users and user accounts information.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show ias-users`

27 IGMP Snooping

27.1 igmp-snooping

Configure IGMP snooping.

27.1.1 igmp-snooping mode

Enable IGMP snooping.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping mode`

- **no igmp-snooping mode**
  Disable IGMP snooping.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no igmp-snooping mode`

27.1.2 igmp-snooping querier mode

Enable IGMP snooping querier on the system.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping querier mode`

- **no igmp-snooping querier mode**
  Disable IGMP snooping querier on the system.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no igmp-snooping querier mode`

27.1.3 igmp-snooping querier query-interval

Sets the IGMP querier query interval time (1-1800) in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping querier query-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1..1800	`Enter a number in the given range.`

27.1.4 igmp-snooping querier timer-expiry

Sets the IGMP querier timer expiration period (60-300) in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping querier timer-expiry <P-1>`

Parameter	Value	Meaning
`P-1`	60..300	`Enter a number in the given range.`

27.1.5 igmp-snooping querier version

Sets the IGMP version (1-3) of the query.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping querier version <P-1>`

Parameter	Value	Meaning
`P-1`	1..3	`IGMP snooping querier's protocol version(1 to 3,default: 2).`

27.1.6 igmp-snooping forward-unknown

Configure if and how unknown multicasts are forwarded.The setting can be discard, flood or query-ports.The default is flood.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping forward-unknown <P-1>`

Parameter	Value	Meaning
`P-1`	discard	`Unknown multicast frames will be discarded.`
`P-1`	flood	`Unknown multicast frames will be flooded.`
`P-1`	query-ports	`Unknown multicast frames will be forwarded only to query ports.`

27.2 igmp-snooping

Configure IGMP snooping.

27.2.1 igmp-snooping vlan-id

Configure the VLAN parameters.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `igmp-snooping vlan-id <P-1> mode fast-leave groupmembership-interval <P-2> maxresponse <P-3> mcrtrexpiretime <P-4> querier mode address <P-5> election-participate forward-known <P-6> forward-all <P-7> static-query-port <P-8> automatic-mode <P-9>`

`mode`: Enable or disable IGMP snooping per VLAN.
`fast-leave`: Enable or disable IGMP snooping fast-leave per VLAN.
`groupmembership-interval`: Set IGMP group membership interval time (2-3600) in seconds per VLAN.
`maxresponse`: Set the igmp maximum response time (1-25) in seconds per VLAN.
`mcrtrexpiretime`: Sets the multicast router present expiration time (0-3600) in seconds per VLAN.
`querier`: Set IGMP snooping querier on the system.
`mode`: Enable or disable IGMP snooping querier per VLAN.
`address`: Set IGMP snooping querier address on the system using a VLAN.
`election-participate`: Enables the snooping querier to participate in the querier election process when it discovers the presence of another querier in the VLAN.
`forward-known`: Sets the mode how known multicast packets will be treated.The default value is registered-ports-only(2).
`forward-all`: Enable or disable IGMP snooping forward-all.
`static-query-port`: Enable or disable IGMP snooping static-query-port.

`automatic-mode`: Enable or disable IGMP snooping automatic-mode.

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	2..3600	`Enter a number in the given range.`
`P-3`	1..25	`Enter a number in the given range.`
`P-4`	0..3600	`Enter a number in the given range.`
`P-5`	A.B.C.D	`IP address.`
`P-6`	query-and-registered-ports	`Addition of query ports to multicast filter portmasks.`
`P-6`	registered-ports-only	`No addition of query ports to multicast filter portmasks.`
`P-7`	slot no./port no.	
`P-8`	slot no./port no.	
`P-9`	slot no./port no.	

no igmp-snooping vlan-id

Disable the option.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no igmp-snooping vlan-id`

27.3 igmp-snooping

Configure IGMP snooping.

27.3.1 igmp-snooping mode

Enable IGMP snooping per interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping mode`

- **no igmp-snooping mode**
  Disable IGMP snooping per interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no igmp-snooping mode`

27.3.2 igmp-snooping fast-leave

Enable IGMP snooping fast-leave per interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping fast-leave`

- **no igmp-snooping fast-leave**
  Disable IGMP snooping fast-leave per interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no igmp-snooping fast-leave`

27.3.3 igmp-snooping groupmembership-interval

Set IGMP group membership interval time (2-3600) in seconds per interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping groupmembership-interval <P-1>`

Parameter	Value	Meaning
`P-1`	2..3600	`Enter a number in the given range.`

27.3.4 igmp-snooping maxresponse

Set the igmp maximum response time (1-25) in seconds per interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping maxresponse <P-1>`

Parameter	Value	Meaning
`P-1`	1..25	`Enter a number in the given range.`

27.3.5 igmp-snooping mcrtrexpiretime

Sets the multicast router present expiration time (0-3600) in seconds per interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping mcrtrexpiretime <P-1>`

Parameter	Value	Meaning
`P-1`	0..3600	`Enter a number in the given range.`

27.3.6 igmp-snooping static-query-port

Configures the interface as a static query interface in all VLANs.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `igmp-snooping static-query-port`

no igmp-snooping static-query-port
Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no igmp-snooping static-query-port`

27.4 show

Display device options and settings.

27.4.1 show igmp-snooping global

Show IGMP snooping global information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping global`

27.4.2 show igmp-snooping interface all

Show IGMP snooping information for interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping interface all`

27.4.3 show igmp-snooping interface port

Show IGMP snooping information per slot/port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping interface port <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	detail	`Show detail`

27.4.4 show igmp-snooping vlan all

Show IGMP snooping VLAN information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping vlan all`

27.4.5 show igmp-snooping vlan vlan-id

Show IGMP snooping VLAN information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping vlan vlan-id <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	detail	`Show detail`

27.4.6 show igmp-snooping querier global

Show IGMP snooping querier information per VLAN.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping querier global`

27.4.7 show igmp-snooping querier vlan all

Show IGMP snooping querier VLAN information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping querier vlan all`

27.4.8 show igmp-snooping querier vlan vlan-id

Show IGMP snooping querier VLAN information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping querier vlan vlan-id <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	detail	`Show detail`

27.4.9 show igmp-snooping enhancements vlan

Show IGMP snooping VLAN information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping enhancements vlan [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

27.4.10 show igmp-snooping enhancements unknown-filtering

Show unknown multicast filering information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping enhancements unknown-filtering`

27.4.11 show igmp-snooping statistics global

Show number of control packets processed by CPU.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping statistics global`

27.4.12 show igmp-snooping statistics interface

Show number of control packets processed by CPU per interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show igmp-snooping statistics interface [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

27.5 show

Display device options and settings.

27.5.1 show mac-filter-table igmp-snooping

Display IGMP snooping entries in the MFDB table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mac-filter-table igmp-snooping`

27.6 clear

Clear several items.

27.6.1 clear igmp-snooping

Clear all IGMP snooping entries.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear igmp-snooping`

28 Interface

28.1 shutdown

Enable or disable the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `shutdown`

28.2 auto-negotiate

Enable or disable automatic negotiation on the interface. The cable crossing settings have no effect if auto-negotiation is enabled. In this case cable crossing is always set to auto. Cable crossing is set to the value chosen by the user if auto-negotiation is disabled.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `auto-negotiate`

28.3 auto-power-down

Set the auto-power-down mode on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `auto-power-down`

28.4 cable-crossing

Cable crossing settings on the interface. The cable crossing settings have no effect if auto-negotiation is enabled. In this case cable crossing is always set to auto. Cable crossing is set to the value chosen by the user if auto-negotiation is disabled.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `cable-crossing`

28.5 linktraps

Enable/disable link up/down traps on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `linktraps`

28.6 speed

Sets the speed and duplex setting for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `speed`

28.7 name

Set or remove a descriptive name for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `name`

28.8 power-state

Enable or disable the power state on the interface. The interface power state settings have no effect if the interface admin state is enabled.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `power-state`

28.9 mac-filter

static mac filter configuration

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mac-filter`

28.10show

Display device options and settings.

28.10.1 show port all

Show Table with interface parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port all`

29 Interface Statistics

29.1 utilization

Configure the interface utilization parameters.

29.1.1 utilization control-interval

Add interval time to monitor the bandwidth utilization of the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `utilization control-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1..3600	`Add interval time to monitor the bandwidth utilization.`

29.1.2 utilization alarm-threshold lower

Lower threshold value

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `utilization alarm-threshold lower <P-1>`

Parameter	Value	Meaning
`P-1`	0..10000	`Add alarm threshold lower value for monitoring bandwidth utilization in hundredths of a percent.`

29.1.3 utilization alarm-threshold upper

Upper threshold value

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `utilization alarm-threshold upper <P-1>`

Parameter	Value	Meaning
`P-1`	0..10000	`Add alarm threshold upper value for monitoring bandwidth utilization in hundredths of a percent.`

29.2 clear

Clear several items.

29.2.1 clear port-statistics

Clear all statistics counter.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear port-statistics`

29.3 show

Display device options and settings.

29.3.1 show interface counters

Show Table with interface counters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show interface counters`

29.3.2 show interface utilization

Show interface utilization.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show interface utilization [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

29.3.3 show interface statistics

Show summary interface statistics.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show interface statistics [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

29.3.4 show interface ether-stats

Show detailed interface statistics.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show interface ether-stats [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

30 Digital IO Module

30.1 digital-input

Digital Input related configuration.

30.1.1 digital-input admin-state

Enable the polling for digital inputs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input admin-state`

- **no digital-input admin-state**
  Disable the polling for digital inputs.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no digital-input admin-state`

30.1.2 digital-input refresh-interval

Set refresh interval in milli-sec for digital inputs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input refresh-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1000..10000	`Refresh interval in milli-seconds.`

30.1.3 digital-input log-event io

Configure a single io port.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input log-event io <P-1>`

Parameter	Value	Meaning
`P-1`	slot/input	`Enter a Digital IO module input in slot/input format.`
`P-1`	MU/input	`Enter a Digital IO input on the power supply module in MU/input format.`

no digital-input log-event io

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-input log-event io`

30.1.4 digital-input log-event all

Configure all io ports.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input log-event all`

no digital-input log-event all

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-input log-event all`

30.1.5 digital-input snmp-trap io

Configure a single io port.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input snmp-trap io <P-1>`

Parameter	Value	Meaning
`P-1`	slot/input	`Enter a Digital IO module input in slot/input format.`
`P-1`	MU/input	`Enter a Digital IO input on the power supply module in MU/input format.`

no digital-input snmp-trap io

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-input snmp-trap io`

30.1.6 digital-input snmp-trap all

Configure all io ports.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-input snmp-trap all`

no digital-input snmp-trap all

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-input snmp-trap all`

30.2 digital-output

Digital Output related configuration

30.2.1 digital-output admin-state

Enable the polling for digital outputs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output admin-state`

- **no digital-output admin-state**
  Disable the polling for digital outputs.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no digital-output admin-state`

30.2.2 digital-output refresh-interval

Set refresh interval in milli-sec for digital outputs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output refresh-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1000..10000	`Refresh interval in milli-seconds.`

30.2.3 digital-output retry-count

Set the number of retry counts for setting digital outputs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output retry-count <P-1>`

Parameter	Value	Meaning
`P-1`	1..10	`Retry count for digital outputs.`

30.2.4 digital-output log-event io

Configure an io port.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output log-event io <P-1>`

Parameter	Value	Meaning
`P-1`	slot/output	`Enter a Digital IO module output in slot/ output format.`
`P-1`	MU/output	`Enter a Digital IO output on the power supply module in MU/output format.`

no digital-output log-event io

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-output log-event io`

30.2.5 digital-output log-event all

Configure all io ports.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output log-event all`

no digital-output log-event all
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-output log-event all`

30.2.6 digital-output snmp-trap io

Configure an io port.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output snmp-trap io <P-1>`

Parameter	Value	Meaning
`P-1`	slot/output	`Enter a Digital IO module output in slot/ output format.`
`P-1`	MU/output	`Enter a Digital IO output on the power supply module in MU/output format.`

no digital-output snmp-trap io
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-output snmp-trap io`

30.2.7 digital-output snmp-trap all

Configure all io ports.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output snmp-trap all`

no digital-output snmp-trap all
Disable the option.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no digital-output snmp-trap all`

30.2.8 digital-output mirror io

Mirror a single io port.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `digital-output mirror io <P-1> disable from <P-2> <P-3>`

`disable`: Disable Mirroring on this output port.
`from`: Enable Mirroring on this output port.

Parameter	Value	Meaning
`P-1`	slot/output	`Enter a Digital IO module output in slot/output format.`
`P-1`	MU/output	`Enter a Digital IO output on the power supply module in MU/output format.`
`P-2`	%*u.%*u.%*u.%*u	`a.b.c.d Single IP address.`
`P-2`	%*u.%*u.%*u.%*u:%*u	`a.b.c.d:n Address with port.`
`P-3`	slot/input	`Enter a Digital IO module input in slot/input format.`
`P-3`	MU/input	`Enter a Digital IO input on the power supply module in MU/input format.`

30.3 show

Display device options and settings.

30.3.1 show digital-input config

Display the global information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show digital-input config`

30.3.2 show digital-input io

Display details about a single io input port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show digital-input io`

30.3.3 show digital-output config

Display the global configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show digital-output config`

30.3.4 show digital-output io

Display details about a single io output port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show digital-output io`

31 IP Source Guard (IPSG)

31.1 ip

Set IP parameters.

31.1.1 ip source-guard binding add

This command creates a new static IPSG binding between a MAC address and an IP address, for a specific VLAN at a particular interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard binding add <P-1> <P-2> <P-3> <P-4> [<P-5>]`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	slot no./port no.	
`P-4`	1..4042	`Enter the VLAN ID.`
`P-5`	active	`Activate the option.`
`P-5`	inactive	`Inactivate the option.`

31.1.2 ip source-guard binding delete all

This command deletes all static IP Source Guard (IPSG) bindings (at all interfaces).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard binding delete all`

31.1.3 ip source-guard binding delete interface

This command deletes all static IP Source Guard (IPSG) bindings, associated with a particular interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard binding delete interface <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

31.1.4 ip source-guard binding delete index

This command deletes one static IP Source Guard (IPSG) binding, associated with a MAC address, IP address, interface and VLAN.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard binding delete index <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	slot no./port no.	
`P-4`	1..4042	`Enter the VLAN ID.`

31.1.5 ip source-guard binding mode

This command activates or deactivates a configured static IPSG binding.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard binding mode <P-1> <P-2> <P-3> <P-4> <P-5>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	slot no./port no.	
`P-4`	1..4042	`Enter the VLAN ID.`
`P-5`	active	`Activate the option.`
`P-5`	inactive	`Inactivate the option.`

31.2 clear

Clear several items.

31.2.1 clear ip source-guard bindings

This command clears all dynamic IPSG bindings on all interfaces or on a specific interface.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear ip source-guard bindings [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

31.3 ip

IP interface commands.

31.3.1 ip source-guard mode

This command configures an interface for IP source guarding (IPSG).
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard mode`

- **no ip source-guard mode**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no ip source-guard mode`

31.3.2 ip source-guard verify-mac

This command configures an interface for additional MAC address verification, when performing IP source guarding (IPSG). This option cannot be enabled unless IPSG is enabled. Once it is enabled, it can only be disabled by disabling IPSG at this interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip source-guard verify-mac`

31.4 show

Display device options and settings.

31.4.1 show ip source-guard interfaces

This command shows the IP Source Guard (IPSG) status of all interfaces.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip source-guard interfaces`

31.4.2 show ip source-guard bindings

This command displays the IPSG binding entries from the static and/or dynamic bindings table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ip source-guard bindings [<P-1>] [interface <P-2>] [vlan <P-3>]`

`[interface]`: Restrict the output based on a specific interface.
`[vlan]`: Restrict the output based on VLAN.

Parameter	Value	Meaning
`P-1`	static	`Restrict the output based on static bindings.`
`P-1`	dynamic	`Restrict the output based on dynamic bindings.`
`P-2`	slot no./port no.	
`P-3`	1..4042	`Enter the VLAN ID.`

32 IP Subnet Based VLAN

32.1 vlan

Creation and configuration of VLANS.

32.1.1 vlan association subnet

Configure Subnet association to VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan association subnet <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`
`P-2`	A.B.C.D	`IP address.`

no vlan association subnet

Disable the option.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `no vlan association subnet`

32.2 show

Display device options and settings.

32.2.1 show vlan association subnet

Display Subnet association to VLAN entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan association subnet [<P-1>]`

Parameter	Value	Meaning
`P-1`	a.b.c.d-e.f.g.h	`IP address and mask e.g. 192.168.1.1-255.255.255.0 .`

33 Internet Protocol Version 4 (IPv4)

33.1 network

Configure the inband connectivity.

33.1.1 network protocol

Select DHCP, BOOTP or none as the network configuration protocol.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network protocol <P-1>`

Parameter	Value	Meaning
`P-1`	none	`No network config protocol`
`P-1`	bootp	`BOOTP`
`P-1`	dhcp	`DHCP`

33.1.2 network parms

Set network address, netmask and gateway

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network parms <P-1> <P-2> [<P-3>]`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`
`P-2`	A.B.C.D	`IP address.`
`P-3`	A.B.C.D	`IP address.`

33.2 clear

Clear several items.

33.2.1 clear arp-table-switch

Clear the agent's ARP table (cache).

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear arp-table-switch`

33.3 show

Display device options and settings.

33.3.1 show network parms

Show network settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show network parms`

33.4 show

Display device options and settings.

33.4.1 show arp

Show ARP table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show arp`

34 Link Layer Discovery Protocol (LLDP)

34.1 lldp

Configure of Link Layer Discovery Protocol.

34.1.1 lldp operation

Enable the LLDP operational state.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp operation`

- **no lldp operation**
  Disable the LLDP operational state.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp operation`

34.1.2 lldp config chassis admin-state

Enable or disable the LLDP operational state.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis admin-state <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the option.
P-1	disable	Disable the option.

34.1.3 lldp config chassis notification-interval

Enter the LLDP notification interval in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis notification-interval <P-1>`

Parameter	Value	Meaning
P-1	5..3600	Enter a number in the given range.

34.1.4 lldp config chassis re-init-delay

Enter the LLDP re-initialization delay in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis re-init-delay <P-1>`

Parameter	Value	Meaning
P-1	1..10	Enter a number in the given range.

34.1.5 lldp config chassis tx-delay

Enter the LLDP transmit delay in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis tx-delay <P-1>`

Parameter	Value	Meaning
`P-1`	1..8192	`Enter a number in the given range.`

34.1.6 lldp config chassis tx-hold-multiplier

Enter the LLDP transmit hold multiplier.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis tx-hold-multiplier <P-1>`

Parameter	Value	Meaning
`P-1`	2..10	`Enter a number in the given range.`

34.1.7 lldp config chassis tx-interval

Enter the LLDP transmit interval in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp config chassis tx-interval <P-1>`

Parameter	Value	Meaning
`P-1`	5..32768	`Enter a number in the given range.`

34.2 show

Display device options and settings.

34.2.1 show lldp global

Display the LLDP global configurations.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp global`

34.2.2 show lldp port

Display port specific LLDP configurations.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp port [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

34.2.3 show lldp remote-data all

Remote LLDP information for all ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp remote-data all`

34.2.4 show lldp remote-data port

Remote LLDP information for given port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp remote-data port <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

34.3 lldp

Configure of Link Layer Discovery Protocol on a port.

34.3.1 lldp admin-state

Configure how the interface processes LLDP frames.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp admin-state <P-1>`

Parameter	Value	Meaning
`P-1`	tx-only	`Interface will only transmit LLDP frames. Received frames are not processed.`
`P-1`	rx-only	`Interface will only receive LLDP frames. Frames are not transmitted.`
`P-1`	tx-and-rx	`Interface will transmit and receive LLDP frames. This is the default setting.`
`P-1`	disable	`Interface will neither transmit nor process received LLDP frames.`

34.3.2 lldp fdb-mode

Configure the LLDP FDB mode for this interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp fdb-mode <P-1>`

Parameter	Value	Meaning
`P-1`	lldp-only	`Collected remote data will be based on received LLDP frames only.`
`P-1`	mac-only	`Collected remote data will be based on the switch's FDB entries only.`
`P-1`	both	`Collected remote data will be based on received LLDP frames as well as on the switch's FDB entries.`
`P-1`	auto-detect	`As long as no LLDP frames are received, the collected remote data will be based on the switch's FDB entries only. After the first LLDP frame is received, the remote data will be based on received LLDP frames only. This is the default setting.`

34.3.3 lldp max-neighbors

Enter the LLDP max neighbors for interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp max-neighbors <P-1>`

Parameter	Value	Meaning
`P-1`	1..50	`Enter a number in the given range.`

34.3.4 lldp notification

Enable the LLDP notification operation for interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp notification`

no lldp notification

Disable the LLDP notification operation for interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp notification`

34.3.5 lldp tlv inline-power

Enable inline-power TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv inline-power`

no lldp tlv inline-power

Disable inline-power TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv inline-power`

34.3.6 lldp tlv mac-phy-config-state

Enable mac-phy-config-state TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv mac-phy-config-state`

no lldp tlv mac-phy-config-state
Disable mac-phy-config-state TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv mac-phy-config-state`

34.3.7 lldp tlv max-frame-size

Enable max-frame-size TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv max-frame-size`

no lldp tlv max-frame-size
Disable max-frame-size TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv max-frame-size`

34.3.8 lldp tlv mgmt-addr

Enable mgmt-addr TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv mgmt-addr`

- **no lldp tlv mgmt-addr**
  Disable mgmt-addr TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv mgmt-addr`

34.3.9 lldp tlv port-desc

Enable port description TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv port-desc`

- **no lldp tlv port-desc**
  Disable port description TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv port-desc`

34.3.10 lldp tlv port-vlan

Enable port-vlan TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv port-vlan`

- **no lldp tlv port-vlan**
  Disable port-vlan TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv port-vlan`

34.3.11 lldp tlv protocol

Enable protocol TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv protocol`

- **no lldp tlv protocol**
  Disabe protocol TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv protocol`

34.3.12 lldp tlv sys-cap

Enable system capabilities TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-cap`

no lldp tlv sys-cap

Disable system capabilities TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-cap`

34.3.13 lldp tlv sys-desc

Enable system description TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-desc`

no lldp tlv sys-desc

Disable system description TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-desc`

34.3.14 lldp tlv sys-name

Enable system name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-name`

no lldp tlv sys-name
Disable system name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-name`

34.3.15 lldp tlv vlan-name

Enable vlan name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv vlan-name`

no lldp tlv vlan-name
Disable vlan name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv vlan-name`

34.3.16 lldp tlv protocol-based-vlan

Enable protocol-based vlan TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv protocol-based-vlan`

- **no lldp tlv protocol-based-vlan**
  Disable protocol-based vlan TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv protocol-based-vlan`

34.3.17 lldp tlv igmp

Enable igmp TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv igmp`

- **no lldp tlv igmp**
  Disable igmp TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv igmp`

34.3.18 lldp tlv portsec

Enable portsec TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv portsec`

- **no lldp tlv portsec**
  Disable portsec TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv portsec`

34.3.19 lldp tlv ptp

Enable PTP TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv ptp`

- **no lldp tlv ptp**
  Disable PTP TLV transmission.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv ptp`

35 Media Endpoint Discovery LLDP-MED

35.1 lldp

Configure of Link Layer Discovery Protocol on a port.

35.1.1 lldp med confignotification

Enable LLDP-MED notification send for this interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp med confignotification`

- **no lldp med confignotification**
  Disable LLDP-MED notification send for this interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp med confignotification`

35.1.2 lldp med transmit-tlv capabilities

Include/Exclude LLDP MED capabilities TLV.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp med transmit-tlv capabilities`

- **no lldp med transmit-tlv capabilities**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp med transmit-tlv capabilities`

35.1.3 lldp med transmit-tlv network-policy

Include/Exclude LLDP network policy TLV.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp med transmit-tlv network-policy`

- **no lldp med transmit-tlv network-policy**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp med transmit-tlv network-policy`

35.2 lldp

Configure of Link Layer Discovery Protocol.

35.2.1 lldp med faststartrepeatcount

Configure LLDP-MED fast start repeat count.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp med faststartrepeatcount <P-1>`

Parameter	Value	Meaning
`P-1`	1..10	`Enter a value representing the number of LLDP PDUs that will be transmitted.Default is 3.`

35.3 show

Display device options and settings.

35.3.1 show lldp med global

Display a summary of the current LLDP-MED configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp med global`

35.3.2 show lldp med interface

Display the current LLDP-MED configuration on a specific port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp med interface [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

35.3.3 show lldp med local-device

Display detailed information about the LLDP-MED data

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp med local-device <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

35.3.4 show lldp med remote-device detail

Display LLDP-MED detail configuration for a remote device.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp med remote-device detail <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

35.3.5 show lldp med remote-device summary

Display LLDP-MED summary configuration for a remote device.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show lldp med remote-device summary [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

36 Logging

36.1 logging

Logging configuration.

36.1.1 logging audit-trail

Add a comment for the audit trail.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging audit-trail <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 80 characters.`

36.1.2 logging buffered severity

Configure the maximum severity level to be logged to the high priority buffer.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging buffered severity <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.3 logging host add

Add a new logging host.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging host add <P-1> addr <P-2> <P-3> [port <P-4>] [severity <P-5>] [type <P-6>]`

`addr`: Enter the IP address of the server.

[port]: Enter the UDP port used for syslog server transmission.
[severity]: Configure the maximum severity level to be sent to this syslog server.
[type]: Configure the type of log messages to be sent to the syslog server.

Parameter	Value	Meaning
P-1	1..8	Syslog server entry index
P-2	string	Hostname or IP address
P-3	A.B.C.D	IP address.
P-4	1..65535	UDP port number to be used
P-5	emergency	System is unusable. System failure has occurred.
P-5	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-5	critical	Recoverable failure of a component that may lead to system failure.
P-5	error	Error conditions. Recoverable failure of a component.
P-5	warning	Minor failure, e.g. misconfiguration of a component.
P-5	notice	Normal but significant conditions.
P-5	informational	Informational messages.
P-5	debug	Debug-level messages.
P-5	0	Same as emergency
P-5	1	Same as alert
P-5	2	Same as critical
P-5	3	Same as error
P-5	4	Same as warning
P-5	5	Same as notice
P-5	6	Same as informational
P-5	7	Same as debug
P-6	systemlog	the system event log entries
P-6	audittrail	the audit trail log entries

36.1.4 logging host delete

Delete a logging host.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging host delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..8	`Syslog server entry index`

36.1.5 logging host modify

Modify an existing logging host.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging host modify <P-1> [addr <P-2> <P-3>] [port <P-4>] [severity <P-5>] [type <P-6>]`

`[addr]`: Enter the IP address of the server.
`[port]`: Enter the UDP port used for syslog server transmission.
`[severity]`: Configure the maximum severity level to be sent to this syslog server.

`[type]`: Configure the type of log messages to be sent to the syslog server.

Parameter	Value	Meaning
P-1	1..8	Syslog server entry index
P-2	string	Hostname or IP address
P-3	A.B.C.D	IP address.
P-4	1..65535	UDP port number to be used
P-5	emergency	System is unusable. System failure has occurred.
P-5	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-5	critical	Recoverable failure of a component that may lead to system failure.
P-5	error	Error conditions. Recoverable failure of a component.
P-5	warning	Minor failure, e.g. misconfiguration of a component.
P-5	notice	Normal but significant conditions.
P-5	informational	Informational messages.
P-5	debug	Debug-level messages.
P-5	0	Same as emergency
P-5	1	Same as alert
P-5	2	Same as critical
P-5	3	Same as error
P-5	4	Same as warning
P-5	5	Same as notice
P-5	6	Same as informational
P-5	7	Same as debug
P-6	systemlog	the system event log entries
P-6	audittrail	the audit trail log entries

36.1.6 logging syslog operation

Enable the syslog client.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging syslog operation`

- **no logging syslog operation**
  Disable the syslog client.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging syslog operation`

36.1.7 logging current-console operation

Enable logging messages to the current remote console.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging current-console operation`

- **no logging current-console operation**
  Disable logging messages to the current remote console.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging current-console operation`

36.1.8 logging current-console severity

Configure the maximum severity level to be sent to the current remote console.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging current-console severity <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.9 logging console operation

Enable logging to the local V.24 console.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging console operation`

- **no logging console operation**
  Disable logging to the local V.24 console.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging console operation`

36.1.10 logging console severity

Configure the maximum severity level to be logged to the V.24 console.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging console severity <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.11 logging persistent operation

Enable persistent logging. This feature is only n\available when an SD card is inserted in the SD port.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging persistent operation`

no logging persistent operation
Disable persistent logging. This feature is only n\available when an SD card is inserted in the SD port.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no logging persistent operation`

36.1.12 logging persistent numfiles

Enter the maximum number of log files.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging persistent numfiles <P-1>`

Parameter	Value	Meaning
`P-1`	0..25	`number of logfiles`

36.1.13 logging persistent filesize

Enter the maximum size of a log file.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging persistent filesize <P-1>`

Parameter	Value	Meaning
`P-1`	0..4096	`Maximum persistent logfile size on the non-volatile memory in kBytes`

36.1.14 logging persistent severity-level

Configure the maximum severity level to be logged into files.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging persistent severity-level <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.15 logging email operation

Enable logging email-alert globally.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email operation`

- **no logging email operation**
  Disable logging email-alert globally.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging email operation`

36.1.16 logging email from-addr

Configure mail address used by device to send email-alert.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email from-addr <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a valid email address`

36.1.17 logging email duration

Periodic timer (in minutes) to send an non-critical logs in mail.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email duration <P-1>`

Parameter	Value	Meaning
`P-1`	30..1440	`Time duration in minutes`

36.1.18 logging email severity urgent

Urgent severity level

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email severity urgent <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.19 logging email severity non-urgent

Non-urgent severity level

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email severity non-urgent <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

36.1.20 logging email to-addr add

Create a destination address entry with default values

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email to-addr add <P-1> [addr <P-2>] [msgtype <P-3>]`

`[addr]`: Create an entry with specified address

[msgtype]: Create an entry with specified messgae type

Parameter	Value	Meaning
P-1	1..10	Destination address entry index
P-2	string	Enter a valid email address
P-3	urgent	Urgent message type
P-3	non-urgent	Non-urgent message type

36.1.21 logging email to-addr delete

Delete a destination address

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: logging email to-addr delete <P-1>

Parameter	Value	Meaning
P-1	1..10	Destination address entry index

36.1.22 logging email to-addr modify

Modify a destination address

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: logging email to-addr modify <P-1> [addr <P-2>] [msgtype <P-3>]

[addr]: Modify the destination address
[msgtype]: Modify the message type

Parameter	Value	Meaning
P-1	1..10	Destination address entry index
P-2	string	Enter a valid email address
P-3	urgent	Urgent message type
P-3	non-urgent	Non-urgent message type

36.1.23 logging email mail-server add

Add a server entry to SMTP address table

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email mail-server add <P-1> [addr <P-2>] [security <P-3>] [username <P-4>] [password <P-5>] [port <P-6>]`

`[addr]`: SMTP server address
`[security]`: Security mode used in SMTP server.
`[username]`: Login ID to access SMTP server.
`[password]`: Password to access SMTP server.
`[port]`: SMTP server port number.

Parameter	Value	Meaning
P-1	1..5	SMTP server index
P-2	string	Hostname or IP address
P-3	none	Security mode none
P-3	tlsv1	Security mode TLSv1
P-4	string	Enter a user-defined text, max. 32 characters.
P-5	string	Enter a user-defined text, max. 32 characters.
P-6	1..65535	UDP port number to be used

36.1.24 logging email mail-server delete

Delete a server entry from SMTP address table

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email mail-server delete <P-1>`

Parameter	Value	Meaning
P-1	1..5	SMTP server index

36.1.25 logging email mail-server modify

Modify an SMTP server entry

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email mail-server modify <P-1> [addr <P-2>] [security <P-3>] [username <P-4>] [password <P-5>] [port <P-6>]`

`[addr]`: SMTP server address
`[security]`: Security mode used in SMTP server.
`[username]`: Login ID to access SMTP server.
`[password]`: Password to access SMTP server.
`[port]`: SMTP server port number.

Parameter	Value	Meaning
P-1	1..5	SMTP server index
P-2	string	Hostname or IP address
P-3	none	Security mode none
P-3	tlsv1	Security mode TLSv1
P-4	string	Enter a user-defined text, max. 32 characters.
P-5	string	Enter a user-defined text, max. 32 characters.
P-6	1..65535	UDP port number to be used

36.1.26 logging email subject add

Create an email subject entry

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email subject add <P-1> [<P-2>]`

Parameter	Value	Meaning
P-1	urgent	Urgent message type
P-1	non-urgent	Non-urgent message type
P-2	string	<string> Enter the email subject (Within double quotations if subject includes space)

36.1.27 logging email subject delete

Delete an email subject entry

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email subject delete <P-1>`

Parameter	Value	Meaning
`P-1`	urgent	`Urgent message type`
`P-1`	non-urgent	`Non-urgent message type`

36.1.28 logging email subject modify

Modify an email subject entry

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email subject modify <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	urgent	`Urgent message type`
`P-1`	non-urgent	`Non-urgent message type`
`P-2`	string	`<string> Enter the email subject (Within double quotations if subject includes space)`

36.1.29 logging email test msgtype

Configure the message type for test mail.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging email test msgtype <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	urgent	`Urgent message type`
`P-1`	non-urgent	`Non-urgent message type`
`P-2`	string	`Enter a user-defined text, max. 255 characters.`

36.2 show

Display device options and settings.

36.2.1 show logging buffered

Display buffered (in-memory) log entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging buffered [<P-1>]`

Parameter	Value	Meaning
`P-1`	string	`<filter> Enter a comma separated list of severity ranges, numbers or enum strings are allowed. Example: 0-1,informational-debug`

36.2.2 show logging traplogs

Display trap log entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging traplogs`

36.2.3 show logging console

Display console logging configurations.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging console`

36.2.4 show logging persistent

Display persistent logging configurations.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging persistent [logfiles]`

`[logfiles]`: List the persistent log files.

36.2.5 show logging syslog

Display current syslog operational setting.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging syslog`

36.2.6 show logging host

Display a list of logging hosts currently configured.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging host`

36.2.7 show logging email statistics

Display the statistics of email logging.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging email statistics`

36.2.8 show logging email global

Display global settings of email logging feature.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging email global`

36.2.9 show logging email to-addr

Display list of destination addresses configured.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging email to-addr [<P-1>]`

Parameter	Value	Meaning
P-1	1..10	Destination address entry index

36.2.10 show logging email subject

Display the subject entries configured.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging email subject [<P-1>]`

Parameter	Value	Meaning
P-1	urgent	Urgent message type
P-1	non-urgent	Non-urgent message type

36.2.11 show logging email mail-server

Display SMTP server settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging email mail-server [<P-1>]`

Parameter	Value	Meaning
P-1	1..5	SMTP server index

36.3 copy

Copy different kinds of items.

36.3.1 copy eventlog buffered envm

Copy buffered log to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy eventlog buffered envm <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

36.3.2 copy eventlog buffered remote

Copy buffered log to file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy eventlog buffered remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

36.3.3 copy eventlog persistent

Copy persistent logs to envm or file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy eventlog persistent <P-1> envm <P-2> remote <P-3>`

`envm`: Copy persistent log to external non-volatile memory device.
`remote`: Copy persistent log to file server.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`
`P-2`	string	`Enter a user-defined text, max. 32 characters.`
`P-3`	string	`Enter a user-defined text, max. 128 characters.`

36.3.4 copy traplog system envm

Copy traplog to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy traplog system envm <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

36.3.5 copy traplog system remote

Copy traplog to file server

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy traplog system remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

36.3.6 copy audittrail system envm

Copy audit trail to external non-volatile memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy audittrail system envm <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

36.3.7 copy audittrail system remote

Copy audit trail to file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy audittrail system remote <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

36.4 clear

Clear several items.

36.4.1 clear logging buffered

Clear buffered log from memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear logging buffered`

36.4.2 clear logging persistent

Clear persistent log from memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear logging persistent`

36.4.3 clear logging email statistics

Clear email statistics

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear logging email statistics`

36.4.4 clear eventlog

Clear the event log entries from memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear eventlog`

37 MAC Notification

37.1 mac

Set MAC parameters.

37.1.1 mac notification operation

Enable MAC notification globally.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac notification operation`

- **no mac notification operation**
  Disable MAC notification globally.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no mac notification operation`

37.1.2 mac notification interval

Set MAC notification interval in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac notification interval <P-1>`

Parameter	Value	Meaning
`P-1`	0..2147483647	`MAC Notification interval in seconds.`

37.2 mac

MAC interface commands.

37.2.1 mac notification operation

Enable MAC notification on this interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mac notification operation`

- **no mac notification operation**
  Disable MAC notification on this interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no mac notification operation`

37.3 show

Display device options and settings.

37.3.1 show mac notification global

Displays MAC notification global information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mac notification global`

37.3.2 show mac notification interface

Displays MAC notification interface information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mac notification interface`

38 MAC Based VLAN

38.1 vlan

Creation and configuration of VLANS.

38.1.1 vlan association mac

Configure an association between a MAC address and a VLAN.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan association mac <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	1..4042	`Enter the VLAN ID.`

38.2 show

Display device options and settings.

38.2.1 show vlan association mac

Displays the association MAC address and VLAN table.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan association mac [<P-1>]`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`Enter a MAC address.`
`P-1`	1..4042	`Enter a VLAN ID.`

39 Management Access

39.1 network

Configure the inband connectivity.

39.1.1 network management access web timeout

Set the web interface idle timeout.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access web timeout <P-1>`

Parameter	Value	Meaning
`P-1`	0..160	`Idle timeout of a session in minutes (default: 5).`

39.1.2 network management access add

Add a new entry with index.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access add <P-1> [ip <P-2>] [mask <P-3>] [http <P-4>] [https <P-5>] [snmp <P-6>] [telnet <P-7>] [ssh <P-8>]`

`[ip]`: Configure IP address which should have access to management.
`[mask]`: Configure network mask to allow a subnet for management access.
`[http]`: Configure if HTTP is allowed to have management access.
`[https]`: Configure if HTTPS is allowed to have management access.
`[snmp]`: Configure if SNMP is allowed to have management access.
`[telnet]`: Configure if telnet is allowed to have management access.

[ssh]: Configure if SSH is allowed to have management access.

Parameter	Value	Meaning
P-1	1..16	Pool entry index.
P-2	A.B.C.D	IP address.
P-3	0..32	Prefix length netmask.
P-4	enable	Enable the option.
P-4	disable	Disable the option.
P-5	enable	Enable the option.
P-5	disable	Disable the option.
P-6	enable	Enable the option.
P-6	disable	Disable the option.
P-7	enable	Enable the option.
P-7	disable	Disable the option.
P-8	enable	Enable the option.
P-8	disable	Disable the option.

39.1.3 network management access delete

Delete an entry with index.

- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: network management access delete <P-1>

Parameter	Value	Meaning
P-1	1..16	Pool entry index.

39.1.4 network management access modify

Modify an entry with index.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access modify <P-1> ip <P-2> mask <P-3> http <P-4> https <P-5> snmp <P-6> telnet <P-7> ssh <P-8>`

`ip`: Configure ip-address which should have access to management.
`mask`: Configure network mask to allow a subnet for management access.
`http`: Configure if HTTP is allowed to have management access.
`https`: Configure if HTTPS is allowed to have management access.
`snmp`: Configure if SNMP is allowed to have management access.
`telnet`: Configure if telnet is allowed to have management access.
`ssh`: Configure if ssh is allowed to have management access.

Parameter	Value	Meaning
P-1	1..16	Pool entry index.
P-2	A.B.C.D	IP address.
P-3	0..32	Prefix length netmask.
P-4	enable	Enable the option.
P-4	disable	Disable the option.
P-5	enable	Enable the option.
P-5	disable	Disable the option.
P-6	enable	Enable the option.
P-6	disable	Disable the option.
P-7	enable	Enable the option.
P-7	disable	Disable the option.
P-8	enable	Enable the option.
P-8	disable	Disable the option.

39.1.5 network management access operation

Enable operation for RMA.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access operation`

- **no network management access operation**
  Disable operation for RMA.
  - Mode: `Privileged Exec Mode`
  - Privilege Level: `Administrator`
  - Format: `no network management access operation`

39.1.6 network management access status

Activate an entry.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access status <P-1>`

Parameter	Value	Meaning
`P-1`	1..16	`Pool entry index.`

- **no network management access status**
  Deactivate an entry.
  - Mode: `Privileged Exec Mode`
  - Privilege Level: `Administrator`
  - Format: `no network management access status`

39.2 show

Display device options and settings.

39.2.1 show network management access global

Show global restricted management access preferences.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show network management access global`

39.2.2 show network management access rules

Show restricted management access rules.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show network management access rules [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..16	`Pool entry index.`

40 Media Redundancy Protocol (MRP)

40.1 mrp

Configure the MRP settings.

40.1.1 mrp domain modify advanced-mode

Configure the MRM Advanced Mode.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify advanced-mode <P-1>`

Parameter	Value	Meaning
`P-1`	enabled	
`P-1`	disabled	

40.1.2 mrp domain modify manager-priority

Configure the MRM priority.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify manager-priority <P-1>`

Parameter	Value	Meaning
`P-1`	0..65535	`Enter the MRM priority (default: 32768).`

40.1.3 mrp domain modify mode

Configure the role of the MRP device.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify mode <P-1>`

Parameter	Value	Meaning
`P-1`	client	`The device will be in the role of a MRP Client (MRC).`
`P-1`	manager	`The device will be in the role of a MRP Manager (MRM).`

40.1.4 mrp domain modify name

Configure the logical name of the MRP domain.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify name <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 255 characters.`

40.1.5 mrp domain modify operation

Enable or disable the MRP function.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify operation <P-1>`

Parameter	Value	Meaning
`P-1`	enable	`Enable the option.`
`P-1`	disable	`Disable the option.`

40.1.6 mrp domain modify port primary

Configure the primary ringport.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify port primary <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

40.1.7 mrp domain modify port secondary

Configure the secondary ringport.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify port secondary <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

40.1.8 mrp domain modify recovery-delay

Configure the MRM Recovery Delay.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify recovery-delay <P-1>`

Parameter	Value	Meaning
`P-1`	500ms	`Maximum recovery delay of 500ms in the MRP domain.`
`P-1`	200ms	`Maximum recovery delay of 200ms in the MRP domain.`
`P-1`	30ms	`Maximum recovery delay of 30ms in the MRP domain.\n(This may not be supported by the device).`
`P-1`	10ms	`Maximum recovery delay of 10ms in the MRP domain.\n(This may not be supported by the device).`

40.1.9 mrp domain modify round-trip-delay

Configure the round-trip-delay counters.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify round-trip-delay <P-1>`

Parameter	Value	Meaning
`P-1`	reset	`Reset the round-trip-delay counters.`

40.1.10 mrp domain modify vlan

Configure the VLAN identifier of the MRP domain.\n(VLAN ID 0 means that no VLAN is used).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain modify vlan <P-1>`

Parameter	Value	Meaning
`P-1`	0..4042	`VLAN identifier of the MRP domain.\n(VLAN ID 0 means that no VLAN is used).`

40.1.11 mrp domain add default-domain

Default MRP domain ID.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain add default-domain`

40.1.12 mrp domain add domain-id

MRP domain ID. Format: 16 bytes in decimal notation.\n(Example: 1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain add domain-id <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<domain id> MRP domain ID. Format: 16 bytes in decimal notation.\n(Example: 1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16).`

40.1.13 mrp domain delete

Delete the current MRP domain.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp domain delete`

40.1.14 mrp operation

Enable MRP.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mrp operation`

- **no mrp operation**
  Disable MRP.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no mrp operation`

40.2 show

Display device options and settings.

40.2.1 show mrp

Show MRP settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mrp`

41 Protocol Based VLAN

41.1 vlan

Creation and configuration of VLANS.

41.1.1 vlan protocol group add

Add a new group or add protocols to an existing group.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan protocol group add <P-1> name <P-2> vlan-id <P-3> ethertype <P-4>`

`name`: Assign a group name .
`vlan-id`: Associate a VLAN ID to a group.
`ethertype`: Add protocols to an existing group. Before adding protocols to a group please create one.

Parameter	Value	Meaning
`P-1`	1..128	`Protocol based VLANs group index.`
`P-2`	string	`Enter a user-defined text, max. 256 characters.`
`P-3`	1..4042	`Enter the VLAN ID.`
`P-4`	string	`<protocol-list> Enter a comma-separated list of mnemonics or values, max. 256 chars (eg.: 1536-65535, ip, arp, ipx).`

41.1.2 vlan protocol group modify

Modify a protocol group.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan protocol group modify <P-1> [name <P-2>] [vlan-id <P-3>] [ethertype <P-4>]`

`[name]`: Modify the group name.
`[vlan-id]`: Modify the VLAN ID of a group.
`[ethertype]`: Modify ethertypes from a protocol group.

Parameter	Value	Meaning
P-1	1..128	Protocol based VLANs group index.
P-2	string	Enter a user-defined text, max. 256 characters.
P-3	1..4042	Enter the VLAN ID.
P-4	string	<protocol-list> Enter a comma-separated list of mnemonics or values, max. 256 chars (eg.: 1536-65535, ip, arp, ipx).

41.1.3 vlan protocol group delete

Delete a protocol group.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan protocol group delete <P-1> [ethertype <P-2>]`

`[ethertype]`: Remove ethertypes from a protocol group.

Parameter	Value	Meaning
P-1	1..128	Protocol based VLANs group index.
P-2	string	<protocol-list> Enter a comma-separated list of mnemonics or values, max. 256 chars (eg.: 1536-65535, ip, arp, ipx).

41.2 protocol

Configure the protocol based VLANs parameters.

41.2.1 protocol vlan group

Associate a interface to a group.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `protocol vlan group <P-1>`

Parameter	Value	Meaning
`P-1`	1..128	`Protocol based VLANs group index.`

41.3 show

Display device options and settings.

41.3.1 show port protocol

Display protocol based VLANs summary information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port protocol [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..128	`Protocol based VLANs group index.`

42 Power Over Ethernet (PoE)

42.1 inlinepower

Configure the global inline power settings.

42.1.1 inlinepower operation

Configure the global inline power administrative setting (enable or disable, default: enable).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `inlinepower operation`

- **no inlinepower operation**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no inlinepower operation`

42.1.2 inlinepower slot

Configure the inline power notification (trap), threshold and power budget per slot

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `inlinepower slot <P-1> budget <P-2> threshold <P-3> trap`

`budget`: Configure the inline power budget per slot
`threshold`: Configure the inline power notification (trap) threshold per slot.
`trap`: Configure the inline power notification (trap) setting per slot.

Parameter	Value	Meaning
`P-1`	module at slot no.	
`P-2`	0..1000	`Enter a number in the given range.`
`P-3`	1..99	`Enter a number in the given range.`

- **no inlinepower slot**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no inlinepower slot`

42.1.3 inlinepower threshold

Configure the global inline power notification (trap) threshold.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `inlinepower threshold <P-1>`

Parameter	Value	Meaning
`P-1`	1..99	`Enter a number in the given range.`

42.1.4 inlinepower trap

Configure the global inline power notification (trap) setting .

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `inlinepower trap`

- **no inlinepower trap**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no inlinepower trap`

42.2 show

Display device options and settings.

42.2.1 show inlinepower global

Show the inline power global settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show inlinepower global`

42.2.2 show inlinepower port

Display interface-related inline power settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show inlinepower port [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

42.2.3 show inlinepower slot

Display slot-related inline power settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show inlinepower slot [<P-1>]`

Parameter	Value	Meaning
`P-1`	module at slot no.	

42.3 inlinepower

Configure inline power interface settings.

42.3.1 inlinepower allowed-classes

Configure the interface-related inline power allowed classes.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower allowed-classes <P-1>`

Parameter	Value	Meaning
`P-1`	0..4	`Enter a number in the given range.`

no inlinepower allowed-classes

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no inlinepower allowed-classes`

42.3.2 inlinepower auto-shutdown-end

Configure the interface-related inline power autoshutdown end time.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower auto-shutdown-end <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter 5 alpha numerical characters (format 00:00).`

42.3.3 inlinepower auto-shutdown-start

Configure the interface-related inline power autoshutdown start time.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower auto-shutdown-start <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter 5 alpha numerical characters (format 00:00).`

42.3.4 inlinepower auto-shutdown-timer

Configure the interface-related inline power autoshutdown timer functionality.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower auto-shutdown-timer`

- **no inlinepower auto-shutdown-timer**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no inlinepower auto-shutdown-timer`

42.3.5 inlinepower operation

Configure the interface-related inline power administrative setting (enable or disable, default: enable).

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower operation`

- **no inlinepower operation**
  Disable the option.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no inlinepower operation`

42.3.6 inlinepower name

Configure the interface-related inline power interface name.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower name <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 32 characters.`

42.3.7 inlinepower priority

Configure the inline power priority for this interface. In case of power scarcity, inline power on interfaces configured with the lowest priority is dropped first. Possible values are: critical, high or low, default: low. The highest priority is critical.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `inlinepower priority <P-1>`

Parameter	Value	Meaning
`P-1`	crit.	`Set this interfaces' inline power priority to critical (highest).`
`P-1`	high	`Set this interfaces' inline power priority to high.`
`P-1`	low	`Set this interfaces' inline power priority to low. This is the default setting.`

43 Port Monitor

43.1 show

Display device options and settings.

43.1.1 show port-monitor operation

Display the Port Monitor operation.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-monitor operation`

43.1.2 show port-monitor brief

Display the Port Monitor summary.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-monitor brief`

43.1.3 show port-monitor port

Display the Port Monitor interface details.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-monitor port <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

43.1.4 show port-monitor link-flap

Display the link-flaps counts for a specific interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-monitor link-flap <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

43.1.5 show port-monitor crc-fragments

Display CRC-Fragments counts for a specific interface

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-monitor crc-fragments <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

43.2 port-monitor

Configure the Port Monitor condition settings.

43.2.1 port-monitor operation

Enable the port monitor
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `port-monitor operation`

- **no port-monitor operation**
  Disable the port monitor
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no port-monitor operation`

43.3 port-monitor

Configure the Port Monitor condition settings.

43.3.1 port-monitor condition crc-fragments interval

Configure the measure interval in seconds (5-180s) for CRC-Fragment detection. Default 10.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition crc-fragments interval <P-1>`

Parameter	Value	Meaning
`P-1`	5..180	`Enter a number in the given range.`

43.3.2 port-monitor condition crc-fragments count

Configure the CRC-Fragment counter (1-1000000). Default 1000.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition crc-fragments count <P-1>`

Parameter	Value	Meaning
`P-1`	1..1000000	`Enter a number in the given range.`

43.3.3 port-monitor condition crc-fragments mode

Enable CRC-Fragments condition to trigger an action
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition crc-fragments mode`

- **no port-monitor condition crc-fragments mode**
  Disable CRC-Fragments condition to trigger an action
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no port-monitor condition crc-fragments mode`

43.3.4 port-monitor condition link-flap interval

Configure the measure interval in seconds (1-180s) for Link Flap detection. Default 10.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition link-flap interval <P-1>`

Parameter	Value	Meaning
`P-1`	1..180	`Enter a number in the given range.`

43.3.5 port-monitor condition link-flap count

Configure the Link Flap counter (1-100). Default 5.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition link-flap count <P-1>`

Parameter	Value	Meaning
`P-1`	1..100	`Enter a number in the given range.`

43.3.6 port-monitor condition link-flap mode

Enable link-flap condition to trigger an action

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition link-flap mode`

no port-monitor condition link-flap mode

Disable link-flap condition to trigger an action

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no port-monitor condition link-flap mode`

43.3.7 port-monitor condition duplex-mismatch mode

Enable duplex mismatch detection condition to trigger an action
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor condition duplex-mismatch mode`

no port-monitor condition duplex-mismatch mode
Disable duplex mismatch detection condition to trigger an action
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no port-monitor condition duplex-mismatch mode`

43.3.8 port-monitor action

Enable or disable interface on port condition.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor action <P-1>`

Parameter	Value	Meaning
`P-1`	port-disable	`Enable or disable interface on port condition`
`P-1`	trap-only	`Send only a trap.`

43.3.9 port-monitor reset

Reset the port monitor.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-monitor reset`

no port-monitor reset

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no port-monitor reset`

44 Port Security

44.1 port-security

Port MAC locking/security

44.1.1 port-security operation

Enable Port MAC locking/security
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `port-security operation`

- **no port-security operation**
  Disable Port MAC locking/security
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no port-security operation`

44.2 port-security

Port MAC locking/security

44.2.1 port-security operation

Enable Port MAC locking/security for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security operation`

- **no port-security operation**
  Disable Port MAC locking/security for the interface.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no port-security operation`

44.2.2 port-security max-dynamic

Set dynamic limit for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security max-dynamic <P-1>`

Parameter	Value	Meaning
`P-1`	0..600	`maximum number of dynamically locked MAC addresses allowed`

44.2.3 port-security max-static

Set Static Limit for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security max-static <P-1>`

Parameter	Value	Meaning
`P-1`	0..64	`maximum number of statically locked MAC addresses allowed`

44.2.4 port-security mac-address add

Add Static MAC address to the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security mac-address add <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	1..4042	`VLAN ID`

44.2.5 port-security mac-address move

Make dynamic MAC addresses static for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security mac-address move`

44.2.6 port-security mac-address delete

Remove Static MAC address from the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security mac-address delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	`aa:bb:cc:dd:ee:ff`	`MAC address.`
`P-2`	1..4042	`VLAN ID`

44.2.7 port-security violation-traps

SNMP violation traps for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `port-security violation-traps operation [frequency <P-1>]`

`operation`: Enable/Disable SNMP violation traps for the interface.
`[frequency]`: The minimum seconds between two successive violation traps on this port.

Parameter	Value	Meaning
`P-1`	0..3600	`time in seconds`

no port-security violation-traps

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no port-security violation-traps`

44.3 show

Display device options and settings.

44.3.1 show port-security global

Port Security global status
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-security global`

44.3.2 show port-security interface

Display port-security (port MAC locking) information for system.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-security interface [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

44.3.3 show port-security dynamic

Display dynamically learned MAC addresses

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-security dynamic <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

44.3.4 show port-security static

Display statically locked MAC addresses

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-security static <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

44.3.5 show port-security violation

Display port security violation information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show port-security violation <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

45 Precision Time Protocol (PTP)

45.1 ptp

Enable or disable the Precision Time Protocol (IEEE 1588-2008).

45.1.1 ptp operation

Enable the Precision Time Protocol (IEEE 1588-2008).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp operation`

- **no ptp operation**
  Disable the Precision Time Protocol (IEEE 1588-2008).
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ptp operation`

45.1.2 ptp clock-mode

Configure PTPv2 (IEEE1588-2008) clock mode. \nIf the clock mode is changed, PTP will be initialized.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp clock-mode <P-1>`

Parameter	Value	Meaning
`P-1`	v2-boundary-clock	
`P-1`	v2-transparent-clock	

45.1.3 ptp sync-lower-bound

Configure the lower bound for the PTP clock synchronization status \n(unit: nanoseconds). If the absolute value of the offset \nto the master clock is smaller than the lower bound, \nthe clock's status is set to synchronized (true).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp sync-lower-bound <P-1>`

Parameter	Value	Meaning
`P-1`	1..999999999	

45.1.4 ptp sync-upper-bound

Configure the upper bound for the PTP clock synchronization status \n(unit: nanoseconds). If the absolute value of the offset \nto the master clock is bigger than the upper bound, \nthe clock's status is set to unsynchronized (false).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp sync-upper-bound <P-1>`

Parameter	Value	Meaning
`P-1`	31..1000000000	

45.1.5 ptp management

Enable PTP management via PTP management messages.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp management`

no ptp management

Disable PTP management via PTP management messages.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no ptp management`

45.1.6 ptp v2-transparent-clock syntonization

Enable the syntonization (frequency synchronization) of the transparent-clock.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock syntonization`

- **no ptp v2-transparent-clock syntonization**
  Disable the syntonization (frequency synchronization) of the transparent-clock.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ptp v2-transparent-clock syntonization`

45.1.7 ptp v2-transparent-clock network-protocol

Configure the network-protocol of the transparent-clock.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock network-protocol <P-1>`

Parameter	Value	Meaning
`P-1`	ieee802.3	
`P-1`	udp-ipv4	

45.1.8 ptp v2-transparent-clock multi-domain

Enable the transparent-clock to process only the primary-domain or all domain numbers.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock multi-domain`

no ptp v2-transparent-clock multi-domain
Disable the transparent-clock to process only the primary-domain or all domain numbers.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no ptp v2-transparent-clock multi-domain`

45.1.9 ptp v2-transparent-clock sync-local-clock

Enable synchronization of the local clock (also enables syntonization).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock sync-local-clock`

no ptp v2-transparent-clock sync-local-clock
Disable synchronization of the local clock (also enables syntonization).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no ptp v2-transparent-clock sync-local-clock`

45.1.10 ptp v2-transparent-clock delay-mechanism

Configure the delay mechanism of the transparent-clock.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock delay-mechanism <P-1>`

Parameter	Value	Meaning
`P-1`	e2e	
`P-1`	p2p	
`P-1`	e2e-optimized	
`P-1`	disable	

45.1.11 ptp v2-transparent-clock primary-domain

Configure the primary-domain (for syntonization) of the transparent-clock.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock primary-domain <P-1>`

Parameter	Value	Meaning
`P-1`	0..255	`Enter a number in the given range.`

45.1.12 ptp v2-transparent-clock vlan

VLAN in which PTP packets are send. With a value of none all packets are send untagged.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock vlan <P-1>`

Parameter	Value	Meaning
`P-1`	vlanId	`Send ptp to vlanId Use 0 for priority only tagged frames`
`P-1`	none	`Send all ptp packets untagged`

45.1.13 ptp v2-transparent-clock vlan-priority

VLAN priority of tagged ptp packets.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock vlan-priority <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	

45.1.14 ptp v2-boundary-clock domain

Configure the PTP domain number (0..255)

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock domain <P-1>`

Parameter	Value	Meaning
`P-1`	0..255	`Enter a number in the given range.`

45.1.15 ptp v2-boundary-clock priority1

Configure the priority1 value (0..255) for the BMCA

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock priority1 <P-1>`

Parameter	Value	Meaning
`P-1`	0..255	`Enter a number in the given range.`

45.1.16 ptp v2-boundary-clock priority2

Configure the priority2 value (0..255) for the BMCA

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock priority2 <P-1>`

Parameter	Value	Meaning
`P-1`	0..255	`Enter a number in the given range.`

45.1.17 ptp v2-boundary-clock utc-offset

Configure the current UTC offset (TAI - UTC) in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock utc-offset <P-1>`

Parameter	Value	Meaning
`P-1`	-32768..32767	

45.1.18 ptp v2-boundary-clock utc-offset-valid

Configure the UTC offset valid flag

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock utc-offset-valid`

- **no ptp v2-boundary-clock utc-offset-valid**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ptp v2-boundary-clock utc-offset-valid`

45.2 show

Display device options and settings.

45.2.1 show ptp

Show PTP parameters and status

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ptp [global] [v2-boundary-clock] [v2-transparent-clock] [port] [v2-transparent-clock] [v2-boundary-clock]`

`[global]`: Show PTP global status
`[v2-boundary-clock]`: Show PTP Boundary Clock status
`[v2-transparent-clock]`: Show PTP Transparent Clock status
`[port]`: Show PTP port values
`[v2-transparent-clock]`: Show the PTP Transparent Clock port values
`[v2-boundary-clock]`: Show the PTP Boundary Clock port values.

45.3 ptp

Enable or disable the Precision Time Protocol (IEEE 1588-2008) on a port.

45.3.1 ptp v2-transparent-clock operation

Enable the sending and receiving / processing of PTP synchronization messages.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock operation`

- **no ptp v2-transparent-clock operation**
  Disable the sending and receiving / processing of PTP synchronization messages.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Administrator`
  - Format: `no ptp v2-transparent-clock operation`

45.3.2 ptp v2-transparent-clock asymmetry

Set the asymmetry of the link connected to this interface

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock asymmetry <P-1>`

Parameter	Value	Meaning
`P-1`	-2000000000..2000000000	

45.3.3 ptp v2-transparent-clock pdelay-interval

Configure the Peer Delay Interval in seconds {1|2|4|8|16|32}. \nThis interval is used if delay-mechanism is set to p2p

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-transparent-clock pdelay-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1	
`P-1`	2	
`P-1`	4	
`P-1`	8	
`P-1`	16	
`P-1`	32	

45.3.4 ptp v2-boundary-clock operation

Enable the sending and receiving/processing of PTP synchronization messages.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock operation`

no ptp v2-boundary-clock operation
Disable the sending and receiving/processing of PTP synchronization messages.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `no ptp v2-boundary-clock operation`

45.3.5 ptp v2-boundary-clock pdelay-interval

Configure the Peer Delay Interval in seconds {1|2|4|8|16|32}. \nThis interval is used if delay-mechanism is set to p2p

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock pdelay-interval <P-1>`

Parameter	Value	Meaning
P-1	1	
P-1	2	
P-1	4	
P-1	8	
P-1	16	
P-1	32	

45.3.6 ptp v2-boundary-clock announce-interval

Configure the Announce Interval in seconds {1|2|4|8|16}.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock announce-interval <P-1>`

Parameter	Value	Meaning
`P-1`	1	
`P-1`	2	
`P-1`	4	
`P-1`	8	
`P-1`	16	

45.3.7 ptp v2-boundary-clock sync-interval

Configure the Sync Interval in seconds {0.25|0.5|1|2}.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock sync-interval <P-1>`

Parameter	Value	Meaning
`P-1`	0.25	
`P-1`	0.5	
`P-1`	1	
`P-1`	2	

45.3.8 ptp v2-boundary-clock announce-timeout

Configure the Announce Receipt Timeout (2..10).

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock announce-timeout <P-1>`

Parameter	Value	Meaning
`P-1`	2..10	

45.3.9 ptp v2-boundary-clock asymmetry

Set the asymmetry of the link connected to this interface

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock asymmetry <P-1>`

Parameter	Value	Meaning
`P-1`	-2000000000..2000000000	

45.3.10 ptp v2-boundary-clock v1-compatibility-mode

Set the PTPv1 Hardware compatibility mode {auto|on|off}.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock v1-compatibility-mode <P-1>`

Parameter	Value	Meaning
`P-1`	on	
`P-1`	off	
`P-1`	auto	

45.3.11 ptp v2-boundary-clock delay-mechanism

Configure the delay mechanism of the boundary-clock.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock delay-mechanism <P-1>`

Parameter	Value	Meaning
`P-1`	e2e	
`P-1`	p2p	
`P-1`	disable	

45.3.12 ptp v2-boundary-clock network-protocol

Configure the network-protocol

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock network-protocol <P-1>`

Parameter	Value	Meaning
`P-1`	ieee802.3	
`P-1`	udp-ipv4	

45.3.13 ptp v2-boundary-clock vlan-priority

VLAN priority of tagged ptp packets.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock vlan-priority <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	

45.3.14 ptp v2-boundary-clock vlan

VLAN in which PTP packets are send. With a value of none all packets are send untagged.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `ptp v2-boundary-clock vlan <P-1>`

Parameter	Value	Meaning
`P-1`	vlanId	`Send ptp to vlanId Use 0 for priority only tagged frames`
`P-1`	none	`Send all ptp packets untagged`

46 Password Management

46.1 passwords

Manage password policies and options.

46.1.1 passwords min-length

Set minimum password length for user passwords.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords min-length <P-1>`

Parameter	Value	Meaning
`P-1`	6..64	`Enter a number in the given range.`

46.1.2 passwords max-login-attempts

Set maximum login attempts for the users.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords max-login-attempts <P-1>`

Parameter	Value	Meaning
`P-1`	0..5	`Enter a number in the given range.`

46.1.3 passwords min-uppercase-chars

Set minimum upper case characters for user passwords.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords min-uppercase-chars <P-1>`

Parameter	Value	Meaning
`P-1`	0..16	`Enter a number in the given range.`

46.1.4 passwords min-lowercase-chars

Set minimum lower case characters for user passwords.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords min-lowercase-chars <P-1>`

Parameter	Value	Meaning
`P-1`	0..16	`Enter a number in the given range.`

46.1.5 passwords min-numeric-chars

Set minimum numeric characters for user passwords.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords min-numeric-chars <P-1>`

Parameter	Value	Meaning
`P-1`	0..16	`Enter a number in the given range.`

46.1.6 passwords min-special-chars

Set minimum special characters for user passwords.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords min-special-chars <P-1>`

Parameter	Value	Meaning
`P-1`	0..16	`Enter a number in the given range.`

46.2 show

Display device options and settings.

46.2.1 show passwords

Display password policies and options.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show passwords`

47 Radius

47.1 authorization

Configure authorization parameters.

47.1.1 authorization network radius

Enable the switch to accept VLAN assignment by the RADIUS server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `authorization network radius`

- **no authorization network radius**
  Disable the switch to accept VLAN assignment by the RADIUS server.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no authorization network radius`

47.2 radius

Configure RADIUS parameters.

47.2.1 radius accounting mode

Enable RADIUS accounting function.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius accounting mode`

- **no radius accounting mode**
  Disable RADIUS accounting function.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no radius accounting mode`

47.2.2 radius server attribute 4

Specifies the RADIUS client to use the NAS-IP Address attribute in the RADIUS requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server attribute 4 <P-1>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

47.2.3 radius server acct add

Add a RADIUS accounting server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server acct add <P-1> ip <P-2> <P-3> [name <P-4>] [port <P-5>]`

`ip`: RADIUS accounting server IP address.
`[name]`: RADIUS accounting server name.
`[port]`: RADIUS accounting server port (default: 1813).

Parameter	Value	Meaning
`P-1`	1..8	`Next RADIUS server valid index (it can be seen with '#show radius global' command).`
`P-2`	string	`Hostname or IP address`
`P-3`	A.B.C.D	`IP address.`
`P-4`	string	`Enter a user-defined text, max. 32 characters.`
`P-5`	1..65535	`Enter port number between 1 and 65535`

47.2.4 radius server acct delete

Delete a RADIUS accounting server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server acct delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`

47.2.5 radius server acct modify

Change a RADIUS accounting server parameters.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server acct modify <P-1> [name <P-2>] [port <P-3>] [status <P-4>] [secret [<P-5>]] [encrypted <P-6>]`

`[name]`: RADIUS accounting server name.
`[port]`: RADIUS accounting server port (default: 1813).
`[status]`: Enable or disable a RADIUS accounting server entry.
`[secret]`: Configure the shared secret for the RADIUS accounting server.
`[encrypted]`: Configure the encrypted shared secret.

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`
`P-2`	string	`Enter a user-defined text, max. 32 characters.`
`P-3`	1..65535	`Enter port number between 1 and 65535`
`P-4`	enable	`Enable the option.`
`P-4`	disable	`Disable the option.`
`P-5`	string	`Enter a user-defined text, max. 128 characters.`
`P-6`	string	`Enter a user-defined text, max. 128 characters.`

47.2.6 radius server auth add

Add a RADIUS authentication server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server auth add <P-1> ip <P-2> <P-3> [name <P-4>] [port <P-5>]`

`ip`: RADIUS authentication server IP address.
`[name]`: RADIUS authentication server name.
`[port]`: RADIUS authentication server port (default: 1812).

Parameter	Value	Meaning
P-1	1..8	Next RADIUS server valid index (it can be seen with '#show radius global' command).
P-2	string	Hostname or IP address
P-3	A.B.C.D	IP address.
P-4	string	Enter a user-defined text, max. 32 characters.
P-5	1..65535	Enter port number between 1 and 65535

47.2.7 radius server auth delete

Delete a RADIUS authentication server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server auth delete <P-1>`

Parameter	Value	Meaning
P-1	1..8	RADIUS server index.

47.2.8 radius server auth modify

Change a RADIUS authentication server parameters.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server auth modify <P-1> [name <P-2>] [port <P-3>] [msgauth] [primary] [status <P-4>] [secret [<P-5>]] [encrypted <P-6>]`

`[name]`: RADIUS authentication server name.
`[port]`: RADIUS authentication server port (default: 1812).
`[msgauth]`: Enable or disable the message authenticator attribute for this server.
`[primary]`: Configure the primary RADIUS server.
`[status]`: Enable or disable a RADIUS authentication server entry.
`[secret]`: Configure the shared secret for the RADIUS authentication server.
`[encrypted]`: Configure the encrypted shared secret.

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`
`P-2`	string	`Enter a user-defined text, max. 32 characters.`
`P-3`	1..65535	`Enter port number between 1 and 65535`
`P-4`	enable	`Enable the option.`
`P-4`	disable	`Disable the option.`
`P-5`	string	`Enter a user-defined text, max. 128 characters.`
`P-6`	string	`Enter a user-defined text, max. 128 characters.`

no radius server auth modify

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no radius server auth modify`

47.2.9 radius server retransmit

Configure the retransmit value for the RADIUS server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server retransmit <P-1>`

Parameter	Value	Meaning
`P-1`	1..15	`Maximum number of retransmissions (default: 4).`

47.2.10 radius server timeout

Configure the RADIUS server timeout value.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `radius server timeout <P-1>`

Parameter	Value	Meaning
`P-1`	1..30	`Timeout in seconds (default: 5).`

47.3 show

Display device options and settings.

47.3.1 show radius global

Display global RADIUS configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show radius global`

47.3.2 show radius auth servers

Display all configured RADIUS authentication servers.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show radius auth servers [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`

47.3.3 show radius auth statistics

Display RADIUS authentication server statistics.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show radius auth statistics <P-1>`

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`

47.3.4 show radius acct statistics

Display RADIUS accounting server statistics.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show radius acct statistics <P-1>`

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`

47.3.5 show radius acct servers

Display all configured RADIUS accounting servers.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show radius acct servers [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..8	`RADIUS server index.`

47.4 clear

Clear several items.

47.4.1 clear radius

Clear the RADIUS statistics.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear radius <P-1>`

Parameter	Value	Meaning
`P-1`	statistics	`Clear the RADIUS statistics.`

48 Remote Monitoring (RMON)

48.1 rmon-alarm

Create a RMON alarm action.

48.1.1 rmon-alarm add

Add RMON alarm.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `rmon-alarm add <P-1> [mib-variable <P-2>] [rising-threshold <P-3>] [falling-threshold <P-4>]`

`[mib-variable]`: MIB variable
`[rising-threshold]`: Rising threshold
`[falling-threshold]`: Falling threshold

Parameter	Value	Meaning
`P-1`	1..150	`Enter an index that uniquely identifies an entry in the alarm table.`
`P-2`	string	`Enter an object identifier of the particular variable to be sampled, max. 32 characters.`
`P-3`	1..2147483647	`Enter the rising threshold for the sampled statistic.`
`P-4`	1..2147483647	`Enter the falling threshold for the sampled statistic.`

48.1.2 rmon-alarm enable

Enable RMON alarm.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `rmon-alarm enable <P-1>`

Parameter	Value	Meaning
`P-1`	1..150	`Enter an index that uniquely identifies an entry in the alarm table.`

48.1.3 rmon-alarm disable

Disable RMON alarm.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `rmon-alarm disable <P-1>`

Parameter	Value	Meaning
`P-1`	1..150	`Enter an index that uniquely identifies an entry in the alarm table.`

48.1.4 rmon-alarm delete

Delete RMON alarm.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `rmon-alarm delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..150	`Enter an index that uniquely identifies an entry in the alarm table.`

48.1.5 rmon-alarm modify

Modify RMON alarm parameters.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `rmon-alarm modify <P-1> [mib-variable <P-2>] [rising-threshold <P-3>] [falling-threshold <P-4>] [interval <P-5>] [sample-type <P-6>] [startup-alarm <P-7>] [rising-event <P-8>] [falling-event <P-9>]`

`[mib-variable]`: Enter the alarm mib variable.
`[rising-threshold]`: Enter the alarm rising threshold.
`[falling-threshold]`: Enter the alarm falling-threshold.
`[interval]`: Enter the alarm interval in seconds over which the data is sampled.
`[sample-type]`: Enter the alarm method of sampling the selected variable.
`[startup-alarm]`: Enter the alarm type.
`[rising-event]`: Enter the alarm rising-event index.

[falling-event]: Enter the alarm falling-event index.

Parameter	Value	Meaning
P-1	1..150	Enter an index that uniquely identifies an entry in the alarm table.
P-2	string	Enter an object identifier of the particular variable to be sampled, max. 32 characters.
P-3	1..2147483647	Enter the rising threshold for the sampled statistic.
P-4	1..2147483647	Enter the falling threshold for the sampled statistic.
P-5	1..2147483647	Enter the interval in seconds over which the data is sampled and compared with the rising and falling thresholds.
P-6	absoluteValue	Variable is compared directly with the thresholds.
P-6	deltaValue	Variable is subtracted from the current value and the difference compared with the thresholds.
P-7	risingAlarm	Single rising alarm generated when the sample is greater than or equal to the rising threshold.
P-7	fallingAlarm	Single falling alarm generated when the sample is less than or equal to the falling threshold.
P-7	risingOrFallingAlarm	Single Rising alarm generated when the sample is greater than or equal to risingThreshold and single falling alarm generated when the sample is less than or equal to fallingThreshold.
P-8	1..65535	Enter the index of the eventEntry that is used when a rising threshold is crossed.
P-9	1..65535	Enter the index of the eventEntry that is used when a falling threshold is crossed.

48.2 show

Display device options and settings.

48.2.1 show rmon statistics

Show RMON statistics configuration.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show rmon statistics [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

48.2.2 show rmon alarm

Display configuration on RMON alarms.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show rmon alarm`

49 Script File

49.1 copy

Copy different kinds of items.

49.1.1 copy script envm

Copy script file from external non-volative memory device.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy script envm <P-1> running-config nvm <P-2>`

`running-config`: Copy Script file from external non-volatile memory to running-config.
`nvm`: Copy Script file to non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`
`P-2`	string	`Enter a user-defined text, max. 128 characters.`

49.1.2 copy script remote

Copy Script file from server.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy script remote <P-1> running-config nvm <P-2>`

`running-config`: Copy Script file from file server to running-config.

nvm: Copy Script file to non-volatile memory.

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 128 characters.
P-2	string	Enter a user-defined text, max. 128 characters.

49.1.3 copy script nvm

Copy Script file from non-volatile system memory to destination.

- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: copy script nvm <P-1> running-config envm <P-2> remote <P-3>

running-config: Copy Script file from non-volatile system memory to running-config.
envm: Copy Script file to external non-volative memory device.
remote: Copy Script file to file server.

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 128 characters.
P-2	string	Enter a user-defined text, max. 128 characters.
P-3	string	Enter a user-defined text, max. 128 characters.

49.1.4 copy script running-config nvm

Copy running configuration to non-volatile memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy script running-config nvm <P-1> [all]`

`[all]`: Copy all running configuration to non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.1.5 copy script running-config envm

Copy running configuration to external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy script running-config envm <P-1> [all]`

`[all]`: Copy all running configuration to external non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.1.6 copy script running-config remote

Copy running configuration to file server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy script running-config remote <P-1> [all]`

`[all]`: Copy all running configuration to file server.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.2 script

CLI Script File.

49.2.1 script apply

Executes the CLI Script File available in the system.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script apply <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.2.2 script validate

Only validates the CLI Script File available in the system.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script validate <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.2.3 script list system

list all the Script files available in the system memory.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script list system`

49.2.4 script list envm

list all the Script files available in the external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script list envm`

49.2.5 script delete

delete the CLI Script Files.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script delete [<P-1>]`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.3 show

Display device options and settings.

49.3.1 show script envm

Displays the content of the CLI Script File exist in the envm.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show script envm <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

49.3.2 show script system

Displays the content of the CLI Script File exist in the system.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show script system <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

50 Selftest

50.1 selftest

Configure the selftest settings.

50.1.1 selftest action

Configure the action that a selftest component should take.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `selftest action <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	task	`Configure the action for task errors.`
`P-1`	resource	`Configure the action for lack of resources.`
`P-1`	software	`Configure the action for broken software integrity.`
`P-1`	hardware	`Configure the action for detected hardware errors.`
`P-2`	log-only	`Write a message to the logging file.`
`P-2`	send-trap	`Send a trap to the management station.`
`P-2`	reboot	`Reboot the device.`

50.1.2 selftest ramtest

Enable the RAM selftest on cold start of the device. When disabled the device booting time is reduced.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `selftest ramtest`

- **no selftest ramtest**
  Disable the RAM selftest on cold start of the device. When disabled the device booting time is reduced.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no selftest ramtest`

50.1.3 selftest system-monitor

Enable the System Monitor 1 access during the boot phase. Please note: If the System Monitor is disabled it is possible to loose access to the device permanently in case of loosing administrator password or mis-configuration.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `selftest system-monitor`

- **no selftest system-monitor**
  Disable the System Monitor 1 access during the boot phase. Please note: If the System Monitor is disabled it is possible to loose access to the device permanently in case of loosing administrator password or mis-configuration.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no selftest system-monitor`

50.1.4 selftest boot-default-on-error

Enable loading of the default configuration in case there is any error loading the configuration during boot phase. If disabled the system will be halted.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `selftest boot-default-on-error`

no selftest boot-default-on-error

Disable loading of the default configuration in case there is any error loading the configuration during boot phase. If disabled the system will be halted.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no selftest boot-default-on-error`

50.2 show

Display device options and settings.

50.2.1 show selftest action

Displays the actions of the device takes if an error occurs.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show selftest action`

50.2.2 show selftest settings

Displays the selftest settings.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show selftest settings`

51 sFlow

51.1 sflow

Configure sFlow

51.1.1 sflow receiver

Configure sflow receiver.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `sflow receiver <P-1> owner <P-2> [ip <P-3>] [timeout <P-4>] timeout <P-5> maxdatagram <P-6> ip <P-7> port <P-8>`

`owner`: Configure sflow owner.
`[ip]`: Configure sflow receiver IP address.
`[timeout]`: Configure sflow receiver timeout.
`timeout`: Configure sflow receiver timeout.
`maxdatagram`: Configure sflow maximum size of the receiver datagram.
`ip`: Configure sflow receiver IP address.
`port`: Configure sflow receiver port.

Parameter	Value	Meaning
P-1	1..8	Enter an sFlow receiver index, 0 to reset configuration
P-2	string	Enter receiver owner string, max. 127 characters.
P-3	A.B.C.D	IP address.
P-4	-1..2147483647	Enter timeout: -1:no timeout, 0:reset configuration, 1 - 2147483647
P-5	-1..2147483647	Enter timeout: -1:no timeout, 0:reset configuration, 1 - 2147483647
P-6	200..9116	Enter maximum datagram size between 200 and 9116
P-7	A.B.C.D	IP address.
P-8	1..65535	Enter port number between 1 and 65535

51.2 sflow

Configure sflow sampler and poller.

51.2.1 sflow poller receiver

Set a receiver for this poller.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `sflow poller receiver <P-1> [interval <P-2>]`

`[interval]`: Set an interval for this poller.

Parameter	Value	Meaning
`P-1`	0..8	`Enter an sFlow receiver index, 0 to reset configuration`
`P-2`	0..86400	`Enter poller interval between 0 and 86400`

51.2.2 sflow poller interval

Set an interval for this poller.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `sflow poller interval <P-1>`

Parameter	Value	Meaning
`P-1`	0..86400	`Enter poller interval between 0 and 86400`

51.2.3 sflow sampler receiver

Set a receiver for this sampler.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `sflow sampler receiver <P-1> [rate <P-2>]`

`[rate]`: Configure sflow sampler rate.

Parameter	Value	Meaning
`P-1`	0..8	`Enter an sFlow receiver index, 0 to reset configuration`
`P-2`	0	`Disable sampling`
`P-2`	256-65535	`Set sampling rate`

51.2.4 sflow sampler rate

Configure sflow sampler rate.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `sflow sampler rate <P-1>`

Parameter	Value	Meaning
`P-1`	0	`Disable sampling`
`P-1`	256-65535	`Set sampling rate`

51.2.5 sflow sampler maxheadersize

Configure sflow sampler maximum header size.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `sflow sampler maxheadersize <P-1>`

Parameter	Value	Meaning
`P-1`	20..256	`Enter maximum header size between 20 and 256`

51.3 show

Display device options and settings.

51.3.1 show sflow agent

Display sflow agent settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sflow agent`

51.3.2 show sflow receivers

Display sflow receiver settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sflow receivers [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..8	`Enter an sFlow receiver index, 0 to reset configuration`

51.3.3 show sflow pollers

Display sflow poller settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sflow pollers`

51.3.4 show sflow samplers

Display sflow sampler settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sflow samplers`

52 Small Form-factor Pluggable (SFP)

52.1 show

Display device options and settings.

52.1.1 show sfp

Show info about plugged in SFP modules

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sfp [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

53 Signal Contact

53.1 signal-contact

Configure the signal contact settings.

53.1.1 signal-contact mode

Configure the Signal Contact mode setting.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> mode <P-2>`

Parameter	Value	Meaning
`P-1`	signal contact no.	
`P-2`	manual	`The signal contact's status is determined by the\nassociated manual setting (subcommand 'state').`
`P-2`	monitor	`The signal contact's status is determined by the\nassociated monitor settings.`
`P-2`	device-status	`The signal contact's status is determined by the\ndevice status.`
`P-2`	security-status	`The signal contact's status is determined by the\nsecurity status.`
`P-2`	dev-sec-status	`The signal contact's status is determined by the\ndevice status and security status.`

53.1.2 signal-contact monitor link-failure

Sets the monitoring of the network connection(s).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor link-failure`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor link-failure

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor link-failure`

53.1.3 signal-contact monitor module-removal

Sets the monitoring of the module removal.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor module-removal`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor module-removal

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor module-removal`

53.1.4 signal-contact monitor envm-not-in-sync

Sets the monitoring whether the external non-volative memory device\nis in sync with the running configuration.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor envm-not-in-sync`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor envm-not-in-sync
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor envm-not-in-sync`

53.1.5 signal-contact monitor envm-removal

Sets the monitoring of the external non-volative memory device removal.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor envm-removal`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor envm-removal
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor envm-removal`

53.1.6 signal-contact monitor temperature

Sets the monitoring of the device temperature.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor temperature`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor temperature

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor temperature`

53.1.7 signal-contact monitor ring-redundancy

Sets the monitoring of the ring-redundancy.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor ring-redundancy`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact monitor ring-redundancy

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor ring-redundancy`

53.1.8 signal-contact monitor power-supply

Sets the monitoring of the power supply(s).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> monitor power-supply <P-2>`

Parameter	Value	Meaning
`P-1`	signal contact no.	
`P-2`	1..2	`Number of power supply.`

no signal-contact monitor power-supply
Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> monitor power-supply`

53.1.9 signal-contact state

Configure the Signal Contact manual state (only takes\nimmediate effect in manual mode).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> state <P-2>`

Parameter	Value	Meaning
`P-1`	signal contact no.	
`P-2`	open	`Open the signal contact (only takes effect\nin the manual mode).`
`P-2`	close	`Close the signal contact (only takes effect\nin the manual mode).`

53.1.10 signal-contact trap

Configure if a trap is sent when the Signal Contact\nchanges state (in monitor mode).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> trap`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact trap

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> trap`

53.1.11 signal-contact module

Configure the monitoring of the specific module.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> module <P-2>`

Parameter	Value	Meaning
`P-1`	signal contact no.	
`P-2`	slot no./port no.	

no signal-contact module

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> module`

53.2 show

Display device options and settings.

53.2.1 show signal-contact

Display signal contact settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show signal-contact <P-1> mode monitor state trap link-alarm module all`

`mode`: Display the signal contact mode.
`monitor`: Display the signal contact monitor settings.
`state`: Display the signal contact state (open/close).\nNote: This covers the signal contact`s administrative\nsetting as well as its actual state.
`trap`: Display the signal contact trap information and settings.
`link-alarm`: Display the settings of the monitoring of the specific\nnetwork ports.
`module`: Display the settings of the monitoring of the specific\nmodules.
`all`: Display all signal contact settings for the specified\nsignal contact.

Parameter	Value	Meaning
`P-1`	signal contact no.	

53.3 signal-contact

Configure the signal contact interface settings.

53.3.1 signal-contact link-alarm

Configure the monitoring of the specific network ports.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `signal-contact <P-1> link-alarm`

Parameter	Value	Meaning
`P-1`	signal contact no.	

no signal-contact link-alarm

Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Administrator`
- Format: `no signal-contact <P-1> link-alarm`

54 Slot

54.1 show

Display device options and settings.

54.1.1 show slot

Show module parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show slot [<P-1>]`

Parameter	Value	Meaning
`P-1`	module at slot no.	

55 Switched Monitoring (SMON)

55.1 monitor

Configure port mirroring.

55.1.1 monitor session

Configure port mirroring.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `monitor session <P-1> destination interface <P-2> source add interface <P-3> [<P-4>] remove interface <P-5> mode`

`destination`: Configure the probe interface.
`interface`: Configure interface.
`source`: Configure the source interface.
`add`: Add an interface
`interface`: Configure interface.
`remove`: Remove an interface
`interface`: Configure interface.
`mode`: Enable/Disable port mirroring session. Note: does\nnot affect the source or destination interfaces.

Parameter	Value	Meaning
`P-1`	1	`Monitor session index.`
`P-2`	slot no./port no.	
`P-3`	slot no./port no.	
`P-4`	tx	`Interface will only transmit frames. Received frames \nthat are not processed.`
`P-4`	rx	`Interface will only receive frames. Frames are not\ntransmitted.`
`P-4`	txrx	`Interface will receive and transmit frames.`
`P-5`	slot no./port no.	

no monitor session

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no monitor session`

55.2 show

Display device options and settings.

55.2.1 show monitor session

Display port monitor session settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show monitor session <P-1>`

Parameter	Value	Meaning
`P-1`	1	`Monitor session index.`

55.3 clear

Clear several items.

55.3.1 clear monitor session

Delete configuration for this session.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear monitor session <P-1>`

Parameter	Value	Meaning
`P-1`	1	`Monitor session index.`

56 Simple Network Management Protocol (SNMP)

56.1 snmp

Configure of SNMP versions and traps.

56.1.1 snmp access version v1

Enable SNMP version V1.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v1`

- **no snmp access version v1**
  Disable SNMP version V1.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no snmp access version v1`

56.1.2 snmp access version v2

Enable SNMP version V2.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v2`

- **no snmp access version v2**
  Disable SNMP version V2.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no snmp access version v2`

56.1.3 snmp access version v3

Enable SNMP version V3.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v3`

- **no snmp access version v3**
  Disable SNMP version V3.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no snmp access version v3`

56.1.4 snmp access port

Configure the SNMP access port.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Port number of the SNMP server (default: 161).`

56.1.5 snmp access snmp-over-802

Configure SNMPover802.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access snmp-over-802`

- **no snmp access snmp-over-802**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no snmp access snmp-over-802`

56.2 show

Display device options and settings.

56.2.1 show snmp access

Show SNMP access configuration settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show snmp access`

57 SNMP Community

57.1 snmp

Configure of SNMP versions and traps.

57.1.1 snmp community ro

SNMP v1/v2 read-only community.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp community ro`

57.1.2 snmp community rw

SNMP v1/v2 read-write community.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp community rw`

57.2 show

Display device options and settings.

57.2.1 show snmp community

Display SNMP v1/2 community.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show snmp community`

58 SNMP Logging

58.1 logging

Logging configuration.

58.1.1 logging snmp-request get operation

Enable logging of SNMP GET or SET requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request get operation`

- **no logging snmp-request get operation**
  Disable logging of SNMP GET or SET requests.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging snmp-request get operation`

58.1.2 logging snmp-request get severity

Define severity level.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request get severity <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

58.1.3 logging snmp-request set operation

Enable logging of SNMP GET or SET requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request set operation`

- **no logging snmp-request set operation**
  Disable logging of SNMP GET or SET requests.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging snmp-request set operation`

58.1.4 logging snmp-request set severity

Define severity level.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request set severity <P-1>`

Parameter	Value	Meaning
P-1	emergency	System is unusable. System failure has occurred.
P-1	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
P-1	critical	Recoverable failure of a component that may lead to system failure.
P-1	error	Error conditions. Recoverable failure of a component.
P-1	warning	Minor failure, e.g. misconfiguration of a component.
P-1	notice	Normal but significant conditions.
P-1	informational	Informational messages.
P-1	debug	Debug-level messages.
P-1	0	Same as emergency
P-1	1	Same as alert
P-1	2	Same as critical
P-1	3	Same as error
P-1	4	Same as warning
P-1	5	Same as notice
P-1	6	Same as informational
P-1	7	Same as debug

58.2 show

Display device options and settings.

58.2.1 show logging snmp

Show the SNMP logging settings.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show logging snmp`

59 Simple Network Time Protocol (SNTP)

59.1 sntp

Configure SNTP settings.

59.1.1 sntp client operation

Enable the SNTP client
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client operation`

- **no sntp client operation**
  Disable the SNTP client
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no sntp client operation`

59.1.2 sntp client operating-mode

Set the operating mode of the SNTP client. \nIn unicast-mode, the client sends a request to the SNTP Server. \nIn broadcast-mode, the client waits for a broadcast message from the SNTP Server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client operating-mode <P-1>`

Parameter	Value	Meaning
`P-1`	unicast	
`P-1`	broadcast	

59.1.3 sntp client request-interval

Set the SNTP client request interval in seconds. \nThe request-interval is only used in the operating-mode unicast.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client request-interval <P-1>`

Parameter	Value	Meaning
`P-1`	5..3600	`Enter a number in the given range.`

59.1.4 sntp client disable-after-sync

If this option is activated, the SNTP client disables itself \nonce it is synchronized to a SNTP server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client disable-after-sync`

- **no sntp client disable-after-sync**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no sntp client disable-after-sync`

59.1.5 sntp client server add

Add a SNTP client server connection

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client server add <P-1> <P-2> <P-3> [port <P-4>] [description <P-5>]`

`[port]`: Set the port number of the external time server.
`[description]`: Description of the external time server

Parameter	Value	Meaning
`P-1`	1..4	`Enter a number in the given range.`
`P-2`	string	`Hostname or IP address`
`P-3`	A.B.C.D	`IP address.`
`P-4`	1..65535	`Port number of SNTP Server (default 123).`
`P-5`	string	`Enter a user-defined text, max. 32 characters.`

59.1.6 sntp client server delete

delete a SNTP client server connection

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client server delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..4	`Enter a number in the given range.`

59.1.7 sntp client server mode

Enable a SNTP client server connection

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp client server mode <P-1>`

Parameter	Value	Meaning
`P-1`	1..4	`Enter a number in the given range.`

no sntp client server mode

Disable a SNTP client server connection

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no sntp client server mode`

59.1.8 sntp server operation

Enable the SNTP server

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server operation`

- **no sntp server operation**
  Disable the SNTP server
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no sntp server operation`

59.1.9 sntp server port

Set the local socket port number used to listen for client requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server port <P-1>`

Parameter	Value	Meaning
P-1	1..65535	Port number of SNTP Server (default 123).

59.1.10 sntp server only-if-synchronized

Set the disabling of the SNTP server function,\nif it is not synchronized to another external time reference

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server only-if-synchronized`

- **no sntp server only-if-synchronized**
  Disable the option.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no sntp server only-if-synchronized`

59.1.11 sntp server broadcast operation

Enable the SNTP server broadcast mode

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server broadcast operation`

- **no sntp server broadcast operation**
  Disable the SNTP server broadcast mode
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no sntp server broadcast operation`

59.1.12 sntp server broadcast address

Set the SNTP server's broadcast or multicast IP address\n(default: 0.0.0.0 (none)).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server broadcast address <P-1>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

59.1.13 sntp server broadcast port

Set the destination socket port number used to send\nbroadcast or multicast messages to the client.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server broadcast port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Port number of SNTP Server (default 123).`

59.1.14 sntp server broadcast interval

Set the SNTP server's interval in seconds for sending\nbroadcast or multicast messages.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server broadcast interval <P-1>`

Parameter	Value	Meaning
`P-1`	64..1024	`Enter a number in the given range.`

59.1.15 sntp server broadcast vlan

Set the SNTP server's broadcast VLAN ID used for sending\nbroadcast or multicast messages.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `sntp server broadcast vlan <P-1>`

Parameter	Value	Meaning
`P-1`	0..4042	`Enter the VLAN ID. Entering of ID 0 uses the management VLAN ID.`

59.2 show

Display device options and settings.

59.2.1 show sntp global

Show SNTP configuration parameters and information.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sntp global`

59.2.2 show sntp client status

Show SNTP client status.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sntp client status`

59.2.3 show sntp client server

Show SNTP client server connections.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sntp client server [<P-1>]`

Parameter	Value	Meaning
`P-1`	1..4	`Enter a number in the given range.`

59.2.4 show sntp server status

Show SNTP server configuration parameters and information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sntp server status`

59.2.5 show sntp server broadcast

Show SNTP server broadcast configuration parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show sntp server broadcast`

60 Spanning Tree

60.1 spanning-tree

Enable or disable the Spanning Tree protocol.

60.1.1 spanning-tree operation

Enable.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree operation`

- **no spanning-tree operation**
  Disable.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree operation`

60.1.2 spanning-tree bpdu-filter

Enable BPDU filter on edge ports.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree bpdu-filter`

- **no spanning-tree bpdu-filter**
  Disable BPDU filter on edge ports.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree bpdu-filter`

60.1.3 spanning-tree bpdu-guard

Enable BPDU guard on edge ports.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree bpdu-guard`

- **no spanning-tree bpdu-guard**
  Disable BPDU guard on edge ports.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree bpdu-guard`

60.1.4 spanning-tree bpdu-migration-check

Force the specified port to transmit RST or MST BPDUs.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree bpdu-migration-check <P-1>`

Parameter	Value	Meaning
`P-1`	slot/port	`Enter a single interface in slot/port format.`
`P-1`	all	`Force the specified port to transmit RST or MST BPDUs.`

60.1.5 spanning-tree forceversion

Set the force protocol version parameter.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree forceversion <P-1>`

Parameter	Value	Meaning
`P-1`	stp	`Spanning Tree Protocol (STP).`
`P-1`	rstp	`Rapid Spanning Tree Protocol (RSTP).`

60.1.6 spanning-tree forward-time

Set the Bridge Forward Delay parameter [s].

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree forward-time <P-1>`

Parameter	Value	Meaning
`P-1`	4..30	`Enter the bridge forward delay as an integer.`

60.1.7 spanning-tree hello-time

Set the Hello Time parameter [s].

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree hello-time <P-1>`

Parameter	Value	Meaning
`P-1`	1..2	`Set the Hello Time parameter (unit: seconds).`

60.1.8 spanning-tree hold-count

Set bridge hold count parameter.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree hold-count <P-1>`

Parameter	Value	Meaning
`P-1`	1..40	`Set bridge hold count parameter.`

60.1.9 spanning-tree max-age

Set the bridge Max Age parameter.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree max-age <P-1>`

Parameter	Value	Meaning
`P-1`	6..40	`Set the bridge Max Age parameter.`

60.1.10 spanning-tree mst priority

Specify the bridge priority used by a MST instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree mst priority <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	0	`Enter the multiple spanning tree ID 0 (0 is for CIST and RSTP).`
`P-2`	0..61440	`Set the Mst Bridge priority.`

60.2 spanning-tree

Enable or disable the Spanning Tree protocol on a port.

60.2.1 spanning-tree mode

Enable .

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree mode`

- **no spanning-tree mode**
  Disable.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree mode`

60.2.2 spanning-tree bpdu-flood

Enable BPDU flood on a port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree bpdu-flood`

- **no spanning-tree bpdu-flood**
  Disable BPDU flood on a port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree bpdu-flood`

60.2.3 spanning-tree edge-auto

Enable the auto edge detection on a port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree edge-auto`

- **no spanning-tree edge-auto**
  Disable the auto edge detection on a port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree edge-auto`

60.2.4 spanning-tree edge-port

Enable that port being an edge port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree edge-port`

- **no spanning-tree edge-port**
  Disable that port being an edge port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree edge-port`

60.2.5 spanning-tree guard-loop

Enable the loop guard on a port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree guard-loop`

- **no spanning-tree guard-loop**
  Disable the loop guard on a port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree guard-loop`

60.2.6 spanning-tree guard-root

Enable the root guard on a port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree guard-root`

- **no spanning-tree guard-root**
  Disable the root guard on a port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree guard-root`

60.2.7 spanning-tree guard-tcn

Enable the TCN guard on that port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree guard-tcn`

- **no spanning-tree guard-tcn**
  Disable the TCN guard on that port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no spanning-tree guard-tcn`

60.2.8 spanning-tree cost

Specify the port path cost.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree cost <P-1>`

Parameter	Value	Meaning
`P-1`	0..200000000	`Specify the port path cost.`

60.2.9 spanning-tree priority

Specify the port priority.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `spanning-tree priority <P-1>`

Parameter	Value	Meaning
`P-1`	0..240	`Specify the port priority.`

60.3 show

Display device options and settings.

60.3.1 show spanning-tree global

Display the Common and Internal Spanning Tree information and settings.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show spanning-tree global`

60.3.2 show spanning-tree mst

Display detailed information and settings for a MST instance. CIST instance is 0 same value for RSTP as instance.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show spanning-tree mst <P-1> [port [<P-2>]]`

`[port]`: Display summarized information and settings for all ports in a MST instance.

Parameter	Value	Meaning
`P-1`	0	`Enter the multiple spanning tree ID 0 (0 is for CIST and RSTP).`
`P-2`	slot no./port no.	

60.3.3 show spanning-tree port

Spanning Tree information and settings for an interface.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show spanning-tree port <P-1>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

61 Secure Shell (SSH)

61.1 ssh

Set SSH parameters.

61.1.1 ssh server

Enable the SSH server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh server`

- **no ssh server**
  Disable the SSH server.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ssh server`

61.1.2 ssh timeout

Set the SSH connection idle timeout in minutes (default: 5).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh timeout <P-1>`

Parameter	Value	Meaning
`P-1`	0..160	`Idle timeout of a session in minutes (default: 5).`

61.1.3 ssh port

Set the SSH port number (default: 22).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Port number of the SSH server (default: 22).`

61.1.4 ssh max-sessions

Set the maximum number of concurrent SSH sessions (default: 5).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh max-sessions <P-1>`

Parameter	Value	Meaning
`P-1`	1..5	`Maximum number of concurrent SSH sessions (default: 5).`

61.1.5 ssh key rsa

Generate or delete RSA key

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh key rsa <P-1>`

Parameter	Value	Meaning
`P-1`	generate	`Generates the item`
`P-1`	delete	`Deletes the item`

61.1.6 ssh key dsa

Generate or delete DSA key

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh key dsa <P-1>`

Parameter	Value	Meaning
`P-1`	generate	`Generates the item`
`P-1`	delete	`Deletes the item`

61.2 copy

Copy different kinds of items.

61.2.1 copy sshkey remote

Copy SSH key from server.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy sshkey remote <P-1> nvm`

`nvm`: Copy SSH key from server to NV memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

61.2.2 copy sshkey envm

Copy SSH key from external non-volative memory device.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy sshkey envm <P-1> nvm`

`nvm`: Copy SSH key from external non-volative memory device to NV memory.

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 128 characters.`

61.3 show

Display device options and settings.

61.3.1 show ssh

Show SSH server information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show ssh`

62 Storm Control

62.1 storm-control

Configure the global storm-control settings.

62.1.1 storm-control flow-control

Enable flow control globally.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `storm-control flow-control`

- **no storm-control flow-control**
  Disable flow control globally.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no storm-control flow-control`

62.2 traffic-shape

Traffic shape commands.

62.2.1 traffic-shape bw

Set threshold value

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `traffic-shape bw <P-1>`

Parameter	Value	Meaning
`P-1`	0..100	`Enter a number in the given range.`

62.3 mtu

Set mtu (without FCS and VLAN tag).

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mtu`

62.4 storm-control

Storm control commands

62.4.1 storm-control flow-control

Enable flow control (802.3x) for this port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control flow-control`

- **no storm-control flow-control**
  Disable flow control (802.3x) for this port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no storm-control flow-control`

62.4.2 storm-control ingress unit

Set unit.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress unit <P-1>`

Parameter	Value	Meaning
`P-1`	percent	`Metering unit expressed in percentage of bandwidth.`
`P-1`	pps	`Metering unit expressed in packets per second.`

62.4.3 storm-control ingress unicast operation

Enable ingress unicast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress unicast operation`

no storm-control ingress unicast operation

Disable ingress unicast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no storm-control ingress unicast operation`

62.4.4 storm-control ingress unicast threshold

Set threshold value

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress unicast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..1000000	`Enter a number in the given range.`

62.4.5 storm-control ingress multicast operation

Enable ingress multicast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress multicast operation`

no storm-control ingress multicast operation

Disable ingress multicast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no storm-control ingress multicast operation`

62.4.6 storm-control ingress multicast threshold

Set threshold value.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress multicast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..1000000	`Enter a number in the given range.`

62.4.7 storm-control ingress broadcast operation

Enable ingress broadcast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress broadcast operation`

no storm-control ingress broadcast operation

Disable ingress broadcast storm control.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no storm-control ingress broadcast operation`

62.4.8 storm-control ingress broadcast threshold

Set threshold value.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress broadcast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..1000000	`Enter a number in the given range.`

62.5 show

Display device options and settings.

62.5.1 show storm-control flow-control

Global flow control status.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show storm-control flow-control`

62.5.2 show storm-control ingress

Show storm control ingress parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show storm-control ingress [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

62.5.3 show traffic-shape

Show Traffic Shape Parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show traffic-shape`

62.5.4 show mtu

Show mtu Parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show mtu`

63 System

63.1 system

Set system related values e.g. name, location, contact, login banner and temperature limits

63.1.1 system name

Set the system name.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `system name <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 255 characters.`

63.1.2 system location

Set the system location.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `system location <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 255 characters.`

63.1.3 system contact

Set the contact person.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `system contact <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 255 characters.`

63.1.4 system pre-login-banner operation

Enable the pre-login banner.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `system pre-login-banner operation`

no system pre-login-banner operation

Disable the pre-login banner.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no system pre-login-banner operation`

63.1.5 system pre-login-banner text

Edit the text for the pre-login banner (C printf format syntax allowed: \\n\\t).

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `system pre-login-banner text <P-1>`

Parameter	Value	Meaning
`P-1`	string	`Enter a user-defined text, max. 512 characters (allowed charaters are from ASCII 32 to 127).`

63.2 temperature

Configure the temperature limits.

63.2.1 temperature upper-limit

Configure the upper temperature limit.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `temperature upper-limit <P-1>`

Parameter	Value	Meaning
`P-1`	-99..99	`Upper temperature threshold ([°C], default 70).`

63.2.2 temperature lower-limit

Configure the lower temperature limit.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `temperature lower-limit <P-1>`

Parameter	Value	Meaning
`P-1`	-99..99	`Lower temperature threshold ([°C], default 0).`

63.3 show

Display device options and settings.

63.3.1 show eventlog

Show log entries.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show eventlog`

63.3.2 show system info

Show system related information.
- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system info`

63.3.3 show system pre-login-banner

Display pre-login banner preferences.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system pre-login-banner`

63.3.4 show system flash-status

Flash statistics

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system flash-status`

63.3.5 show system temperature limits

Show temperature limits.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system temperature limits`

63.3.6 show system temperature extremes

Minimal and maximal temperature

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system temperature extremes`

63.3.7 show system temperature histogram

Temperature histogram

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show system temperature histogram`

64 Telnet

64.1 telnet

Set Telnet parameters.

64.1.1 telnet server

Enable the telnet server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `telnet server`

- **no telnet server**
  Disable the telnet server.
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no telnet server`

64.1.2 telnet timeout

Set the idle timeout for a telnet connection in minutes.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `telnet timeout <P-1>`

Parameter	Value	Meaning
`P-1`	0..160	`Idle timeout of a session in minutes (default: 5).`

64.1.3 telnet port

Set the listening port for the telnet server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `telnet port <P-1>`

Parameter	Value	Meaning
`P-1`	1..65535	`Set the listening port for the telnet server.`

64.1.4 telnet max-sessions

Set the maximum number of sessions for the telnet server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `telnet max-sessions <P-1>`

Parameter	Value	Meaning
`P-1`	1..5	`Set the maximum number of connections for the telnet server.`

64.2 show

Display device options and settings.

64.2.1 show telnet

Show telnet server information.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show telnet`

65 Time Range

65.1 time

Create or delete time range.

65.1.1 time range

Create or delete time range.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `time range <P-1> [absolute] [start <P-2> <P-3> <P-4> <P-5>] [end <P-6> <P-7> <P-8> <P-9>] [periodic <P-10> <P-11>] to [<P-12>] <P-13>`

`[absolute]`: Create or delete absolute time entry.
`[start]`: Set start time and date.
`[end]`: Set end time and date.
`[periodic]`: Create or delete periodic time entry. It must not overlap with any other periodic entry defined for this time range.

`to`: Set end of periodic time entry.

Parameter	Value	Meaning
P-1	string	Enter the time range name, max. 31 characters.
P-2	%*2d:%*2d	Time of day, in 24-hour format (hh:mm).
P-3	1..31	Day of the month.
P-4	jan	January
P-4	feb	February
P-4	mar	March
P-4	apr	April
P-4	may	May
P-4	jun	June
P-4	jul	July
P-4	aug	August
P-4	sep	September
P-4	oct	October
P-4	nov	November
P-4	dec	December
P-5	1993..2035	Year.
P-6	%*2d:%*2d	Time of day, in 24-hour format (hh:mm).
P-7	1..31	Day of the month.
P-8	jan	January
P-8	feb	February
P-8	mar	March
P-8	apr	April
P-8	may	May
P-8	jun	June
P-8	jul	July
P-8	aug	August
P-8	sep	September
P-8	oct	October
P-8	nov	November
P-8	dec	December
P-9	1993..2035	Year.
P-10	sunday	Sunday
P-10	monday	Monday
P-10	tuesday	Tuesday
P-10	wednesday	Wednesday
P-10	thursday	Thursday
P-10	friday	Friday
P-10	saturday	Saturday
P-10	daily	Daily
P-10	weekdays	Weekdays
P-10	weekend	Weekend

Parameter	Value	Meaning
P-10	%*s	A comma-separated combination of days
P-11	%*2d:%*2d	Time of day, in 24-hour format (hh:mm).
P-12	sunday	Sunday
P-12	monday	Monday
P-12	tuesday	Tuesday
P-12	wednesday	Wednesday
P-12	thursday	Thursday
P-12	friday	Friday
P-12	saturday	Saturday
P-13	%*2d:%*2d	Time of day, in 24-hour format (hh:mm).

no time range

Disable the option.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no time range`

65.2 show

Display device options and settings.

65.2.1 show time-range

Show time range and all its time entries.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show time-range [<P-1>]`

Parameter	Value	Meaning
`P-1`	string	`Enter the time range name, max. 31 characters.`

66 SNMP Traps

66.1 snmp

Configure of SNMP versions and traps.

66.1.1 snmp trap mode

Enable/disable SNMP trap.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp trap mode <P-1> disable enable`

`disable`: deactivate a SNMP trap.
`enable`: activate a SNMP trap.

Parameter	Value	Meaning
`P-1`	string	`<name> Trap name (1 to 32 characters)`

66.1.2 snmp trap delete

Delete SNMP trap.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp trap delete <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<name> Trap name (1 to 32 characters)`

66.1.3 snmp trap add

Add SNMP trap.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp trap add <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	string	`<name> Trap name (1 to 32 characters)`
`P-2`	%*u.%*u.%*u.%*u	`a.b.c.d  Single IP address.`
`P-2`	%*u.%*u.%*u.%*u:%*u	`a.b.c.d:n  Address with port.`

66.2 show

Display device options and settings.

66.2.1 show snmp traps

Display SNMP traps.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show snmp traps`

67 Users

67.1 users

Manage Users and User Accounts.

67.1.1 users add

Add a new user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users add <P-1>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).

67.1.2 users delete

Delete an existing user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users delete <P-1>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).

67.1.3 users enable

Enable user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users enable <P-1>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).

67.1.4 users disable

Disable user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users disable <P-1>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).

67.1.5 users password

Change user password.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users password <P-1> [<P-2>]`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).
P-2	string	Enter a user-defined text, max. 64 characters.

67.1.6 users snmpv3 authentication

Specify authentication setting for a user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users snmpv3 authentication <P-1> <P-2>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).
P-2	md5	MD5 as SNMPv3 user authentication mode.
P-2	sha1	SHA1 as SNMPv3 user authentication mode.

67.1.7 users snmpv3 encryption

Specify encryption settings for a user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users snmpv3 encryption <P-1> <P-2>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).
P-2	none	SNMPv3 encryption method is none.
P-2	des	DES as SNMPv3 encryption method.
P-2	aescfb128	AES-128 as SNMPv3 encryption method.

67.1.8 users access-role

Specify snmpv3 access role for a user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users access-role <P-1> <P-2>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).
P-2	guest	Enable guest access.
P-2	operator	Enable operator access.
P-2	administrator	Enable administrator access.
P-2	unauthorized	Set unauthorized access.

67.1.9 users lock-status

Set the lockout status of a specified user.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users lock-status <P-1> <P-2>`

Parameter	Value	Meaning
P-1	string	<user> User name (up to 32 characters).
P-2	lock	Lock specific user. User can't login anymore.
P-2	unlock	Unlock specific user. User can login again.

67.1.10 users password-policy-check

Set password policy check option.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `users password-policy-check <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`
`P-2`	enable	`Enable the option.`
`P-2`	disable	`Disable the option.`

67.2 show

Display device options and settings.

67.2.1 show users

Display users and user accounts information.

- Mode: `command is in all modes available`
- Privilege Level: `Administrator`
- Format: `show users`

68 Virtual LAN (VLAN)

68.1 vlan

Creation and configuration of VLANS.

68.1.1 vlan add

Create a VLAN
- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan add <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.1.2 vlan delete

Delete a VLAN
- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan delete <P-1>`

Parameter	Value	Meaning
`P-1`	2..4042	`Enter VLAN ID. VLAN ID 1 can not be deleted or created`

68.2 name

Assign a name to a VLAN

- Mode: `any`
- Privilege Level: `Operator`
- Format: `name`

68.3 vlan-unaware-mode

Enable or disable VLAN unaware mode.

- Mode: `any`
- Privilege Level: `Operator`
- Format: `vlan-unaware-mode`

68.4 vlan

Configure 802.1Q port parameters for VLANs.

68.4.1 vlan acceptframe

Configure how to handle tagged/untagged frames received.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan acceptframe <P-1>`

Parameter	Value	Meaning
`P-1`	all	`Untagged frames or priority frames received on this interface are accepted and \n as-signed the value of the interface VLAN ID for this port.`
`P-1`	vlanonly	`Only frames received with a VLAN tag will be forwarded. All other frames will be dropped.`

68.4.2 vlan ingressfilter

Enable application of Ingress Filtering Rules.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan ingressfilter`

- **no vlan ingressfilter**
  Disable application of Ingress Filtering Rules.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no vlan ingressfilter`

68.4.3 vlan priority

Configure the priority for untagged frames.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan priority <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter a number in the given range.`

68.4.4 vlan pvid

Configure the VLAN id for a specific port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan pvid <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.4.5 vlan tagging

Enable tagging for a specific VLAN port.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan tagging <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

- **no vlan tagging**
  Disable tagging for a specific VLAN port.
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no vlan tagging`

68.4.6 vlan participation include

vlan participation to include

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan participation include <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.4.7 vlan participation exclude

vlan participation to exclude

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan participation exclude <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.4.8 vlan participation auto

vlan participation to auto

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan participation auto <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.5 show

Display device options and settings.

68.5.1 show vlan id

Display configuration of a single specified VLAN.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan id <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.5.2 show vlan brief

Show general VLAN parameters.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan brief`

68.5.3 show vlan port

Show VLAN configuration of a single port.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan port [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

68.5.4 show vlan members

Show membership of ports in particular VLAN.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show vlan members`

68.6 network

Configure the inband connectivity.

68.6.1 network management vlan

Configure the management VLAN ID of the switch.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network management vlan <P-1>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`

68.6.2 network management priority dot1p

Configure the management VLAN priority of the switch.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network management priority dot1p <P-1>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter a number in the given range.`

68.6.3 network management priority ip-dscp

Configure the management VLAN ip-dscp priority of the switch.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network management priority ip-dscp <P-1>`

Parameter	Value	Meaning
`P-1`	0..63	`Enter a number in the given range.`

69 Voice VLAN

69.1 voice

Configure voice VLAN.

69.1.1 voice vlan

Enable the voice VLAN feature.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `voice vlan`

- **no voice vlan**
  Disable the voice VLAN feature.
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no voice vlan`

69.2 show

Display device options and settings.

69.2.1 show voice vlan global

Display the current global Voice VLAN admin mode.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show voice vlan global`

69.2.2 show voice vlan interface

Display a summary of the current Voice VLAN configuration for a specific port or for all ports.

- Mode: `command is in all modes available`
- Privilege Level: `Guest`
- Format: `show voice vlan interface [<P-1>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	

69.3 voice

Configure voice VLAN.

69.3.1 voice vlan vlan-id

Set and configure the vlan-id interface mode.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan vlan-id <P-1> [dot1p <P-2>]`

`[dot1p]`: Set and configure the vlan id and dot1p interface mode.

Parameter	Value	Meaning
`P-1`	0..4042	`Enter the VLAN ID. Entering of ID 0 disables the feature.`
`P-2`	0	`priority 0`
`P-2`	1	`priority 1`
`P-2`	2	`priority 2`
`P-2`	3	`priority 3`
`P-2`	4	`priority 4`
`P-2`	5	`priority 5`
`P-2`	6	`priority 6`
`P-2`	7	`priority 7`
`P-2`	255	`default`

69.3.2 voice vlan dot1p

Set and configure the dot1p voice vlan interface mode.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan dot1p <P-1>`

Parameter	Value	Meaning
`P-1`	0	`priority 0`
`P-1`	1	`priority 1`
`P-1`	2	`priority 2`
`P-1`	3	`priority 3`
`P-1`	4	`priority 4`
`P-1`	5	`priority 5`
`P-1`	6	`priority 6`
`P-1`	7	`priority 7`
`P-1`	255	`default`

69.3.3 voice vlan none

Configure the none voice VLAN interface mode.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan none`

69.3.4 voice vlan untagged

Configure the untagged voice VLAN interface mode.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan untagged`

69.3.5 voice vlan disable

Disable voice VLAN on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan disable`

69.3.6 voice vlan auth

Set voice VLAN Authentication Mode on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan auth`

no voice vlan auth
Disable the option.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no voice vlan auth`

69.3.7 voice vlan data priority

Trust/Untrust data traffic on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `voice vlan data priority <P-1>`

Parameter	Value	Meaning
`P-1`	trust	`Trust data traffic on an interface.`
`P-1`	untrust	`Untrust data traffic on an interface.`

A Further Support

Technical Questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.

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