HIRSCHMANN
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Reference Manual

Command Line Interface (CLI)
HiSecOS (Global Overview)

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Safety instructions

⚠ WARNING

UNCONTROLLED MACHINE ACTIONS
To avoid uncontrolled machine actions caused by data loss, configure all the data transmission devices individually.
Before you start any machine which is controlled via data transmission, be sure to complete the configuration of all data transmission devices.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

UNWANTED APPLICATION BEHAVIOR
Configuration of the Ethernet devices shall be done by an Ethernet expert.
Before you start any application based on an AFS and/or AFF network, be sure to complete the configuration of all Ethernet devices correctly.

Failure to follow these instructions can result in equipment damage, serious injury or even death.

First login (Password change)

To help prevent undesired access to the device, it is imperative that you change the default password during initial setup.

Perform the following steps:

- ☐ Open the Graphical User Interface, the HiView application, or the Command Line Interface the first time you log in.
- ☐ Log in with the default password.
  The device prompts you to type in a new password.
- ☐ Type in your new password.
  To help increase security, choose a password that contains at least 8 characters which includes upper-case characters, lower-case characters, numerical digits, and special characters.
- ☐ When you log in with the Command Line Interface, the device prompts you to confirm your new password.
- ☐ Log in again with your new password.

Note: If you lost your password, then contact your local support team.

For further information see: hirschmann-support.belden.com.

About this Manual

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 “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 “Graphical User Interface” reference manual contains detailed information on using the graphical user interface to operate the individual functions of the device.

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

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

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

1 Access Control List (ACL)

1.1 mac

Set MAC parameters.

1.1.1 mac acl add

Create a new MAC ACL
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl add <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	1..10100	`MAC ACL ID`
`P-2`	string	`Enter an ACL name, alphanumeric ASCII character string with 1 to 32 characters.`

1.1.2 mac acl delete

Delete an existing MAC ACL.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..10100	`MAC ACL ID`

1.1.3 mac acl assign

Assign a MAC ACL to a VLAN.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl assign <P-1> vlan <P-2> <P-3> <P-4>`

`vlan`: Specify a VLAN

Parameter	Value	Meaning
`P-1`	1..10100	`MAC ACL ID`
`P-2`	0..4095	`Enter a VLAN ID in the given range.`
`P-3`	in	`Incoming traffic`
`P-4`	1..4294967295	`Sequence`

1.1.4 mac acl deassign

Deassign a MAC ACL from a VLAN.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl deassign <P-1> vlan <P-2> <P-3> <P-4>`

`vlan`: Specify a VLAN

Parameter	Value	Meaning
`P-1`	1..10100	`MAC ACL ID`
`P-2`	0..4095	`Enter a VLAN ID in the given range.`
`P-3`	in	`Incoming traffic`
`P-4`	1..4294967295	`Sequence`

1.1.5 mac acl counter reset

Reset the counter for one or all MAC ACL rules.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl counter reset [<P-1>] [<P-2>]`

Parameter	Value	Meaning
`P-1`	1..10100	`MAC ACL ID`
`P-2`	1..239	`MAC ACL Rule ID`

1.1.6 mac acl trapflag

Change the trap flag.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl trapflag <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the option.
	disable	Disable the option.

1.1.7 mac acl rule add

Add a rule to an existing MAC ACL.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl rule add <P-1> <P-2> permit src <P-3> <P-4> dst <P-5> <P-6> [etype <P-7>] [vlan <P-8>] [cos <P-9>] [log] deny src <P-10> <P-11> dst <P-12> <P-13> [etype <P-14>] [vlan <P-15>] [cos <P-16>] [log]`

`permit`: Add a permit rule.
`src`: Specify the src MAC address/mask.
`dst`: Specify the dst MAC address/mask.
`[etype]`: Ethertype
`[vlan]`: Specify a VLAN to match.
`[cos]`: Specify a COS to match.
`[log]`: Enable Logging
`deny`: Add a deny rule.
`src`: Specify the src MAC address/mask.
`dst`: Specify the dst MAC address/mask.
`[etype]`: Ethertype
`[vlan]`: Specify a VLAN to match.
`[cos]`: Specify a COS to match.
`[log]`: Enable Logging

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID
P-2	1..239	MAC ACL Rule ID
P-3	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-4	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC mask in hexadecimal format. The 'Don't care bits' are represented by binary 0's and 'Do care bits' are represented by binary 1's..
P-5	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-6	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC mask in hexadecimal format. The 'Don't care bits' are represented by binary 0's and 'Do care bits' are represented by binary 1's..
P-7	0x0600-0xffff	Ethertype value
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBM SNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX (old)
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	Novell
	pppoe-disc	PPPoE Discovery Stage
	rarp	RARP
	pppoe-sess	PPPoE Session Stage
	ipx-new	IPX (new)
	powerlink	POWERLINK
	profinet	PROFINET
	ethercat	EtherCAT
P-8	0..4095	Enter a VLAN ID in the given range.
P-9	1..7	Enter a COS in the given range.

Parameter	Value	Meaning
P-10	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-11	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC mask in hexadecimal format. The 'Don't care bits' are represented by binary 0's and 'Do care bits' are represented by binary 1's..
P-12	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-13	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC mask in hexadecimal format. The 'Don't care bits' are represented by binary 0's and 'Do care bits' are represented by binary 1's..
P-14	0x0600-0xffff	Ethertype value
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBM SNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX (old)
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	Novell
	pppoe-disc	PPPoE Discovery Stage
	rarp	RARP
	pppoe-sess	PPPoE Session Stage
	ipx-new	IPX (new)
	powerlink	POWERLINK
	profinet	PROFINET
	ethercat	EtherCAT
P-15	0..4095	Enter a VLAN ID in the given range.
P-16	1..7	Enter a COS in the given range.

1.1.8 mac acl rule delete

Remove a rule from a MAC ACL.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac acl rule delete <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID
P-2	1..239	MAC ACL Rule ID

1.2 ip

Set IP parameters.

1.2.1 ip acl add

Create a new IP ACL.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip acl add <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	string	Enter an ACL name, alphanumeric ASCII character string with 1 to 32 characters.

1.2.2 ip acl delete

Delete an existing IP ACL.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip acl delete <P-1>`

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID

1.2.3 ip acl assign

Assign an IP ACL to a VLAN.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl assign <P-1> vlan <P-2> <P-3> <P-4>

vlan: Specify a VLAN.

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	vlan	Specify VLAN
P-3	0..4095	Enter a VLAN ID in the given range.
P-4	in	Incoming traffic
P-5	1..4294967295	Sequence

1.2.4 ip acl deassign

Remove an IP ACL from a VLAN.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl deassign <P-1> vlan <P-2> <P-3> <P-4>

vlan: Specify a VLAN.

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	vlan	Specify VLAN
P-3	0..4095	Enter a VLAN ID in the given range.
P-4	in	Incoming traffic
P-5	1..4294967295	Sequence

1.2.5 ip acl counter reset

Reset the counter for one or all IP ACL rules.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl counter reset [<P-1>] [<P-2>]

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	1..239	IP ACL Rule ID

1.2.6 ip acl trapflag

Change a trap flag.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl trapflag <P-1>

Parameter	Value	Meaning
P-1	enable	Enable the option.
	disable	Disable the option.

1.2.7 ip acl rule add

Add a rule to an existing IP ACL.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl rule add <P-1> <P-2> permit src <P-3> <P-4> [sport <P-5>] dst <P-6> <P-7> [dport <P-8>] [proto <P-9>] [fragments] [log] [dscp <P-10>] [mirror <P-11>] [redirect <P-12>] [rate-limit <P-13> <P-14> <P-15>] [tos <P-16> <P-17>] [mirror <P-18>] [redirect <P-19>] [rate-limit <P-20> <P-21> <P-22>] [precedence <P-23>] [mirror <P-24>] [redirect <P-25>] [rate-limit <P-26> <P-27> <P-28>] deny src <P-29> <P-30> [sport <P-31>] dst <P-32> <P-33> [dport <P-34>] [proto <P-35>] [fragments] [log] [dscp <P-36>] [tos <P-37> <P-38>] [precedence <P-39>]

permit: Add a permit rule to an existing IP ACL.
src: Specify the source IP/mask.
[sport]: Specify the source L4 port.

dst: Specify the destination IP/mask.
[dport]: Specify the destination L4 port.
[proto]: Specify the protocol.
[fragments]: Match non-initial fragments
[log]: Enable Logging
[dscp]: Specify the DSCP.
[mirror]: Specify the mirror port.
[redirect]: Specify the redirect port.
[rate-limit]: Specify the rate limit and burst size.
[tos]: Specify the TOS.
[mirror]: Specify a mirror port.
[redirect]: Specify the redirect port.
[rate-limit]: Specify the rate limit and burst size.
[precedence]: Specify the IP precedence.
[mirror]: Specify the mirror port.
[redirect]: Specify the redirect port.
[rate-limit]: Specify the rate limit and burst size.
deny: Add a deny rule to an existing IP ACL.
src: Specify the source IP/mask.
[sport]: Specify the source L4 port.
dst: Specify the destination IP/mask.
[dport]: Specify the destination L4 port.
[proto]: Specify a protocol.
[fragments]: Match non-initial fragments
[log]: Enable Logging
[dscp]: Specify the DSCP.
[tos]: Specify the TOS.
[precedence]: Specify the IP precedence.

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	1..239	IP ACL Rule ID
P-3	any	Enter 'any' to match any ip address.
	a.b.c.d	Enter the IP address to match.
P-4	any	Enter 'any' to match any ip mask.
	a.b.c.d	Enter an IP mask to match. The 'Don't care bits' are represented by binary 1's and 'Do care bits' are represented by binary 0's..
P-5	domain	Domain
	echo	Echo
	ftp	FTP
	ftpdata	FTP Data
	http	HTTP
	https	HTTPS
	smtp	SMTP
	snmp	SNMP
	telnet	Telnet
	ssh	SSH
	tftp	TFTP
	www	WWW
	1-65535	Port number
P-6	any	Enter 'any' to match any ip address.
	a.b.c.d	Enter the IP address to match.
P-7	any	Enter 'any' to match any ip mask.
	a.b.c.d	Enter an IP mask to match. The 'Don't care bits' are represented by binary 1's and 'Do care bits' are represented by binary 0's..

Parameter	Value	Meaning
P-8	domain	Domain
	echo	Echo
	ftp	FTP
	ftpdata	FTP Data
	http	HTTP
	https	HTTPS
	smtp	SMTP
	snmp	SNMP
	telnet	Telnet
	ssh	SSH
	tftp	TFTP
	www	WWW
	1-65535	Port number
P-9	1-255	Enter a protocol number.
	icmp	Match the ICMP protocol.
	igmp	Match the IGMP protocol
	ip	Match the IPinIP tunnel.
	tcp	Match the TCP protocol.
	udp	Match the UDP protocol.
P-10	1..63	DSCP
P-11	slot/port	Enter a single interface in slot/port format.
P-12	slot/port	Enter a single interface in slot/port format.
P-13	0..10000000	Committed rate value, specified in kbps or pps
P-14	0..128	Committed burst size value, specified in kbytes or pps
P-15	pps	Packets per second.
	kbps	kbytes per second.
P-16	1..31	Specify the IP TOS bits to match.
P-17	1..31	Specify the IP TOS bits that are of interest.
P-18	slot/port	Enter a single interface in slot/port format.
P-19	slot/port	Enter a single interface in slot/port format.
P-20	0..10000000	Committed rate value, specified in kbps or pps
P-21	0..128	Committed burst size value, specified in kbytes or pps
P-22	pps	Packets per second.
	kbps	kbytes per second.
P-23	1..7	IP Precedence
P-24	slot/port	Enter a single interface in slot/port format.
P-25	slot/port	Enter a single interface in slot/port format.
P-26	0..10000000	Committed rate value, specified in kbps or pps
P-27	0..128	Committed burst size value, specified in kbytes or pps
P-28	pps	Packets per second.
	kbps	kbytes per second.
P-29	any	Enter 'any' to match any ip address.
	a.b.c.d	Enter the IP address to match.
P-30	any	Enter 'any' to match any ip mask.
	a.b.c.d	Enter an IP mask to match. The 'Don't care bits' are represented by binary 1's and 'Do care bits' are represented by binary 0's..
P-31	domain	Domain
	echo	Echo
	ftp	FTP
	ftpdata	FTP Data
	http	HTTP
	https	HTTPS
	smtp	SMTP
	snmp	SNMP
	telnet	Telnet
	ssh	SSH
	tftp	TFTP
	www	WWW
	1-65535	Port number
P-32	any	Enter 'any' to match any ip address.
	a.b.c.d	Enter the IP address to match.
P-33	any	Enter 'any' to match any ip mask.
	a.b.c.d	Enter an IP mask to match. The 'Don't care bits' are represented by binary 1's and 'Do care bits' are represented by binary 0's..

Parameter	Value	Meaning
P-34	domain	Domain
	echo	Echo
	ftp	FTP
	ftpdata	FTP Data
	http	HTTP
	https	HTTPS
	smtp	SMTP
	snmp	SNMP
	telnet	Telnet
	ssh	SSH
	tftp	TFTP
	www	WWW
	1-65535	Port number
P-35	1-255	Enter a protocol number.
	icmp	Match the ICMP protocol.
	igmp	Match the IGMP protocol
	ip	Match the IPinIP tunnel.
	tcp	Match the TCP protocol.
	udp	Match the UDP protocol.
P-36	1..63	DSCP
P-37	1..31	Specify the IP TOS bits to match.
P-38	1..31	Specify the IP TOS bits to match.
P-39	1..7	IP Precedence

1.2.8 ip acl rule delete

Delete a rule from an IP ACL.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip acl rule delete <P-1> <P-2>

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	1..239	IP ACL Rule ID

1.3 show

Display device options and settings.

1.3.1 show access-list trapflag

Display the trap flag status.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show access-list trapflag

1.3.2 show access-list mac rules

Display the rules of a specific MAC ACL.

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

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID
P-2	1..239	MAC ACL Rule ID

1.3.3 show access-list mac lists

Display an overview of the existing MAC ACLs.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show access-list mac lists [<P-1>]

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID

1.3.4 show access-list mac counters

Display the counters of a specific MAC ACL.

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

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID
P-2	1..239	MAC ACL Rule ID

1.3.5 show access-list mac assignment

Display the assignments of the existing MAC ACLs.

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

Parameter	Value	Meaning
P-1	1..10100	MAC ACL ID

1.3.6 show access-list ip rules

Display the rules of a specific IP ACL.

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

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	1..239	IP ACL Rule ID

1.3.7 show access-list ip lists

Display an overview of the existing IP ACLs.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show access-list ip lists [<P-1>]

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID

1.3.8 show access-list ip counters

Display the counters of a specific IP ACL.

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

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID
P-2	1..239	IP ACL Rule ID

1.3.9 show access-list ip assignment

Display the assignments of the existing IP ACLs.

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

Parameter	Value	Meaning
P-1	1..10100	IP ACL ID

2 Application Lists

2.1 appllists

Configure an application list.

2.1.1 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.`

2.1.2 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.`

2.1.3 appllists disable

Deactivate a login application list.

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

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

2.2 show

Display device options and settings.

2.2.1 show appllists

Display the ordered methods for application lists.

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

3 Asset

3.1 asset

Asset configuration.

3.1.1 asset add

Add an asset configuration to the asset table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `asset add <P-1> name <P-2> [description <P-3>] [type <P-4>] [manufacturer <P-5>] [model <P-6>] [general-location <P-7>] [specific-location <P-8>] [tag <P-9>] [ip-address <P-10>] [mac-address <P-11>] tag <P-12> [ip-address <P-13>] [mac-address <P-14>]`

`name`: Specify the Asset Name
`[description]`: Specify the Asset Description
`[type]`: Specify the Asset Type
`[manufacturer]`: Specify the Asset Manufacturer
`[model]`: Specify the Asset Model
`[general-location]`: Specify the Asset General Location
`[specific-location]`: Specify the Asset Specific Location
`[tag]`: Specify the Asset Tag
`[ip-address]`: Specify the IPv4 Address of asset/CIDR/'any'
`[mac-address]`: Specify the MAC address/'any'
`tag`: Specify the Asset Tag
`[ip-address]`: Specify the IPv4 Address/CIDR/'any'
`[mac-address]`: Specify the MAC address/'any'

Parameter	Value	Meaning
P-1	1..50	Asset Index
P-2	string	Asset name
P-3	string	Asset description
P-4	computer	Computer Asset Type
	controller	Controller Asset Type
	device	Device Asset Type
	network	Network Asset Type
	network-Equipment	Network Equipment Asset Type
	broadcast	Broadcast Asset Type
	multicast	Multicast Asset Type
P-5	string	Asset Manufacturer
P-6	string	Asset Model
P-7	string	Asset General Location
P-8	string	Asset Specific Location
P-9	string	Asset Tag
P-10	any	Any address
	a.b.c.d	IP Address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	Everything BUT this address
	!a.b.c.d/n	Everything BUT this CIDR mask
P-11	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-12	string	Asset Tag (internal or external)
P-13	any	any Any address
	a.b.c.d	IP Address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	Everything BUT this address
	!a.b.c.d/n	Everything BUT this CIDR mask
P-14	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.

3.1.2 asset modify

Modifies an asset configuration present in the asset table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `asset modify <P-1> [name <P-2>] [description <P-3>] [type <P-4>] [manufacturer <P-5>] [model <P-6>] [general-location <P-7>] [specific-location <P-8>] [tag <P-9>] [ip-address <P-10>] [mac-address <P-11>] [tag <P-12>] [ip-address <P-13>] [mac-address <P-14>]`

`[name]`: Specify the Asset Name
`[description]`: Specify the Asset Description
`[type]`: Specify the Asset Type
`[manufacturer]`: Specify the Asset Manufacturer
`[model]`: Specify the Asset Model
`[general-location]`: Specify the Asset General Location
`[specific-location]`: Specify the Asset Specific Location
`[tag]`: Specify the Asset Tag
`[ip-address]`: Specify the IPv4 Address of asset/CIDR/'any'
`[mac-address]`: Specify the MAC address/'any'
`[tag]`: Specify the Asset Tag
`[ip-address]`: Specify the IPv4 Address/CIDR/'any'
`[mac-address]`: Specify the MAC address/'any'

Parameter	Value	Meaning
P-1	1..50	Asset Index
P-2	string	Asset name
P-3	string	Asset description
P-4	computer	Computer Asset Type
	controller	Controller Asset Type
	device	Device Asset Type
	network	Network Asset Type
	network-Equipment	Network Equipment Asset Type
	broadcast	Broadcast Asset Type
	multicast	Multicast Asset Type
P-5	string	Asset Manufacturer
P-6	string	Asset Model
P-7	string	Asset General Location
P-8	string	Asset Specific Location
P-9	string	Asset Tag
P-10	any	any Any address
	a.b.c.d	IP Address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	Everything BUT this address
	!a.b.c.d/n	Everything BUT this CIDR mask
P-11	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-12	string	Asset Tag (internal or external)
P-13	any	any Any address
	a.b.c.d	IP Address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	Everything BUT this address
	!a.b.c.d/n	Everything BUT this CIDR mask
P-14	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.

3.1.3 asset delete

Delete an asset configuration present in the asset table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `asset delete <P-1>`

Parameter	Value	Meaning
P-1	1..50	Asset Index

3.2 show

Display device options and settings.

3.2.1 show asset list

Display list for all the configured assets.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show asset list`

4 Authentication Lists

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
	local	Authentication by local user DB
	radius	Authentication by RADIUS server
	ldap	Authentication by remote server
P-3	reject	Authentication is rejected / not allowed
	local	Authentication by local user DB
	radius	Authentication by RADIUS server
	ldap	Authentication by remote server
P-4	reject	Authentication is rejected / not allowed
	local	Authentication by local user DB
	radius	Authentication by RADIUS server
	ldap	Authentication by remote server
P-5	reject	Authentication is rejected / not allowed
	local	Authentication by local user DB
	radius	Authentication by RADIUS server
	ldap	Authentication by remote server
P-6	reject	Authentication is rejected / not allowed
	local	Authentication by local user DB
	radius	Authentication by RADIUS server
	ldap	Authentication by remote 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 the ordered methods for authentication lists.

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

5 Class Of Service

5.1 classofservice

Class of service configuration.

5.1.1 classofservice dot1p-mapping

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

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `classofservice dot1p-mapping <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	0..7	`Enter the 802.1p priority.`
`P-2`	0..7	`Enter the Traffic Class value.`
`P-3`	0..3	`Enter a number in the given range.`

5.2 show

Display device options and settings.

5.2.1 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`

6 Command Line Interface (CLI)

6.1 cli

Set the CLI preferences.

6.1.1 cli serial-timeout

Set login timeout for serial line connection to CLI. Setting to 0 will disable the timeout. The value is active after next login.

- 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. Setting to 0 will disable the timeout.`

6.1.2 cli prompt

Change the system prompt. Following wildcards are allowed: %d date, %t time, %i IP address, %m MAC address ,%p product name

- 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. Following wildcards are allowed: %d date, %t time, %i IP address, %m MAC address ,%p product name`

6.1.3 cli numlines

Screen size for 'more' (23 = default). Enter a 0 will disable the feature. The value is only valid for the current session.

- 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). Enter a 0 will disable the feature. The value is only valid for the current session.`

6.1.4 cli banner operation

Enable or disable the CLI login banner.

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

no cli banner operation
Disable the option

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

6.1.5 cli banner text

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

- 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 characters are from ASCII 32 to 127).`

6.2 show

Display device options and settings.

6.2.1 show cli global

Display the CLI preferences.

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

6.2.2 show cli command-tree

Display a list of every command.

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

6.3 logging

Logging configuration.

6.3.1 logging cli-command

Enable or disable the CLI command logging.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging cli-command`

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

6.4 show

Display device options and settings.

6.4.1 show logging cli-command

Display the CLI command logging preferences.

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

7 Clock

7.1 clock

Configure local and DST clock settings.

7.1.1 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.

7.1.2 clock timezone offset

Local time offset (in minutes) with respect to UTC (positive values for locations east of Greenwich).

- 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).

7.1.3 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).

7.1.4 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.
	recurring	Enable recurring summer-time mode.
	eu	Enable recurring summer-time used in most parts of the European Union.
	usa	Enable recurring summer-time used in most parts of the USA.

7.1.5 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	
	first	Week
	second	Week
	third	Week
	fourth	Week
	last	Week

Parameter	Value	Meaning
P-2	none	
	sun	Sunday
	mon	Monday
	tue	Tuesday
	wed	Wednesday
	thu	Thursday
	fri	Friday
	sat	Saturday
P-3	none	
	jan	January
	feb	February
	mar	March
	apr	April
	may	May
	jun	June
	jul	July
	aug	August
	sep	September
	oct	October
	nov	November
	dec	December
P-4	string	<hh:mm> Time in hh:mm format (00:00-23:59) at which the device sets the clock forward to summer time.

7.1.6 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	
	first	Week
	second	Week
	third	Week
	fourth	Week
	last	Week
P-2	none	
	sun	Sunday
	mon	Monday
	tue	Tuesday
	wed	Wednesday
	thu	Thursday
	fri	Friday
	sat	Saturday
P-3	none	
	jan	January
	feb	February
	mar	March
	apr	April
	may	May
	jun	June
	jul	July
	aug	August
	sep	September
	oct	October
	nov	November
	dec	December
P-4	string	<hh:mm> Time in hh:mm format (00:00-23:59) at which the device resets the clock to standard time.

7.1.7 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).`

7.2 show

Display device options and settings.

7.2.1 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 the summer-time parameters.

8 Configuration

8.1 save

Save the configuration to the specified destination.

8.1.1 save profile

Save the configuration to the specific 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.

8.2 config

Configure the configuration saving settings.

8.2.1 config watchdog admin-state

Enable or disable the configuration undo feature.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `config watchdog admin-state`

- **no config watchdog admin-state**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no config watchdog admin-state`

8.2.2 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.

8.2.3 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.

8.2.4 config encryption password clear

Clear the configuration file password.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config encryption password clear [<P-1>]`

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

8.2.5 config envm choose-active

Choose the active external non-volatile memory for copying firmware, logs, certificates etc. This does not affect loading and saving of the configuration.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `config envm choose-active <P-1>`

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

8.2.6 config envm log-device

Choose the active external non-volatile memory for persistent log files.

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

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

8.2.7 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
	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 <P-1>`

8.2.8 config envm config-save

Allow the configuration to be saved to this memory device.

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

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

no config envm config-save

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no config envm config-save <P-1>`

8.2.9 config envm load-priority

Configure the order of configuration load attempts from memory devices at boot time. If one load is successful, then the device discards further attempts.

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

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

8.2.10 config profile select

Select a configuration profile to be the active configuration.

- 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.

8.2.11 config profile delete

Delete a specific 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 a profile to delete.
`profile`: Select the name of a profile to delete.

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

8.2.12 config fingerprint verify nvm profile

Select the name of a profile to be verified.

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

Parameter	Value	Meaning
P-1	string	Filename.
P-2	string	Enter hash as 40 hexa-decimal characters.

8.2.13 config fingerprint verify nvm num

Select the index number of a profile to be verified.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config fingerprint verify nvm num <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..20	Index of the profile entry.
P-2	string	Enter hash as 40 hexa-decimal characters.

8.2.14 config fingerprint verify envm profile

Select the name of a profile to be verified.

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

Parameter	Value	Meaning
P-1	string	Filename.
P-2	string	Enter hash as 40 hexa-decimal characters.

8.2.15 config fingerprint verify envm num

Select the index number of a profile to be verified.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `config fingerprint verify envm num <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..20	Index of the profile entry.
P-2	string	Enter hash as 40 hexa-decimal characters.

8.3 copy

Copy different kinds of items.

8.3.1 copy sysinfo system envm

Copy the system information to external non-volatile memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sysinfo system envm [filename <P-1>]`

`[filename]`: Enter the filename (format xyz.html) to be saved in external non-volatile memory.

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

8.3.2 copy sysinfoall system envm

Copy the system information and the event log from the device to external non-volatile memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy sysinfoall system envm`

8.3.3 copy firmware envm

Copy a firmware image to the device from external non-volatile memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy firmware envm <P-1> system`

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

Parameter	Value	Meaning
`P-1`	string	Filename.

8.3.4 copy firmware remote

Copy a firmware image to the device from a server.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy firmware remote <P-1> system`

`system`: Copy a firmware image to the device from a file server.

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

8.3.5 copy config running-config nvm

Copy the running-config to non-volatile memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy config running-config nvm [profile <P-1>]`

`[profile]`: Save the configuration as a specific profile name.

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

8.3.6 copy config running-config remote

Copy the running-config to a 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.`

8.3.7 copy config nvm

Load a configuration from non-volatile memory to the running-config.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy config nvm [profile <P-1>] running-config remote <P-2>`

`[profile]`: Load a configuration from a specific profile name.

`running-config`: (Re)-load a configuration from non-volatile memory to the running-config.
`remote`: Copy a configuration from non-volatile memory to a server.

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

8.3.8 copy config envm

Copy a configuration from external non-volatile memory to non-volatile memory.

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

`[profile]`: Copy a specific configuration profile from external non-volatile memory to non-volatile memory.
`nvm`: Copy a specific profile from external non-volatile memory to non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	Filename.

8.3.9 copy config remote

Copy a configuration file to the device from a server.

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

`nvm`: Copy a configuration file from a server to non-volatile memory.
`[profile]`: Copy a configuration from a server to a specific profile in non-volatile memory.
`running-config`: Copy a configuration file from a server to the 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.`

8.4 clear

Clear several items.

8.4.1 clear config

Clear the running configuration.

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

8.4.2 clear factory

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

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

8.4.3 clear sfp-white-list

Clear the SFP WhiteList.

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

8.5 show

Display device options and settings.

8.5.1 show running-config

Display the currently running configuration.
- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show running-config`

8.5.2 show running-config xml

Display the currently running configuration (XML file).
- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show running-config xml`

8.6 show

Display device options and settings.

8.6.1 show config envm settings

Display the settings of the external non-volatile memory.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show config envm settings`

8.6.2 show config envm properties

Display the properties of the external non-volatile memory.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show config envm properties`

8.6.3 show config envm active

Display the active external non-volatile memory.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show config envm active`

8.6.4 show config watchdog

Display the Auto Configuration Undo settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show config watchdog`

8.6.5 show config encryption

Display the settings for configuration encryption.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show config encryption`

8.6.6 show config profiles

Display the 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-volatile memory`
	envm	`external non-volatile memory device`
`P-2`	1..20	`Index of the profile entry.`

8.6.7 show config status

Display the synchronization status of the running configuration with the non-volatile memory and the ACA.

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

8.7 swap

Swap software images.

8.7.1 swap firmware system backup

Swap the main and backup images.

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

9 Device Monitoring

9.1 device-status

Configure various device conditions to be monitored.

9.1.1 device-status monitor link-failure

Enable or disable 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 the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor link-failure`

9.1.2 device-status monitor temperature

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

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

9.1.3 device-status monitor envm-removal

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

- **no device-status monitor envm-removal**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor envm-removal`

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

Enable or disable monitoring synchronization between the external non-volatile memory 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 the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no device-status monitor envm-not-in-sync`

9.1.5 device-status monitor power-supply

Enable or disable 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 the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no device-status monitor power-supply <P-1>`

9.1.6 device-status trap

Configure the device to send a trap when the device status changes.

- 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`

9.2 device-status

Configure various device conditions to be monitored.

9.2.1 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`

9.3 show

Display device options and settings.

9.3.1 show device-status monitor

Display the device monitoring configurations.

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

9.3.2 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`

9.3.3 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`

9.3.4 show device-status events

Display occurred device status events.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show device-status events`

9.3.5 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`

9.3.6 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`

10 Device Security

10.1 security-status

Configure the security status settings.

10.1.1 security-status monitor pwd-change

Sets the monitoring of default password change for '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`

10.1.2 security-status monitor pwd-min-length

Sets the monitoring of minimum length of the password (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`

10.1.3 security-status monitor pwd-policy-config

Sets the monitoring whether the minimum password policy is configured. The device changes the security status to the value "error" if the value for at least one of the following password rules is 0: "minimum upper cases","minimum lower cases","minimum numbers","minimum special characters".

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

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

10.1.4 security-status monitor pwd-policy-inactive

Sets the monitoring whether at least one user is configured with inactive policy check. The device changes the security status to the value "error" if the function "policy check" is inactive for at least 1 user account.

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

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

10.1.5 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`

10.1.6 security-status monitor snmp-unsecure

Sets the monitoring of SNMP security (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`

10.1.7 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`

10.1.8 security-status monitor extnvm-upd-enabled

Sets the monitoring of activation of the configuration 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`

10.1.9 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`

10.1.10 security-status monitor hidisc-enabled

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

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

10.1.11 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`

10.1.12 security-status monitor https-certificate

Sets the monitoring whether auto generated self-signed HTTPS certificate is in use.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `security-status monitor https-certificate`

- **no security-status monitor https-certificate**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no security-status monitor https-certificate`

10.1.13 security-status trap

Configure if a trap is sent when the security status changes.
- 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`

10.2 security-status

Configure the security status interface settings.

10.2.1 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`

10.3 show

Display device options and settings.

10.3.1 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`

10.3.2 show security-status state

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

10.3.3 show security-status no-link

Display the settings of the monitoring of the specific network ports.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show security-status no-link`

10.3.4 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`

10.3.5 show security-status events

Display the occurred security status events.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show security-status events`

10.3.6 show security-status all

Display the security status settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show security-status all`

11 Dynamic Host Configuration Protocol (DHCP)

11.1 dhcp-server

Modify DHCP Server parameters.

11.1.1 dhcp-server operation

Enable or disable the DHCP server on this port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server operation`

no dhcp-server operation
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no dhcp-server operation`

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> interface <P-4> static <P-5> interface <P-6>`

`dynamic`: Add a pool with one or more IP addresses.
`interface`: Interface mode.
`static`: Add a pool with only one IP address. This is the same as the 'dynamic' command with last-ip set to '0.0.0.0'.
`interface`: Interface mode.

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`	slot no./port no.	
`P-5`	A.B.C.D	`IP address`
`P-6`	slot no./port no.	

dhcp-server pool modify
Modify the dynamic address pool
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dhcp-server pool modify <P-1> first-ip <P-2> last-ip <P-3> mode interface <P-4> mac <P-5> leasetime <P-6> option gateway <P-7> netmask <P-8> dns <P-9> hostname <P-10>`

`first-ip`: Modify the first IP.
`last-ip`: Modify the last IP.
`mode`: Pool mode settings.
`interface`: Interface mode.
`mac`: MAC mode.
`leasetime`: Enter the leasetime in seconds.
`option`: Configuration option.
`gateway`: Default gateway.
`netmask`: Option netmask.
`dns`: Option dns.
`hostname`: Option hostname.

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.`

Parameter	Value	Meaning
P-4	slot no./port no.	
P-5	any	Enter any as a shortcut for the MAC address 00:00:00:00:00:00.
	aa:bb:cc:dd:ee:ff	Enter the MAC address in hexadecimal format.
P-6	infinite	Infinite leasetime.
	60..220752000	Leasetime in seconds.
P-7	A.B.C.D	IP address.
P-8	A.B.C.D	IP address.
P-9	A.B.C.D	IP address.
P-10	string	Enter a user-defined text, max. 64 characters.

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 <P-1>

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.

11.2 show

Display device options and settings.

11.2.1 show dhcp-server operation

Display the DHCP Server global information.

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

11.2.2 show dhcp-server pool

Display the 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.

11.2.3 show dhcp-server interface

Display the DHCP server information 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.	

11.2.4 show dhcp-server lease

Display the DHCP server lease entries.

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

12 Domain Name System (DNS)

12.1 dns

Set DNS parameters.

12.1.1 dns caching-server adminstate

Enable or disable the DNS Caching Server.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns caching-server adminstate`

no dns caching-server adminstate
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dns caching-server adminstate`

12.1.2 dns caching-server flush

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

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

12.1.3 dns client adminstate

Enable or disable DNS Client.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dns client adminstate`

no dns client adminstate
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dns client adminstate`

12.1.4 dns client cache adminstate

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

no dns client cache adminstate
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dns client cache adminstate`

12.1.5 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.

12.1.6 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.

12.1.7 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 <P-3> operation <P-4>

ip: Change the DNS server address.
status: Change the status of this DNS server.
operation: 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.
P-3	enable	Enable the option.
	disable	Disable the option.
P-4	enable	Enable the option.
	disable	Disable the option.

12.1.8 dns client servers enable

Activate a DNS server entry.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dns client servers enable <P-1>

Parameter	Value	Meaning
P-1	1..4	DNS Client servers index.

12.1.9 dns client servers disable

Deactivate a DNS server entry.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dns client servers disable <P-1>

Parameter	Value	Meaning
P-1	1..4	DNS Client servers index.

12.1.10 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).

12.1.11 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).

12.2 show

Display device options and settings.

12.2.1 show dns caching-server info

Display the DNS Caching Server information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dns caching-server info`

12.2.2 show dns client hosts

Display the DNS Client hosts table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dns client hosts`

12.2.3 show dns client info

Display the DNS Client related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dns client info`

12.2.4 show dns client servers

Display the DNS Client servers.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dns client servers`

13 DoS Mitigation

13.1 dos

Manage DoS Mitigation

13.1.1 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`

13.1.2 dos tcp-xmas

Enables TCP 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`

13.1.3 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`

13.1.4 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`

13.1.5 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`

13.1.6 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`

13.1.7 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)`

13.1.8 dos ip-land

Enables LAND attack protection - source IP equals destination IP.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos ip-land <P-1>`

Parameter	Value	Meaning
`P-1`	enable	`Enable the option.`
	disable	`Disable the option.`

13.1.9 dos ip-src-route

Enables Drop IP source route - Discard packets with Strict/Loose Source Routing Option set.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos ip-src-route`

no dos ip-src-route
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no dos ip-src-route`

13.1.10 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`

13.1.11 dos tcp-syn

Enables TCP 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`

13.1.12 dos l4-port

Enables UDP or TCP source port equals 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`

13.1.13 dos l2-frame-forwarding

Enables L2 802.3 frame forwarding.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dos l2-frame-forwarding`

- **no dos l2-frame-forwarding**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no dos l2-frame-forwarding`

13.2 show

Display device options and settings.

13.2.1 show dos

Display the DoS Mitigation parameters.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dos`

14 Deep Packet Inspection (DPI)

14.1 dpi

Creation and configuration of DPI profiles.

14.1.1 dpi modbus commit

Writes all changes made in the DPI MODBUS profiles to the enforcer.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi modbus commit`

14.1.2 dpi modbus addprofile

Adds a profile to the DPI MODBUS profile table.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi modbus addprofile <P-1> [description <P-2>] [function-type <P-3>] [function-code-list <P-4>] [unit-identifier-list <P-5>] [sanity-check <P-6>] [exception <P-7>] [reset <P-8>]`

`[description]`: Profile description/name for the DPI MODBUS profile.
`[function-type]`: Function type of corresponding function codes.
`[function-code-list]`: Function code list. A function code has the syntax 'val'. Function codes are separated by a comma. When more than one value for an function code is specified the values are separated by the pipe symbol ('|').
`[unit-identifier-list]`: Unit identifier list. A unit identifier has the syntax 'val'. To specify no options, the value 'none' must be given. Unit identifiers are separated by a comma.
`[sanity-check]`: Sanity check including format and specification.
`[exception]`: Device exception message.
`[reset]`: Reset connection message.

Parameter	Value	Meaning
`P-1`	1..32	`Profile index 1 - 32`
`P-2`	string	`Profile description/name`
`P-3`	readonly	`Read only function codes for function code list`
	readwrite	`Read write function codes for function code list`
	programming	`Programming function codes for function code list`
	all	`All possible function codes for function code list (allow any function code)`
	advanced	`Keeps the function code list from the previous selection and makes it editable by the user`

Parameter	Value	Meaning
P-4	1..255	Function codes 1 - 255
	1|0-65535	Function code read coils, coil address range 0 - 65535
	2|0-65535	Function code read discrete inputs, input address range 0 - 65535
	3|0-65535	Function code read holding registers, register address range 0 - 65535
	4|0-65535	Function code read input registers, register address range 0 - 65535
	5|0-65535	Function code write single coil, coil address range 0 - 65535
	6|0-65535	Function code write single register, register address range 0 - 65535
	7	Function code read exception status
	8	Function code diagnostic
	11	Function code get com event counter
	12	Function code get comm event log
	13	Function code program (584/984)
	14	Function code poll (584/984)
	15|0-65535	Function code write multiple coils, coil address range 0 - 65535
	16|0-65535	Function code write multiple registers, register address range 0 - 65535
	17	Function code report slave id
	20	Function code read file record
	21	Function code write file record
	22|0-65535	Function code mask write register, register address range 0 - 65535
	23|0-65535|0-65535	Function code read/write multiple registers, read address range 0 - 65535, write address range 0 - 65535
	24|0-65535	Function code read fifo queue, pointer address range 0 - 65535
	40	Function code program (concept)
	42	Function code concept symbol table
	43	Function code encapsulated interface transport
	48	Function code advantech co. ltd. - management functions
	66	Function code scan data inc. - expanded read holding registers
	67	Function code scan data inc. - expanded write holding registers
	90	Function code unity programming/ofs
	100	Function code scattered register read
	125	Function code schneider electric - firmware replacement
	126	Function code schneider electric - program
P-5	0..255	Unit identifier 0 - 255
	none	No unit identifier 'none'
P-6	yes	True
	no	False
P-7	yes	True
	no	False
P-8	yes	True
	no	False

14.1.3 dpi modbus modifyprofile

Modifies a profile in the DPI MODBUS profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi modbus modifyprofile <P-1> [description <P-2>] [function-type <P-3>] [function-code-list <P-4>] [unit-identifier-list <P-5>] [sanity-check <P-6>] [exception <P-7>] [reset <P-8>]`

`[description]`: Profile description/name for the DPI MODBUS profile.
`[function-type]`: Function type of corresponding function codes.
`[function-code-list]`: Function code list. A function code has the syntax 'val'. Function codes are separated by a comma. When more than one value for an function code is specified the values are separated by the pipe symbol ('|').
`[unit-identifier-list]`: Unit identifier list. A unit identifier has the syntax 'val'. To specify no options, the value 'none' must be given. Unit identifiers are separated by a comma.
`[sanity-check]`: Sanity check including format and specification.
`[exception]`: Device exception message.
`[reset]`: Reset connection message.

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32
P-2	string	Profile description/name

Parameter	Value	Meaning
P-3	readonly	Read only function codes for function code list
	readwrite	Read write function codes for function code list
	programming	Programming function codes for function code list
	all	All possible function codes for function code list (allow any function code)
	advanced	Keeps the function code list from the previous selection and makes it editable by the user
P-4	1..255	Function codes 1 - 255
	1|0-65535	Function code read coils, coil address range 0 - 65535
	2|0-65535	Function code read discrete inputs, input address range 0 - 65535
	3|0-65535	Function code read holding registers, register address range 0 - 65535
	4|0-65535	Function code read input registers, register address range 0 - 65535
	5|0-65535	Function code write single coil, coil address range 0 - 65535
	6|0-65535	Function code write single register, register address range 0 - 65535
	7	Function code read exception status
	8	Function code diagnostic
	11	Function code get com event counter
	12	Function code get comm event log
	13	Function code program (584/984)
	14	Function code poll (584/984)
	15|0-65535	Function code write multiple coils, coil address range 0 - 65535
	16|0-65535	Function code write multiple registers, register address range 0 - 65535
	17	Function code report slave id
	20	Function code read file record
	21	Function code write file record
	22|0-65535	Function code mask write register, register address range 0 - 65535
	23|0-65535|0-65535	Function code read/write multiple registers, read address range 0 - 65535, write address range 0 - 65535
	24|0-65535	Function code read fifo queue, pointer address range 0 - 65535
	40	Function code program (concept)
	42	Function code concept symbol table
	43	Function code encapsulated interface transport
	48	Function code advantech co. ltd. - management functions
	66	Function code scan data inc. - expanded read holding registers
	67	Function code scan data inc. - expanded write holding registers
	90	Function code unity programming/ofs
	100	Function code scattered register read
	125	Function code schneider electric - firmware replacement
	126	Function code schneider electric - program
P-5	0..255	Unit identifier 0 - 255
	none	No unit identifier 'none'
P-6	yes	True
	no	False
P-7	yes	True
	no	False
P-8	yes	True
	no	False

14.1.4 dpi modbus copyprofile

Copies a profile to another DPI MODBUS profile.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi modbus copyprofile <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..32	Profile source index 1 - 32
P-2	1..32	Profile destination index 1 - 32

14.1.5 dpi modbus delprofile

Deletes a profile from the DPI MODBUS profile table. You cannot delete an active profile or if an enforcer mappings to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi modbus delprofile <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.6 dpi modbus enableprofile

Enables a profile in the DPI MODBUS profile table. A profile can only be activated when all required parameters are set. After activation modifications no longer possible.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi modbus enableprofile <P-1>

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.7 dpi modbus disableprofile

Disables a profile in the DPI MODBUS profile table. You cannot inactivate a profile if an active enforcer mappings to it.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi modbus disableprofile <P-1>

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.8 dpi opc commit

Writes all changes made in the DPI OPC profiles to the enforcer.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc commit

14.1.9 dpi opc addprofile

Adds a profile to the DPI OPC profile table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc addprofile <P-1> [description <P-2>] [sanity-check <P-3>] [fragment-check <P-4>] [timeout-connect <P-5>]

[description]: Profile description/name for the DPI OPC profile.
[sanity-check]: Sanity check including format and specification.
[fragment-check]: Fragment check.
[timeout-connect]: Timeout at connect.

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32
P-2	string	Profile description/name
P-3	yes	True
	no	False
P-4	yes	True
	no	False
P-5	0..300	Timeout in seconds 0 - 300

14.1.10 dpi opc modifyprofile

Modifies a profile in the DPI OPC profile table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc modifyprofile <P-1> [description <P-2>] [sanity-check <P-3>] [fragment-check <P-4>] [timeout-connect <P-5>]

[description]: Profile description/name for the DPI OPC profile.
[sanity-check]: Sanity check including format and specification.
[fragment-check]: Fragment check.
[timeout-connect]: Timeout at connect.

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32
P-2	string	Profile description/name
P-3	yes	True
	no	False

Parameter	Value	Meaning
P-4	yes	True
	no	False
P-5	0..300	Timeout in seconds 0 - 300

14.1.11 dpi opc copyprofile

Copies a profile to another DPI OPC profile.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc copyprofile <P-1> <P-2>

Parameter	Value	Meaning
P-1	1..32	Profile source index 1 - 32
P-2	1..32	Profile destination index 1 - 32

14.1.12 dpi opc delprofile

Deletes a profile from the DPI OPC profile table. You cannot delete an active profile or if an enforcer mappings to it.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc delprofile <P-1>

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.13 dpi opc enableprofile

Enables a profile in the DPI OPC profile table. A profile can only be activated when all required parameters are set. After activation modifications no longer possible.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc enableprofile <P-1>

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.14 dpi opc disableprofile

Disables a profile in the DPI OPC profile table. You cannot inactivate a profile if an active enforcer mappings to it.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi opc disableprofile <P-1>

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.15 dpi iec104 commit

Writes all changes made in the DPI IEC104 profiles to the enforcer.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi iec104 commit

14.1.16 dpi iec104 add

Adds a profile to the DPI IEC104 profile table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi iec104 add <P-1> [description <P-2>] [function-type <P-3>] [adv-type-id-list <P-4>] [transmission-size <P-5>] [originator-addr-list <P-6>] [common-addr-list <P-7>] [sanity-check <P-8>] [reset <P-9>] [debug <P-10>] [common-addr-size <P-11>] [io-addr-size <P-12>] [allow-101 <P-13>]

[description]: Description/name for the DPI IEC104 profile.
[function-type]: Function type.
[adv-type-id-list]: Advanced type ID list.
[transmission-size]: Set cause of transmission size.
[originator-addr-list]: Originator address list (Configurable when cause of transmission size is 2).
[common-addr-list]: Common address list (For common address size 1, range is 0-255 and for common address size 2, range is 0-65535).

[sanity-check]: Sanity check including format and specification.
[reset]: Reset connection message.
[debug]: Debug output in reset message.
[common-addr-size]: Set common address size.
[io-addr-size]: Set IO address size.
[allow-101]: Allow IEC101 type IDs.

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32
P-2	string	Profile description/name
P-3	readonly	Read only type IDs for type ID list.
	readwrite	Read write type IDs for type ID list.
	common	Common type IDs for type ID list.
	any	All possible type IDs for type ID list (allow any type ID).
	advanced	Lets the user specify customized type IDs for type ID list.

Parameter	Value	Meaning
P-4	1..255	Comma separated type ID e.g 1,2,3.
	1	Single point information m-sp-na-1
	2	Single point information with time tag m-sp-ta-1
	3	Double point information m-dp-na-1
	4	Double point information with time tag m-dp-ta-1
	5	Step position information m-st-na-1
	6	Step position information with time tag m-st-ta-1
	7	Bit string of 32 bit m-bo-na-1
	8	Bit string of 32 bit with time tag m-bo-ta-1
	9	Measured value, normalized value m-me-na-1
	10	Measured value, normalized value with time tag m-me-ta-1
	11	Measured value, scaled value m-me-nb-1
	12	Measured value, scaled value with time tag m-me-tb-1
	13	Measured value, short floating point value m-me-nc-1
	14	Measured value, short floating point value with time tag m-me-tc-1
	15	Integrated totals m-it-na-1
	16	Integrated totals with time tag m-it-ta-1
	17	Event of protection equipment with time tag m-ep-ta-1
	18	Packed start events of protection equipment with time tag m-ep-tb-1
	19	Packed output circuit information of protection equipment with time tag m-ep-tc-1
	20	Packed single-point information with status change detection m-ps-na-1
	21	Measured value, normalized value without quality descriptor m-me-nd-1
	30	Single point information with time tag cp56time2a m-sp-tb-1
	31	Double point information with time tag cp56time2a m-dp-tb-1
	32	Step position information with time tag cp56time2a m-st-tb-1
	33	Bit string of 32 bit with time tag cp56time2a m-bo-tb-1
	34	Measured value, normalized value with time tag cp56time2a m-me-td-1
	35	Measured value, scaled value with time tag cp56time2a m-me-te-1
	36	Measured value, short floating point value with time tag cp56time2a m-me-tf-1
	37	Integrated totals with time tag cp56time2a m-it-tb-1
	38	Event of protection equipment with time tag cp56time2a m-ep-td-1
	39	Packed start events of protection equipment with time tag cp56time2a m-ep-te-1
	40	Packed output circuit information of protection equipment with time tag cp56time2a m-ep-tf-1
	45	Single command c-sc-na-1
	46	Double command c-dc-na-1
	47	Regulating step command c-rc-na-1
	48	Setpoint command, normalized value c-se-na-1
	49	Setpoint command, scaled value c-se-nb-1
	50	Setpoint command, short floating point value c-se-nc-1
	51	Bit string 32 bit c-bo-na-1
	58	Single command with time tag cp56time2a c-sc-ta-1
	59	Double command with time tag cp56time2a c-dc-ta-1
	60	Regulating step command with time tag cp56time2a c-rc-ta-1
	61	Setpoint command, normalized value with time tag cp56time2a c-se-ta-1
	62	Setpoint command, scaled value with time tag cp56time2a c-se-tb-1
	63	Setpoint command, short floating point value with time tag cp56time2a c-se-tc-1
	64	Bit string 32 bit with time tag cp56time2a c-bo-ta-1
	70	End of initialization m-ei-na-1
	100	(General-) Interrogation command c-ic-na-1
	101	Counter interrogation command c-ci-na-1
	102	Read command c-rd-na-1
	103	Clock synchronization command c-cs-na-1
	104	(IEC 101) Test command c-ts-nb-1
	105	Reset process command c-rp-nc-1
	106	(IEC 101) Delay acquisition command c-cd-na-1
	107	Test command with time tag cp56time2a c-ts-ta-1
	110	Parameter of measured value, normalized value p-me-na-1
	111	Parameter of measured value, scaled value p-me-nb-1
	112	Parameter of measured value, short floating point value p-me-nc-1

Parameter	Value	Meaning
	113	Parameter activation p-ac-na-1
	120	File ready f-fr-na-1
	121	Section ready f-sr-na-1
	122	Call directory, select file, call file, call section f-sc-na-1
	123	Last section, last segment f-ls-na-1
	124	Ack file, Ack section f-af-na-1
	125	Segment f-sg-na-1
	126	f-dr-ta-1
	127	QueryLog - Request archive file f-sc-nb-1
	128..135	Reserved for routing of messages
	..	Type ID from 136-255 and undefined type IDs are reserved for special use
P-5	1..2	Specify the cause-of-transmission size.
P-6	0..255	Set originator address.
	0..255	Set list of originator address with comma seperated e.g 1,5.
	0..255	Set range of originator address e.g 5-10.
	0..255	Set list and range of originator address e.g 1,5-10,120-255.
P-7	0..255/65535	Set common address.
	0..255/65535	Set list of common address with comma seperated e.g 1,5.
	0..255/65535	Set range of common address e.g 5-10.
	0..255/65535	Set list and range of common address e.g 1,5-10,120-300.
P-8	enable	Enable the option.
	disable	Disable the option.
P-9	enable	Enable the option.
	disable	Disable the option.
P-10	enable	Enable the option.
	disable	Disable the option.
P-11	1..2	Specify the common address size.
P-12	1..3	Specify the IO address size.
P-13	enable	Enable the option.
	disable	Disable the option.

14.1.17 dpi iec104 modify

Modifies a profile in the DPI IEC104 profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi iec104 modify <P-1> [description <P-2>] [function-type <P-3>] [adv-type-id-list <P-4>] [transmission-size <P-5>] [originator-addr-list <P-6>] [common-addr-list <P-7>] [sanity-check <P-8>] [reset <P-9>] [debug <P-10>] [common-addr-size <P-11>] [io-addr-size <P-12>] [allow-101 <P-13>]`

`[description]`: Description/name for the DPI IEC104 profile.
`[function-type]`: Function type.
`[adv-type-id-list]`: Advanced type ID list.
`[transmission-size]`: Set cause of transmission size.
`[originator-addr-list]`: Originator address list (Configurable when cause of transmission size is 2).
`[common-addr-list]`: Common address list (For common address size 1, range is 0-255 and for common address size 2, range is 0-65535).
`[sanity-check]`: Sanity check including format and specification.
`[reset]`: Reset connection message.
`[debug]`: Debug output in reset message.
`[common-addr-size]`: Set Common Address Size.
`[io-addr-size]`: Set IO address size.
`[allow-101]`: Allow IEC101 type IDs.

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32
P-2	string	Profile description/name
P-3	readonly	Read only type IDs for type ID list.
	readwrite	Read write type IDs for type ID list.
	common	Common type IDs for type ID list.
	any	All possible type IDs for type ID list (allow any type ID).
	advanced	Lets the user specify customized type IDs for type ID list.

Parameter	Value	Meaning
P-4	1..255	Comma separated type ID e.g 1,2,3.
	1	Single point information m-sp-na-1
	2	Single point information with time tag m-sp-ta-1
	3	Double point information m-dp-na-1
	4	Double point information with time tag m-dp-ta-1
	5	Step position information m-st-na-1
	6	Step position information with time tag m-st-ta-1
	7	Bit string of 32 bit m-bo-na-1
	8	Bit string of 32 bit with time tag m-bo-ta-1
	9	Measured value, normalized value m-me-na-1
	10	Measured value, normalized value with time tag m-me-ta-1
	11	Measured value, scaled value m-me-nb-1
	12	Measured value, scaled value with time tag m-me-tb-1
	13	Measured value, short floating point value m-me-nc-1
	14	Measured value, short floating point value with time tag m-me-tc-1
	15	Integrated totals m-it-na-1
	16	Integrated totals with time tag m-it-ta-1
	17	Event of protection equipment with time tag m-ep-ta-1
	18	Packed start events of protection equipment with time tag m-ep-tb-1
	19	Packed output circuit information of protection equipment with time tag m-ep-tc-1
	20	Packed single-point information with status change detection m-ps-na-1
	21	Measured value, normalized value without quality descriptor m-me-nd-1
	30	Single point information with time tag cp56time2a m-sp-tb-1
	31	Double point information with time tag cp56time2a m-dp-tb-1
	32	Step position information with time tag cp56time2a m-st-tb-1
	33	Bit string of 32 bit with time tag cp56time2a m-bo-tb-1
	34	Measured value, normalized value with time tag cp56time2a m-me-td-1
	35	Measured value, scaled value with time tag cp56time2a m-me-te-1
	36	Measured value, short floating point value with time tag cp56time2a m-me-tf-1
	37	Integrated totals with time tag cp56time2a m-it-tb-1
	38	Event of protection equipment with time tag cp56time2a m-ep-td-1
	39	Packed start events of protection equipment with time tag cp56time2a m-ep-te-1
	40	Packed output circuit information of protection equipment with time tag cp56time2a m-ep-tf-1
	45	Single command c-sc-na-1
	46	Double command c-dc-na-1
	47	Regulating step command c-rc-na-1
	48	Setpoint command, normalized value c-se-na-1
	49	Setpoint command, scaled value c-se-nb-1
	50	Setpoint command, short floating point value c-se-nc-1
	51	Bit string 32 bit c-bo-na-1
	58	Single command with time tag cp56time2a c-sc-ta-1
	59	Double command with time tag cp56time2a c-dc-ta-1
	60	Regulating step command with time tag cp56time2a c-rc-ta-1
	61	Setpoint command, normalized value with time tag cp56time2a c-se-ta-1
	62	Setpoint command, scaled value with time tag cp56time2a c-se-tb-1
	63	Setpoint command, short floating point value with time tag cp56time2a c-se-tc-1
	64	Bit string 32 bit with time tag cp56time2a c-bo-ta-1
	70	End of initialization m-ei-na-1
	100	(General-) Interrogation command c-ic-na-1
	101	Counter interrogation command c-ci-na-1
	102	Read command c-rd-na-1
	103	Clock synchronization command c-cs-na-1
	104	(IEC 101) Test command c-ts-nb-1
	105	Reset process command c-rp-nc-1
	106	(IEC 101) Delay acquisition command c-cd-na-1
	107	Test command with time tag cp56time2a c-ts-ta-1
	110	Parameter of measured value, normalized value p-me-na-1
	111	Parameter of measured value, scaled value p-me-nb-1
	112	Parameter of measured value, short floating point value p-me-nc-1
	113	Parameter activation p-ac-na-1
	120	File ready f-fr-na-1
	121	Section ready f-sr-na-1
	122	Call directory, select file, call file, call section f-sc-na-1

Parameter	Value	Meaning
	123	Last section, last segment f-ls-na-1
	124	Ack file, Ack section f-af-na-1
	125	Segment f-sg-na-1
	126	f-dr-ta-1
	127	QueryLog - Request archive file f-sc-nb-1
	128..135	Reserved for routing of messages
	..	Type ID from 136-255 and undefined type IDs are reserved for special use
P-5	1..2	Specify the cause-of-transmission size.
P-6	0..255	Set originator address.
	0..255	Set list of originator address with comma seperated e.g 1,5.
	0..255	Set range of originator address e.g 5-10.
	0..255	Set list and range of originator address e.g 1,5-10,120-255.
P-7	0..255/65535	Set common address.
	0..255/65535	Set list of common address with comma seperated e.g 1,5.
	0..255/65535	Set range of common address e.g 5-10.
	0..255/65535	Set list and range of common address e.g 1,5-10,120-300.
P-8	enable	Enable the option.
	disable	Disable the option.
P-9	enable	Enable the option.
	disable	Disable the option.
P-10	enable	Enable the option.
	disable	Disable the option.
P-11	1..2	Specify the common address size.
P-12	1..3	Specify the IO address size.
P-13	enable	Enable the option.
	disable	Disable the option.

14.1.18 dpi iec104 delete

Deletes a profile from the DPI IEC104 profile table. You cannot delete an active profile or if an enforcer maps to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi iec104 delete <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.19 dpi iec104 enable

Enables a profile in the DPI IEC104 profile table. A profile can only be activated when all required parameters are set. After activation no modifications are possible.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi iec104 enable <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.20 dpi iec104 disable

Disables a profile in the DPI IEC104 profile table. You cannot deactivate a profile if an active enforcer maps to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi iec104 disable <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index 1 - 32

14.1.21 dpi iec104 copy

Copies a profile to another DPI IEC104 profile.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi iec104 copy <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..32	Profile source index 1 - 32
P-2	1..32	Profile destination index 1 - 32

14.1.22 dpi dnp3 profile add

Adds a profile to the DPI DNP3 profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile add <P-1> [description <P-2>] [function-code-list <P-3>] [default-object-list <P-4>] [sanity-check <P-5>] [crc-check <P-6>] [outstation-packets-check <P-7>] [reset-tcp-check <P-8>]`

`[description]`: Profile description/name for the DPI DNP3 profile.
`[function-code-list]`: Function code list. A function code has the syntax 'val'. Function codes are separated by a comma.
`[default-object-list]`: Object entries to be included from Default white list.
`[sanity-check]`: Sanity check including format and specification.
`[crc-check]`: CRC verification for DNP3 data link layer frames.
`[outstation-packets-check]`: Check the DNP3 data packets originating at an outstation.
`[reset-tcp-check]`: Reset the TCP connection in case of a protocol violation or if the plausibility check leads to errors.

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.
P-2	string	Profile description/name for the DNP3 profile.
P-3	0..255	Function codes for the DNP3 profile.
	0	Confirm
	1	Read
	2	Write
	3	Select
	4	Operate
	5	Direct Operate
	6	Direct Operate-No Response Required
	7	Freeze
	8	Freeze-No Response Required
	9	Freeze Clear
	10	Freeze Clear-No Response Required
	11	Freeze At Time
	12	Freeze At Time-No Response Required
	13	Cold Restart
	14	Warm Restart
	15	Initialize Data
	16	Initialize Application
	17	Start Application
	18	Stop Application
	19	Save Configuration
	20	Enable Unsolicited Messages
	21	Disable Unsolicited Messages
	22	Assign Class
	23	Delay Measurement
	24	Record Current Time
	25	Open File
	26	Close File
	27	Delete File
	28	Get File Information
	29	Authenticate File
	30	Abort File Transfer
	31	Activate Configuration
	32	Authenticate Request
	33	Authenticate Request-No Acknowledgement
	129	Response
	130	Unsolicited Response
	131	Authentication Response
P-4	1..317	Comma separated index values e.g 1,2,3.
	1..317	Comma separated index and range of index values e.g 1-10,120-300.
	none	'none' to exclude all default object list entries.
	all	'all' to include all default object list entries.
P-5	enable	Enable the option.
	disable	Disable the option.

Parameter	Value	Meaning
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	enable	Enable the option.
	disable	Disable the option.
P-8	enable	Enable the option.
	disable	Disable the option.

14.1.23 dpi dnp3 profile modify

Modifies a profile to the DPI DNP3 profile table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: dpi dnp3 profile modify <P-1> [description <P-2>] [function-code-list <P-3>] [default-object-list <P-4>] [sanity-check <P-5>] [crc-check <P-6>] [outstation-packets-check <P-7>] [reset-tcp-check <P-8>]

[description]: Profile description/name for the DPI DNP3 profile.
[function-code-list]: Function code list. A function code has the syntax 'val'. Function codes are separated by a comma.
[default-object-list]: Object entries to be included from Default white list.
[sanity-check]: Sanity check including format and specification.
[crc-check]: CRC verification for DNP3 data link layer frames.
[outstation-packets-check]: Check the DNP3 data packets originating at an outstation.
[reset-tcp-check]: Reset the TCP connection in case of a protocol violation or if the plausibility check leads to errors.

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.
P-2	string	Profile description/name for the DNP3 profile.

Parameter	Value	Meaning
P-3	0..255	Function codes for the DNP3 profile.
	0	Confirm
	1	Read
	2	Write
	3	Select
	4	Operate
	5	Direct Operate
	6	Direct Operate-No Response Required
	7	Freeze
	8	Freeze-No Response Required
	9	Freeze Clear
	10	Freeze Clear-No Response Required
	11	Freeze At Time
	12	Freeze At Time-No Response Required
	13	Cold Restart
	14	Warm Restart
	15	Initialize Data
	16	Initialize Application
	17	Start Application
	18	Stop Application
	19	Save Configuration
	20	Enable Unsolicited Messages
	21	Disable Unsolicited Messages
	22	Assign Class
	23	Delay Measurement
	24	Record Current Time
	25	Open File
	26	Close File
	27	Delete File
	28	Get File Information
	29	Authenticate File
	30	Abort File Transfer
	31	Activate Configuration
	32	Authenticate Request
	33	Authenticate Request-No Acknowledgement
	129	Response
	130	Unsolicited Response
	131	Authentication Response
P-4	1..317	Comma separated index values e.g 1,2,3.
	1..317	Comma separated index and range of index values e.g 1-10,120-300.
	none	'none' to exclude all default object list entries.
	all	'all' to include all default object list entries.
P-5	enable	Enable the option.
	disable	Disable the option.
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	enable	Enable the option.
	disable	Disable the option.
P-8	enable	Enable the option.
	disable	Disable the option.

14.1.24 dpi dnp3 profile delete

Deletes a profile from the DPI DNP3 profile table. You cannot delete an active profile or if an enforcer mappings to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile delete <P-1>`

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.

14.1.25 dpi dnp3 profile enable

Enables a profile in the DPI DNP3 profile table. A profile can only be activated when all required parameters are set. After activation modifications no longer possible.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile enable <P-1>`

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.

14.1.26 dpi dnp3 profile disable

Disables a profile in the DPI DNP3 profile table. You cannot inactivate a profile if an active enforcer mappings to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile disable <P-1>`

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.

14.1.27 dpi dnp3 profile commit

Writes all changes made in the DPI DNP3 profiles to the enforcer.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile commit`

14.1.28 dpi dnp3 profile copy

Copies a profile to another DPI DNP3 profile.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 profile copy <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..32	Source index of DPI DNP3 profile.
P-2	1..32	Destination index of DPI DNP3 profile.

14.1.29 dpi dnp3 object add

Adds an object to a DPI DNP3 rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 object <P-1> add <P-2> object-type <P-3> group-number <P-4> variation-number <P-5> function-code <P-6> [function-name <P-7>] [function-length <P-8>] [qualifier-code-list <P-9>]`

`object-type`: Object type for DPI DNP3 object.
`group-number`: Group number for DNP3 object ranging 0-255.
`variation-number`: Variation number could either be any integer between 0-255 or a range from 0-255.
`function-code`: Function code for DNP3 object.
`[function-name]`: Function name for DNP3 object.
`[function-length]`: Function length for DNP3 Object.
`[qualifier-code-list]`: Qualifier code list, hexadecimal numbers separated by a comma(e.g numbers ranging between 0x00 to 0xFF).

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.
P-2	1..256	DNP3 Object index.
P-3	request	Request
	response	Response
P-4	0..255	Group number for DNP3 object.
P-5	string	Variation Number for DNP3 object.
P-6	0..255	Function code for DNP3 object.
P-7	string	Function Name for DNP3 object.
P-8	string	Function Length for DNP3 object.
P-9	string	Qualifier code list, hexadecimal numbers separated by a comma(e.g numbers ranging between 0x00 to 0xFF).

14.1.30 dpi dnp3 object delete

Deletes an object from a DPI DNP3 rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi dnp3 object <P-1> delete <P-2>`

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.
P-2	1..256	DNP3 Object index.

14.1.31 dpi amp profile add

Adds a profile to the DPI AMP profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile add <P-1> [description <P-2>] [protocol <P-3>] [message-type <P-4>] [address-class <P-5>] [device-class <P-6>] [memory-address <P-7>] [data-word <P-8>] [task-code <P-9>] [task-code-data <P-10>] [error-check-characters <P-11>] [block-check-characters <P-12>] [debug <P-13>] [tcp-reset <P-14>] [sanity-check <P-15>]`

`[description]`: Specify the description/name for the DPI AMP profile. The description consists of an alphanumeric ASCII character string with 0..32 characters
`[protocol]`: Specify the protocol type for the DPI AMP profile.
`[message-type]`: Specify the value for the message type which specifies the type of data in the message data area and also specifies if the message is a command or a response. The allowed message types are 02,03,04,05,06,07,08,09,FF,any.
`[address-class]`: Specify the particular type of the memory to be accessed, (total number of hexadecimal values can be specified upto 205).
`[device-class]`: Specify the value for the device class, (total number of hexadecimal values can be specified upto 205).
`[memory-address]`: Specify the beginning address of the memory to be read or written, (total number of hexadecimal values can be specified upto 205).
`[data-word]`: Specify the value for the data words to be read from the remote device, (total number of hexadecimal values can be specified upto 205).
`[task-code]`: Specify the value for the task code.
`[task-code-data]`: Specify the hexadecimal value 0..F in the field task code data. The maximimum task code data length is up to 72 bytes
`[error-check-characters]`: Enable/disable the checking for the NITP error check characters (ECC) of the packets.
`[block-check-characters]`: Enable/disable the checking for the CAMP block check characters (BCC) of the AMP packets.
`[debug]`: Enable/disable the debugging in the DPI AMP profile, (if it is enabled then the reset connection message will contain the debug information).
`[tcp-reset]`: Enable/disable the resetting of the TCP connection, (if it is enabled then the TCP reset connection message will be sent in case a packet is dropped).
`[sanity-check]`: Enable/disable the sanity check including format and specification of all the AMP packets.

Parameter	Value	Meaning
P-1	1..32	Profile index
P-2	string	Profile description/name
P-3	camp	CAMP protocol
	nitp	NITP protocol
	any	The device applies the rule to every data packet without evaluating the protocol.
P-4	any	The device applies the rule to every data packet without evaluating the message type.
	02-09,FF	Enter message type with hexadecimal values separated by a comma, for example, 02,03,FF.
P-5	any	The device applies the rule to every data packet without evaluating the address class.
	0000-FFFF	Enter address class range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter address class with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of address class and address class range, for example, 0001,0003,0004-000A

Parameter	Value	Meaning
P-6	any	The device applies the rule to every data packet without evaluating the device class.
	0000-FFFF	Enter device class range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter device class with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of device class and device class range, for example, 0001,0003,0004-000A.
P-7	any	The device applies the rule to every data packet without evaluating the memory address.
	0000-FFFF	Enter memory address range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter memory address with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of memory address and memory address range, for example, 0001,0003,0004-000A.
P-8	any	The device applies the rule to every data packet without evaluating the data word.
	0000-FFFF	Enter data word range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter data word with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of data word and data word range, for example, 0001,0003,0004-000A.
P-9	any	The device applies all the available task codes.
	00-FF	Enter task code with hexadecimal values separated by a comma, for example, 01,03,FF.
P-10	<data>	Enter the task code data in hexadecimal value 0..F, the task code data length is upto 72 bytes.
P-11	enable	Enable the option.
	disable	Disable the option.
P-12	enable	Enable the option.
	disable	Disable the option.
P-13	enable	Enable the option.
	disable	Disable the option.
P-14	enable	Enable the option.
	disable	Disable the option.
P-15	enable	Enable the option.
	disable	Disable the option.

14.1.32 dpi amp profile copy

Copies a profile to another DPI AMP profile.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile copy <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..32	Profile source index
P-2	1..32	Profile destination index

14.1.33 dpi amp profile delete

Deletes a profile from the DPI AMP profile table. You cannot delete an active profile or if an enforcer mapped to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile delete <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index

14.1.34 dpi amp profile disable

Disables a profile in the DPI AMP profile table. You cannot deactivate a profile if an active enforcer mapped to it.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile disable <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index

14.1.35 dpi amp profile enable

Enables a profile in the DPI AMP profile table. A profile can only be activated when all required parameters are set. After activation no modifications are possible.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile enable <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index

14.1.36 dpi amp profile modify

Modifies a profile in the DPI AMP profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp profile modify <P-1> [description <P-2>] [protocol <P-3>] [message-type <P-4>] [address-class <P-5>] [device-class <P-6>] [memory-address <P-7>] [data-word <P-8>] [task-code <P-9>] [task-code-data <P-10>] [error-check-characters <P-11>] [block-check-characters <P-12>] [debug <P-13>] [tcp-reset <P-14>] [sanity-check <P-15>]`

`[description]`: Specify the description/name for the DPI AMP profile. The description consists of an alphanumeric ASCII character string with 0..32 characters.
`[protocol]`: Specify the protocol type for the DPI AMP profile.
`[message-type]`: Specify the value for the message type which specifies the type of data in the message data area and also specifies if the message is a command or a response. The allowed message types are 02,03,04,05,06,07,08,09,FF,any.
`[address-class]`: Specify the particular type of the memory to be accessed, (total number of hexadecimal values can be specified upto 205).
`[device-class]`: Specify the value for the device class, (total number of hexadecimal values can be specified upto 205).
`[memory-address]`: Specify the beginning address of the memory to be read or written, (total number of hexadecimal values can be specified upto 205).
`[data-word]`: Specify the value for the data words to be read from the remote device, (total number of hexadecimal values can be specified upto 205).
`[task-code]`: Specify the value for the task code.
`[task-code-data]`: Specify the hexadecimal value 0..F in the field task code data. The maximimum task code data length is up to 72 bytes.
`[error-check-characters]`: Enable/disable the checking for the NITP error check characters (ECC) of the packets.
`[block-check-characters]`: Enable/disable the checking for the CAMP block check characters (BCC) of the AMP packets.
`[debug]`: Enable/disable the debugging in the DPI AMP profile, (if it is enabled then the reset connection message will contain the debug information).
`[tcp-reset]`: Enable/disable the resetting of the TCP connection, (if it is enabled then the TCP reset connection message will be sent in case a packet is dropped).
`[sanity-check]`: Enable/disable the sanity check including format and specification of all the AMP packets.

Parameter	Value	Meaning
P-1	1..32	Profile index
P-2	string	Profile description/name
P-3	camp	CAMP protocol
	nitp	NITP protocol
	any	The device applies the rule to every data packet without evaluating the protocol.
P-4	any	The device applies the rule to every data packet without evaluating the message type.
	02-09,FF	Enter message type with hexadecimal values separated by a comma, for example, 02,03,FF.
P-5	any	The device applies the rule to every data packet without evaluating the address class.
	0000-FFFF	Enter address class range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter address class with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of address class and address class range, for example, 0001,0003,0004-000A

Parameter	Value	Meaning
P-6	any	The device applies the rule to every data packet without evaluating the device class.
	0000-FFFF	Enter device class range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter device class with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of device class and device class range, for example, 0001,0003,0004-000A.
P-7	any	The device applies the rule to every data packet without evaluating the memory address.
	0000-FFFF	Enter memory address range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter memory address with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of memory address and memory address range, for example, 0001,0003,0004-000A.
P-8	any	The device applies the rule to every data packet without evaluating the data word.
	0000-FFFF	Enter data word range with hexadecimal values connected by a hyphen, for example, 0004-000A.
	0000-FFFF	Enter data word with hexadecimal values separated by a comma, for example, 0001,0003,FFFF.
	0000-FFFF	Enter combination of data word and data word range, for example, 0001,0003,0004-000A.
P-9	any	The device applies all the available task codes.
	00-FF	Enter task code with hexadecimal values separated by a comma, for example, 01,03,FF.
P-10	<data>	Enter the task code data in hexadecimal value 0..F, the task code data length is upto 72 bytes.
P-11	enable	Enable the option.
	disable	Disable the option.
P-12	enable	Enable the option.
	disable	Disable the option.
P-13	enable	Enable the option.
	disable	Disable the option.
P-14	enable	Enable the option.
	disable	Disable the option.
P-15	enable	Enable the option.
	disable	Disable the option.

14.1.37 dpi amp commit

Writes all changes made in the DPI AMP profiles to the enforcer.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp commit`

14.1.38 dpi amp task-code add

Add a value for the task code.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp task-code add <P-1> [description <P-2>] [mode <P-3>]`

`[description]`: Specify the description for the task code. The description consists of an alphanumeric ASCII character string with 0..32 characters.
`[mode]`: Specify the value for the task code mode (i.e. config or non-config).

Parameter	Value	Meaning
P-1	00-FF	Enter task code with hexadecimal value. The range is from 00 to FF.
P-2	string	Enter the description for the task code.
P-3	config	Specify the value config for the task code.
	non-config	Specify the value non-config for the task code.

14.1.39 dpi amp task-code delete

Delete a value for the task code.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp task-code delete <P-1>`

Parameter	Value	Meaning
P-1	00-FF	Enter task code with hexadecimal value. The range is from 00 to FF.

14.1.40 dpi amp task-code modify

Modify a value for the task code.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp task-code modify <P-1> [description <P-2>] [mode <P-3>]`

`[description]`: Specify the description for the task code. The description consists of an alphanumeric ASCII character string with 0..32 characters.
`[mode]`: Specify the value for the task code mode (i.e. config or non-config).

Parameter	Value	Meaning
P-1	00-FF	Enter task code with hexadecimal value. The range is from 00 to FF.
P-2	string	Enter the description for the task code.
P-3	config	Specify the value config for the task code.
	non-config	Specify the value non-config for the task code.

14.1.41 dpi amp protect-mode

Enable/disable the program and mode protect.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi amp protect-mode <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the option.
	disable	Disable the option.

14.1.42 dpi enip profile add

Adds a profile to the DPI ENIP profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile add <P-1> [description <P-2>] [function-type <P-3>] [default-list <P-4>] [wildcard-list <P-5>] [sanity-check <P-6>] [debug <P-7>] [allow-emb-pccc <P-8>] [reset-tcp-check <P-9>]`

`[description]`: Profile description/name for the DPI ENIP profile.
`[function-type]`: Function type for the DPI ENIP profile.
`[default-list]`: Object entries to be included from Default object list.
`[wildcard-list]`: Wildcard service codes included for all class objects.
`[sanity-check]`: Sanity check including format and specification.
`[debug]`: Debug output in reset message.
`[allow-emb-pccc]`: Allow embedded PCCC option enables the filtering of PCCC protocol traffic embedded in CIP messages through firewall.
`[reset-tcp-check]`: Reset the TCP connection in case of a protocol violation or if the plausibility check discovers any error.

Parameter	Value	Meaning
P-1	1..32	Profile index
P-2	string	Profile description/name
P-3	readonly	CIP services that are data read commands are permitted.
	readwrite	CIP services that are data read or data write commands are permitted
	any	All CIP services are permitted.
	advanced	Lets the user add as many custom CIP objects as needed to one firewall rule.
P-4	1..347	Comma separated index values e.g. 1,2,3.
	1..347	Comma separated index and range of index values e.g. 1-10,120-300.
	none	'none' to exclude all default object list entries.
	all	'all' to include all default object list entries.
P-5	string	Service code list, hexadecimal numbers separated by a comma (e.g. numbers ranging between 0x00 to 0x7F).

Parameter	Value	Meaning
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	enable	Enable the option.
	disable	Disable the option.
P-8	enable	Enable the option.
	disable	Disable the option.
P-9	enable	Enable the option.
	disable	Disable the option.

14.1.43 dpi enip profile modify

Modifies a profile in the DPI ENIP profile table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile modify <P-1> [description <P-2>] [function-type <P-3>] [default-list <P-4>] [wildcard-list <P-5>] [sanity-check <P-6>] [debug <P-7>] [allow-emb-pccc <P-8>] [reset-tcp-check <P-9>]`

`[description]`: Profile description/name for the DPI ENIP profile.
`[function-type]`: Function type for the DPI ENIP profile.
`[default-list]`: Object entries to be included from Default object list.
`[wildcard-list]`: Wildcard service codes included for all class objects.
`[sanity-check]`: Sanity check including format and specification.
`[debug]`: Debug output in reset message.
`[allow-emb-pccc]`: Allow embedded PCCC enables the filtering of PCCC protocol traffic embedded in CIP messages through firewall.
`[reset-tcp-check]`: Reset the TCP connection in case of a protocol violation or if the plausibility check discovers any error.

Parameter	Value	Meaning
P-1	1..32	Profile index
P-2	string	Profile description/name
P-3	readonly	CIP services that are data read commands are permitted.
	readwrite	CIP services that are data read or data write commands are permitted
	any	All CIP services are permitted.
	advanced	Lets the user add as many custom CIP objects as needed to one firewall rule.
P-4	1..347	Comma separated index values e.g. 1,2,3.
	1..347	Comma separated index and range of index values e.g. 1-10,120-300.
	none	'none' to exclude all default object list entries.
	all	'all' to include all default object list entries.
P-5	string	Service code list, hexadecimal numbers separated by a comma (e.g. numbers ranging between 0x00 to 0x7F).
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	enable	Enable the option.
	disable	Disable the option.
P-8	enable	Enable the option.
	disable	Disable the option.
P-9	enable	Enable the option.
	disable	Disable the option.

14.1.44 dpi enip profile delete

Deletes a profile from the DPI ENIP profile table. You cannot delete an active profile or if any mapping is added to the enforcer.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile delete <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index

14.1.45 dpi enip profile enable

Enables a profile in the DPI ENIP profile table. A profile can only be activated when all required parameters are set. After activation modifications are no longer possible.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile enable <P-1>`

Parameter	Value	Meaning
`P-1`	1..32	`Profile index`

14.1.46 dpi enip profile disable

Disables a profile in the DPI ENIP profile table. You cannot disable a profile if an active enforcer mapping to it exists.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile disable <P-1>`

Parameter	Value	Meaning
`P-1`	1..32	`Profile index`

14.1.47 dpi enip profile commit

Writes all changes made in the DPI ENIP profiles to the enforcer.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile commit`

14.1.48 dpi enip profile copy

Copies a profile to new DPI ENIP profile.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip profile copy <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	1..32	`Profile source index`
`P-2`	1..32	`Profile destination index`

14.1.49 dpi enip object add

DPI ENIP Object settings. Adds an object to a DPI ENIP rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip object add <P-1> <P-2> <P-3> [description <P-4>]`

`[description]`: Description of the CIP object.

Parameter	Value	Meaning
`P-1`	1..32	`Profile index.`
`P-2`	0x0..0xFFFFFFFF	`Class ID is a hexadecimal number (e.g. number ranging between 0x00 to 0xFFFFFFFF).`
`P-3`	string	`Service code list, hexadecimal numbers separated by a comma (e.g. numbers ranging between 0x00 to 0x7F).`
`P-4`	string	`Object description/name for the CIP Object.`

14.1.50 dpi enip object modify

Modifies an object in a DPI ENIP object.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip object modify <P-1> <P-2> <P-3> [description <P-4>]`

`[description]`: Description/name of the CIP object.

Parameter	Value	Meaning
`P-1`	1..32	`Profile index.`
`P-2`	0x0..0xFFFFFFFF	`Class ID is a hexadecimal number (e.g. number ranging between 0x00 to 0xFFFFFFFF).`
`P-3`	string	`Service code list, hexadecimal numbers separated by a comma (e.g. numbers ranging between 0x00 to 0x7F).`
`P-4`	string	`Object description/name for the CIP Object.`

14.1.51 dpi enip object delete

Deletes an object from a DPI ENIP rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `dpi enip object delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	1..32	`Profile index.`
`P-2`	0x0..0xFFFFFFFF	`Class ID is a hexadecimal number (e.g. number ranging between 0x00 to 0xFFFFFFFF).`

14.2 show

Display device options and settings.

14.2.1 show dpi modbus profiletable

Display the DPI MODBUS profile table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi modbus profiletable`

14.2.2 show dpi modbus pending

Display whether uncommitted changes for DPI MODBUS enforcer exist.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi modbus pending`

14.2.3 show dpi opc profiletable

Display the DPI OPC profile table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi opc profiletable`

14.2.4 show dpi opc pending

Display whether uncommitted changes for DPI OPC enforcer exist.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi opc pending`

14.2.5 show dpi iec104 profiletable

Display the DPI IEC104 profile table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi iec104 profiletable`

14.2.6 show dpi iec104 pending

Display whether uncommitted changes for DPI IEC104 enforcer exist.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi iec104 pending`

14.2.7 show dpi dnp3 profiletable

Display the DPI DNP3 profile table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi dnp3 profiletable`

14.2.8 show dpi dnp3 pending

Display whether uncommitted changes for DPI DNP3 enforcer exist.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi dnp3 pending`

14.2.9 show dpi dnp3 objectlist

Display the DPI DNP3 object list for a profile.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi dnp3 objectlist <P-1> [<P-2>]`

Parameter	Value	Meaning
P-1	1..32	DNP3 profile index.
P-2	1..256	DNP3 Object index.

14.2.10 show dpi amp global

Display the AMP global information and settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi amp global`

14.2.11 show dpi amp profiletable

Display the DPI AMP profile table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi amp profiletable`

14.2.12 show dpi amp taskcodetable

Display the DPI AMP task code table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi amp taskcodetable`

14.2.13 show dpi enip profiletable

Display the DPI ENIP profile table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi enip profiletable`

14.2.14 show dpi enip pending

Display whether uncommitted changes for DPI ENIP enforcer exist.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi enip pending`

14.2.15 show dpi enip objectlist

Display the DPI ENIP object list for a profile.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show dpi enip objectlist <P-1>`

Parameter	Value	Meaning
P-1	1..32	Profile index

15 Filtering Database (FDB)

15.1 mac-filter

15.1.1 mac-filter

Static MAC filter configuration.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `mac-filter <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.`

- **no mac-filter**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no mac-filter <P-1> <P-2>`

15.2 bridge

Bridge configuration.

15.2.1 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.`

15.3 show

Display device options and settings.

15.3.1 show mac-filter-table static

Display the MAC address filter table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show mac-filter-table static`

15.4 show

Display device options and settings.

15.4.1 show bridge aging-time

Address aging time.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show bridge aging-time`

15.5 show

Display device options and settings.

15.5.1 show mac-addr-table

Display 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.`
	1..4042	`Enter a VLAN ID.`

15.6 clear

Clear several items.

15.6.1 clear mac-addr-table

Clears the MAC address table.

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear mac-addr-table`

16 Firewall Learning Mode (FLM)

16.1 flm

Configure the firewall learning mode.

16.1.1 flm operation

Enable/disable the firewall learning mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `flm operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the firewall learning mode.
	disable	Disable the firewall learning mode.

no flm operation
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no flm operation <P-1>`

16.1.2 flm action

Set the action for the firewall learning mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `flm action <P-1>`

Parameter	Value	Meaning
P-1	start	Start a learning phase.
	stop	Stop a learning phase.
	continue	Continue the previous learning phase.
	clear	Clear the learned data.

16.1.3 flm interface add

Add an interface to the firewall learning mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `flm interface add <P-1>`

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

16.1.4 flm interface delete

Delete an interface from the firewall learning mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `flm interface delete <P-1>`

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

16.2 show

Display device options and settings.

16.2.1 show flm global

Display the information and settings for the firewall learning mode.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show flm global`

16.2.2 show flm interface

Display the interfaces selected for the firewall learning mode.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show flm interface`

17 HiDiscovery

17.1 network

Configure the inband and outband connectivity.

17.1.1 network hidiscovery operation

Enable/disable the HiDiscovery protocol on this device.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network hidiscovery operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the HiDiscovery protocol.
	disable	Disable the HiDiscovery protocol.

no network hidiscovery operation
Disable the option
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `no network hidiscovery operation <P-1>`

17.1.2 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.
	read-only	Allow only detection, no configuration.

17.1.3 network hidiscovery blinking

Enable/disable the HiDiscovery blinking sequence on this device. This preference is not saved in configuration
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `network hidiscovery blinking`

no network hidiscovery blinking
Disable the option
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `no network hidiscovery blinking`

17.2 show

Display device options and settings.

17.2.1 show network hidiscovery

Display the HiDiscovery settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show network hidiscovery`

18 Hypertext Transfer Protocol (HTTP)

18.1 http

Set HTTP parameters.

18.1.1 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).`

18.1.2 http server

Enable or disable the HTTP server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `http server`

no http server
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no http server`

18.2 show

Display device options and settings.

18.2.1 show http

Display the HTTP server information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show http`

19 HTTP Secure (HTTPS)

19.1 https

Set HTTPS parameters.

19.1.1 https server

Enable or disable the HTTPS server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `https server`

- **no https server**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no https server`

19.1.2 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).`

19.1.3 https fingerprint-type

Configure fingerprint type.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `https fingerprint-type <P-1>`

Parameter	Value	Meaning
`P-1`	sha1	`Configure sha1 fingerprint`
	sha256	`Configure sha256 fingerprint`

19.1.4 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`
	delete	`Deletes the item`

19.2 copy

Copy different kinds of items.

19.2.1 copy httpscert remote

Copy X509/PEM certificate from a server to the specified destination.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `copy httpscert remote <P-1> nvm`

`nvm`: Copy HTTPS certificate (PEM) from a server to the device.

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

19.2.2 copy httpscert envm

Copy X509/PEM certificate from external non-volatile memory to the specified destination.

- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: copy httpscert envm <P-1> nvm

nvm: Copy X509/PEM certificate from external non-volatile memory to the device.

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

19.3 show

Display device options and settings.

19.3.1 show https

Display the HTTPS server information.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show https

20 Interface

20.1 shutdown

20.1.1 shutdown

Enable or disable the interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `shutdown`

- **no shutdown**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no shutdown`

20.2 auto-negotiate

20.2.1 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`

- **no auto-negotiate**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no auto-negotiate`

20.3 auto-power-down

20.3.1 auto-power-down

Set the auto-power-down mode on the interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `auto-power-down <P-1>`

Parameter	Value	Meaning
`P-1`	auto-power-save	`The port goes in a low power mode.`
	no-power-save	`The port does not use the automatic power save mode.`

20.4 cable-crossing

20.4.1 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 <P-1>`

Parameter	Value	Meaning
`P-1`	mdi	`The port does not use the crossover mode.`
	mdix	`The port uses the crossover mode.`
	auto-mdix	`The port uses the auto crossover mode.`

20.5 linktraps

20.5.1 linktraps

Enable/disable link up/down traps on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `linktraps`

- **no linktraps**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no linktraps`

20.6 speed

20.6.1 speed

Sets the speed and duplex setting for the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `speed <P-1> [<P-2>]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	slot no./port no.	

20.7 name

20.7.1 name

Set or remove a descriptive name for the interface.

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

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

20.8 power-state

20.8.1 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`

no power-state
Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no power-state`

20.9 mac-filter

20.9.1 mac-filter

static mac filter configuration

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `mac-filter <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.`

no mac-filter
Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no mac-filter <P-1> <P-2>`

20.10 dhcp-client

20.10.1 dhcp-client

Enable/disable the DHCP client on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `dhcp-client`

no dhcp-client
Disable the option

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

20.11 show

Display device options and settings.

20.11.1 show port

Display the interface parameters.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show port [<P-1>]`

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

21 Interface Statistics

21.1 utilization

Configure the interface utilization parameters.

21.1.1 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.`

21.1.2 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.`

21.1.3 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.`

21.2 clear

Clear several items.

21.2.1 clear port-statistics

Clear all statistics counter.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear port-statistics`

21.3 show

Display device options and settings.

21.3.1 show interface counters

Display the interface counters.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show interface counters`

21.3.2 show interface statistics

Display the 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.	

21.3.3 show interface ether-stats

Display the 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.	

22 Intern

22.1 help

Display the help text for various special keys.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `help`

22.2 logout

Exit this session.
- Mode: `Command is in all modes available.`
- Privilege Level: `any`
- Format: `logout`

22.3 history

Display a list of previously run commands.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `history`

22.4 vlan

Enter VLAN database mode.

22.4.1 vlan database

Enter VLAN database mode.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `vlan database`

22.5 exit

Exit from vlan mode.
- Mode: `VLAN Mode`
- Privilege Level: `Operator`
- Format: `exit`

22.6 end

Exit to exec mode.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `end`

22.7 serviceshell

Enter system mode.

22.7.1 serviceshell start

Start serviceshell prompt
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `serviceshell start`

22.7.2 serviceshell deactivate

Disable the service shell access permanently (Cannot be undone).
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `serviceshell deactivate`

22.8 traceroute

Trace route to a specified host.

22.9 traceroute

Trace route to a specified host.

22.9.1 traceroute source

Source address for traceroute command.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `traceroute <P-1> source <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`
`P-2`	A.B.C.D	`IP address.`

22.10 reboot

Reset the device (cold start).
- Mode: `All Privileged Modes`
- Privilege Level: `any`
- Format: `reboot`

22.11 ping

Send ICMP echo packets to a specified IP address.

22.11.1 ping count

Number of retries.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `ping <P-1> count <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

Parameter	Value	Meaning
P-2	1..255	Enter a number in the given range.

22.12 ping

Send ICMP echo packets to a specified host or IP address.

22.12.1 ping source

Source address for ping command.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: ping <P-1> source <P-2>

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	A.B.C.D	IP address.

22.13 show

Display device options and settings.

22.13.1 show serviceshell

Display the service shell access.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show serviceshell

23 Intrusion Detection System (IDS)

23.1 ids

Configure the Intrusion Detection System feature.

23.1.1 ids operation

Enable/disable Intrusion Detection System feature.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ids operation`

- **no ids operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ids operation`

23.1.2 ids user

Assign/Remove an existing admininstrator privilege user for Intrusion Detection System feature.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ids user <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<user> User name (up to 32 characters).`

- **no ids user**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ids user`

23.2 show

Display device options and settings.

23.2.1 show ids global

Display the information and settings for the intrusion detection system.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ids global`

24 Open Shortest Path First (OSPF)

24.1 ip

Set IP parameters.

24.1.1 ip ospf area

Administer the OSPF areas. An area is a sub-division of an OSPF autonomous system. You identify an area by an area-id. OSPF networks, routers, and links that have the same area-id form a logical set.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf area <P-1> range add <P-2> <P-3> <P-4> modify <P-5> <P-6> <P-7> <P-8> delete <P-9> <P-10> <P-11> add delete stub add <P-12> modify <P-13> summarylsa <P-14> default-cost <P-15> delete <P-16> virtual-link add <P-17> delete <P-18> modify <P-19> authentication type <P-20> key <P-21> key-id <P-22> hello-interval <P-23> dead-interval <P-24> transmit-delay <P-25> retransmit-interval <P-26> nssa add <P-27> delete <P-28> modify translator role <P-29> stability-interval <P-30> summary no-redistribute default-info originate [metric <P-31>] [metric-type <P-32>]`

`range`: Configure the range for the area. You summarize the networks within this range into a single routing domain.
`add`: Create an area.
`modify`: Modify the parameters of an existing area.
`delete`: Delete a specific area.
`add`: Create a new area.
`delete`: Delete an existing area.
`stub`: Configure the preferences for a stub area. You shield stub areas from external route advertisements, but the area receives advertisements from networks that belong to other areas of the same autonomous system.
`add`: Create a stub area. The command also allows you to convert an existing area to a stub area.
`modify`: Modify the stub area parameters.
`summarylsa`: Configure the summary LSA mode for a stub area. When enabled, the router both summarizes and propagates summary LSAs.
`default-cost`: Set the default cost for the stub area.
`delete`: Remove a stub area. After removal, the area receives external route advertisements.
`virtual-link`: Configure a virtual link. You use the virtual link to connect the router to the backbone area (0.0.0.0) through a non-backbone area or to connect two parts of a partitioned backbone area (0.0.0.0) through a non-backbone area.
`add`: Add a virtual neighbor.
`delete`: Delete a virtual neighbor.
`modify`: Modify the parameters of a virtual neighbor.
`authentication`: Configure the authentication type. The device authenticates the OSPF protocol exchanges in the OSPF packet header which includes an authentication type field.
`type`: Configure the authentication type. Authentication types are 0 for null authentication, 1 for simple password authentication, and 2 for cryptographic authentication.
`key`: Configure the authentication key.
`key-id`: Configure the authentication key-id for md5 authentication. This field identifies the algorithm and secret key used to create the message digest appended to the OSPF packet.
`hello-interval`: Configure the OSPF hello-interval for the virtual link, in seconds. The hello timer controls the time interval between sending two consecutive hello packets. Set this value to the same hello-interval value of the virtual neighbors.
`dead-interval`: Configure the OSPF dead-interval for the virtual link, in seconds. If the timer expires without the router receiving hello packets from a virtual neighbor, the router declares the neighbor router as down. Set the timer to at least four times the value of the hello-interval.
`transmit-delay`: Configure the OSPF transmit-delay for the virtual link, in seconds. Transmit delay is the time that you estimate it takes to transmit a link-state update packet over the virtual link.
`retransmit-interval`: Configure the OSPF retransmit-interval for the virtual link, in seconds. The retransmit interval is the time between two consecutive link-state advertisement transmissions. Link-state advertisements contain such information as database descriptions and link-state request packets for adjacencies belonging to virtual link.

nssa: Configure a NSSA(Not-So-Stubby-Area).
add: Add a NSSA.
delete: Delete a NSSA.
modify: Modify the parameters of a NSSA.
translator: Configure the NSSA translator related parameters.
role: Configure the NSSA translator role.
stability-interval: Configure the translator stability interval for the NSSA, in seconds.
summary: Configure the import summary for the specified NSSA.
no-redistribute: Configure route redistribution for the specified NSSA.
default-info: Configure the nssa default information origination parameters.
originate: Configuration whether a Type-7 LSA should be originated into the NSSA.
[metric]: Configure the metric for the NSSA.
[metric-type]: Configure the metric type for default information.

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	summary-link	Configure summary links LSDB type optional mode.
	nssa-external-link	Configure nssa external link LSDB type optional mode.
P-3	A.B.C.D	IPv4 address.
P-4	A.B.C.D	IPv4 netmask address.
P-5	summary-link	Configure summary links LSDB type optional mode.
	nssa-external-link	Configure nssa external link LSDB type optional mode.
P-6	A.B.C.D	IPv4 address.
P-7	A.B.C.D	IPv4 netmask address.
P-8	advertise	Set as advertise.
	do-not-advertise	Set as do-not-advertise.
P-9	summary-link	Configure summary links LSDB type optional mode.
	nssa-external-link	Configure nssa external link LSDB type optional mode.
P-10	A.B.C.D	IPv4 address.
P-11	A.B.C.D	IPv4 netmask address.
P-12	0	Configure the TOS (0 is for Normal Service).
P-13	0	Configure the TOS (0 is for Normal Service).
P-14	no-area-summary	Disable the router from sending area link state advertisement summaries.
	send-area-summary	Enable the router to send area link state advertisement summaries. The router floods LSAs within the area using multicast. Every topology change starts a new flood of LSAs.
P-15	0..16777215	Configure the default cost.
P-16	0	Configure the TOS (0 is for Normal Service).
P-17	A.B.C.D	IP address.
P-18	A.B.C.D	IP address.
P-19	A.B.C.D	IP address.
P-20	none	Configure the authentication type as none (Key and key ID is not required).
	simple	Configure the authentication type as simple (Key ID is not required).
	md5	Configure the authentication type as md5 for the interface.
P-21	string	<key> Configure the authentication key.
P-22	0..255	Enter a number in the given range.
P-23	1..65535	Enter a number between 1 and 65535
P-24	1..65535	Enter a number between 1 and 65535
P-25	0..3600	Enter a number in the given range.
P-26	0..3600	Enter a number in the given range.
P-27	import-nssa	Configure the area as NSSA only.
P-28	import-external	Change the area to support external LSAs also.
P-29	always	Configure the NSSA translator role as always. When used as a border router, the router translates LSAs regardless of the translator states of the other NSSA border routers.
	candidate	Configure the NSSA translator role as a candidate. When used as a border router, the router participates in the translator election process. The router maintains a list of reachable NSSA border routers.
P-30	0..65535	Enter a number between 0 and 65535
P-31	1..16777214	Configure the metric value.
P-32	ospf-metric	Set the metric type as ospf Metric.
	comparable-cost	Set the metric type as comparable cost.
	non-comparable	Set the metric type as non-comparable.

- **no ip ospf area**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip ospf area <P-1> range add modify delete add delete stub add modify summarylsa default-cost delete virtual-link add delete modify authentication type key key-id hello-interval dead-interval transmit-delay retransmit-interval nssa add delete modify translator role stability-interval summary no-redistribute default-info originate [metric] [metric-type]`

24.1.2 ip ospf trapflags all

Set all trapflags at once.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf trapflags all <P-1>`

Parameter	Value	Meaning
`P-1`	[cr]	Enable the Bit.

- **no ip ospf trapflags all**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip ospf trapflags all <P-1>`

24.1.3 ip ospf operation

Enable or disable the OSPF admin mode. When enabled, the device initiates the OSPF process if the OSPF function is active on at least one interface.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf operation`

- **no ip ospf operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip ospf operation`

24.1.4 ip ospf 1583compatability

Enable or disable the 1583compatibility for calculating routes external to the autonomous system. When enabled, the router is compatible with the preference rules defined in RFC1583, section 16.4.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf 1583compatability`

- **no ip ospf 1583compatability**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip ospf 1583compatability`

24.1.5 ip ospf default-metric

Configure the default metric for re-distributed routes, when OSPF redistributes routes from other protocols.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf default-metric <P-1>`

Parameter	Value	Meaning
`P-1`	1..16777214	`Configure the default metric for redistributed routes.`

- **no ip ospf default-metric**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip ospf default-metric <P-1>`

24.1.6 ip ospf router-id

Configure the router ID to uniquely identify this OSPF router in the autonomous system. If a tie occurs during the designated router election, the router with the higher router ID is the designated router.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf router-id <P-1>`

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.

24.1.7 ip ospf external-lsdb-limit

Configure the OSPF external lsdb limitation, which is the maximum number of non-default AS-external-LSA entries that the router stores in the link-state database. When the value -1 is configured, you disable the limitation.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf external-lsdb-limit <P-1>`

Parameter	Value	Meaning
P-1	-1..2147483647	Configure the external lsdb limit.

24.1.8 ip ospf exit-overflow

Configure the OSPF exit overflow interval, in seconds. After the timer expires the router will attempt to leave the overflow-state. To disable the exit overflow interval function set the value to 0.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf exit-overflow <P-1>`

Parameter	Value	Meaning
P-1	0..2147483647	Configure the exit overflow interval.

24.1.9 ip ospf maximum-path

Configure the maximum number of paths that OSPF reports.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf maximum-path <P-1>`

Parameter	Value	Meaning
P-1	1..4	Set the maximum path.

24.1.10 ip ospf spf-delay

Configure the SPF delay, in seconds. The Shortest Path First (SPF) delay is the time that the device waits for the network to stabilize before calculating the shortest path tree, after a topology change.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf spf-delay <P-1>`

Parameter	Value	Meaning
P-1	0..65535	Enter a number between 0 and 65535

24.1.11 ip ospf spf-holdtime

Configure the minimum time between two consecutive SPF calculations, in seconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf spf-holdtime <P-1>`

Parameter	Value	Meaning
P-1	0..65535	Enter a number between 0 and 65535

24.1.12 ip ospf auto-cost

Set the auto cost reference bandwidth of the router interfaces for ospf metric calculations. The default reference bandwidth is 100 Mbps.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf auto-cost <P-1>`

Parameter	Value	Meaning
P-1	1..4294967	Configure the auto cost for OSPF calculation.

24.1.13 ip ospf distance intra

Enter the preference type as intra. Use intra-area routing when the device routes packets solely within an area, such as an internal router.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf distance intra <P-1>`

Parameter	Value	Meaning
P-1	1..255	Enter the value.

24.1.14 ip ospf distance inter

Enter the preference type as inter. Use inter-area routing when the device routes packets into or out of an area, such as an area border router.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf distance inter <P-1>`

Parameter	Value	Meaning
P-1	1..255	Enter the value.

24.1.15 ip ospf distance external

Enter the preference type as external. Use external-area routing when the device routes packets into or out of an autonomous system, such as an autonomous system boundary router (ASBR).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf distance external <P-1>`

Parameter	Value	Meaning
P-1	1..255	Enter the value.

24.1.16 ip ospf re-distribute

Configure the OSPF route re-distribution. An ASBR is able to translate information from other OSPF processes in separate areas and routes from other sources, such as static routes or other dynamic routing protocols, into the OSPF protocol.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf re-distribute <P-1> [metric <P-2>] [metric-type <P-3>] [tag <P-4>] [subnets <P-5>]`

`[metric]`: Configure the OSPF route re-distribution metric parameters.
`[metric-type]`: Configure the OSPF route redistribution metric-type.
`[tag]`: Configure the OSPF route redistribution tag parameters.
`[subnets]`: Allow the router to redistribute subnets into OSPF.

Parameter	Value	Meaning
P-1	connected	Select the source protocol as connected.
	static	Select the source protocol as static.
P-2	0..16777214	Configure the metric.
P-3	1..2	Configure the metric type.
P-4	0..4294967295	Configure the tag.
P-5	enable	Enable the option.
	disable	Disable the option.

■ **no ip ospf re-distribute**
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip ospf re-distribute <P-1> [metric] [metric-type] [tag] [subnets]`

24.1.17 ip ospf distribute-list

Configure the distribute list for the routes from other source protocols.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf distribute-list <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	out	`Configure as out to re-distribute routes with ACL rules`
`P-2`	connected	`Select the source protocol as connected.`
	static	`Select the source protocol as static.`
`P-3`	<1000..1099>	`Enter the access list number.`

■ **no ip ospf distribute-list**
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip ospf distribute-list <P-1> <P-2> <P-3>`

24.1.18 ip ospf default-info originate

Originate the OSPF default information.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip ospf default-info originate [always] [metric <P-1>] [metric-type <P-2>]`

`[always]`: Always advertise the 0.0.0.0/0.0.0.0 route information.
`[metric]`: Configure the metric for default information.
`[metric-type]`: Configure the metric type for default information.

Parameter	Value	Meaning
`P-1`	1..16777214	`Configure the metric value.`
`P-2`	external-type1	`Set the metric type for default information as external type-1. The type 1 value sets the metric to the sum of the internal and external OSPF metrics.`
	external-type2	`Set the metric type for default information as external type-2. The type 2 value sets the metric to the sum of external OSPF metrics from the source AS to the destination AS.`

■ **no ip ospf default-info originate**
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip ospf default-info originate [always] [metric <P-1>] [metric-type]`

24.2 ip

IP interface commands.

24.2.1 ip ospf operation

Enable or disable OSPF on port.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf operation`

■ **no ip ospf operation**
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip ospf operation`

24.2.2 ip ospf area-id

Configure the area ID that uniquely identifies the area to which the interface is connected.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf area-id <P-1>`

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.

24.2.3 ip ospf link-type

Configure the OSPF link type.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf link-type <P-1>`

Parameter	Value	Meaning
P-1	broadcast	Configure the link-type as broadcast for the interface. In broadcast networks, routers discover their neighbors dynamically using the OSPF hello protocol.
	nbma	Configure the link-type as Non-Broadcast Multi-Access for the interface. The nbma mode, emulates OSPF operation over a broadcast network. The nbma mode is the most efficient way to run OSPF over non-broadcast networks, both in terms of the LSDB size and the amount of routing protocol traffic. However, this mode requires direct communication between every router in the nbma network.
	point-to-point	Configure the link-type as point-to-point for the interface. Use the point-to-point link-type in a network that joins a single pair of routers.
	point-to-multipoint	Configure the link-type as point-to-multipoint for the interface. In the point-to-multipoint mode, OSPF treats each router-to-router link over non-broadcast networks as if they were point-to-point links.

24.2.4 ip ospf priority

Configure the OSPF router priority which the router uses in multi-access networks for the designated router election algorithm. The router with the higher router priority is the designated router. A value of 0 declares the router as ineligible for designated router elections.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf priority <P-1>`

Parameter	Value	Meaning
P-1	0..255	Configure the priority.

24.2.5 ip ospf transmit-delay

Configure the OSPF transmit-delay for the interface, in seconds. The transmit-delay is the time that you estimate it takes to transmit a link-state update packet over the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf transmit-delay <P-1>`

Parameter	Value	Meaning
P-1	0..3600	Enter a number in the given range.

24.2.6 ip ospf retransmit-interval

Configure the OSPF retransmit-interval for the interface, in seconds. The retransmit-interval is the interval after which link-state advertisements containing database description and link-state request packets, are re-transmitted for adjacencies belonging to this interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf retransmit-interval <P-1>`

Parameter	Value	Meaning
P-1	0..3600	Enter a number in the given range.

24.2.7 ip ospf hello-interval

Configure the OSPF hello-interval for the interface, in seconds. The hello timer controls the time interval between two consecutive hello packets. Set this value to the same hello-interval value of the neighbor.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf hello-interval <P-1>`

Parameter	Value	Meaning
P-1	1..65535	Enter a number between 1 and 65535

24.2.8 ip ospf dead-interval

Configure the OSPF dead-interval for the interface, in seconds. If the timer expires without the router receiving hello packets from the neighbor, the router declares the neighbor router as down. Set the timer to at least four times the value of the hello-interval.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf dead-interval <P-1>`

Parameter	Value	Meaning
P-1	1..65535	Enter a number between 1 and 65535

24.2.9 ip ospf cost

Configure the OSPF cost for the interface. The cost of a specific interface indicates the overhead required to send packets across the link. If set to 0, OSPF calculates the cost from the reference bandwidth and the interface speed.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf cost <P-1>`

Parameter	Value	Meaning
P-1	<1..65535>	Configure the cost for the specified interface.
	auto	Automatic calculation from reference bandwidth and link speed.

24.2.10 ip ospf mtu-ignore

Enable/Disable OSPF MTU mismatch on interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf mtu-ignore`

no ip ospf mtu-ignore
Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip ospf mtu-ignore`

24.2.11 ip ospf authentication type

Configure authentication type.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf authentication type <P-1>`

Parameter	Value	Meaning
P-1	none	Configure the authentication type as none (Key and key ID is not required).
	simple	Configure the authentication type as simple (Key ID is not required).
	md5	Configure the authentication type as md5 for the interface.

24.2.12 ip ospf authentication key

Configure authentication key.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf authentication key <P-1>`

Parameter	Value	Meaning
P-1	string	<key> Configure the authentication key.

24.2.13 ip ospf authentication key-id

Configure authentication key-id for md5 authentication.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip ospf authentication key-id <P-1>`

Parameter	Value	Meaning
P-1	0..255	Enter a number in the given range.

24.3 show

Display device options and settings.

24.3.1 show ip ospf global

Display the OSPF global configurations.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf global`

24.3.2 show ip ospf area

Display the OSPF area related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf area [<P-1>]`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

24.3.3 show ip ospf stub

Display the OSPF stub area related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf stub`

24.3.4 show ip ospf database internal

Display the internal LSA database information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf database internal`

24.3.5 show ip ospf database external

Display the external LSA database information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf database external`

24.3.6 show ip ospf range

Display the OSPF area range information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf range`

24.3.7 show ip ospf interface

Display the OSPF interface related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf interface [<P-1>]`

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

24.3.8 show ip ospf virtual-link

Display the OSPF virtual-link related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf virtual-link <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`
`P-2`	A.B.C.D	`IP address.`

24.3.9 show ip ospf virtual-neighbor

Display the OSPF Virtual-link neighbor information

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf virtual-neighbor`

24.3.10 show ip ospf neighbor

Display the OSPF neighbor related information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf neighbor [<P-1>]`

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

24.3.11 show ip ospf statistics

Display the OSPF statistics.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf statistics`

24.3.12 show ip ospf re-distribute

Display the OSPF re-distribute related information

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf re-distribute <P-1>`

Parameter	Value	Meaning
`P-1`	connected	`Select the source protocol as connected.`
	static	`Select the source protocol as static.`

24.3.13 show ip ospf nssa

Display the OSPF NSSA related information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf nssa <P-1>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

24.3.14 show ip ospf route

Display the OSPF routes.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip ospf route`

25 Virtual Router Redundancy Protocol (VRRP)

25.1 ip

Set IP parameters.

25.1.1 ip vrrp operation

Enables or disables VRRP globally on the device.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp operation`

- **no ip vrrp operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip vrrp operation`

25.1.2 ip vrrp trap auth-failure

Enable or disable the sending of a trap if this router detects an authentication failure on any of its VRRP interfaces.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp trap auth-failure`

- **no ip vrrp trap auth-failure**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip vrrp trap auth-failure`

25.1.3 ip vrrp trap new-master

Enable or disable the sending of a trap if this router becomes new master for any of its VRRP interfaces.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp trap new-master`

- **no ip vrrp trap new-master**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip vrrp trap new-master`

25.2 ip

IP interface commands.

25.2.1 ip vrrp add

Create a new VRRP instance.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp add <P-1> [priority <P-2>] [interval <P-3>] [preempt <P-4>] [master-candidate <P-5>] [proxy-arp <P-6>]`

`[priority]`: Priority of the virtual router ..... default 100
`[interval]`: Advertisement Interval in seconds .. default 1
`[preempt]`: Enables or disables preempt mode ... default enabled

[master-candidate]: Master Candidate Address ..... default 0.0.0.0
[proxy-arp]: Enables or disables proxy ARP on the virtual interface....default disabled

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	1..254	Enter a priority value.
P-3	1..255	Enter a number in the given range.
P-4	enable	Enable the option.
	disable	Disable the option.
P-5	A.B.C.D	IP address.
P-6	enable	Enable the option.
	disable	Disable the option.

25.2.2 ip vrrp modify

Modify parameters of a VRRP instance.

- Mode: Interface Range Mode
- Privilege Level: Operator
- Format: ip vrrp modify <P-1> [priority <P-2>] [interval <P-3>] [preempt <P-4>] [master-candidate <P-5>] [proxy-arp <P-6>]

[priority]: Priority of the virtual router
[interval]: Advertisement Interval in seconds
[preempt]: Enables or disables preemption mode
[master-candidate]: The IP Address that shows as Master IP Address when this Virtual Router becomes Master
[proxy-arp]: Enables or disables proxy ARP on the virtual interface when the state changes to master

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	1..254	Enter a priority value.
P-3	1..255	Enter a number in the given range.
P-4	enable	Enable the option.
	disable	Disable the option.
P-5	A.B.C.D	IP address.
P-6	enable	Enable the option.
	disable	Disable the option.

25.2.3 ip vrrp delete

Delete a VRRP instance.

- Mode: Interface Range Mode
- Privilege Level: Operator
- Format: ip vrrp delete <P-1>

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.

25.2.4 ip vrrp enable

Enable a VRRP instance.

- Mode: Interface Range Mode
- Privilege Level: Operator
- Format: ip vrrp enable <P-1>

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.

25.2.5 ip vrrp disable

Disable a VRRP instance.

- Mode: Interface Range Mode
- Privilege Level: Operator
- Format: ip vrrp disable <P-1>

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.

25.2.6 ip vrrp virtual-address add

Add a virtual address.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp virtual-address add <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	A.B.C.D	IP address.

25.2.7 ip vrrp virtual-address delete

Delete a virtual address.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp virtual-address delete <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	A.B.C.D	IP address.

25.2.8 ip vrrp track add

Add a tracking object to the vrrp instance.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp track add <P-1> <P-2> [decrement <P-3>]`

`[decrement]`: Configure the decrement value. Default is 20

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	string	Track instance.
P-3	1..253	Enter the decrement value. The priority will be decremented by the configured value

25.2.9 ip vrrp track modify

Modify a tracking object to the vrrp instance.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp track modify <P-1> <P-2> decrement <P-3>`

`decrement`: Configure the decrement value. Default is 20

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	string	Track instance.
P-3	1..253	Enter the decrement value. The priority will be decremented by the configured value

25.2.10 ip vrrp track delete

Delete a tracking object to the vrrp instance.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip vrrp track delete <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..255	Enter a virtual router ID.
P-2	string	Track instance.

25.3 show

Display device options and settings.

25.3.1 show ip vrrp interface

Display the parameters of one VRRP instances.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip vrrp interface [<P-1> [<P-2>]]`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..255	`Enter a virtual router ID.`

25.3.2 show ip vrrp global

Display the global VRRP parameters.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip vrrp global`

26 Address Resolution Protocol (IP ARP)

26.1 ip

Set IP parameters.

26.1.1 ip arp add

Add a static arp entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp add <P-1> <P-2>`

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	aa:bb:cc:dd:ee:ff	MAC address.

26.1.2 ip arp delete

Delete a static arp entry.

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

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.

26.1.3 ip arp enable

Enable a static arp entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp enable <P-1>`

Parameter	Value	Meaning
P-1	a.b.c.d	IP address.

26.1.4 ip arp disable

Disable a static arp entry.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp disable <P-1>`

Parameter	Value	Meaning
P-1	a.b.c.d	IP address.

26.1.5 ip arp timeout

Configure ARP entry age-out time (in seconds).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp timeout <P-1>`

Parameter	Value	Meaning
P-1	15..21600	Enter the arp response time.

26.1.6 ip arp response-time

Configure ARP request response timeout (in seconds).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp response-time <P-1>`

Parameter	Value	Meaning
P-1	1..10	Enter the arp response time.

26.1.7 ip arp retries

Configure ARP count of maximum requests for retries.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip arp retries <P-1>`

Parameter	Value	Meaning
`P-1`	0..10	`Enter the arp max retries.`

26.2 show

Display device options and settings.

26.2.1 show ip arp info

Display the ARP summary information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip arp info`

26.2.2 show ip arp table

Display the ARP cache entries.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip arp table`

26.2.3 show ip arp static

Display the static ARP entries.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip arp static`

26.2.4 show ip arp entry

Display the ARP cache entry.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip arp entry <P-1>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

26.3 clear

Clear several items.

26.3.1 clear ip arp-cache

Clear the router's ARP table (cache).

- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear ip arp-cache [gateway]`

`[gateway]`: Also clear gateway ARP entries.

27 Internet Protocol Version 4 (IPv4)

27.1 network

Configure the inband and outband connectivity.

27.1.1 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	`IPv4 address.`
`P-2`	A.B.C.D	`IPv4 netmask address.`
`P-3`	A.B.C.D	`IPv4 gateway address.`

27.2 clear

Clear several items.

27.2.1 clear arp-table-switch

Clear the agent's ARP table (cache).
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `clear arp-table-switch`

27.3 show

Display device options and settings.

27.3.1 show network parms

Display the network settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show network parms`

27.4 show

Display device options and settings.

27.4.1 show arp

Display the ARP table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show arp`

28 Link Layer Discovery Protocol (LLDP)

28.1 lldp

Configure of Link Layer Discovery Protocol.

28.1.1 lldp operation

Enable or disable the LLDP operational state.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `lldp operation`

- **no lldp operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp operation`

28.1.2 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.
	disable	Disable the option.

28.1.3 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.

28.1.4 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.

28.1.5 lldp config chassis tx-delay

Enter the LLDP transmit delay in seconds (tx-delay smaller than (0.25 × tx-interval))
- 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 (tx-delay smaller than (0.25 × tx-interval)

28.1.6 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.

28.1.7 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.

28.2 show

Display device options and settings.

28.2.1 show lldp global

Display the LLDP global configurations.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show lldp global

28.2.2 show lldp port

Display the 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.	

28.2.3 show lldp remote-data

Remote information collected with LLDP.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show lldp remote-data [<P-1>]

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

28.3 lldp

Configure of Link Layer Discovery Protocol on a port.

28.3.1 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.
	rx-only	Interface will only receive LLDP frames. Frames are not transmitted.
	tx-and-rx	Interface will transmit and receive LLDP frames. This is the default setting.
	disable	Interface will neither transmit nor process received LLDP frames.

28.3.2 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.
	mac-only	Collected remote data will be based on the switch's FDB entries only.
	both	Collected remote data will be based on received LLDP frames as well as on the switch's FDB entries.
	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.

28.3.3 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.

28.3.4 lldp notification

Enable or disable the LLDP notification operation for interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp notification`

no lldp notification

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp notification`

28.3.5 lldp tlv mac-phy-config-state

Enable or disable mac-phy-config-state TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv mac-phy-config-state <P-1>`

Parameter	Value	Meaning
P-1	[cr]	Enable the Bit.

no lldp tlv mac-phy-config-state

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv mac-phy-config-state <P-1>`

28.3.6 lldp tlv max-frame-size

Enable or disable max-frame-size TLV transmission.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv max-frame-size <P-1>`

Parameter	Value	Meaning
P-1	[cr]	Enable the Bit.

- **no lldp tlv max-frame-size**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv max-frame-size <P-1>`

28.3.7 lldp tlv mgmt-addr

Enable or disable mgmt-addr TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv mgmt-addr`

- **no lldp tlv mgmt-addr**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv mgmt-addr`

28.3.8 lldp tlv port-desc

Enable or disable port description TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv port-desc <P-1>`

Parameter	Value	Meaning
`P-1`	[cr]	Enable the Bit.

- **no lldp tlv port-desc**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv port-desc <P-1>`

28.3.9 lldp tlv port-vlan

Enable or disable port-vlan TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv port-vlan`

- **no lldp tlv port-vlan**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv port-vlan`

28.3.10 lldp tlv protocol

Enable or disable protocol TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv protocol`

- **no lldp tlv protocol**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv protocol`

28.3.11 lldp tlv sys-cap

Enable or disable system capabilities TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-cap <P-1>`

Parameter	Value	Meaning
`P-1`	[cr]	Enable the Bit.

no lldp tlv sys-cap
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-cap <P-1>`

28.3.12 lldp tlv sys-desc

Enable or disable system description TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-desc <P-1>`

Parameter	Value	Meaning
`P-1`	[cr]	Enable the Bit.

no lldp tlv sys-desc
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-desc <P-1>`

28.3.13 lldp tlv sys-name

Enable or disable system name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv sys-name <P-1>`

Parameter	Value	Meaning
`P-1`	[cr]	Enable the Bit.

no lldp tlv sys-name
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv sys-name <P-1>`

28.3.14 lldp tlv vlan-name

Enable or disable vlan name TLV transmission.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `lldp tlv vlan-name`

no lldp tlv vlan-name
Disable the option
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no lldp tlv vlan-name`

28.3.15 lldp tlv protocol-based-vlan

Enable or disable 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 the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no lldp tlv protocol-based-vlan`

29 Logging

29.1 logging

Logging configuration.

29.1.1 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.`

29.1.2 logging buffered severity

Configure the minimum 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.`
	alert	`Action must be taken immediately. Unrecoverable failure of a component. System failure likely.`
	critical	`Recoverable failure of a component that may lead to system failure.`
	error	`Error conditions. Recoverable failure of a component.`
	warning	`Minor failure, e.g. misconfiguration of a component.`
	notice	`Normal but significant conditions.`
	informational	`Informational messages.`
	debug	`Debug-level messages.`
	0	`Same as emergency`
	1	`Same as alert`
	2	`Same as critical`
	3	`Same as error`
	4	`Same as warning`
	5	`Same as notice`
	6	`Same as informational`
	7	`Same as debug`

29.1.3 logging host add

Add a new logging host.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging host add <P-1> addr <P-2> [transport <P-3>] [port <P-4>] [severity <P-5>] [type <P-6>]`

`addr`: Enter the IP address of the server.
`[transport]`: Configure the type of transport used for syslog server transmission.
`[port]`: Enter the port used for syslog server transmission.
`[severity]`: Configure the minimum 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`	A.B.C.D	`IP address.`
`P-3`	udp	`The UDP-based transmission.`
	tls	`The TLS-based transmission.`
`P-4`	1..65535	`Port number to be used`

Parameter	Value	Meaning
P-5	emergency	System is unusable. System failure has occurred.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug
P-6	systemlog	the system event log entries
	audittrail	the audit trail log entries

29.1.4 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

29.1.5 logging host enable

Enable a logging host.

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

Parameter	Value	Meaning
P-1	1..8	Syslog server entry index

29.1.6 logging host disable

Disable a logging host.

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

Parameter	Value	Meaning
P-1	1..8	Syslog server entry index

29.1.7 logging host modify

Modify an existing logging host.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging host modify <P-1> [addr <P-2>] [transport <P-3>] [port <P-4>] [severity <P-5>] [type <P-6>]`

`[addr]`: Enter the IP address of the server.
`[transport]`: Configure the type of transport used for syslog server transmission.
`[port]`: Enter the port used for syslog server transmission.
`[severity]`: Configure the minimum 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	A.B.C.D	IP address.
P-3	udp	The UDP-based transmission.
	tls	The TLS-based transmission.
P-4	1..65535	Port number to be used

Parameter	Value	Meaning
P-5	emergency	System is unusable. System failure has occurred.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug
P-6	systemlog	the system event log entries
	audittrail	the audit trail log entries

29.1.8 logging syslog operation

Enable or disable the syslog client.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging syslog operation`

no logging syslog operation

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no logging syslog operation`

29.1.9 logging current-console operation

Enable or disable 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 the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no logging current-console operation`

29.1.10 logging current-console severity

Configure the minimum 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.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug

29.1.11 logging console operation

Enable or disable logging to the local V.24 console.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging console operation`

- **no logging console operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging console operation`

29.1.12 logging console severity

Configure the minimum 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.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug

29.1.13 logging persistent operation

Enable or disable persistent logging. This feature is only available when an ENVM is connected to the device. The logging information is saved on the selected ENVM.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging persistent operation`

- **no logging persistent operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no logging persistent operation`

29.1.14 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

29.1.15 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

29.1.16 logging persistent severity-level

Configure the minimum 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.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug

29.2 show

Display device options and settings.

29.2.1 show logging buffered

Display the 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

29.2.2 show logging traplogs

Display the trap log entries.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show logging traplogs`

29.2.3 show logging console

Display the console logging configurations.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show logging console`

29.2.4 show logging persistent

Display the persistent logging configurations.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show logging persistent [logfiles]`

`[logfiles]`: List the persistent log files.

29.2.5 show logging syslog

Display the current syslog operational setting.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show logging syslog`

29.2.6 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`

29.3 copy

Copy different kinds of items.

29.3.1 copy eventlog buffered envm

Copy a buffered log from the device to external non-volatile memory.
- 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.`

29.3.2 copy eventlog buffered remote

Copy a buffered log from the device to a 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.`

29.3.3 copy eventlog persistent

Copy the persistent logs from the device to an envm or a file server.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Operator`
- Format: `copy eventlog persistent <P-1> envm <P-2> remote <P-3>`

`envm`: Copy the persistent log from the device to external non-volatile memory.

remote: Copy the persistent logs from the device to a 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.

29.3.4 copy traplog system envm

Copy the traplog from the device to external non-volatile memory.
- 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.

29.3.5 copy traplog system remote

Copy the traplog from the device to a 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.

29.3.6 copy audittrail system envm

Copy the audit trail from the device to external non-volatile memory.
- Mode: Privileged Exec Mode
- Privilege Level: Operator, Auditor
- Format: copy audittrail system envm <P-1>

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

29.3.7 copy audittrail system remote

Copy the audit trail from the device to a file server.
- Mode: Privileged Exec Mode
- Privilege Level: Operator, Auditor
- Format: copy audittrail system remote <P-1>

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

29.4 clear

Clear several items.

29.4.1 clear logging buffered

Clear buffered log from memory.
- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: clear logging buffered

29.4.2 clear logging persistent

Clear persistent log from memory.
- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: clear logging persistent

29.4.3 clear eventlog

Clear the event log entries from memory.

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

30 Management Access

30.1 network

Configure the inband and outband connectivity.

30.1.1 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).`

30.1.2 network management access add

Add a new entry with index.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access add <P-1> [interface <P-2>] [ip <P-3>] [mask <P-4>] [http <P-5>] [https <P-6>] [snmp <P-7>] [ssh <P-8>]`

`[interface]`: Configure interface index on which management access should be restricted or allowed.
`[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.
`[ssh]`: Configure if SSH is allowed to have management access.

Parameter	Value	Meaning
`P-1`	1..16	`Pool entry index.`
`P-2`	slot no./port no.	
`P-3`	A.B.C.D	`IP address.`
`P-4`	0..32	`Prefix length netmask.`
`P-5`	enable	`Enable the option.`
	disable	`Disable the option.`
`P-6`	enable	`Enable the option.`
	disable	`Disable the option.`
`P-7`	enable	`Enable the option.`
	disable	`Disable the option.`
`P-8`	enable	`Enable the option.`
	disable	`Disable the option.`

30.1.3 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.`

30.1.4 network management access modify

Modify an entry with index.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access modify <P-1> interface <P-2> ip <P-3> mask <P-4> http <P-5> https <P-6> snmp <P-7> ssh <P-8>`

`[interface]`: Configure interface index on which management access should be restricted or allowed.
`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.
`[ssh]`: Configure if SSH is allowed to have management access.

Parameter	Value	Meaning
P-1	1..16	Pool entry index.
P-2	slot no./port no.	
P-3	A.B.C.D	IP address.
P-4	0..32	Prefix length netmask.
P-5	enable	Enable the option.
	disable	Disable the option.
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	enable	Enable the option.
	disable	Disable the option.
P-8	enable	Enable the option.
	disable	Disable the option.

30.1.5 network management access operation

Enable/Disable operation for RMA.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `network management access operation`

no network management access operation
Disable the option
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `no network management access operation`

30.1.6 network management access status

Activate/Deactivate 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
Disable the option
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `no network management access status <P-1>`

30.2 show

Display device options and settings.

30.2.1 show network management access global

Display the global restricted management access preferences.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show network management access global`

30.2.2 show network management access rules

Display the 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.

31 Network Address Translation (NAT)

31.1 nat

Manage NAT rules

31.1.1 nat dnat commit

Commit pending changes for DNAT (commits all NAT changes).
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat dnat commit`

31.1.2 nat dnat add

Add rule to DNAT
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat dnat add <P-1> [cfg <P-2> <P-3> <P-4> <P-5> <P-6> <P-7> <P-8> [<P-9>]] [cfg]`: Configure the rule immediately

Parameter	Value	Meaning
P-1	1..255	DNAT rule number
P-2	a.b.c.d	Source IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-3	number	number UDP/TCP Source Port
	nu-nu	nu-nu Port Range
	nu,nu-nu	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-4	a.b.c.d	Destination IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-5	number	number of the UDP/TCP Destination Port
	nu-nu	nu-nu Port Range
	number,number	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-6	a.b.c.d	New destination IP address
P-7	number	number of the UDP/TCP New Destination Port
	any	any Any port (or protocol without a port)
P-8	icmp	Internet Control Message Protocol
	igmp	Internet Group Management Protocol
	ipip	IP-within-IP Encapsulation Protocol
	tcp	Transmission Control Protocol
	udp	User Datagram Protocol
	esp	Encapsulating Security Protocol
	ah	Authentication Header
	any	Any of the above
P-9	string	Rule description/name

31.1.3 nat dnat modify

Configure single DNAT rule
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat dnat modify <P-1> <P-2> <P-3> <P-4> <P-5> <P-6> <P-7> <P-8> [<P-9>]`

Parameter	Value	Meaning
P-1	1..255	DNAT rule number

Parameter	Value	Meaning
P-2	a.b.c.d	Source IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-3	number	number UDP/TCP Source Port
	nu-nu	nu-nu Port Range
	nu,nu-nu	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-4	a.b.c.d	Destination IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-5	number	number of the UDP/TCP Destination Port
	nu-nu	nu-nu Port Range
	number,number	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-6	a.b.c.d	New destination IP address
P-7	number	number of the UDP/TCP New Destination Port
	any	any Any port (or protocol without a port)
P-8	icmp	Internet Control Message Protocol
	igmp	Internet Group Management Protocol
	ipip	IP-within-IP Encapsulation Protocol
	tcp	Transmission Control Protocol
	udp	User Datagram Protocol
	esp	Encapsulating Security Protocol
	ah	Authentication Header
	any	Any of the above
P-9	string	Rule description/name

31.1.4 nat dnat delete

Delete rule from DNAT

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat dnat delete <P-1>

Parameter	Value	Meaning
P-1	1..255	DNAT rule number

31.1.5 nat dnat logtrap

Set log/trap for DNAT rule

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat dnat logtrap <P-1> <P-2> <P-3>

Parameter	Value	Meaning
P-1	1..255	DNAT rule number
P-2	no	Disable Logging
	yes	Enable Logging
P-3	no	Disable SNMP Trap
	yes	Enable SNMP Trap

31.1.6 nat dnat state

Enable/Disable specific DNAT rule

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat dnat state <P-1> <P-2>

Parameter	Value	Meaning
P-1	1..255	DNAT rule number
P-2	enable	Enable the option.
	disable	Disable the option.

31.1.7 nat dnat if add

Add Interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat dnat if add <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..255	`DNAT rule number`
`P-3`	0..6500	`Priority`

31.1.8 nat dnat if delete

Delete interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat dnat if delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..255	`DNAT rule number`

31.1.9 nat 1to1nat commit

Commit pending changes for 1:1 NAT (commits every NAT change).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat 1to1nat commit`

31.1.10 nat 1to1nat add

Add rule to 1:1 NAT

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat 1to1nat add <P-1> [cfg <P-2> <P-3> <P-4>] [ingress <P-5>] [egress <P-6> [<P-7>]]`

`[cfg]`: Configure the rule immediately
`[ingress]`: Configure ingress interface
`[egress]`: Configure egress interface

Parameter	Value	Meaning
`P-1`	1..256	`1:1 NAT rule number`
`P-2`	a.b.c.d	`Virtual destination IP address`
	a.b.c.d/n	`CIDR mask`
`P-3`	a.b.c.d	`Actual destination IP address`
	a.b.c.d/n	`CIDR mask`
`P-4`	0..6500	`Priority`
`P-5`	slot no./port no.	
`P-6`	slot no./port no.	
`P-7`	string	`Rule description/name`

31.1.11 nat 1to1nat modify

Configure single 1:1 NAT rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat 1to1nat modify <P-1> <P-2> <P-3> <P-4> [ingress <P-5>] [egress <P-6> [<P-7>]]`

`[ingress]`: Configure ingress interface
`[egress]`: Configure egress interface

Parameter	Value	Meaning
`P-1`	1..256	`1:1 NAT rule number`
`P-2`	a.b.c.d	`Virtual destination IP address`
	a.b.c.d/n	`CIDR mask`
`P-3`	a.b.c.d	`Actual destination IP address`
	a.b.c.d/n	`CIDR mask`
`P-4`	0..6500	`Priority`
`P-5`	slot no./port no.	

Parameter	Value	Meaning
P-6	slot no./port no.	
P-7	string	Rule description/name

31.1.12 nat 1to1nat delete

Delete the rule from 1:1 NAT

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat 1to1nat delete <P-1>

Parameter	Value	Meaning
P-1	1..256	1:1 NAT rule number

31.1.13 nat 1to1nat logtrap

Set log/trap for 1:1 NAT rule

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat 1to1nat logtrap <P-1> <P-2> <P-3>

Parameter	Value	Meaning
P-1	1..256	1:1 NAT rule number
P-2	no	Disable Logging
	yes	Enable Logging
P-3	no	Disable SNMP Trap
	yes	Enable SNMP Trap

31.1.14 nat 1to1nat state

Enable/Disable specific 1:1 NAT rule

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat 1to1nat state <P-1> <P-2>

Parameter	Value	Meaning
P-1	1..256	1:1 NAT rule number
P-2	enable	Enable the option.
	disable	Disable the option.

31.1.15 nat masq commit

Commit pending changes for Masquerading (commits every NAT change).

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat masq commit

31.1.16 nat masq add

Add rule to Masquerading

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: nat masq add <P-1> [cfg <P-2> <P-3> <P-4> [<P-5>]]

[cfg]: Configure the rule immediately

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number
P-2	a.b.c.d	Source IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-3	number	number UDP/TCP Source Port
	nu-nu	nu-nu Port Range
	nu,nu-nu	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-4	tcp	Transmission Control Protocol
	udp	User Datagram Protocol
	any	Any protocol at all
P-5	string	Rule description/name

31.1.17 nat masq modify

Configure single Masquerading rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq modify <P-1> <P-2> <P-3> <P-4> [<P-5>]`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number
P-2	a.b.c.d	Source IP address
	a.b.c.d/n	CIDR mask
	!a.b.c.d	!<a.b.c.d> Everything BUT this address
	!a.b.c.d/n	!<a.b.c.d/n> Everything BUT this CIDR mask
	any	any Any
P-3	number	number UDP/TCP Source Port
	nu-nu	nu-nu Port Range
	nu,nu-nu	nu,nu-nu List of ports (or port ranges)
	any	any Any port (or protocol without a port)
P-4	tcp	Transmission Control Protocol
	udp	User Datagram Protocol
	any	Any protocol at all
P-5	string	Rule description/name

31.1.18 nat masq delete

Delete rule from Masquerading

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq delete <P-1>`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number

31.1.19 nat masq logtrap

Set log/trap for Masquerading rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq logtrap <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number
P-2	no	Disable Logging
	yes	Enable Logging
P-3	no	Disable SNMP Trap
	yes	Enable SNMP Trap

31.1.20 nat masq ipsec-exempt

Exclude IPsec traffic from Masquerading rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq ipsec-exempt <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number
P-2	disabled	Apply rule to IPsec traffic
	enabled	Do not apply rule to IPsec traffic

31.1.21 nat masq state

Enable/Disable specific Masquerading rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq state <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number
P-2	enable	Enable the option.
	disable	Disable the option.

31.1.22 nat masq if add

Add interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq if add <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..128	`Masquerading rule number`
`P-3`	0..6500	`Priority`

31.1.23 nat masq if delete

Delete interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat masq if delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	1..128	`Masquerading rule number`

31.1.24 nat doublenat commit

Commit pending changes for Double NAT (commits all NAT changes).

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat commit`

31.1.25 nat doublenat add

Add rule to Double NAT

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat add <P-1> [cfg <P-2> <P-3> <P-4> <P-5> [<P-6>]]`

`[cfg]`: Configure the rule immediately

Parameter	Value	Meaning
`P-1`	1..255	`Double NAT rule number`
`P-2`	a.b.c.d	`Local internal IP address`
`P-3`	a.b.c.d	`Local external IP address`
`P-4`	a.b.c.d	`Remote Internal IP Address`
`P-5`	a.b.c.d	`Remote External IP Address`
`P-6`	string	`Rule description/name`

31.1.26 nat doublenat modify

Configure single Double NAT rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat modify <P-1> <P-2> <P-3> <P-4> <P-5> [<P-6>]`

Parameter	Value	Meaning
`P-1`	1..255	`Double NAT rule number`
`P-2`	a.b.c.d	`Local internal IP address`
`P-3`	a.b.c.d	`Local external IP address`
`P-4`	a.b.c.d	`Remote Internal IP Address`
`P-5`	a.b.c.d	`Remote External IP Address`
`P-6`	string	`Rule description/name`

31.1.27 nat doublenat delete

Delete rule from Double NAT

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..255	`Double NAT rule number`

31.1.28 nat doublenat logtrap

Set log/trap for Double NAT rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat logtrap <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	1..255	Double NAT rule number
P-2	no	Disable Logging
	yes	Enable Logging
P-3	no	Disable SNMP Trap
	yes	Enable SNMP Trap

31.1.29 nat doublenat state

Enable/Disable specific Double NAT rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat state <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..255	Double NAT rule number
P-2	enable	Enable the option.
	disable	Disable the option.

31.1.30 nat doublenat if add

Add Interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat if add <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	ingress	Ingress
	egress	Egress
	both	Both
P-3	1..255	Double NAT rule number
P-4	0..6500	Priority

31.1.31 nat doublenat if delete

Delete interface

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `nat doublenat if delete <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	ingress	Ingress
	egress	Egress
	both	Both
P-3	1..255	Double NAT rule number

31.2 show

Display device options and settings.

31.2.1 show nat dnat global

Display the summary.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat dnat global`

31.2.2 show nat dnat rules

Display the DNAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat dnat rules [<P-1>]`

Parameter	Value	Meaning
P-1	1..255	DNAT rule number

31.2.3 show nat dnat if

Display the DNAT interface configuration.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat dnat if`

31.2.4 show nat dnat logtrap

Display the Log/Trap settings for the DNAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat dnat logtrap [<P-1>]`

Parameter	Value	Meaning
P-1	1..255	DNAT rule number

31.2.5 show nat masq global

Display the summary.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat masq global`

31.2.6 show nat masq rules

Display the masquerading rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat masq rules [<P-1>]`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number

31.2.7 show nat masq logtrap

Display the Log/Trap settings for the masquerading rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat masq logtrap [<P-1>]`

Parameter	Value	Meaning
P-1	1..128	Masquerading rule number

31.2.8 show nat masq if

Display the masquerading interface configuration.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat masq if`

31.2.9 show nat 1to1nat global

Display the summary.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat 1to1nat global`

31.2.10 show nat 1to1nat rules

Display the 1:1 NAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat 1to1nat rules [<P-1>]`

Parameter	Value	Meaning
P-1	1..256	1:1 NAT rule number

31.2.11 show nat 1to1nat logtrap

Display the Log/Trap settings for 1:1 NAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat 1to1nat logtrap [<P-1>]`

Parameter	Value	Meaning
P-1	1..256	1:1 NAT rule number

31.2.12 show nat doublenat global

Display the summary.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat doublenat global`

31.2.13 show nat doublenat rules

Display the Double NAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat doublenat rules [<P-1>]`

Parameter	Value	Meaning
P-1	1..255	Double NAT rule number

31.2.14 show nat doublenat logtrap

Display the Log/Trap settings for the Double NAT rules.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat doublenat logtrap [<P-1>]`

Parameter	Value	Meaning
P-1	1..255	Double NAT rule number

31.2.15 show nat doublenat if

Display the Double NAT interface configuration.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show nat doublenat if`

32 Network Time Protocol (NTP)

32.1 ntp

Configure NTP settings.

32.1.1 ntp client operation

Enable or disable the NTP client.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp client operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the option.
	disable	Disable the option.

32.1.2 ntp client operating-mode

Set the NTP client operating mode.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp client operating-mode <P-1>`

Parameter	Value	Meaning
P-1	unicast	Enable NTP client in unicast operating mode.
	broadcast	Enable NTP client in broadcast operating mode.

32.1.3 ntp server operation

Enable or disable the NTP server.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp server operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable the option.
	disable	Disable the option.

32.1.4 ntp server operating-mode

Set the NTP server operating mode.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp server operating-mode <P-1>`

Parameter	Value	Meaning
P-1	symmetric	Enable NTP server in symmetric operating mode.
	client-server	Enable NTP server in client-server operating mode.

32.1.5 ntp server localclock-stratum

Set the stratum of the localclock.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp server localclock-stratum <P-1>`

Parameter	Value	Meaning
P-1	1..16	Localclock stratum.

32.1.6 ntp peers add

Add a new peer.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ntp peers add <P-1> ip <P-2> [iburst <P-3>] [burst <P-4>] [prefer <P-5>]`

`ip`: Set the peer address.
`[iburst]`: Speed up the initial synchronization (default: disabled). Used only when operating in client-unicast mode.

[burst]: Increase the precision on links with high jitter (default: disabled). Used only in client-unicast mode.
[prefer]: If correctly operating, choose this peer as synchronization source (default: disabled).

Parameter	Value	Meaning
P-1	1..4	NTP servers index.
P-2	A.B.C.D	IP address.
P-3	enable	Enable the option.
	disable	Disable the option.
P-4	enable	Enable the option.
	disable	Disable the option.
P-5	enable	Enable the option.
	disable	Disable the option.

32.1.7 ntp peers delete

Delete a peer.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ntp peers delete <P-1>

Parameter	Value	Meaning
P-1	1..4	NTP servers index.

32.2 show

Display device options and settings.

32.2.1 show ntp client-status

Status of the NTP client connection.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ntp client-status

32.2.2 show ntp server-status

Overall operational status of the NTP server.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ntp server-status

33 Packet Filter

33.1 packet-filter

Creation and configuration of Firewall rules.

33.1.1 packet-filter l3 commit

Writes all changes made in the L3 firewall configuration to the device
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 commit`

33.1.2 packet-filter l3 defaultpolicy

Sets the default policy of the L3 and DynFw rule tables
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 defaultpolicy <P-1>`

Parameter	Value	Meaning
`P-1`	accept	`Accept packets`
	drop	`Drop packets without notification`
	reject	`Drop packets and notify source`

33.1.3 packet-filter l3 checksum-validation

Configures the connection tracking checksum validation in Netfilter
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 checksum-validation`

no packet-filter l3 checksum-validation
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no packet-filter l3 checksum-validation`

33.1.4 packet-filter l3 addrule

Adds a rule to the L3 firewall table
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 addrule <P-1> <P-2> <P-3> <P-4> <P-5> <P-6> <P-7> protocol-name <P-8> [description <P-9>] [profile-index <P-10>`

`protocol-name`: Protocol Name
`[description]`: Rule description/name for the L3 firewall rule
`[profile-index]`: Profile index of the DPI profile this rule is assigned to depending on enforcer action. Value 0 no profile this rule is assigned to. You cannot assign the rule to an inactive profile if an active enforcer will mapping to it.

Parameter	Value	Meaning
`P-1`	1..2048	`Rule index`
`P-2`	string	`Source IP address/CIDR mask/'any'/asset name from asset table`
`P-3`	string	`Source port/port list with comma/port range with hyphen/'any'`
`P-4`	string	`Target IP address/CIDR mask/'any'/asset name from asset table`
`P-5`	string	`Target port/port list with comma/port range with hyphen/'any'`
`P-6`	string	`Parameters for rule (or 'none')`

Parameter	Value	Meaning
P-7	accept	Accept packets.
	drop	Drop packets without notification.
	reject	Drop packets and notify source.
	enforce-modbus	Accept or drop packets by Modbus TCP/IP enforcer, protocol should be TCP or UDP.
	enforce-opc	Accept or drop packets by OPC enforcer, protocol should be TCP.
	enforce-iec104	Accept or drop packets by IEC104 enforcer, protocol should be TCP.
	enforce-ethernetip	Accept or drop packets by ENIP enforcer, protocol should be TCP.
	enforce-dnp3	Accept or drop packets by DNP3 enforcer, protocol should be TCP.
P-8	string	Protocol Name from protocol table or tcp/udp/icmp/igmp/ipip/esp/ah/icmpv6/any
P-9	string	Rule description/name
P-10	0..32	Profile index 0 - 32

33.1.5 packet-filter l3 modifyrule

Modifies a rule to the L3 firewall table

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 modifyrule <P-1> <P-2> <P-3> <P-4> <P-5> <P-6> <P-7> protocol-name <P-8> [description <P-9>] [profile-index <P-10>`

`protocol-name`: Protocol Name
`[description]`: Rule description/name for the L3 firewall rule
`[profile-index]`: Profile index of the DPI profile this rule is assigned to depending on enforcer action. Value 0 no profile this rule is assigned to. You cannot assign the rule to an inactive profile if an active enforcer will mapping to it.

Parameter	Value	Meaning
P-1	1..2048	Rule index
P-2	string	Source IP address/CIDR mask/'any'/asset name from asset table
P-3	string	Source port/port list with comma/port range with hyphen/'any'
P-4	string	Target IP address/CIDR mask/'any'/asset name from asset table
P-5	string	Target port/port list with comma/port range with hyphen/'any'
P-6	string	Parameters for rule (or 'none')
P-7	accept	Accept packets.
	drop	Drop packets without notification.
	reject	Drop packets and notify source.
	enforce-modbus	Accept or drop packets by Modbus TCP/IP enforcer, protocol should be TCP or UDP.
	enforce-opc	Accept or drop packets by OPC enforcer, protocol should be TCP.
	enforce-iec104	Accept or drop packets by IEC104 enforcer, protocol should be TCP.
	enforce-ethernetip	Accept or drop packets by ENIP enforcer, protocol should be TCP.
	enforce-dnp3	Accept or drop packets by DNP3 enforcer, protocol should be TCP.
P-8	string	Protocol Name from protocol table or tcp/udp/icmp/igmp/ipip/esp/ah/icmpv6/any
P-9	string	Rule description/name
P-10	0..32	Profile index 0 - 32

33.1.6 packet-filter l3 delrule

Deletes a rule from L3 rule table

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 delrule <P-1>`

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.7 packet-filter l3 enablerule

Enables a rule from L3 rule table. A rule can only be enabled when all the required parameters are set. You cannot enable a rule if the mapped enforcer's profile is inactive.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 enablerule <P-1>`

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.8 packet-filter l3 disablerule

Disables a rule from L3 rule table

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 disablerule <P-1>`

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.9 packet-filter l3 logmode

Set logmode for a rule from L3 rule table

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 logmode <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..2048	Rule index
P-2	log	Log when rule is applied
	trap	Send trap when rule is applied
	logtrap	Log and send trap when rule is applied
	none	Disable log and trap

33.1.10 packet-filter l3 addif

Adds an interface to a L3 firewall rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 addif <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
	both	Rule applies in ingress and egress direction.
P-3	1..2048	Rule index
P-4	0..4294967295	Priority

33.1.11 packet-filter l3 delif

Deletes an interface of a L3 firewall rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 delif <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
	both	Rule applies in ingress and egress direction.
P-3	1..2048	Rule index

33.1.12 packet-filter l3 enableif

Enables an interface of a L3 firewall rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 enableif <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
	both	Rule applies in ingress and egress direction.
P-3	1..2048	Rule index

33.1.13 packet-filter l3 disableif

Disables an interface of a L3 firewall rule

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l3 disableif <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-3`	ingress	`Rule applies on ingress direction.`
	egress	`Rule applies on egress direction.`
	both	`Rule applies in ingress and egress direction.`
`P-3`	1..2048	`Rule index`

33.1.14 packet-filter l2 commit

Writes all changes made in the L2 firewall configuration to the device

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 commit`

33.1.15 packet-filter l2 defaultpolicy

Sets the default policy of the L2 rule tables.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 defaultpolicy <P-1>`

Parameter	Value	Meaning
`P-1`	accept	`Accept packets.`
	drop	`Drop packets without notification.`

33.1.16 packet-filter l2 fcs-validation

Activates/Deactivates FCS validation

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 fcs-validation <P-1>`

Parameter	Value	Meaning
`P-1`	enable	`Enable the option.`
	disable	`Disable the option.`

33.1.17 packet-filter l2 rule add

Adds a rule to the L2 firewall table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 rule add <P-1> action <P-2> [src-mac <P-3>] [dst-mac <P-4>] [src-ip <P-5>] [sourceport <P-6>] [dest-ip <P-7>] [destport <P-8>] [ethertype <P-9>] [proto <P-10>] [vlan <P-11>] [assign-queue <P-12>] [description <P-13>] [profile-index <P-14>] [rate-limit <P-15> <P-16> <P-17>] [tos <P-18>] [log <P-19>] [trap <P-20>]`

`action`: Set Action
`[src-mac]`: Specify the source MAC address/'any'/asset name from the asset table.
`[dst-mac]`: Specify the destination MAC address/'any'/asset name from the asset table.
`[src-ip]`: Specify the source IP address/CIDR mask/'any'/asset name from the asset table.
`[sourceport]`: Specify the source L4 port.
`[dest-ip]`: Specify the destination IP address/CIDR mask/'any'/asset name from the asset table.
`[destport]`: Specify the destination L4 port.
`[ethertype]`: Specify the Ethertype.
`[proto]`: Specify the protocol for the L2 firewall rule/user-defined protocol from the protocol table.
`[vlan]`: Specify the VLAN ID for L2 firewall rule.
`[assign-queue]`: Assign a user Queue.
`[description]`: Rule description/name for the L2 firewall rule.
`[profile-index]`: Profile index of the DPI profile this rule is assigned to depending on enforcer action. Value 0 no profile this rule is assigned to. You cannot assign the rule to an inactive profile if an active enforcer is mapped to it.
`[rate-limit]`: Specify the rate limit and burst size.

[tos]: Specify TOS for L2 rule.
[log]: Set logging.
[trap]: Set sending SNMP traps.

Parameter	Value	Meaning
P-1	1..2048	Rule index
P-2	accept	Accept packets.
	drop	Drop packets without notification.
	enforce-modbus	Accept or drop packets by Modbus TCP/IP enforcer, protocol should be TCP or UDP.
	enforce-opc	Accept or drop packets by OPC enforcer, protocol should be TCP.
	enforce-iec104	Accept or drop packets by IEC104 enforcer, protocol should be TCP.
	enforce-ethernetip	Accept or drop packets by ENIP enforcer, protocol should be TCP.
	enforce-dnp3	Accept or drop packets by DNP3 enforcer, protocol should be TCP.
	enforce-amp	Accept or drop packets by AMP enforcer, protocol should be TCP.
P-3	string	Source MAC address/'any'/asset name from the asset table
P-4	string	Target MAC address/'any'/asset name from the asset table
P-5	string	Source IP address/CIDR mask/'any'/asset name from asset table
P-6	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number
P-7	string	Target IP address/CIDR mask/'any'/asset name from asset table
P-8	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number
P-9	value	Ethertype
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBMSNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX-OLD
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	NOVELL
	pppoedisc	PPPOEDISC
	rarp	RARP
	pppoesess	PPPOESESS
	ipxnew	IPXNEW
	profinet	PROFINET
	powerlink	POWERLINK
	ethercat	ETHERCAT
	vlan8021q	IEEE802_1Q VLAN
P-10	string	Protocol Name from protocol table or tcp/udp/icmp/igmp/ipip/esp/ah/icmpv6/any
P-11	1..4042	Enter a VLAN ID in the given range.
P-12	0..7	Enter a Queue ID in the given range.
P-13	string	Rule description/name
P-14	0..32	Profile index 0 - 32
P-15	0..10000000	Committed rate value, specified in kbps or pps.
P-16	0..128	Committed burst size value, specified in kbytes or pps.
P-17	pps	Packets per second.
	kbps	kbytes per second.
P-18	0..255	Specify the IP TOS bits to match.
P-19	enable	Enable logging when applying the rule
	disable	Do not log applying the rule
P-20	enable	Enable sending a trap when applying the rule
	disable	Do not send a trap when applying the rule

- **no packet-filter l2 rule add**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no packet-filter l2 rule add action [src-mac] [dst-mac] [src-ip] [sourceport] [dest-ip] [destport] [ethertype] [proto] [vlan] [assign-queue] [description] [profile-index] [rate-limit] [tos] [log <P-19>] [trap <P-20>]`

33.1.18 packet-filter l2 rule modify

Modifies a rule to the L2 firewall table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 rule modify <P-1> [action <P-2>] [src-mac <P-3>] [dst-mac <P-4>] [src-ip <P-5>] [sourceport <P-6>] [dest-ip <P-7>] [destport <P-8>] [ethertype <P-9>] [proto <P-10>] [vlan <P-11>] [assign-queue <P-12>] [description <P-13>] [profile-index <P-14>] [rate-limit <P-15> <P-16> <P-17>] [tos <P-18>] [log <P-19>] [trap <P-20>]`

`[action]`: Set Action
`[src-mac]`: Specify the source MAC address/'any'/asset name from the asset table.
`[dst-mac]`: Specify the destination MAC address/'any'/asset name from the asset table.
`[src-ip]`: Specify the source IP address/CIDR mask/'any'/asset name from the asset table.
`[sourceport]`: Specify the source L4 port.
`[dest-ip]`: Specify the destination IP address/CIDR mask/'any'/asset name from the asset table.
`[destport]`: Specify the destination L4 port.
`[ethertype]`: Specify the Ethertype.
`[proto]`: Specify the protocol for the L2 firewall rule/user-defined protocol from the protocol table.
`[vlan]`: Specify the VLAN ID for L2 firewall rule.
`[assign-queue]`: Assign a user Queue.
`[description]`: Rule description/name for L2 firewall rule.
`[profile-index]`: Profile index of the DPI profile this rule is assigned to depending on enforcer action. Value 0 no profile this rule is assigned to. You cannot assign the rule to an inactive profile if an active enforcer will mapping to it.
`[rate-limit]`: Specify the rate limit and burst size.
`[tos]`: Specify TOS for L2 rule.
`[log]`: Set logging.
`[trap]`: Set sending SNMP traps.

Parameter	Value	Meaning
P-1	1..2048	Rule index
P-2	accept	Accept packets.
	drop	Drop packets without notification.
	enforce-modbus	Accept or drop packets by Modbus TCP/IP enforcer, protocol should be TCP or UDP.
	enforce-opc	Accept or drop packets by OPC enforcer, protocol should be TCP.
	enforce-iec104	Accept or drop packets by IEC104 enforcer, protocol should be TCP.
	enforce-ethernetip	Accept or drop packets by ENIP enforcer, protocol should be TCP.
	enforce-dnp3	Accept or drop packets by DNP3 enforcer, protocol should be TCP.
	enforce-amp	Accept or drop packets by AMP enforcer, protocol should be TCP.
P-3	string	Source MAC address/'any'/asset name from the asset table
P-4	string	Target MAC address/'any'/asset name from the asset table
P-5	string	Source IP address/CIDR mask/'any'/asset name from asset table
P-6	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number
P-7	string	Target IP address/CIDR mask/'any'/asset name from asset table
P-8	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number

Parameter	Value	Meaning
P-9	value	Ethertype
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBMSNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX-OLD
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	NOVELL
	pppoedisc	PPPOEDISC
	rarp	RARP
	pppoesess	PPPOESESS
	ipxnew	IPXNEW
	profinet	PROFINET
	powerlink	POWERLINK
	ethercat	ETHERCAT
	vlan8021q	IEEE802_1Q VLAN
P-10	string	Protocol Name from protocol table or tcp/udp/icmp/igmp/ipip/esp/ah/icmpv6/any
P-11	1..4042	Enter a VLAN ID in the given range
P-12	0..7	Enter a Queue ID in the given range.
P-13	string	Rule description/name
P-14	0..32	Profile index 0 - 32
P-15	0..10000000	Committed rate value, specified in kbps or pps.
P-16	0..128	Committed burst size value, specified in kbytes or pps.
P-17	pps	Packets per second.
	kbps	kbytes per second.
P-18	0..255	Specify the IP TOS bits to match.
P-19	enable	Enable logging when applying the rule
	disable	Do not log applying the rule
P-20	enable	Enable sending a trap when applying the rule
	disable	Do not send a trap when applying the rule

- **no packet-filter l2 rule modify**
  Disable the option
  - Mode: Global Config Mode
  - Privilege Level: Operator
  - Format: no packet-filter l2 rule modify [action] [src-mac] [dst-mac] [src-ip] [sourceport] [dest-ip] [destport] [ethertype] [proto] [vlan] [assign-queue] [description] [profile-index] [rate-limit] [tos] [log <P-19>] [trap <P-20>]

33.1.19 packet-filter l2 rule delete

Deletes a rule from L2 rule table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: packet-filter l2 rule delete <P-1>

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.20 packet-filter l2 rule enable

Enables a rule from L2 rule table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: packet-filter l2 rule enable <P-1>

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.21 packet-filter l2 rule disable

Disables a rule from L2 rule table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 rule disable <P-1>`

Parameter	Value	Meaning
P-1	1..2048	Rule index

33.1.22 packet-filter l2 if add

Adds an interface to a L2 firewall rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 if add <P-1> <P-2> <P-3> <P-4> <P-5>`

Parameter	Value	Meaning
P-1	port	Interface type to use is physical interface.
	vlan	Interface type to use is L2 VLAN.
P-2	1..4042	Interface ID for rule assignment.
P-3	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
P-4	1..2048	Rule index
P-5	0..4294967295	Priority

33.1.23 packet-filter l2 if delete

Deletes an interface of a L2 firewall rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 if delete <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	port	Interface type to use is physical interface.
	vlan	Interface type to use is L2 VLAN.
P-2	1..4042	Interface ID for rule assignment.
P-3	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
P-4	1..2048	Rule index

33.1.24 packet-filter l2 if enable

Enables an interface of a L2 firewall rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 if enable <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	port	Interface type to use is physical interface.
	vlan	Interface type to use is L2 VLAN.
P-2	1..4042	Interface ID for rule assignment.
P-3	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
P-4	1..2048	Rule index

33.1.25 packet-filter l2 if disable

Disables an interface of a L2 firewall rule.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `packet-filter l2 if disable <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	port	Interface type to use is physical interface.
	vlan	Interface type to use is L2 VLAN.
P-2	1..4042	Interface ID for rule assignment.
P-3	ingress	Rule applies on ingress direction.
	egress	Rule applies on egress direction.
P-4	1..2048	Rule index

33.2 clear

Clear several items.

33.2.1 clear fw-state-table

Clear Firewall connection tracking table.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `clear fw-state-table`

33.3 show

Display device options and settings.

33.3.1 show packet-filter l3 global

Display the packet-filter global information and settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 global`

33.3.2 show packet-filter l3 maxrules

Max. number of allowed rules in L3 rule table
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 maxrules`

33.3.3 show packet-filter l3 defaultpolicy

Default policy (accept(1), drop(2), reject(3))
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 defaultpolicy`

33.3.4 show packet-filter l3 ruletable

Display the L3 rule table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 ruletable`

33.3.5 show packet-filter l3 iftable

Display the L3 interface mapping table.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 iftable`

33.3.6 show packet-filter l3 pending

Display whether uncommitted changes for L3 exist.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l3 pending`

33.3.7 show packet-filter l2 global

Display the packet-filter global information and settings.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l2 global`

33.3.8 show packet-filter l2 rule

Display the L2 rule table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l2 rule`

33.3.9 show packet-filter l2 if

Display the L2 interface mapping table.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show packet-filter l2 if`

34 Protocol

34.1 protocol

Protocol configuration.

34.1.1 protocol add

Add a Protocol configuration to the protocol table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `protocol add <P-1> name <P-2> [description <P-3>] [protocol-type <P-4>] [ethertype <P-5>] [proto-number <P-6>] [port <P-7>]`

`name`: Specify the Protocol Name
`[description]`: Specify the Protocol Description
`[protocol-type]`: Specify the Protocol Type
`[ethertype]`: Specify the ethernet type
`[proto-number]`: Specify the Protocol number
`[port]`: Specify the Port

Parameter	Value	Meaning
P-1	1..50	Protocol Index
P-2	string	Protocol Name
P-3	string	Protocol Description
P-4	any	any protocol
	ethernet	ethernet protocol
	icmp	internet control message protocol
	tcp	transmission control protocol
	udp	user datagram protocol
P-5	value	Ethertype
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBMSNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX-OLD
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	NOVELL
	pppoedisc	PPPOEDISC
	rarp	RARP
	pppoesess	PPPOESESS
	ipxnew	IPXNEW
	profinet	PROFINET
	powerlink	POWERLINK
	ethercat	ETHERCAT
	vlan8021q	IEEE802_1Q VLAN
P-6	0..255.	Protocol Number
P-7	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number

34.1.2 protocol modify

Modifies a protocol configuration present in the protocol table.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `protocol modify <P-1> [name <P-2>] [description <P-3>] [protocol-type <P-4>] [ethertype <P-5>] [proto-number <P-6>] [port <P-7>]`

[name]: Specify the Protocol Name
[description]: Specify the Protocol Description
[protocol-type]: Specify the Protocol Type
[ethertype]: Specify the ethernet type
[proto-number]: Specify the Protocol Number
[port]: Specify the Port

Parameter	Value	Meaning
P-1	1..50	Protocol Index
P-2	string	Protocol Name
P-3	string	Protocol Description
P-4	any	any protocol
	ethernet	ethernet protocol
	icmp	internet control message protocol
	tcp	transmission control protocol
	udp	user datagram protocol
P-5	value	Ethertype
	appletalk	Appletalk
	arp	ARP
	ibmsna	IBMSNA
	ipv4	IPv4
	ipv6	IPv6
	ipx-old	IPX-OLD
	mplsmcast	MPLS Multicast
	mplsucast	MPLS Unicast
	netbios	NetBIOS
	novell	NOVELL
	pppoedisc	PPPOEDISC
	rarp	RARP
	pppoesess	PPPOESESS
	ipxnew	IPXNEW
	profinet	PROFINET
	powerlink	POWERLINK
	ethercat	ETHERCAT
	vlan8021q	IEEE802_1Q VLAN
P-6	0..255	Protocol Number
P-7	any	Any port/portless protocol
	a-b	Port Range
	a,b	Port List (may be longer than two ports)
	a-b, c-d	List of Port Ranges (may be longer than two ranges)
	1 to 65535	Port Number

34.1.3 protocol delete

Delete a protocol configurtion present in the protocol table.

- Mode: Global Config Mode
- Privilege Level: Operator
- Format: protocol delete <P-1>

Parameter	Value	Meaning
P-1	1..50	Protocol Index

34.2 show

Display device options and settings.

34.2.1 show protocol list

Display all configured protocol list

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show protocol list

35 Port Monitor

35.1 link-flap

Configure the link flap settings.

35.1.1 link-flap operation

Enable or disable the link flap.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `link-flap operation`

- **no link-flap operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no link-flap operation`

35.2 show

Display device options and settings.

35.2.1 show link-flap operation

Display the link flap operation.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show link-flap operation`

36 Password Management

36.1 passwords

Manage password policies and options.

36.1.1 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	1..64	Enter a number in the given range.

36.1.2 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.

36.1.3 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.

36.1.4 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.

36.1.5 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.

36.1.6 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.

36.1.7 passwords login-attempt-period

The time period [minutes] in which the number of failed authentication attempts is counted. Value 0 disables this functionality.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `passwords login-attempt-period <P-1>`

Parameter	Value	Meaning
`P-1`	0	Disables the counting.
	1..60	Enter a number in the given range.

36.2 show

Display device options and settings.

36.2.1 show passwords

Display the password policies and options.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show passwords`

37 Radius

37.1 radius

Configure RADIUS parameters.

37.1.1 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.`

37.1.2 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> [name <P-3>] [port <P-4>]`

`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`	string	`Enter a user-defined text, max. 32 characters.`
`P-4`	1..65535	`Enter port number between 1 and 65535`

37.1.3 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.`

37.1.4 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 <P-4>] [primary <P-5>] [status <P-6>] [secret [<P-7>]] [encrypted <P-8>]`

`[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.`
	disable	`Disable the option.`
`P-5`	enable	`Enable the option.`
	disable	`Disable the option.`

Parameter	Value	Meaning
P-6	enable	Enable the option.
	disable	Disable the option.
P-7	string	Enter a user-defined text, max. 128 characters.
P-8	string	Enter a user-defined text, max. 128 characters.

37.1.5 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).

37.1.6 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).

37.2 show

Display device options and settings.

37.2.1 show radius global

Display the global RADIUS configuration.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show radius global

37.2.2 show radius auth servers

Display the 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.

37.2.3 show radius auth statistics

Display the 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.

37.3 clear

Clear several items.

37.3.1 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.`

38 Remote Authentication

38.1 ldap

Configure LDAP settings.

38.1.1 ldap operation

Enable or disable the remote authentication operation.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap operation`

- **no ldap operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ldap operation`

38.1.2 ldap cache-timeout

Configure LDAP user cache entry timeout.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap cache-timeout <P-1>`

Parameter	Value	Meaning
P-1	1..1440	Enter a number in the given range.

38.1.3 ldap flush-user-cache

Flush LDAP user cache.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap flush-user-cache <P-1>`

Parameter	Value	Meaning
P-1	action	Flush the LDAP user cache.

38.1.4 ldap role-policy

Configure LDAP user role selection policy.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap role-policy <P-1>`

Parameter	Value	Meaning
P-1	highest	Use the role mapping with the highest user role.
	first	Use the first matching role mapping table entry.

38.1.5 ldap basedn

Base distinguished name for LDAP query at the external AD server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap basedn <P-1>`

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 255 characters.

38.1.6 ldap search-attr

Search attribute for LDAP query at the external AD server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap search-attr <P-1>`

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

38.1.7 ldap bind-user

Bind-account user name for LDAP query at the external AD server.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap bind-user <P-1>

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 255 characters.

38.1.8 ldap bind-passwd

Bind-account user password for LDAP query at the external AD server.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap bind-passwd <P-1>

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

38.1.9 ldap default-domain

Default domain used for users without a domain name.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap default-domain <P-1>

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

38.1.10 ldap client server add

Add a LDAP client server connection.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap client server add <P-1> <P-2> [port <P-3>] [security <P-4>] [description <P-5>]

[port]: Set the port number of the external LDAP server.
[security]: Set the security settings for the connection to external LDAP server.
[description]: Description of the external LDAP server.

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.
P-2	a.b.c.d	IP address.
P-3	1..65535	Port number of LDAP Server.
P-4	none	
	ssl	
	startTLS	
P-5	string	Enter a user-defined text, max. 100 characters.

38.1.11 ldap client server delete

Delete a LDAP client server connection.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap client server delete <P-1>

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.

38.1.12 ldap client server enable

Enable a LDAP client server connection.

- Mode: Global Config Mode
- Privilege Level: Administrator
- Format: ldap client server enable <P-1>

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.

38.1.13 ldap client server disable

Disable a LDAP client server connection.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap client server disable <P-1>`

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.

38.1.14 ldap client server modify

Modify a LDAP client server connection.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap client server modify <P-1> [addr <P-2>] [port <P-3>] [security <P-4>] [description <P-5>]`

`[addr]`: Modify the host address of the external LDAP server.
`[port]`: Modify the port number of the external LDAP server.
`[security]`: Modify the security settings for the connection to external LDAP server.
`[description]`: Modify the description of the external LDAP server.

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.
P-2	a.b.c.d	IP address.
P-3	1..65535	Port number of LDAP Server.
P-4	none	
	ssl	
	startTLS	
P-5	string	Enter a user-defined text, max. 100 characters.

38.1.15 ldap mapping add

Add a LDAP mapping entry.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ldap mapping add <P-1> access-role <P-2> mapping-type <P-3> mapping-parameter <P-4>`

`access-role`: Access role type.
`mapping-type`: Role mapping type.
`mapping-parameter`: Role mapping parameter.

Parameter	Value	Meaning
P-1	1..64	Enter a number in the given range.
P-2	slot no./port no.	
P-3	attribute	
	group	
P-4	string	Enter a user-defined text, max. 255 characters.

38.1.16 ldap mapping delete

Delete a LDAP role mapping entry.

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

Parameter	Value	Meaning
P-1	1..64	Enter a number in the given range.

38.1.17 ldap mapping enable

Activate a LDAP role mapping entry.

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

Parameter	Value	Meaning
P-1	1..64	Enter a number in the given range.

38.1.18 ldap mapping disable

Deactivate a LDAP role mapping entry.

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

Parameter	Value	Meaning
P-1	1..64	Enter a number in the given range.

38.2 show

Display device options and settings.

38.2.1 show ldap global

Display the LDAP configuration parameters and information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show ldap global`

38.2.2 show ldap client server

Display the LDAP client server connections.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show ldap client server [<P-1>]`

Parameter	Value	Meaning
P-1	1..4	Enter a number in the given range.

38.2.3 show ldap mapping

Display the LDAP role mapping entries.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show ldap mapping [<P-1>]`

Parameter	Value	Meaning
P-1	1..64	Enter a number in the given range.

38.3 copy

Copy different kinds of items.

38.3.1 copy ldapcacert remote

Copy CA certificate file (*.pem) from the remote AD server to the specified destination.

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

`nvm`: Copy CA certificate file (*.pem) from the remote AD server to the device.

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 128 characters.
P-2	string	Enter a user-defined text, max. 100 characters.

38.3.2 copy ldapcacert envm

Copy CA certificate file (*.pem) from external non-volatile memory to the specified destination.

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

`nvm`: Copy CA certificate file (*.pem) from external non-volatile memory to the device.

Parameter	Value	Meaning
P-1	string	Enter a user-defined text, max. 128 characters.
P-2	string	Enter a user-defined text, max. 100 characters.

39 Remote Monitoring (RMON)

39.1 show

Display device options and settings.

39.1.1 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.`	

40 Script File

40.1 script

CLI Script File.

40.1.1 script apply

Executes the CLI script file available in the device.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script apply <P-1>`

Parameter	Value	Meaning
`P-1`	string	Filename.

40.1.2 script validate

Only validates the CLI script file available in the device.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script validate <P-1>`

Parameter	Value	Meaning
`P-1`	string	Filename.

40.1.3 script list system

List all the script files available in the device memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script list system`

40.1.4 script list envm

List all the script files available in external non-volatile memory.
- Mode: `Privileged Exec Mode`
- Privilege Level: `Administrator`
- Format: `script list envm`

40.1.5 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	Filename.

40.2 copy

Copy different kinds of items.

40.2.1 copy script envm

Copy script file from external non-volatile memory to specified destination.
- 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 the running-config.
`nvm`: Copy script file from external non-volatile memory to the non-volatile memory.

Parameter	Value	Meaning
`P-1`	string	Filename.

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

40.2.2 copy script remote

Copy script file from server to specified destination.

- 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. 32 characters.

40.2.3 copy script nvm

Copy Script file from non-volatile memory to the specified 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-volatile memory device.
remote: Copy Script file to file server.

Parameter	Value	Meaning
P-1	string	Filename.
P-2	string	Enter a user-defined text, max. 32 characters.
P-3	string	Enter a user-defined text, max. 128 characters.

40.3 show

Display device options and settings.

40.3.1 show script envm

Display the content of the CLI script file present 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	Filename.

40.3.2 show script system

Display the content of the CLI script file present in the device.

- Mode: Command is in all modes available.
- Privilege Level: Administrator
- Format: show script system <P-1>

Parameter	Value	Meaning
P-1	string	Filename.

41 Selftest

41.1 selftest

Configure the selftest settings.

41.1.1 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.`
	resource	`Configure the action for lack of resources.`
	software	`Configure the action for broken software integrity.`
	hardware	`Configure the action for detected hardware errors.`
`P-2`	log-only	`Write a message to the logging file.`
	send-trap	`Send a trap to the management station.`
	reboot	`Reboot the device.`

41.1.2 selftest ramtest

Enable or 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: `selftest ramtest`

no selftest ramtest

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no selftest ramtest`

41.1.3 selftest system-monitor

Enable or 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 misconfiguration.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `selftest system-monitor`

no selftest system-monitor

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no selftest system-monitor`

41.1.4 selftest boot-default-on-error

Enable or 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: `selftest boot-default-on-error`

no selftest boot-default-on-error

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no selftest boot-default-on-error`

41.2 show

Display device options and settings.

41.2.1 show selftest action

Display the actions the device takes if an error occurs.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show selftest action`

41.2.2 show selftest settings

Display the selftest settings.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show selftest settings`

42 Small Form-factor Pluggable (SFP)

42.1 show

Display device options and settings.

42.1.1 show sfp

Display the information about the plugged 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.	

43 Signal Contact

43.1 signal-contact

Configure the signal contact settings.

43.1.1 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 associated manual setting (subcommand 'state').`
	monitor	`The signal contact's status is determined by the associated monitor settings.`
	device-status	`The signal contact's status is determined by the device status.`
	security-status	`The signal contact's status is determined by the security status.`
	dev-sec-status	`The signal contact's status is determined by the device status and security status.`

43.1.2 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`

43.1.3 signal-contact monitor envm-not-in-sync

Sets the monitoring whether the external non-volatile memory device is 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`

43.1.4 signal-contact monitor envm-removal

Sets the monitoring of the external non-volatile 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`

43.1.5 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`

43.1.6 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 <P-2>`

43.1.7 signal-contact state

Configure the Signal Contact manual state (only takes immediate 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 in the manual mode).`
	close	`Close the signal contact (only takes effect in the manual mode).`

43.1.8 signal-contact trap

Configure if a trap is sent when the Signal Contact changes 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`

43.2 signal-contact

Configure the signal contact interface settings.

43.2.1 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`

43.3 show

Display device options and settings.

43.3.1 show signal-contact

Display the 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 events all`

`mode`: Display the signal contact mode.
`monitor`: Display the signal contact monitor settings.
`state`: Display the signal contact state (open/close). Note: This covers the signal contact`s administrative setting 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 network ports.
`events`: Display the occurred device status events.
`all`: Display the signal contact settings for the specified signal contact.

Parameter	Value	Meaning
`P-1`	signal contact no.	

44 Simple Network Management Protocol (SNMP)

44.1 snmp

Configure of SNMP versions and traps.

44.1.1 snmp access version v1

Enable or disable SNMP version V1.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v1`

no snmp access version v1
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no snmp access version v1`

44.1.2 snmp access version v2

Enable or disable SNMP version V2.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v2`

no snmp access version v2
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no snmp access version v2`

44.1.3 snmp access version v3

Enable or disable SNMP version V3.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp access version v3`

no snmp access version v3
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no snmp access version v3`

44.1.4 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).`

44.2 show

Display device options and settings.

44.2.1 show snmp access

Display the SNMP access configuration settings.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show snmp access`

45 SNMP Community

45.1 snmp

Configure of SNMP versions and traps.

45.1.1 snmp community ro

SNMP v1/v2 read-only community.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp community ro`

45.1.2 snmp community rw

SNMP v1/v2 read-write community.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp community rw`

45.2 show

Display device options and settings.

45.2.1 show snmp community

Display the SNMP v1/2 community.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show snmp community`

46 SNMP Logging

46.1 logging

Logging configuration.

46.1.1 logging snmp-request get operation

Enable or disable logging of SNMP GET or SET requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request get operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable logging of SNMP GET or SET requests.
	disable	Disable logging of SNMP GET or SET requests.

no logging snmp-request get operation

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no logging snmp-request get operation <P-1>`

46.1.2 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.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug

46.1.3 logging snmp-request set operation

Enable or disable logging of SNMP GET or SET requests.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `logging snmp-request set operation <P-1>`

Parameter	Value	Meaning
P-1	enable	Enable logging of SNMP GET or SET requests.
	disable	Disable logging of SNMP GET or SET requests.

no logging snmp-request set operation

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no logging snmp-request set operation <P-1>`

46.1.4 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.
	alert	Action must be taken immediately. Unrecoverable failure of a component. System failure likely.
	critical	Recoverable failure of a component that may lead to system failure.
	error	Error conditions. Recoverable failure of a component.
	warning	Minor failure, e.g. misconfiguration of a component.
	notice	Normal but significant conditions.
	informational	Informational messages.
	debug	Debug-level messages.
	0	Same as emergency
	1	Same as alert
	2	Same as critical
	3	Same as error
	4	Same as warning
	5	Same as notice
	6	Same as informational
	7	Same as debug

46.2 show

Display device options and settings.

46.2.1 show logging snmp

Display the SNMP logging settings.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show logging snmp`

47 Secure Shell (SSH)

47.1 ssh

Set SSH parameters.

47.1.1 ssh server

Enable or disable the SSH server.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh server`

- **no ssh server**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ssh server`

47.1.2 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).

47.1.3 ssh port

Set the SSH server 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).

47.1.4 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.

47.1.5 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
	delete	Deletes the item

47.1.6 ssh key fingerprint-type

Configure fingerprint type
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ssh key fingerprint-type <P-1>`

Parameter	Value	Meaning
P-1	md5	Configure md5 fingerprint of the existing SSH host key
	sha256	Configure sha256 fingerprint of the existing SSH host key.

47.2 copy

Copy different kinds of items.

47.2.1 copy sshkey remote

Copy the SSH key from a server to the specified destination.

- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: copy sshkey remote <P-1> nvm

nvm: Copy the SSH key from a server to non-volatile memory.

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

47.2.2 copy sshkey envm

Copy the SSH key from external non-volatile memory to the specified destination.

- Mode: Privileged Exec Mode
- Privilege Level: Administrator
- Format: copy sshkey envm <P-1> nvm

nvm: Copy the SSH key from external non-volatile memory to non-volatile memory.

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

47.3 show

Display device options and settings.

47.3.1 show ssh

Display the SSH server and client information.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ssh

48 Storm Control

48.1 storm-control

Configure the global storm-control settings.

48.1.1 storm-control flow-control

Enable or disable flow control globally.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `storm-control flow-control`

- **no storm-control flow-control**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no storm-control flow-control`

48.2 storm-control

Storm control commands

48.2.1 storm-control flow-control

Enable or disable 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 the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no storm-control flow-control`

48.2.2 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.`
	pps	`Metering unit expressed in packets per second.`

48.2.3 storm-control ingress unicast operation

Enable/disable ingress storm control for unicast frames with unknown destination.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress unicast operation`

- **no storm-control ingress unicast operation**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no storm-control ingress unicast operation`

48.2.4 storm-control ingress unicast threshold

Set the threshold value for unicast frames with unknown destination.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress unicast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..14880000	`Enter a number in the given range. If the configured unit is percent enter a number in (0..100) range.`

48.2.5 storm-control ingress multicast operation

Enable/disable ingress storm control for multicast frames.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress multicast operation`

no storm-control ingress multicast operation

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no storm-control ingress multicast operation`

48.2.6 storm-control ingress multicast threshold

Set the threshold value for multicast frames.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress multicast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..14880000	`Enter a number in the given range. If the configured unit is percent enter a number in (0..100) range.`

48.2.7 storm-control ingress broadcast operation

Enable/disable ingress storm control for broadcast frames.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress broadcast operation`

no storm-control ingress broadcast operation

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no storm-control ingress broadcast operation`

48.2.8 storm-control ingress broadcast threshold

Set the threshold value for broadcast frames.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `storm-control ingress broadcast threshold <P-1>`

Parameter	Value	Meaning
`P-1`	0..14880000	`Enter a number in the given range. If the configured unit is percent enter a number in (0..100) range.`

48.3 show

Display device options and settings.

48.3.1 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`

48.3.2 show storm-control ingress

Display the 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.	

49 System

49.1 system

Set system related values e.g. name of the device, location of the device, contact data for the person responsible for the device, and pre-login banner text.

49.1.1 system name

Edit the name of the device. The system name consists of an alphanumeric ASCII character string with 0..255 characters.

- 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.

49.1.2 system location

Edit the location of the device. The system location consists of an alphanumeric ASCII character string with 0..255 characters.

- 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.

49.1.3 system contact

Edit the contact information for the person responsible for the device. The contact data consists of an alphanumeric ASCII character string with 0..255 characters.

- 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.

49.1.4 system pre-login-banner operation

Enable or disable the pre-login banner. You use the pre-login banner to display a greeting or information to users before they login to the device.

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `system pre-login-banner operation`

no system pre-login-banner operation
Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no system pre-login-banner operation`

49.1.5 system pre-login-banner text

Edit the text for the pre-login banner (C printf format syntax allowed: \n\t) The device allows you to edit an alphanumeric ASCII character string with up to 512 characters.

- 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 characters are from ASCII 32 to 127).

49.1.6 system resources operation

Enable or disable the measurement operation.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `system resources operation`

- **no system resources operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no system resources operation`

49.2 temperature

Configure the upper and lower temperature limits of the device. The device allows you to set the threshold as an integer from -99 through 99. You configure the temperatures in degrees Celsius.

49.2.1 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).`

49.2.2 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).`

49.3 hardware

The Hardware LAN bypass feature ensures that traffic passes freely between interface pairs when system is fully up and is running an Operating System or when system is in a shutdown state

49.3.1 hardware runtime-bypass

Enable or disable Run-time hardware LAN bypass.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `hardware runtime-bypass`

- **no hardware runtime-bypass**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no hardware runtime-bypass`

49.3.2 hardware systemoff-bypass

Enable or disable System-off hardware LAN bypass.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `hardware systemoff-bypass`

- **no hardware systemoff-bypass**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no hardware systemoff-bypass`

49.4 show

Display device options and settings.

49.4.1 show eventlog

Display the event log notice and warning entries with time stamp.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show eventlog`

49.4.2 show system info

Display the system related information.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system info`

49.4.3 show system pre-login-banner

Display the pre-login banner status and text.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system pre-login-banner`

49.4.4 show system flash-status

Display the flash memory statistics of the device.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system flash-status`

49.4.5 show system temperature limits

Display the temperature limits.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system temperature limits`

49.4.6 show system temperature extremes

Display the minimum and maximum recorded temperature.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system temperature extremes`

49.4.7 show system temperature histogram

Display the temperature histogram of the device.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system temperature histogram`

49.4.8 show system temperature counters

Display number of 20 centigrade C variations in maximum one hour period.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system temperature counters`

49.4.9 show system resources

Display the system resources information (CPU utilization, memory and network CPU utilization).

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show system resources`

49.4.10 show hardware runtime-bypass

Display runtime-bypass state of hardware bypass.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show hardware runtime-bypass`

49.4.11 show hardware systemoff-bypass

Display systemoff-bypass state of hardware bypass.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show hardware systemoff-bypass`

50 Tracking

50.1 track

Configure tracking instances on the device.

50.1.1 track add

Create a tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track add <P-1> <P-2>`

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.

50.1.2 track delete

Delete a tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track delete <P-1> <P-2>`

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.

50.1.3 track enable

Activate a tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track enable <P-1> <P-2>`

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.

50.1.4 track disable

Deactivate a tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track disable <P-1> <P-2>`

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.

50.1.5 track trap

Enable / Disable the StateChange trap for the corresponding tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track trap <P-1> <P-2>`

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.

- **no track trap**
  Disable the option
  - Mode: Global Config Mode
  - Privilege Level: Operator
  - Format: no track trap <P-1> <P-2>

50.1.6 track description

Set the description for the corresponding tracking instance.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: track description <P-1> <P-2> <P-3>

Parameter	Value	Meaning
P-1	interface	interface tracking
	ping	ping tracking
	logical	logical tracking
P-2	1..256	Enter a number in the given range.
P-3	string	Enter a user-defined text, max. 255 characters.

50.1.7 track modify interface

Modify the configuration of an interface tracking instance.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: track modify interface <P-1> [interface <P-2>] [linkup-delay <P-3>] [linkdown-delay <P-4>]

[interface]: Set the interface number of the interface tracking instance.
[linkup-delay]: Set the linkup-delay of the interface tracking instance
[linkdown-delay]: Set the linkdown-delay of the interface tracking instance

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	slot no./port no.	
P-3	0..255	Enter a number in the given range.
P-4	0..255	Enter a number in the given range.

50.1.8 track modify ping

Modify the configuration of a ping tracking instance.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: track modify ping <P-1> <P-2> [interface <P-2>][address <P-3>]
  [interval <P-4>] [miss <P-5>] [success <P-6>] [timeout <P-7>] [ttl <P-8>]
  [interface]: Set the source interface number of the ping tracking instance.
  [address]: Set the address of the router to be monitored.
  [interval]: Set the number of milliseconds between the pings to the target router address.
  [miss]: Set the number of consecutive ping misses until the tracked object is considered to be down.
  [success]: Set the of consecutive ping successes until the tracked object is considered to be up.
  [timeout]: Set the timeout in milliseconds for a ping reply.
  [ttl]: Set the time to live for a ping request packet.

Parameter	Value	Meaning
P-1	slot no./port no.	
P-2	slot no./port no.	
P-3	a.b.c.d	IP address.
P-4	100..20000	value for ping tracking interval range between 100 and 20000.
P-5	1..10	value for ping tracking interval range between 1 and 10.
P-6	1..10	value for ping tracking range between 1 and 10.
P-7	10..10000	value for ping tracking time range between 10 and 10000.
P-8	1..255	Enter a number in the given range.

50.1.9 track modify logical

Modify the configuration of a logical tracking instance.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `track modify logical <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
`P-1`	slot no./port no.	
`P-2`	string	Track instance.
`P-3`	and	`AND operator`
	or	`OR operator`
`P-4`	string	Track instance.

50.2 show

Display device options and settings.

50.2.1 show track overview

Display the information and settings for the tracking instances.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show track overview`

50.2.2 show track interface

Display the information and settings for the interface tracking instances.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show track interface [<P-1>]`

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

50.2.3 show track ping

Display the information and settings for the ping tracking instances.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show track ping [<P-1>]`

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

50.2.4 show track logical

Display the information and settings for the logical tracking instances.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show track logical [<P-1>]`

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

50.2.5 show track application

Display the information on tracking application registrations.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show track application`

51 L3 Relay

51.1 ip

Set IP parameters.

51.1.1 ip udp-helper operation

Enable or disable the IP helper and DHCP relay.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper operation`

- **no ip udp-helper operation**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip udp-helper operation`

51.1.2 ip udp-helper server add

Add a global relay agent to process DHCP client requests and UDP broadcast packets received on any interface.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server add <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.1.3 ip udp-helper server delete

Delete a global relay agent.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.1.4 ip udp-helper server enable

Enable a global relay agent to process DHCP client requests and UDP broadcast packets received on any interface.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server enable <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.1.5 ip udp-helper server disable

Disable a global relay agent from processing DHCP client requests and UDP broadcast packets received on any interface.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server disable <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.1.6 ip udp-helper maxhopcount

Configure the DHCP relay maximum hop count.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper maxhopcount <P-1>`

Parameter	Value	Meaning
`P-1`	1..16	`Enter a number in the given range.`

51.1.7 ip udp-helper minwaittime

Configure DHCP relay minimum wait time in seconds.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper minwaittime <P-1>`

Parameter	Value	Meaning
`P-1`	0..100	`Enter a number in the given range.`

51.1.8 ip udp-helper cidoptmode

Enable or disable DHCP relay circuit id option mode.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper cidoptmode`

no ip udp-helper cidoptmode
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip udp-helper cidoptmode`

51.2 ip

IP interface commands.

51.2.1 ip udp-helper server add

Add a relay agent to process DHCP client requests and UDP broadcast packets received on a specific interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server add <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.2.2 ip udp-helper server delete

Delete a relay agent from a specific interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server delete <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.
`P-2`	A.B.C.D	`IP address.`

51.2.3 ip udp-helper server enable

Enable a relay agent to process DHCP client requests and UDP broadcast packets received on a specific interface.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip udp-helper server enable <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	dhcp	DHCP server port number.

Parameter	Value	Meaning
P-2	A.B.C.D	IP address.

51.2.4 ip udp-helper server disable

Disable a relay agent from processing DHCP client requests and UDP broadcast packets received on a specific interface.

- Mode: Interface Range Mode
- Privilege Level: Operator
- Format: ip udp-helper server disable <P-1> <P-2>

Parameter	Value	Meaning
P-1	dhcp	DHCP server port number.
P-2	A.B.C.D	IP address.

51.3 show

Display device options and settings.

51.3.1 show ip udp-helper status

Display the IP helper and DHCP relay status information.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ip udp-helper status

51.3.2 show ip udp-helper global

Display the DHCP and UDP relays defined globally.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ip udp-helper global

51.3.3 show ip udp-helper interface

Display the DHCP and UDP relays defined for specific interfaces.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ip udp-helper interface [<P-1>]

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

51.3.4 show ip udp-helper statistics

Display the IP helper and DHCP relay statistics.

- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ip udp-helper statistics

51.4 clear

Clear several items.

51.4.1 clear ip udp-helper

Reset IP helper and DHCP relay statistics.

- Mode: Privileged Exec Mode
- Privilege Level: Operator
- Format: clear ip udp-helper

52 Traps

52.1 snmp

Configure of SNMP versions and traps.

52.1.1 snmp trap operation

Global enable/disable SNMP trap.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp trap operation`

no snmp trap operation
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no snmp trap operation`

52.1.2 snmp trap mode

Enable/disable SNMP trap entry.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `snmp trap mode <P-1>`

Parameter	Value	Meaning
`P-1`	string	`<name> Trap name (1 to 32 characters)`

no snmp trap mode
Disable the option
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `no snmp trap mode <P-1>`

52.1.3 snmp trap delete

Delete SNMP trap entry.
- 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)`

52.1.4 snmp trap add

Add SNMP trap entry.
- 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`	a.b.c.d	`a.b.c.d Single IP address.`
	a.b.c.d:n	`a.b.c.d:n Address with port.`

52.2 show

Display device options and settings.

52.2.1 show snmp traps

Display the SNMP traps.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show snmp traps`

53 Unicast Routing

53.1 routing

Create routing on VLAN.

53.1.1 routing add

Enable routing on VLAN
- Mode: `VLAN Database Mode`
- Privilege Level: `Operator`
- Format: `routing add <P-1>`

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

53.1.2 routing delete

Disable routing on VLAN
- Mode: `VLAN Database Mode`
- Privilege Level: `Operator`
- Format: `routing delete <P-1>`

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

53.2 ip

Set IP parameters.

53.2.1 ip routing

Enables or disables Routing globally on the device.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip routing`

- **no ip routing**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Operator`
  - Format: `no ip routing`

53.2.2 ip proxy-arp max-delay

Configure the maximum time a Proxy ARP response can be delayed
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip proxy-arp max-delay <P-1>`

Parameter	Value	Meaning
P-1	0..1000	Enter Proxy ARP max response delay ms

53.3 show

Display device options and settings.

53.3.1 show ip global

Display the summary information of the IP, including the ICMP rate limit configuration and the global ICMP Redirect configuration.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip global`

53.4 show

Display device options and settings.

53.4.1 show ip interface

Display the interface parameters.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip interface [<P-1>]`

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

53.4.2 show ip statistics

Display the global IP statistics.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip statistics`

53.5 ip

IP interface commands.

53.5.1 ip routing

This command enables/disables routing for an interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip routing`

no ip routing
Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip routing`

53.5.2 ip proxy-arp operation

Enables or disables Proxy ARP on the interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip proxy-arp operation`

no ip proxy-arp operation
Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip proxy-arp operation`

53.5.3 ip address secondary

Designates whether an IP Address is a secondary address on this interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip address secondary <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	IP address.
`P-2`	a.b.c.d	IP subnet mask.

no ip address secondary

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip address secondary <P-1>`

53.5.4 ip address primary

Designates whether an IP Address is a primary address on this interface.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip address primary <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	IP address.
`P-2`	a.b.c.d	IP subnet mask.

no ip address primary

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip address primary`

53.5.5 ip mtu

Set MTU size for IP protocol

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip mtu <P-1>`

Parameter	Value	Meaning
`P-1`	68..12266	`Set the MTU value.`

53.5.6 ip icmp redirects

Enables or disables the generation of ICMP Redirect messages.

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `ip icmp redirects`

no ip icmp redirects

Disable the option

- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `no ip icmp redirects`

53.6 ip

Set IP parameters.

53.6.1 ip route add

Add a static route entry.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route add <P-1> <P-2> <P-3> [preference <P-4>]`

`[preference]`: Change the preference value of a route.

Parameter	Value	Meaning
P-1	A.B.C.D	IPv4 address.
P-2	A.B.C.D	IPv4 netmask address.
P-3	A.B.C.D	Next hop IP address.
P-4	1..255	Enter a number in the given range.

53.6.2 ip route modify

Modify a static route entry.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route modify <P-1> <P-2> <P-3> [preference <P-4>]`

`[preference]`: Change the preference value of a route.

Parameter	Value	Meaning
P-1	A.B.C.D	IPv4 address.
P-2	A.B.C.D	IPv4 netmask address.
P-3	A.B.C.D	Next hop IP address.
P-4	1..255	Enter a number in the given range.

53.6.3 ip route delete

Delete a static route entry.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route delete <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	A.B.C.D	IPv4 address.
P-2	A.B.C.D	IPv4 netmask address.
P-3	A.B.C.D	Next hop IP address.

53.6.4 ip route distance

Default preference for static routes.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route distance <P-1>`

Parameter	Value	Meaning
P-1	1..255	Enter a number in the given range.

53.6.5 ip route track add

Add a track-id for a static route entry.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route track add <P-1> <P-2> <P-3> <P-4>`

Parameter	Value	Meaning
P-1	A.B.C.D	IPv4 address.
P-2	A.B.C.D	IPv4 netmask address.
P-3	A.B.C.D	Next hop IP address.
P-4	string	Track instance.

53.6.6 ip route track delete

Remove a track-id for a static route entry.
- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip route track delete <P-1> <P-2> <P-3>`

Parameter	Value	Meaning
P-1	A.B.C.D	IPv4 address.
P-2	A.B.C.D	IPv4 netmask address.

Parameter	Value	Meaning
P-3	A.B.C.D	Next hop IP address.

53.6.7 ip default-route add

Add a static default route entry.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip default-route add <P-1> [preference <P-2>]

[preference]: Change the preference value of a route.

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	1..255	Enter a number in the given range.

53.6.8 ip default-route modify

Modify a static default route entry.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip default-route modify <P-1> preference <P-2>

preference: Change the preference value of a route.

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	1..255	Enter a number in the given range.

53.6.9 ip default-route delete

Delete a static default route entry.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip default-route delete <P-1>

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.

53.6.10 ip default-route track add

Add a track-id for a static route entry.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip default-route track add <P-1> <P-2>

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.
P-2	string	Track instance.

53.6.11 ip default-route track delete

Remove a track-id for a static route entry.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip default-route track delete <P-1>

Parameter	Value	Meaning
P-1	A.B.C.D	IP address.

53.6.12 ip loopback add

Enable a loopback interface.
- Mode: Global Config Mode
- Privilege Level: Operator
- Format: ip loopback add <P-1>

Parameter	Value	Meaning
P-1	1..8	Enter the loopback id in the given range.

53.6.13 ip loopback delete

Disable a loopback interface.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip loopback delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..8	`Enter the loopback id in the given range.`

53.6.14 ip icmp redirects

Enables or disables the generation of ICMP Redirect messages.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip icmp redirects`

no ip icmp redirects

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip icmp redirects`

53.6.15 ip icmp echo-reply

Enables or disables the generation of ICMP Echo Reply messages.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip icmp echo-reply`

no ip icmp echo-reply

Disable the option

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `no ip icmp echo-reply`

53.6.16 ip icmp rate-limit interval

Configure ICMP rate limit interval in milliseconds.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip icmp rate-limit interval <P-1>`

Parameter	Value	Meaning
`P-1`	0..2147483647	`configure the interval.`

53.6.17 ip icmp rate-limit burst-size

Configure ICMP rate limit burst size.

- Mode: `Global Config Mode`
- Privilege Level: `Operator`
- Format: `ip icmp rate-limit burst-size <P-1>`

Parameter	Value	Meaning
`P-1`	1..200	`configure the burst-size.`

53.7 show

Display device options and settings.

53.7.1 show ip route all

Display the static, dynamic and local routes.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip route all`

53.7.2 show ip route local

Display the local routes.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip route local`

53.7.3 show ip route static

Display the static routes.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip route static`

53.7.4 show ip route entry

Display the router route entry information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip route entry <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IPv4 address.`
`P-2`	A.B.C.D	`IPv4 netmask address.`

53.7.5 show ip route tracking

Display the tracking information for static routes.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip route tracking`

53.7.6 show ip entry

Display the router route entry information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ip entry <P-1>`

Parameter	Value	Meaning
`P-1`	A.B.C.D	`IP address.`

54 Users

54.1 users

Manage Users and User Accounts.

54.1.1 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).

54.1.2 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).

54.1.3 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).

54.1.4 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).

54.1.5 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.

54.1.6 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.
	sha1	SHA1 as SNMPv3 user authentication mode.

54.1.7 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.
	des	DES as SNMPv3 encryption method.
	aescfb128	AES-128 as SNMPv3 encryption method.

54.1.8 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	slot no./port no.	

54.1.9 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	unlock	Unlock specific user. User can login again.

54.1.10 users password-policy-check

Set password policy check option. The device checks the "minimum password length", regardless of the setting for this 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.
	disable	Disable the option.

54.2 show

Display device options and settings.

54.2.1 show users

Display the users and user accounts information.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show users`

55 Virtual LAN (VLAN)

55.1 name

55.1.1 name

Assign a name to a VLAN
- Mode: `VLAN Database Mode`
- Privilege Level: `Operator`
- Format: `name <P-1> <P-2>`

Parameter	Value	Meaning
`P-1`	1..4042	`Enter the VLAN ID.`
`P-2`	string	`Enter a user-defined text, max. 32 characters.`

55.2 vlan

Creation and configuration of VLANS.

55.2.1 vlan add

Create a VLAN
- Mode: `VLAN Database Mode`
- Privilege Level: `Operator`
- Format: `vlan add <P-1>`

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

55.2.2 vlan delete

Delete a VLAN
- Mode: `VLAN Database Mode`
- 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`

55.3 vlan

Configure 802.1Q port parameters for VLANs.

55.3.1 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 assigned the value of the interface VLAN ID for this port.`
	vlanonly	`Only frames received with a VLAN tag will be forwarded. All other frames will be dropped.`

55.3.2 vlan ingressfilter

Enable/Disable application of Ingress Filtering Rules.
- Mode: `Interface Range Mode`
- Privilege Level: `Operator`
- Format: `vlan ingressfilter`

- **no vlan ingressfilter**
  Disable the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no vlan ingressfilter`

55.3.3 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.

55.3.4 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.

55.3.5 vlan tagging

Enable or disable 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 the option
  - Mode: `Interface Range Mode`
  - Privilege Level: `Operator`
  - Format: `no vlan tagging <P-1>`

55.3.6 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.

55.3.7 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.

55.3.8 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.

55.4 show

Display device options and settings.

55.4.1 show vlan id

Display the 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.`

55.4.2 show vlan brief

Display the general VLAN parameters.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show vlan brief`

55.4.3 show vlan port

Display the 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.	

55.4.4 show vlan member current

Display the membership of ports in static VLAN or dynamically created.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show vlan member current`

55.4.5 show vlan member static

Display the membership of ports in static VLAN.
- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show vlan member static`

55.5 network

Configure the inband and outband connectivity.

55.5.1 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.`

55.5.2 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.`

55.5.3 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.`

56 Virtual Private Network (VPN)

56.1 ipsec

Configure IPsec VPN settings.

56.1.1 ipsec certificate delete

Delete a certificate uploaded to the device.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec certificate delete <P-1>`

Parameter	Value	Meaning
`P-1`	1..100	`Certificate Table Index.`

56.1.2 ipsec certificate upload passphrase

Passphrase that will be used to decrypt the next uploaded file, before storing on the device (note: will not be stored after the next upload, no matter if it is used or not!)
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec certificate upload passphrase <P-1>`

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

56.1.3 ipsec connection add

Add a IPsec VPN connection (use next free index if none submitted).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec connection add <P-1> [name <P-2>]`

`[name]`: IPsec VPN connection name.

Parameter	Value	Meaning
`P-1`	1..256	`VPN connection index.`
`P-2`	string	`Enter a user-defined text, max. 128 characters.`

56.1.4 ipsec connection modify

Modify a IPsec VPN connection (index in connection is mandatory).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec connection modify <P-1> name <P-2> certificate ca add <P-3> clear local <P-4> [remote <P-5>] [privkey <P-6>] [passphrase <P-7>] debug informational <P-8> not-handled <P-9> access [method <P-10>] [pre-shared-key <P-11>] [local-type <P-12>] [local-id <P-13>] [remote-type <P-14>] [remote-id <P-15>] key-exchange mode [protocol <P-16>] [startup <P-17>] [dpd-timeout <P-18>] [lifetime <P-19>] [exchange-mode <P-20>] [margintime <P-21>] [re-authenticate <P-22>] algorithms [key-agreement <P-23>] [integrity <P-24>] [encryption <P-25>] endpoints [local-address <P-26>] [remote-address <P-27>] data-exchange mode [lifetime <P-28>] algorithms [key-agreement <P-29>] [integrity <P-30>] [encryption <P-31>]`

`name`: IPsec VPN connection name.
`certificate`: Manage certificates for this connection.
`ca`: Set the CA certificate file name(s). Also supports comma-separated chains.
`add`: Add a CA file name to the current connection.
`clear`: Remove all the CA file names added to the current connection.
`local`: Set the file name of the certificate that will identify the current device.
`[remote]`: Set the file name of the certificate that will identify the remote device.
`[privkey]`: Set the file name of the private key (if it is encrypted and cannot be automatically matched to the certificate).
`[passphrase]`: Set the passphrase to be used with an encrypted private key or PKCS12 encrypted container (warning: will be stored in the config!).
`debug`: IPsec VPN connection additonal debugging information to event log.

informational: Enable or disable debug of informational messages.
not-handled: Enable or disable debug of not handled messages.
access: IPsec VPN access.
[method]: Authentication method to be used.
[pre-shared-key]: Preshared key (passphrase).
[local-type]: Type of local peer identifier.
[local-id]: Local peer identifier.
[remote-type]: Type of remote peer identifier.
[remote-id]: Remote peer identifier.
key-exchange: Key exchange parameters.
mode: Key exchange mode.
[protocol]: Version of the key exchange protocol.
[startup]: Key exchange at startup.
[dpd-timeout]: Dead peer detection timeout.
[lifetime]: IKE security association lifetime.
[exchange-mode]: IKE exchange mode.
[margintime]: IKE and IPsec margintime for re-keying before timeout.
[re-authenticate]: Re-authenticate at end of IKE lifetime (IKEv2 only).
algorithms: Key exchange algorithms.
[key-agreement]: Key agreement algorithm to be used.
[integrity]: Integrity (MAC) algorithm to be used in IKEv2.
[encryption]: Encryption algorithm to be used.
endpoints: IPsec VPN tunnel endpoints.
[local-address]: Address of local security gateway.
[remote-address]: Address of remote security gateway.
data-exchange: Data exchange parameters.
mode: Data exchange mode.
[lifetime]: Lifetime of IPsec SA.
algorithms: Data exchange algorithms.
[key-agreement]: Key agreement algorithm to be used.
[integrity]: Integrity (MAC) algorithm to be used in IPsec.
[encryption]: Algorithm to be used for IPsec payload encryption.

Parameter	Value	Meaning
P-1	1..256	VPN connection index.
P-2	string	Enter a user-defined text, max. 128 characters.
P-3	string	Filename.
P-4	string	Filename.
P-5	string	Filename.
P-6	string	Filename.
P-7	string	Enter a user-defined text, max. 128 characters.
P-8	debug_inform	debug informational
P-9	debug_unhandled	debug unhandled
P-10		
	psk	Pre-shared key.
	x509rsa	Individual X.509 RSA certificates.
	pkcs12	Single PKCS12 file with all certificates (including CA).
P-11	string	Enter a user-defined text, max. 128 characters.
P-12		
	default	Local IPv4 address.
	address	IPv4 address or host name (use from address field).
	id	Use identifier.
P-13	string	Enter a user-defined text, max. 255 characters.
P-14		
	any	Not checked.
	address	IPv4 address or host name (use from address field).
	id	Use identifier.
P-15	string	Enter a user-defined text, max. 255 characters.
P-16		
	auto	Accept IKEv1/v2 as responder, start with IKEv2 as initiator.
	v1	IKE version 1 (ISAKMP).
	v2	IKE version 2.

Parameter	Value	Meaning
P-17		
	initiator	Initiates an IKE at startup.
	responder	Peer starts the IKE initiation.
P-18	0..86400	Interval between liveness messages in seconds, 0 to disable.
P-19	300..86400	Lifetime of IKE SA in seconds (Max. 24h).
P-20		
	main	Initiates or Accepts main mode only.
	aggressive	Initiates or Accepts aggressive mode.
P-21	1..1800	Margintime for re-keying before timeout.
P-22	true	True
	false	False
P-23		
	any	Accept all algorithms as responder, use default as initiator.
	modp1024	RSA with 1024 bits modulus (DH Group 2).
	modp1536	RSA with 1536 bits modulus (DH Group 5).
	modp2048	RSA with 2048 bits modulus (DH Group 14).
	modp3072	RSA with 3072 bits modulus (DH Group 15).
	modp4096	RSA with 4096 bits modulus (DH Group 16).
	ecp256	NIST Elliptic Curve with 256 bits (DH Group 19).
	ecp384	NIST Elliptic Curve with 384 bits (DH Group 20).
	ecp521	NIST Elliptic Curve with 521 bits (DH Group 21).
P-24		
	any	Accept all algorithms as responder, use default as initiator.
	hmacmd5	HMAC-MD5
	hmacsha1	HMAC-SHA1
	hmacsha256	HMAC-SHA256
	hmacsha384	HMAC-SHA384
	hmacsha512	HMAC-SHA512
P-25		
	any	Accept all algorithms as responder, use default as initiator.
	des	DES
	des3	Triple-DES
	aes128	AES with 128 key bits.
	aes192	AES with 192 key bits.
	aes256	AES with 256 key bits.
P-26	any	Use the primary IP address of external interface.
	a.b.c.d	a.b.c.d IP address.
	nu,nu-nu	host.name.domain FQDN
P-27	any	Use the primary IP address of external interface.
	a.b.c.d	a.b.c.d IP address.
	nu,nu-nu	host.name.domain FQDN
P-28	300..28800	Lifetime of IPsec SA in seconds (Max. 8h).
P-29		
	any	Accept all algorithms as responder, use default as initiator.
	modp1024	RSA with 1024 bits modulus (DH Group 2).
	modp1536	RSA with 1536 bits modulus (DH Group 5).
	modp2048	RSA with 2048 bits modulus (DH Group 14).
	modp3072	RSA with 3072 bits modulus (DH Group 15).
	modp4096	RSA with 4096 bits modulus (DH Group 16).
	none	No perfect forward secrecy.
	ecp256	NIST Elliptic Curve with 256 bits (DH Group 19).
	ecp384	NIST Elliptic Curve with 384 bits (DH Group 20).
	ecp521	NIST Elliptic Curve with 521 bits (DH Group 21).
P-30		
	any	Accept all algorithms as responder, use default as initiator.
	hmacmd5	HMAC-MD5
	hmacsha1	HMAC-SHA1
	hmacsha256	HMAC-SHA256
	hmacsha384	HMAC-SHA384
	hmacsha512	HMAC-SHA512

Parameter	Value	Meaning
P-31		
	any	Accept all algorithms as responder, use default as initiator.
	des	DES
	des3	Triple-DES
	aes128	AES with 128 key bits.
	aes192	AES with 192 key bits.
	aes256	AES with 256 key bits.
	aes128ctr	AES-COUNTER with 128 key bits.
	aes192ctr	AES-COUNTER with 192 key bits.
	aes256ctr	AES-COUNTER with 256 key bits.
	aes128gcm64	AES-GCM with 64 bit ICV with 128 key bits.
	aes128gcm96	AES-GCM with 96 bit ICV with 128 key bits.
	aes128gcm128	AES-GCM with 128 bit ICV with 128 key bits.
	aes192gcm64	AES-GCM with 64 bit ICV with 192 key bits.
	aes192gcm96	AES-GCM with 96 bit ICV with 192 key bits.
	aes192gcm128	AES-GCM with 128 bit ICV with 192 key bits.
	aes256gcm64	AES-GCM with 64 bit ICV with 256 key bits.
	aes256gcm96	AES-GCM with 96 bit ICV with 256 key bits.
	aes256gcm128	AES-GCM with 128 bit ICV with 256 key bits.

- **no ipsec connection modify**
  Disable the option
  - Mode: `Global Config Mode`
  - Privilege Level: `Administrator`
  - Format: `no ipsec connection modify name certificate ca add clear local [remote] [privkey] [passphrase] debug informational <P-8> not-handled <P-9> access [method] [pre-shared-key] [local-type] [local-id] [remote-type] [remote-id] key-exchange mode [protocol] [startup] [dpd-timeout] [lifetime] [exchange-mode] [margintime] [re-authenticate] algorithms [key-agreement] [integrity] [encryption] endpoints [local-address] [remote-address] data-exchange mode [lifetime] algorithms [key-agreement] [integrity] [encryption]`

56.1.5 ipsec connection status

Enable or disable a IPsec VPN connection (index in connection is mandatory).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec connection status <P-1> <P-2>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.
P-2	enable	Enable the option.
	disable	Disable the option.

56.1.6 ipsec connection delete

Delete a IPsec VPN connection (index in connection is mandatory).
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec connection delete <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.1.7 ipsec traffic-selector

IPsec VPN traffic selectors.
- Mode: `Global Config Mode`
- Privilege Level: `Administrator`
- Format: `ipsec traffic-selector <P-1> add <P-2> [name <P-3>] delete <P-4> modify <P-5> [name <P-6>] [source-net <P-7>] [source-restriction <P-8>] [dest-net <P-9>] [dest-restriction <P-10>] status <P-11> <P-12>`

`add`: Add new traffic selector.
`[name]`: Traffic selector ID.
`delete`: Delete an existing traffic selector.
`modify`: Modify an existing traffic selector.

[name]: Traffic selector ID.
[source-net]: Source address for the traffic selector.
[source-restriction]: Source restriction for the traffic selector
[dest-net]: Destination address for the traffic selector.
[dest-restriction]: Destination restriction for the traffic selector.
status: Enable or disable an existing traffic selector.

Parameter	Value	Meaning
P-1	1..256	VPN connection index.
P-2	1..16	Index of the traffic selector (unique inside of a IPsec VPN connection).
P-3	string	Enter a user-defined text, max. 128 characters.
P-4	1..16	Index of the traffic selector (unique inside of a IPsec VPN connection).
P-5	1..16	Index of the traffic selector (unique inside of a IPsec VPN connection).
P-6	string	Enter a user-defined text, max. 128 characters.
P-7	a.b.c.d	a.b.c.d Single IP address.
	a.b.c.d	a.b.c.d Address range in CIDR notation.
	any	Any IP address.
P-8	string	'protocol/port' Traffic selector restriction can be given as string, e.g. tcp/http or can be given as numbers, e.g. 6/80 (=tcp/http)'protocol/port' Traffic selector restriction can be given as string, e.g. http (= any/http) or can be given as numbers,e.g. /53 (= any/53) 'protocol/port 'Traffic selector restriction can be given as string, e.g. udp (= udp/any) or can be given as numbers, e.g. 17 (= 17(udp)/any) an empty restriction '' means to have no restriction (any/any)
P-9	a.b.c.d	a.b.c.d Single IP address.
	a.b.c.d	a.b.c.d Address range in CIDR notation.
	any	Any IP address.
P-10	string	'protocol/port' Traffic selector restriction can be given as string, e.g. tcp/http or can be given as numbers, e.g. 6/80 (=tcp/http)'protocol/port' Traffic selector restriction can be given as string, e.g. http (= any/http) or can be given as numbers, e.g. /53 (= any/53)'protocol/port' Traffic selector restriction can be given as string, e.g. udp (= udp/any) or can be given as numbers, e.g. 17 (= 17(udp)/any) an empty restriction '' means to have no restriction (any/any)
P-11	1..256	Index of the traffic selector (unique inside of a IPsec VPN connection).
P-12	enable	Enable the option.
	disable	Disable the option.

56.2 show

Display device options and settings.

56.2.1 show ipsec general

General IPsec VPN settings.
- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ipsec general

56.2.2 show ipsec connections summary

Overview of all configured connections.
- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ipsec connections summary

56.2.3 show ipsec connections access

IPsec connection access settings.
- Mode: Command is in all modes available.
- Privilege Level: Guest
- Format: show ipsec connections access <P-1>

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.4 show ipsec connections certificates

IPsec connection certificates.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec connections certificates <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.5 show ipsec connections key-exchange

IPsec connection key exchange settings (IKE).

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec connections key-exchange <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.6 show ipsec connections data-exchange

IPsec connection data exchange settings.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec connections data-exchange <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.7 show ipsec connections status

IPsec connection status.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec connections status <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.8 show ipsec connections tunnels

IPsec connection tunnels.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec connections tunnels <P-1>`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.

56.2.9 show ipsec traffic-selectors

Traffic selectors for a IPsec VPN connection.

- Mode: `Command is in all modes available.`
- Privilege Level: `Guest`
- Format: `show ipsec traffic-selectors <P-1> [<P-2>]`

Parameter	Value	Meaning
P-1	1..256	VPN connection index.
P-2	1..16	Index of the traffic selector (unique inside of a IPsec VPN connection).

56.2.10 show ipsec certificate summary

Display a summary of the uploaded certificates and private keys.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show ipsec certificate summary`

56.2.11 show ipsec certificate details

Display the details about a specific certificate or private key.

- Mode: `Command is in all modes available.`
- Privilege Level: `Administrator`
- Format: `show ipsec certificate details <P-1>`

Parameter	Value	Meaning
P-1	1..100	Certificate Table Index.

A Further support

Technical questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.
You find the addresses of our partners on the Internet at www.hirschmann.com.
A list of local telephone numbers and email addresses for technical support directly from Hirschmann is available at hirschmann-support.belden.com.

This site also includes a free of charge knowledge base and a software download section.

Technical Documents

The current manuals and operating instructions for Hirschmann products are available at doc.hirschmann.com.

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B Readers' Comments

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Your assessment of this manual:

	Very Good	Good	Satisfactory	Mediocre	Poor
Precise description	O	O	O	O	O
Readability	O	O	O	O	O
Understandability	O	O	O	O	O
Examples	O	O	O	O	O
Structure	O	O	O	O	O
Comprehensive	O	O	O	O	O
Graphics	O	O	O	O	O
Drawings	O	O	O	O	O
Tables	O	O	O	O	O

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