

# Moxa Command Line Interface (FW\_5.x)

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**Models covered by this user's manual (only applies to products using firmware version 5.0 or higher):**

EDS-510E, EDS-518E, EDS-528E, EDS-G508E, EDS-G512E, EDS-G516E,  
EDS-G512E-8PoE, IKS-6726A, IKS-6728A, IKS-6728A-8PoE,  
IKS-G6524A, ICS-G7526A, ICS-G7528A, ICS-G7748A, ICS-G7750A,  
ICS-G7752A



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# Moxa Command Line Interface (FW\_5.x)

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## Technical Support Contact Information

[www.moxa.com/support](http://www.moxa.com/support)

### **Moxa Americas**

Toll-free: 1-888-669-2872  
Tel: +1-714-528-6777  
Fax: +1-714-528-6778

### **Moxa Europe**

Tel: +49-89-3 70 03 99-0  
Fax: +49-89-3 70 03 99-99

### **Moxa India**

Tel: +91-80-4172-9088  
Fax: +91-80-4132-1045

### **Moxa China (Shanghai office)**

Toll-free: 800-820-5036  
Tel: +86-21-5258-9955  
Fax: +86-21-5258-5505

### **Moxa Asia-Pacific**

Tel: +886-2-8919-1230  
Fax: +886-2-8919-1231

# Table of Contents

<b>1. Command Modes</b> .....	<b>1-1</b>
CLI (Command Line Interface) .....	1-1
Configuring a Switch to CLI Mode .....	1-1
Basic Operation .....	1-2
Useful Interactive "Help" Features .....	1-3
Understanding All Commands .....	1-3
<b>2. Commands</b> .....	<b>2-1</b>
access-ip .....	2-1
acl port .....	2-1
acl rule .....	2-2
authentication dot1x .....	2-3
authentication dot1x reauth .....	2-4
authentication local dot1x .....	2-4
authentication login .....	2-5
authentication mab .....	2-6
authentication mab reauth .....	2-6
authentication mab restart .....	2-7
authentication radius dot1x-mab 1stServer .....	2-7
authentication radius dot1x-mab 2ndServer .....	2-8
authentication radius dot1x-mab use-login-server .....	2-9
authentication radius login .....	2-9
authentication tacacs+ login .....	2-10
authentication tacacs+ login auth-type .....	2-11
auto-backup .....	2-12
auto-import .....	2-12
bind vlan .....	2-13
cfg-encrypt .....	2-13
clear counters .....	2-13
clear logging event-log .....	2-14
clock set .....	2-14
clock source .....	2-15
clock summer-time .....	2-15
clock timezone .....	2-16
configure terminal .....	2-16
copy .....	2-17
dip-switch .....	2-18
dot1x auth .....	2-19
dot1x reauth .....	2-19
eip .....	2-20
email-warning event (System) .....	2-20
email-warning event (port) .....	2-21
email-warning send test-email .....	2-22
email-warning smtp account .....	2-22
email-warning smtp auth .....	2-23
email-warning smtp port .....	2-23
email-warning smtp recipient .....	2-24
email-warning smtp sender .....	2-24
email-warning smtp server .....	2-25
email-warning smtp tls .....	2-25
exit .....	2-26
flowcontrol .....	2-26
garp .....	2-27
gmrp .....	2-28
gvrp .....	2-28
hostname .....	2-28
Interface ethernet .....	2-29
interface mgmt .....	2-29
Interface trunk .....	2-30
ip address .....	2-30
ip auto-assign .....	2-31
ip auto-logout .....	2-31
ip default-gateway .....	2-32
ip dhcp retry .....	2-32
ip dhcp-relay option82 .....	2-33
ip dhcp-relay option82 man-id .....	2-33
ip dhcp-relay option82 remote-id-type .....	2-34
ip dhcp-relay server .....	2-34
ip http-server login-message .....	2-35

ip igmp mcast-fast-forwarding.....	2-35
ip igmp static-group.....	2-36
ip igmp-snooping.....	2-36
ip igmp-snooping querier vlan.....	2-37
ip igmp-snooping query-interval.....	2-37
ip igmp-snooping vlan.....	2-38
ip max-login-users.....	2-39
ip moxa-service.....	2-39
ip name-server.....	2-40
ip snmp-agent.....	2-40
ipv6 address.....	2-41
link-swap-fast-recovery.....	2-41
lldp.....	2-41
logging.....	2-42
logging-capacity.....	2-42
Logging-capacity email-warning.....	2-43
logging-capacity over-size-action.....	2-43
logging-capacity snmp-trap-warning.....	2-44
login mode.....	2-44
login-lockout.....	2-44
Loop protection.....	2-45
mab.....	2-46
mac-address-sticky.....	2-46
mac-address-table aging-time.....	2-47
Management-Interface.....	2-47
media cable-mode.....	2-48
modbus.....	2-48
monitor.....	2-49
name.....	2-50
ntp authenticate.....	2-50
ntp authenticate-key.....	2-50
ntp peer servaddr.....	2-51
ntp refresh-time.....	2-51
ntp server.....	2-52
ntp trusted-key.....	2-52
password-policy complexity-check.....	2-53
Password-policy minimum-length.....	2-53
ping.....	2-53
poe.....	2-54
poe enable.....	2-54
poe legacy-pd-detect.....	2-55
poe pdfail.....	2-56
poe pdfail ip.....	2-56
poe pdfail no-response-action.....	2-57
poe pdfail no-response-timeout.....	2-57
poe pdfail periods.....	2-58
poe power-priority.....	2-59
poe system.....	2-59
poe system threshold.....	2-60
poe timetabling.....	2-60
port-security.....	2-61
profinetio.....	2-61
ptp arb-time.....	2-62
ptp clockclass.....	2-62
ptp domain-number.....	2-64
ptp enable.....	2-64
ptp leap59.....	2-65
ptp leap61.....	2-65
ptp log-announce-interval.....	2-65
ptp log-min-delay-req-interval.....	2-67
ptp log-min-pdelay-req-interval.....	2-67
ptp log-sync-interval.....	2-68
ptp mode.....	2-68
ptp preferred-master.....	2-69
ptp priority1.....	2-69
ptp priority2.....	2-69
ptp timescale.....	2-70
ptp transport.....	2-70
ptp utc-offset.....	2-71
ptp utc-offset-valid.....	2-71
qos default-cos.....	2-72
qos inspect.....	2-72

qos mapping .....	2-73
qos mode .....	2-73
qos port-priority .....	2-74
quit .....	2-74
rate-limit .....	2-75
redundancy .....	2-75
redundancy default .....	2-76
redundancy mode .....	2-76
relay-warning event (System) .....	2-77
relay-warning event (Port) .....	2-77
relay-warning override .....	2-78
reload .....	2-79
save config .....	2-79
show acl .....	2-79
show authentication dot1x .....	2-80
show authentication login .....	2-81
show authentication mab .....	2-82
show clock .....	2-83
show dip-switch .....	2-84
show dot1x .....	2-84
show eip .....	2-85
show email-warning config .....	2-86
show fiber-status .....	2-87
show garp timer .....	2-87
show gmrp .....	2-87
show gvrp .....	2-88
show interfaces acl .....	2-88
show interfaces counters .....	2-89
show interfaces ethernet .....	2-91
show interfaces mgmt .....	2-91
show interfaces mgmt access-ip .....	2-92
show interfaces mgmt trusted-access .....	2-93
show interfaces rate-limit .....	2-94
show ip auto-assign .....	2-94
show ip dhcp-relay config .....	2-95
show ip http-server status .....	2-96
show ip igmp .....	2-96
show ipv6 neighbors .....	2-97
show lldp .....	2-97
show logging .....	2-98
show logging-capacity .....	2-99
show loopprotection .....	2-99
show mac-address-sticky-list .....	2-99
show mac-address-table .....	2-100
show mac-address-table aging-time .....	2-101
show mac-address-table interface .....	2-102
show modbus .....	2-103
show ntp authentication-keys .....	2-103
show ntp authentication-status .....	2-103
show ntp peers .....	2-104
show ntp trusted-keys .....	2-104
show poe .....	2-105
show port monitor .....	2-106
show port-security-mode .....	2-107
show PROFINETIO .....	2-107
show ptp port .....	2-108
show ptp settings .....	2-108
show ptp status .....	2-109
show qos .....	2-110
show redundancy mode .....	2-111
show redundancy mst cist .....	2-111
show redundancy mst configure .....	2-112
show redundancy mst instance .....	2-113
show redundancy spanning-tree .....	2-113
show redundancy turbo-chain .....	2-114
show redundancy turbo-ring-v1 .....	2-115
show redundancy turbo-ring-v2 .....	2-116
show relay-warning .....	2-116
show running-config .....	2-117
show snmp .....	2-118
show startup-config .....	2-119
show static-port-lock .....	2-120

show storm-control.....	2-120
show system.....	2-121
show users.....	2-121
show version.....	2-122
show vlan.....	2-122
show vlan config.....	2-123
shutdown.....	2-124
snmp-server authority.....	2-125
snmp-server community.....	2-125
snmp-server contact.....	2-126
snmp-server default.....	2-126
snmp-server description.....	2-127
snmp-server host.....	2-127
snmp-server location.....	2-128
snmp-server trap-mode inform.....	2-128
snmp-server trap-mode trap.....	2-129
snmp-server trap-mode user.....	2-129
snmp-server version.....	2-130
spanning-tree.....	2-131
spanning-tree cost.....	2-131
spanning-tree edge-port.....	2-132
spanning-tree forward-delay.....	2-132
spanning-tree hello-time.....	2-133
spanning-tree max-age.....	2-133
spanning-tree mst cist cost.....	2-134
spanning-tree mst cist port-priority.....	2-134
spanning-tree mst cist priority.....	2-135
spanning-tree mst edge-port.....	2-135
spanning-tree mst enable.....	2-136
spanning-tree mst forward-delay.....	2-136
spanning-tree mst hello-time.....	2-137
spanning-tree mst instance.....	2-137
spanning-tree mst instance cost.....	2-138
spanning-tree mst instance port-priority.....	2-138
spanning-tree mst instance priority.....	2-139
spanning-tree mst max-age.....	2-139
spanning-tree mst max-hops.....	2-140
spanning-tree mst name.....	2-140
spanning-tree mst revision.....	2-141
spanning-tree priority.....	2-141
speed-duplex.....	2-142
sshkeygen.....	2-142
sslcertgen.....	2-143
storm-control.....	2-143
switchport access vlan.....	2-144
switchport hybrid fixed vlan add.....	2-144
switchport hybrid fixed vlan remove.....	2-145
switchport hybrid forbidden vlan add.....	2-146
switchport hybrid forbidden vlan remove.....	2-146
switchport hybrid native vlan.....	2-147
switchport pvlan.....	2-147
switchport trunk fixed vlan add.....	2-148
switchport trunk fixed vlan remove.....	2-148
switchport trunk forbidden vlan add.....	2-149
switchport trunk forbidden vlan remove.....	2-149
switchport trunk native vlan.....	2-150
terminal.....	2-150
trunk-group.....	2-151
trunk-mode.....	2-151
trusted-access.....	2-152
turbo-chain.....	2-152
turbo-ring-v1.....	2-153
turbo-ring-v1 coupling.....	2-153
turbo-ring-v1 master.....	2-154
turbo-ring-v2.....	2-154
turbo-ring-v2 coupling backup.....	2-155
turbo-ring-v2 coupling dual-homing.....	2-156
turbo-ring-v2 coupling primary.....	2-157
turbo-ring-v2 master.....	2-158
username.....	2-158
vlan create.....	2-159
vlan default.....	2-159

vlan mode .....	2-160
vlan set .....	2-160
warning-notification port-event .....	2-161
warning-notification system-event .....	2-162

## Command Modes

### CLI (Command Line Interface)

The CLI (command line interface) for Moxa switches can be accessed through either the serial console or Telnet console. For either type of connection, access to the command line interface is generally referred to as an EXEC session.

### Configuring a Switch to CLI Mode

The default configuration mode for both the serial console and Telnet console is MENU mode. To change the Moxa switch to CLI configuration mode, **Login Mode** from **Basic Settings** and then press **y** to activate the change. You will then be able to view the CLI display in the console. (Note that the default login user name is **admin**, without a password.)

1. Select **Basic Settings**.

```

EDS-408A series V3.0 build 11062110
-----
1.Basic Settings      - Basic settings for network and system parameter.
2.SNMP Settings      - The settings for SNMP.
3.Comm. Redundancy    - Establish Ethernet communication redundant path.
4.Traffic Prioritization- Prioritize Ethernet traffic to help determinism.
5.Virtual LAN         - Set up a VLAN by IEEE802.1Q VLAN or Port-based VLAN.
6.Multicast Filtering - Enable the multicast filtering capability.
7.Bandwidth Management - Restrict unpredictable network traffic.
8.Auto Warning        - Warning email and/or relay output by events.
9.Line Swap           - Fast recovery after moving devices to different ports.
a.Set Device IP       - Assign IP addresses to connected devices.
b.Diagnosis           - Ping command and the settings for Mirror port, LLDP.
c.Monitor             - Monitor a port and network status.
d.MAC Address Table   - The complete table of Ethernet MAC Address List.
e.System log          - The settings for Syslog and Event log.
f.Exit                - Exit
                    - Use the up/down arrow keys to select a category,
                    and then press Enter to select. -

```

2. Select **Login mode**.

```

MOXA EtherDevice Switch EDS-408A-3M-SC-T
Basic Settings
[System] [Password] [Accessible IP] [Port] [Network] [Time] [DIP] [GARP Timer]
[Backup Media] [Restart] [Factory default] [Upgrade] [Login mode] [Activate]
[Main menu]
Toggle login mode
ESC: Previous menu  Enter: Select

Basic Settings

```



3. Press **y** to activate.

```

MOXA EtherDevice Switch EDS-408A-3M-SC-T
Basic Settings
[System] [Password] [Accessible IP] [Port] [Network] [Time] [DIP] [GARP Timer]
[Backup Media] [Restart] [Factory default] [Upgrade] [Login mode] [Activate]
[Main menu]
Toggle login mode
ESC: Previous menu   Enter: Select

Current login mode: Menu

Press Y to change to CLI mode? [y/N]

```

4. Now log in to access CLI display mode.

```

login as:

```

After changing to CLI mode, CLI mode will be the default setting for the next reboot.

## Basic Operation

The CLI is organized in different configuration levels. When you first enter CLI mode, type **?** to view a quick help panel that shows the basic commands of the first configuration level. Type any of the commands shown on the screen to access the next configuration level. The quick help panel, accessed from any level by typing **?**, is a useful tool for understanding the commands in any level.

```

EDS-408A series V3.0 build 11062110
-----
EDS-408A-3M-SC-T#
quit           - Exit command line interface
exit           - Exit command line interface
reload         - Halt and perform a cold restart
terminal       - Configure terminal page length
login          - Change login mode
copy           - Copy from one file to another
save           - Save running configuration to flash
ping           - Send echo messages
clear          - Clear information
show           - Show running system information
configure      - Enter configuration mode
EDS-408A-3M-SC-T#

```

To enter the next level, type the commands shown in the console.

```

EDS-408A-3M-SC-T# configure
EDS-408A-3M-SC-T(config)#

```

To leave access the next higher level, type **exit**.

```

EDS-408A-3M-SC-T(config)# exit
EDS-408A-3M-SC-T#

```

To jump directly back to the first level, type **Ctrl + z**.

```

EDS-408A-3M-SC-T(config-vlan)#
EDS-408A-3M-SC-T#

```

## Useful Interactive “Help” Features

The CLI includes several types of interactive commands. The **Help** commands are listed in the following table:

Command	Purpose
?	Provides a brief description of the Help feature in any command level.
Partial command?	Provides a list of commands that begin with the character string (no space between the command and the question mark).
Partial command<Tab>	Completes a partial command name (no space between the command and <Tab>).
Command ?	Lists the keywords, arguments, or both associated with the command (type a space between the command and the question mark).
Command keyword ?	Lists the arguments that are associated with the keyword (type a space between the keyword and the question mark).

## Understanding All Commands

To understand all the details of the commands supported in the CLI of Moxa switches, refer to the following table.

Mode	Access Method	Prompt	Exit Method	About This Mode
User EXEC	Begin a session with your switch and login with <b>user</b> .	Switch>	Enter exit or quit.	Use this mode to display system information.
Privileged EXEC	Begin a session with your switch and login with <b>admin</b> .	Switch#	Enter exit or quit.	Use this mode to verify commands that you have entered.
Global configuration	While in privileged EXEC mode, enter the configure command.	Switch(config)#	To exit to privileged EXEC mode, enter exit or press Ctrl-Z.	Use this mode to configure parameters that apply to the entire switch.
Redundancy configuration	From global configuration mode, enter the redundancy command.	Switch(config-rdnt)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	Use this mode to configure Turbo Ring V1/V2, Turbo Chain, and Spanning Tree parameters.
Interface configuration	From global configuration mode, specify an interface by entering the interface command followed by an interface identification.	Switch(config-if)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	
Router configuration	From global configuration mode, specify a protocol by entering the router command.	Switch(config-rip)# Switch(config-ospf)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	

## Commands

### access-ip

Use **access-ip** in the VLAN configuration command as to restrict access to the switch to specified IP addresses. Use the **no** form of this command to disable this feature or to remove the IP addresses from access list.

#### Commands

**access-ip** [ip-address netmask]

**no access-ip** [ip-address netmask]

Syntax	<b>access-ip</b>	Enable the accessible IP list
Description	<i>ip-address</i>	IP address
	<i>netmask</i>	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	Management configuration	
Usage Guidelines	This feature will take effect when the <b>access-ip</b> command is executed.	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# access-ip 192.168.127.22 255.255.0.0	
Error messages	IP or netmask invalid	
	Access IP list full	
Related commands	show interface mgmt access-ip	

### acl port

Use **acl port** interface configuration commands on the switch to attach ACL to the port. Use the **no** form of this command to return to the default setting.

#### Commands

**acl id { in | out }**

**no acl id**

Syntax	<b>acl</b>	Configure access control list
Description	<i>id</i>	The access list ID
	<b>in</b>	Inbound traffic
	<b>out</b>	Outbound traffic
Defaults	N/A	
Command Modes	<b>Interface configuration</b>	
Usage Guidelines	Only ICS-G7000 and ICS-G8000 serial product support command "acl id out"	
Examples	MOXA# configure terminal	

	MOXA(config)# interface ethernet 1/1 MOXA(config-if)# acl 10 in MOXA(config-if)# no acl 10
Error messages	Invalid ID!
Related commands	

## acl rule

Use the **storm-control** global configuration command on configure access control list parameter. Use the **no** form of this command to disable it or return to the default.

### Commands

**acl id { ip-based | mac-based } name [namestring]**

**acl id ip-based {permit|deny} srcip [dstip][protocol][port]**

**acl id mac-based {permit|deny} srcmac [dstmac][ethertype][vid]**

**no acl id**

**no acl id rule ruleindex**

Syntax Description	<b>acl</b>	Configure access control list
	<i>id</i>	The access list ID
	<b>ip-based</b>	IP-based ACL
	<b>mac-based</b>	MAC-based ACL
	<b>name</b>	ACL name
	<i>namestring</i>	ACL name
	<b>permit</b>	forward packets rule
	<b>deny</b>	Drop packets rule
	<i>srcip</i>	Source IP address and subnet mask
	<i>dstip</i>	Destination IP address and subnet mask
	<i>protocol</i>	Protocol number
	<i>port</i>	TCP/UDP port number
	<i>srcmac</i>	Source MAC address and MAC mask.
	<i>dstmac</i>	Destination MAC address and MAC mask.
	<i>ethertype</i>	Ether type
<i>vid</i>	VLAN ID	
	<b>rule</b>	Remove rule from access control list
	<i>ruleindex</i>	Remove rule index from access control list
Defaults	deny srcip: any dstip: any protocol: 0x0 to 0xff port: 0x0 to 0xffff srcmac: any dstmac: any ethertype: 0x600 to 0xffff vid: 1 to 4096	
Command Modes	Global configuration	
Usage Guidelines	id: 0 to 16 protocol : 1(ICMP), 2(IGMP), 4(IP over IP), 6(TCP), 11(UDP) ethertype: 0x800(IPv4), 0x0806(ARP), 0x8035(RARP), 0x86dd(IPv6), 0x8809(IEEE802.3), 0x8892(PROFINET), 0x88cc(LLDP), 0x88F7(IEEE1588)	
Examples	MOXA# configure terminal	

	<pre>MOXA(config)# acl 10 ip-based name ip10 MOXA(config)# acl 11 mac-based name mac11 MOXA(config)# acl 10 ip-based permit any any any any MOXA(config)# acl 10 ip-based deny 192.168.127.0/255.255.255.0 192.168.1.0/255.255.255.0 1 22-21 MOXA(config)# acl 11 mac-based permit any any any MOXA(config)# acl 11 mac-based deny 00:90:E8:01:02:03/FF:FF:FF:FF:02:03 00:90:E8 :04:05:06/FF:FF:FF:FF:FF:FF 800 100 MOXA(config)# no acl 10 MOXA(config)# no acl 11 rule 1</pre>
Error messages	<pre>This ID is used by MAC-based ACL! Invalid ID! Invalid IP/Mask format! Invalid protocol code! Invalid socket port number! Duplicate rules. Full rules! A list up to 10 rules. This ID is used by IP-based ACL! Invalid MAC/Mask format! Invalid ether type! Invalid VLAN ID!</pre>
Related commands	Show <code>acl id</code>

## authentication dot1x

Use the **authentication dot1x** global configuration command to set user authentication database for 802.1x.  
Use the **no** form of this command to reset default user authentication database for 802.1x.

### Commands

**authentication dot1x { radius | local }**

**authentication dot1x radius local**

**no authentication dot1x**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>dot1x</b>	Set dot1x auth option
	<b>radius</b>	Set login auth by RADIUS
	<b>local</b>	Set login auth by local
Defaults	local	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# authentication dot1x radius MOXA(config)# authentication dot1x local MOXA(config)# no authentication dot1x</pre>	
Error messages		
Related commands		

## authentication dot1x reauth

Use the **authentication dot1x reauth** global configuration command to enable 802.1x re-authentication function. Use the **no** form of this command to disable.

Use the **authentication dot1x reauth period** global configuration command to set 802.1x re-authentication timer. Use the **no** form of this command to reset default.

### Commands

**authentication dot1x reauth**

**authentication dot1x reauth period** *second*

**no authentication dot1x reauth**

**no authentication dot1x reauth period**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>dot1x</b>	Set dot1x auth option
	<b>reauth</b>	Set dot1x auth re-auth enable/ disable
	<b>period</b>	dot1x auth re-auth time setting
	<i>second</i>	Set dot1x auth re-auth period time
Defaults	re-authentication is default enabled reauth period is default 3600 second	
Command Modes	Global configuration	
Usage Guidelines	<i>second</i> is range from 60 to 65535	
Examples	MOXA# configure terminal MOXA(config)# authentication dot1x reauth MOXA(config)# authentication dot1x reauth period 600 MOXA(config)# no authentication dot1x reauth period MOXA(config)# no authentication dot1x reauth	
Error messages	Invalid Re-Auth Period!!! Must not be smaller than 60 or greater than 65535	
Related commands		

## authentication local dot1x

Use the **authentication local dot1x** global configuration command to configure local user database for dot1x.

Use the **no** form of this command to reset default.

### Commands

**authentication local dot1x username** *name* **password** *pw* [**desc** *desc*]

**no authentication local dot1x all-user**

**no authentication local dot1x username** *name*

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>local</b>	Local db setting
	<b>dot1x</b>	Add local user to dot1x
	<b>username</b>	Add local user to dot1x
	<i>name</i>	Add local user to dot1x
	<b>password</b>	Add local user to dot1x
	<i>pw</i>	Add local user to dot1x
	<b>desc</b>	Add local user to dot1x
	<i>desc</i>	Add local user to dot1x
	<b>all-user</b>	Remove all local user to dot1x

Defaults	N/A
Command	Global configuration
Modes	
Usage	
Guidelines	
Examples	MOXA# configure terminal MOXA(config)# authentication local dot1x username aaa password bbb desc tmpuser MOXA(config)# no authentication local dot1x username aaa MOXA(config)# no authentication local dot1x all-user
Error messages	Local Database is Full !!! Invalid User Name !!! Invalid User Password !!! Invalid User Description !!!
Related commands	

## authentication login

Use the **authentication login** global configuration command to set user authentication database for login. Use the **no** form of this command to reset default user authentication database for login.

### Commands

**authentication login { radius | tacacs+ | local }**

**authentication login radius local**

**authentication login tacacs+ local**

**no authentication login**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>login</b>	Set login auth option
	<b>radius</b>	Set login auth by RADIUS
	<b>tacacs+</b>	Set login auth by TACACS+
	<b>local</b>	Set login auth by local
Defaults	local	
Command Modes	Global configuration	
Usage Guidelines	<b>authentication login radius local</b> means using local database if radius server is not available <b>authentication login tacacs+ local</b> means using local database if tacacs+ server is not available	
Examples	MOXA# configure terminal MOXA(config)# authentication login radius MOXA(config)# authentication login tacacs+ MOXA(config)# authentication login local MOXA(config)# authentication login radius local MOXA(config)# authentication login tacacs+ local MOXA(config)# no authentication login	
Error messages		
Related commands		

## authentication mab

Use the **authentication dot1x** global configuration command to set user authentication database for mab.  
Use the **no** form of this command to reset default user authentication database for mab.

### Commands

**authentication mab radius**

**no authentication mab**

Syntax	<b>authentication</b>	Configure authentication mechanism
Description	<b>mab</b>	Set mab auth option
	<b>radius</b>	Set login auth by RADIUS
Defaults	radius	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# authentication mab radius MOXA(config)# no authentication mab	
Error messages		
Related commands		

## authentication mab reauth

Use the **authentication mab reauth** global configuration command to enable mab re-authentication function.  
Use the **no** form of this command to disable.  
Use the **authentication mab reauth period** global configuration command to set mab re-authentication timer. Use the **no** form of this command to reset default.

### Commands

**authentication mab reauth**

**authentication mab reauth period** *second*

**no authentication mab reauth**

**no authentication mab reauth period**

Syntax	<b>authentication</b>	Configure authentication mechanism
Description	<b>mab</b>	Set mab auth option
	<b>reauth</b>	Set mab auth re-auth enable/ disable
	<b>period</b>	mab auth re-auth time setting
	<i>second</i>	Set mab auth re-auth period time
Defaults	re-authentication is default disabled reauth period is default 3600 second	
Command Modes	Global configuration	
Usage Guidelines	<i>second</i> is range from 60 to 65535	
Examples	MOXA# configure terminal MOXA(config)# authentication mab reauth MOXA(config)# authentication mab reauth period 600 MOXA(config)# no authentication mab reauth period MOXA(config)# no authentication mab reauth	



Error messages	Invalid Re-Auth Period!!! Must not be smaller than 60 or greater than 65535
Related commands	

## authentication mab restart

Use the **authentication mab restart** global configuration command to enable mab re-start function. Use the **no** form of this command to disable.

Use the **authentication mab restart period** global configuration command to set mab re-start timer. Use the **no** form of this command to reset default.

### Commands

**authentication mab restart**

**authentication mab restart period** *second*

**no authentication mab restart**

**no authentication mab restart period**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>mab</b>	Set mab auth option
	<b>restart</b>	Set mab auth re-start enable/ disable
	<b>period</b>	mab auth re- start time setting
	<i>second</i>	Set mab auth re- start period time
Defaults	re-start is default disabled restart period is default 60 second	
Command Modes	Global configuration	
Usage Guidelines	<i>second</i> is range from 5 to 300	
Examples	MOXA# configure terminal MOXA(config)# authentication mab restart MOXA(config)# authentication mab restart period 61 MOXA(config)# no authentication mab restart period MOXA(config)# no authentication mab restart	
Error messages	Invalid Re-Start Period!!! Must not be smaller than 5 or greater than 300	
Related commands		

## authentication radius dot1x-mab 1stServer

Use the **authentication radius dot1x-mab 1stServer** global configuration command to configure first radius server setting for 802.1x and MAB. Use the **no** form of this command to reset default.

### Commands

**authentication radius dot1x-mab 1stServer server-ip** *ip*

**authentication radius dot1x-mab 1stServer server-port** *port*

**authentication radius dot1x-mab 1stServer shared-key** *key*

**no authentication radius dot1x-mab 1stServer**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>radius</b>	Radius setting
	<b>dot1x-mab</b>	Set radius setting to dot1x and mab authentication
	<b>1stServer</b>	Set 1st radius setting to dot1x and mab authentication

	<b>server-ip</b>	Set 1st radius server ip to login authentication
	<i>ip</i>	Set 1st radius server ip to login authentication
	<b>server-port</b>	Set 1st radius server port to login authentication
	<i>port</i>	Set 1st radius server port to login authentication
	<b>shared-key</b>	Set 1st radius server shared key to login authentication
	<i>key</i>	Set 1st radius server shared key to login authentication
Defaults	ip is default NULL port is default 1812 key is default NULL	
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# authentication radius dot1x-mab 1stServer server-ip 168.95.1.1 MOXA(config)# authentication radius dot1x-mab 1stServer server-port 1813 MOXA(config)# authentication radius dot1x-mab 1stServer share-key moxa MOXA(config)# no authentication radius dot1x-mab 1stServer	
Error messages	Invalid dot1x 1st Radius Server IP!!! To set 1st radius server ip, use-login-server must be disabled first Must be greater than 0 and smaller than 65536 To set 1st radius server port, use-login-server must be disabled first The length of Shared Key must be greater than 0 and smaller than 40. To set 1st radius server shared key, use-login-server must be disabled first	
Related commands		

## authentication radius dot1x-mab 2ndServer

Use the **authentication radius dot1x-mab 2ndServer** global configuration command to configure second radius server setting for 802.1x and mab. Use the **no** form of this command to reset default.

### Commands

**authentication radius dot1x-mab 2ndServer server-ip** *ip*  
**authentication radius dot1x-mab 2ndServer server-port** *port*  
**authentication radius dot1x-mab 2ndServer shared-key** *key*  
**no authentication radius dot1x-mab 2ndServer**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>radius</b>	Radius setting
	<b>dot1x-mab</b>	Set radius setting to dot1x and mab authentication
	<b>2ndServer</b>	Set 2nd radius setting to dot1x and mab authentication
	<b>server-ip</b>	Set 2nd radius server ip to login authentication
	<i>ip</i>	Set 2nd radius server ip to login authentication
	<b>server-port</b>	Set 2nd radius server port to login authentication
	<i>port</i>	Set 2nd radius server port to login authentication
	<b>shared-key</b>	Set 2nd radius server shared key to login authentication
	<i>key</i>	Set 2nd radius server shared key to login authentication
Defaults	ip is default NULL port is default 1812 key is default NULL	
Command Modes	Global configuration	

Usage Guidelines	
Examples	<pre>MOXA# configure terminal MOXA(config)# authentication radius dot1x-mab 2ndServer server-ip 168.95.1.1 MOXA(config)# authentication radius dot1x-mab 2ndServer server-port 1813 MOXA(config)# authentication radius dot1x-mab 2ndServer share-key moxa MOXA(config)# no authentication radius dot1x-mab 2ndServer</pre>
Error messages	<p>Invalid dot1x 2nd Radius Server IP!!!</p> <p>To set 2nd radius server ip, use-login-server must be disabled first</p> <p>Must be greater than 0 and smaller than 65536</p> <p>To set 2nd radius server port, use-login-server must be disabled first</p> <p>The length of Shared Key must be greater than 0 and smaller than 40.</p> <p>To set 2nd radius server shared key, use-login-server must be disabled first</p>
Related commands	

## authentication radius dot1x-mab use-login-server

Use the **authentication radius dot1x-mab use-login-server** global configuration command to enable radius server setting using login setting for 802.1x and mab. Use the **no** form of this command to reset default.

### Commands

**authentication radius dot1x-mab use-login-server**

**no authentication radius use-login-server**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>radius</b>	Radius setting
	<b>dot1x-mab</b>	Set radius setting to dot1x and mab authentication
	<b>use-login-server</b>	Set using login radius setting to dot1x and mab authentication
Defaults	disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# authentication radius dot1x-mab use-login-server MOXA(config)# no authentication radius dot1x-mab use-login-server</pre>	
Error messages		
Related commands		

## authentication radius login

Use the **authentication radius login** global configuration command to configure radius server setting for login. Use the **no** form of this command to reset default.

### Commands

**authentication radius login server-ip ip**

**authentication radius login server-port port**

**authentication radius login shared-key key**

**authentication radius login timeout** *second*  
**authentication radius login auth-type** { **pap** | **chap** }  
**no authentication radius login**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>radius</b>	Radius setting
	<b>login</b>	Set radius setting to login authentication
	<b>server-ip</b>	Set radius server ip to login authentication
	<i>ip</i>	Set radius server ip to login authentication
	<b>server-port</b>	Set radius server port to login authentication
	<i>port</i>	Set radius server port to login authentication
	<b>shared-key</b>	Set radius server shared key to login authentication
	<i>key</i>	Set radius server shared key to login authentication
	<b>timeout</b>	Set radius server timeout value to login authentication
	<i>second</i>	Set radius server timeout value to login authentication
	<b>auth-type</b>	Set radius server auth type to login authentication
	<b>pap</b>	Set PAP radius auth type to login authentication
	<b>chap</b>	Set CHAP radius auth type to login authentication
Defaults	<i>ip</i> is default NULL <i>port</i> is default 1812 <i>key</i> is default NULL <i>timeout</i> is default 5 second <i>auth type</i> is default PAP	
Command Modes	Global configuration	
Usage Guidelines	<i>second</i> is range from 1 to 255	
Examples	MOXA# configure terminal MOXA(config)# authentication radius login server-ip 168.95.1.1 MOXA(config)# authentication radius login server-port 1813 MOXA(config)# authentication radius login share-key moxa MOXA(config)# authentication radius login timeout 10 MOXA(config)# authentication radius login auth-type chap	
Error messages	Invalid Radius Server Must be greater than 0 and smaller than 65536 The length of Shared Key must be greater than 0 and smaller than 15 The Server timeout must be greater than 0 and smaller than 256!!!	
Related commands		

## authentication tacacs+ login

Use the **authentication tacacs+ login** global configuration command to configure tacacs+ server setting for login. Use the **no** form of this command to reset default.

### Commands

**authentication tacacs+ login server-ip** *ip*  
**authentication tacacs+ login server-port** *port*  
**authentication tacacs+ login shared-key** *key*  
**authentication tacacs+ login timeout** *second*  
**no authentication tacacs+ login**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>tacacs+</b>	TACACS+ setting

	<b>login</b>	Set tacacs+ setting to login authentication
	<b>server-ip</b>	Set tacacs+ server ip to login authentication
	<i>ip</i>	Set tacacs+ server ip to login authentication
	<b>server-port</b>	Set tacacs+ server port to login authentication
	<i>port</i>	Set tacacs+ server port to login authentication
	<b>shared-key</b>	Set tacacs+ server shared key to login authentication
	<i>key</i>	Set tacacs+ server shared key to login authentication
	<b>timeout</b>	Set tacacs+ server timeout value to login authentication
	<i>second</i>	Set tacacs+ server timeout value to login authentication
Defaults	ip is default NULL port is default 1812 key is default NULL timeout is default 5 second	
Command Modes	Global configuration	
Usage Guidelines	<i>second</i> is range from 1 to 255	
Examples	MOXA# configure terminal MOXA(config)# authentication tacacs+ login server-ip 168.95.1.1 MOXA(config)# authentication tacacs+ login server-port 1813 MOXA(config)# authentication tacacs+ login share-key moxa MOXA(config)# authentication tacacs+ login timeout 10 MOXA(config)# authentication tacacs+ login auth-type chap	
Error messages	Invalid Radius Server Must be greater than 0 and smaller than 65536 The length of Shared Key must be greater than 0 and smaller than 15 The Server timeout must be greater than 0 and smaller than 256!!!	
Related commands		

## authentication tacacs+ login auth-type

Use the **authentication tacacs+ login auth-type** global configuration command to configure tacacs+ server authentication type for login. Use the **no** form of this command to reset default.

### Commands

**authentication tacacs+ login auth-type { ascii | pap | chap | mschap }**  
**no authentication tacacs+ login auth-type**

Syntax Description	<b>authentication</b>	Configure authentication mechanism
	<b>tacacs+</b>	TACACS+ setting
	<b>login</b>	Set tacacs+ setting to login authentication
	<b>auth-type</b>	Set tacacs+ auth type to login authentication
	<b>ascii</b>	Set ASCII tacacs+ auth type to login authentication
	<b>pap</b>	Set PAP tacacs+ auth type to login authentication
	<b>chap</b>	Set CHAP tacacs+ auth type to login authentication
	<b>mschap</b>	Set MSCHAP tacacs+ auth type to login authentication
Defaults	default is ASCII	
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# authentication tacacs+ login auth-type ascii	

Error messages	
Related commands	

## auto-backup

Use **auto-backup** to enable the function of auto-backup system configurations when the system configuration has any changes. To disable it, use the **no** form of this command.

### Commands

**auto-backup**

**no auto-backup**

Syntax Description	<b>auto-backup</b>	Auto backup system configurations to ABC when configurations is changed
Defaults	Auto-backup configuration is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# auto-backup	
Error messages	N/A	
Related commands	auto-import	

## auto-import

Use **auto-import** to enable the function of loading ABC's configuration when the system boots up. To disable it, use the **no** form of this command.

### Commands

**auto-import**

**no auto-import**

Syntax Description	<b>auto-import</b>	Auto load ABC's system configurations when boot
Defaults	Auto-import configuration is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# auto-import	
Error messages	N/A	
Related commands	auto-backup	

## bind vlan

Use the **bind vlan** configuration command on the switch to bind the management address with a specified VLAN ID. Use the **no** form of this command to return to the default.

### Commands

**bind vlan** *VLAN-ID*

Syntax	<b>bind</b>	Bind VLAN as management VLAN
Description	<b>vlan</b>	VLAN parameters
	<i>VLAN-ID</i>	1 to 4094
Defaults	Default management VLAN ID is 1	
Command Modes	Management configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# bind vlan 2	
Error messages	VLAN id is out of range!	
Related commands	show interfaces mgmt	

## cfg-encrypt

Use the **cfg-encrypt** global configuration command on switch to configure File Encryption. Use the **no** form of this command to stop this function.

### Commands

**cfg-encrypt** *password*

**no cfg-encrypt**

Syntax	<b>cfg-encrypt</b>	Configuration File Encryption
Description	<i>password</i>	Password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# cfg-encrypt 12345	
Error messages	Configuration Encrypt password error !!!	
Related commands	N/A	

## clear counters

Use the **clear counters** user EXEC command on the switch to clear the switch's statistics counters.

### Commands

**clear counters**

Syntax	<b>clear</b>	Clear information
Description	<b>counters</b>	Clear statistic counters
Defaults	N/A	

Command Modes	Privileged
Usage Guidelines	N/A
Examples	MOXA# clear counters
Error messages	N/A
Related commands	show interfaces counters

## clear logging event-log

Use the **clear logging event-log** user EXEC command on the switch to clear the system log of the switch.

### Commands

#### clear logging event-log

Syntax Description	<b>clear</b>	Clear information
	<b>logging</b>	System event logs
	<b>event-log</b>	System event logs
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	MOXA# clear logging event-log	
Error messages	N/A	
Related commands	show logging	

## clock set

Use the **clock set** global configuration command on the switch to set the current switch time.

### Commands

#### clock set hh:mm:ss month day year

Syntax Description	<b>clock</b>	Configure time-of-day clock
	<b>set</b>	Adjust the clock
	<i>hh:mm:ss</i>	hh:mm:ss
	<i>month</i>	1 to 12
	<i>day</i>	1 to 31
	<i>year</i>	2000 to 2037
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Data range: <b>hh: 01~23</b> , mm: 00~59, ss: 00~59 Month: 1~12 Day: 1~31 Year: 2000~2037	
Examples	MOXA# configure terminal MOXA(config)# clock set 08:32:00 8 25 2016	



Error messages	Illegal parameters!
Related commands	show clock

## clock source

Use the **clock source** global configuration command on the switch to set the current time source.

### Commands

**clock source** {local | ntp | sntp}

**no clock source**

Syntax Description	<b>clock</b>	Configure time-of-day clock
	<b>source</b>	System Clock Source
	<b>local</b>	Local
	<b>ntp</b>	Network Time Protocol
	<b>sntp</b>	Simple Network Time Protocol
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# clock source local MOXA(config)# clock source ntp MOXA(config)# clock source sntp	
Error messages	N/A	
Related commands	show clock	

## clock summer-time

Use the **clock summer-time** global configuration command on the switch to enable the daylight saving time offset and set the apply duration. Use the **no** form of this command to disable it.

### Commands

**clock summer-time start-date** month week day hour

**clock summer-time end-date** month week day hour

**clock summer-time offset** offset-hour

**no clock summer-time**

Syntax Description	<b>clock</b>	Configure time-of-day clock
	<b>summer-time</b>	Configure Summer time parameter
	<b>start-date</b>	The date when summer time offset start
	<b>end-date</b>	The date when summer time offset end
	<i>month</i>	From 'Jan', 'January' or '1' to 'Dec', 'December', or '12'
	<i>week</i>	From '1st' or '1' to 'Last' or '6'
	<i>day</i>	From 'Sun', 'Sunday' or '1' to 'Sat', 'Saturday' or '7'
	<i>hour</i>	0 to 23
	<b>offset</b>	Summer time offset
	<i>offset-hour</i>	1 to 12
Defaults	N/A	
Command Modes	Global configuration	

Usage Guidelines	When configuring the summer time offset, the start-date and end-date must be configured correctly first. Data range: month: 1~12 week: 1~6 day: 1~7 hour: 0~23 offset-hour: 1~12
Examples	MOXA# configure terminal MOXA(config)# clock summer-time start-date 1 1 1 2 MOXA(config)# clock summer-time end-date Jan 2nd Sun 2 MOXA(config)# clock summer-time offset 2
Error messages	Invalid parameter
	Month must be configured as 'Jan', 'January' or a numerical '1'.
	Week must be configured as '1st', '2nd', '3rd', '4th', '5th' or 'Last'
	Day must be configured as 'Sun', 'Sunday' or a numerical '1'.
	Hour must be in the range from 0 to 23.
	Please input the correct start/end date of the summer time first!
Related commands	Hour offset is out of range.
	show clock

## clock timezone

Use the **clock timezone** global configuration command on the switch to set the current time zone.

### Commands

**clock timezone** *gmt* *offset-hour* [*offset\_minutes*]

Syntax Description	<b>clock</b>	Configure time-of-day clock
	<b>timezone</b>	Time zone hour shifting
	<b>gmt</b>	Greenwich Mean Time
	<i>offset-hour</i>	-12 to 12
	<i>offset_minutes</i>	Half an hour ; Only type 30
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# clock timezone gmt 5 30	
Error messages	This timezone doesn't support half an hour	
Related commands	show clock	

## configure terminal

Use the **configure terminal** command on the switch to enter the configuration mode and configure from the terminal.

### Commands

**configure terminal**

Syntax	<b>configure</b>	Enter configuration mode
Description	<b>terminal</b>	Configure from the terminal
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)#	
Error messages	N/A	
Related commands	N/A	

## copy

Use the **copy** privileged command on the switch to copy an image or configuration file from a remote server to the Flash memory or copy the running configuration, startup configuration, or event log to a remote server via TFTP.

### Commands

**copy {xmodem | tftp} device-firmware**

**copy {running-config | startup-config | event-log} tftp [tftp\_address]**

**copy tftp running-config**

Syntax	<b>copy</b>	Copy from one file to another
Description	<b>xmodem</b>	Copy from xmodem
	<b>tftp</b>	Remote server through TFTP
	<b>device-firmware</b>	System firmware
	<b>running-config</b>	Current running configuration of system
	<b>startup-config</b>	System startup configuration
	<b>event-log</b>	Event log file
	<i>tftp-address</i>	TFTP address. E.g., tftp://192.168.127.1/abc.txt
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre>MOXA# copy tftp device-firmware Address or name of remote host [192.168.127.1]? 192.168.127.20 Remote firmware file name ? FWR_EDSG516E_V5.1_Build_16072210.rom TFTP Firmware Download OK !!! System reboot directly !!  MOXA# copy running-config tftp Address or name of remote host [192.168.127.1]? 192.168.127.20 Destination file name [/cli.ini]? 123.ini Total number of commands: 43, file size = 4009 TFTP Configuration File Upload Ok !!!  MOXA# copy startup-config tftp tftp://192.168.127.20/123.ini Total number of commands: 43, file size = 4044 TFTP Configuration File Upload Ok !!!  MOXA# copy event-log tftp tftp://192.168.127.20/123.ini TFTP Log File Upload OK !!!  MOXA# copy tftp running-config Address or name of remote host [192.168.127.1]? 192.168.127.20 Warning!! If any IP related config change, you should reconnect again. Source file name ? 123.ini Save import config to flash ? [Y/n] Saving configuration ...Success MOXA#</pre>
Error messages	<pre>Input error Invalid TFTP Server IP/Name !!! TFTP Configuration File Download Failed Invalid Config Files Path and Name !!! Invalid Firmware Files Path and Name !!! TFTP Firmware Download Failed !!! TFTP Configuration File Upload Failed !!! TFTP Log File Upload Failed !!!</pre>
Related commands	N/A

## dip-switch

Use the **dip-switch** command to disable/enable HW dip-switch function.

### Commands

**dip-switch {disable | enable}**

**dip-switch mode {turbo-ring-v1 | turbo-ring-v1}**

Syntax	<b>disable</b>	Disable DIP switch.
Description	<b>enable</b>	Enable DIP switch.
	<b>mode turbo-ring-v1</b>	Set DIP switch as Turbo Ring V1
	<b>mode turbo-ring-v2</b>	Set DIP switch as Turbo Ring V2
Defaults	1.Enable dip-switch. 2.set to turbo-ring-v2.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	MOXA# configure terminal MOXA(config)# dip-switch disable MOXA(config)# dip-switch enable MOXA(config)# dip-switch mode turbo-ring-v1 MOXA(config)# dip-switch mode turbo-ring-v2
Error messages	N/A
Related commands	N/A

## dot1x auth

Use the **dot1x auth** interface configuration command on the switch to enable port 802.1x authenticate. Use the **no** form of this command to return to the default setting.

### Commands

**dot1x auth**

**no dot1x auth**

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>auth</b>	802.1x port authentication enable/disable
Defaults	802.1x port authentication default disable	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config)# interface ethernet 1/1 MOXA(config-if)# dot1x auth MOXA(config-if)# no dot1x auth	
Error messages	N/A	

## dot1x reauth

Use the **dot1x reauth** interface configuration command on the switch to trigger port 802.1x re-authenticate immediately.

### Commands

**dot1x reauth**

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>reauth</b>	802.1x port re-authenticate immediately
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config)# interface ethernet 1/1 MOXA(config-if)# dot1x reauth	
Error messages	N/A	
Related commands	N/A	

# eip

Use the **eip** command to disable/enable Ethernet/IP support.

## Commands

**eip**

**no eip**

Syntax	<b>eip</b>	Enable Ethernet/IP
Description		
Defaults	Default is disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# eip MOXA(config)# no eip	
Error messages	N/A	
Related commands	show eip	

# email-warning event (System)

Use the **email-warning event** global configuration command to enable the system warning events service to send through the email if the event occurs. Use the **no** form of this command to disable the specified warning event notifications.

## Commands

**email-warning event { all | cold-start | warm-start | power-trans-off | power-trans-on | config-change | auth-fail | topology-change }**

**no email-warning event { cold-start | warm-start | power-trans-off | power-trans-on | config-change | auth-fail | topology-change }**

Syntax Description	<b>Email-warning</b>	Email warning setting
	<b>event</b>	System events
	<b>all</b>	Enable all events
	<b>cold-start</b>	Switch cold start
	<b>warn-start</b>	Switch warm start
	<b>power-trans-off</b>	Power transition (on->off)
	<b>power-trans-on</b>	Power transition (off->on)
	<b>config-change</b>	Configuration changed
	<b>auth-fail</b>	Authentication failed
	<b>topology-change</b>	Topology changed (from redundant protocols)
Defaults	All system events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# email-warning event ? all - Enable all events cold-start - Switch cold start	

	<pre>warm-start          - Switch warm start power-trans-off     - Power transition (on-&gt;off) power-trans-on      - Power transition (off-&gt;on) config-change       - Configuration changed auth-fail           - Authentication failed topology-change     - Communication redundancy topology changed MOXA(config)# email-warning event cold-start MOXA(config)# email-warning event topology-change MOXA(config)# email-warning event auth-fail</pre>
Error messages	N/A
Related commands	show email-warning config

## email-warning event (port)

Use the **email-warning event** interface configuration command to allow interface warning events to be sent through the email if the event occurs. Use the **no** form of this command to disable the specified warning event notifications.

### Commands

**email-warning event { link-on | link-off }**

**no mail-warning event { link-on | link-off }**

**email-warning event traffic-overload [rxThreshold duration]**

**no email-warning event traffic-overload**

Syntax	<b>email-warning</b>	Configure email warning
Description	<b>event</b>	Port events
	<b>link-on</b>	Link ON
	<b>link-off</b>	Link OFF
	<b>traffic-overload</b>	Traffic overloading
	<i>rxThreshold</i>	0 to 100
	<i>duration</i>	1 to 300
Defaults	All port events are disabled by default.	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 3/1 MOXA(config-if)# email-warning     event          - Port events MOXA(config-if)# email-warning event     link-on        - Link ON     link-off       - Link OFF     traffic-overload - Traffic overloading MOXA(config-if)# email-warning event link-on MOXA(config-if)# email-warning event traffic-overload 80 20 MOXA(config-if)# MOXA# show email-warning config Mail Server and Email Setup SMTP Server IP/Name : ms1.hinet.net SMTP Port           : 25 Account Name        : test1</pre>	

	<pre>Account Password      : 1234  1st email address: test2@moxa.com 2nd email address : 3rd email address: test3@hinet.net 4th email address :  System Events Cold Start           : Enable Warm Start           : Disable Conf. Changed        : Disable Power On-&gt;Off        : Disable Power Off-&gt;On        : Disable Auth. Failure        : Enable Topology Changed     : Enable</pre>
Error messages	<pre>Threshold should be between 0 and 100 Duration should be between 1 and 300</pre>
Related commands	show email-warning

## email-warning send test-email

Use **email-warning send test-email** to send a test email.

### Commands

#### email-warning send test-email

Syntax	<b>email-warning</b>	Email warning setting
Description	<b>send</b>	Send test email
	<b>test-email</b>	Test email address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The test email will be sent to the mail address that " <b>smtp recipient</b> ".	
Examples	<pre>MOXA# configure terminal MOXA(config)# email-warning send test email Sending test email ... You may check if your dedicated email addresses have received this email!</pre>	
Error messages	<pre>Warning !!! You must first do Email Setup before sending the test email. Warning !!! You must first configure DNS Server IP Address before sending the test email. Sending test email failed !!!</pre>	
Related commands		

## email-warning smtp account

Use **email-warning smtp account** to configure SMTP service account information for the switch. To reset the setting, use the **no** form of this command to clear account information.

### Commands

**email-warning smtp account** *username password*

**no email-warning smtp account**

Syntax	<b>email-warning</b>	Email warning setting
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Description	<b>smtp</b>	SMTP server setting
	<b>account</b>	Email account on server
	<i>username</i>	User name
	<i>password</i>	User password
Defaults		
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp account aaa bbb MOXA(config)# no email-warning smtp account	
Error messages	Length of SMTP User name is too long !!! Invalid User name Length of password is too long !!!	
Related commands		

## email-warning smtp auth

Use **email-warning smtp auth** to configure SMTP service auth type for the switch. To reset the setting, use the **no** form of this command.

### Commands

**email-warning smtp auth { plain | login | cram-md5 }**  
**no email-warning smtp auth**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>smtp</b>	Email warning smtp setting
	<b>auth</b>	Select authentication method
	<b>plain</b>	Select Plain authentication method
	<b>login</b>	Select login authentication method
	<b>cram-md5</b>	Select CRAM-MD5 authentication method
Defaults	Default is plain	
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp auth plain MOXA(config)# no email-warning smtp auth	
Error messages		
Related commands		

## email-warning smtp port

Use **email-warning smtp port** to configure SMTP service port number for the switch. To reset the setting, use the **no** form of this command to clear SMTP service port.

### Commands

**email-warning smtp port servport**  
**no email-warning smtp port**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>smtp</b>	SMTP server setting
	<b>port</b>	SMTP Port, 1 ~ 65535
	<i>servport</i>	SMTP Port, 1 ~ 65535
Defaults	25	
Command Modes	Global configuration	
Usage Guidelines	<i>servport</i> is range from 1 to 65535	
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp port 443 MOXA(config)# no email-warning smtp port	
Error messages	Invalid Mail Server Port, Range(1~65535)	
Related commands		

## email-warning smtp recipient

Use **email-warning smtp sender** to configure the email recipient setting of SMTP service for the switch. To reset the setting of specific recipient, use the **no** form of this command.

### Commands

**email-warning smtp recipient** *mailIdx mailAddress*

**no email-warning smtp recipient** *mailIdx*

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>smtp</b>	Email warning smtp setting
	<b>recipient</b>	The recipient email address
	<i>mailIdx</i>	1 ~ 4
	<i>mailAddress</i>	Email address
Defaults		
Command Modes	Global configuration	
Usage Guidelines	<i>mailIdx</i> is range from 1 to 4	
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp recipient 1 user@moxa.com MOXA(config)# no email-warning recipient 1	
Error messages	Index should be between 1 and 4 Length of email address is too long !!!	
Related commands		

## email-warning smtp sender

Use **email-warning smtp sender** to configure the email sender setting of SMTP service for the switch. To reset the setting, use the **no** form of this command.

### Commands

**email-warning smtp sender** *mailAddress*

**no email-warning smtp sender**

Syntax	<b>email-warning</b>	Email warning setting
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Description	<b>smtp</b>	Email warning smtp setting
	<b>sender</b>	The sender email address
	<i>mailAddress</i>	Email address
Defaults	admin@localhost	
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp sender admin@moxa.com MOXA(config)# no email-warning smtp sender	
Error messages	Length of email address is too long !!!	
Related commands		

## email-warning smtp server

Use **email-warning smtp server** to configure SMTP service IP/Name (IP address or name) for the switch. To clear the setting, use the **no** form of this command to clear SMTP service IP/Name.

### Commands

**email-warning smtp server** *servaddr*

**no email-warning smtp server**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>smtp</b>	SMTP server setting
	<b>server</b>	SMTP Server name/address
	<i>servaddr</i>	SMTP Server name/address
Defaults	NULL	
Command Modes	Global configuration	
Usage Guidelines		
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp server mail.hinet.net MOXA(config)# no email-warning smtp server	
Error messages	Length of server address is too long !!! Invalid SMTP server name/address	
Related commands		

## email-warning smtp tls

Use **email-warning smtp tls** to enable SMTP service tls option for the switch. To reset the setting, use the **no** form of this command.

### Commands

**email-warning smtp tls**

**no email-warning smtp tls**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>smtp</b>	Email warning smtp setting
	<b>tls</b>	Enable/Disable TLS

Defaults	tls Default disabled
Command Modes	Global configuration
Usage Guidelines	
Examples	MOXA# configure terminal MOXA(config)# email-warning smtp tls MOXA(config)# no email-warning smtp tls
Error messages	
Related commands	

## exit

Use **exit** to exit the current configuration mode.

### Commands

#### exit

Syntax Description	<b>exit</b>	Exit from configure mode Exit from port setting mode Exit command line interface Exit from management interface setting
Defaults	N/A	
Command Modes	Privileged EXEC 、 Global configuration 、 Redundancy configuration 、 Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# exit MOXA(config)# MOXA(config)# redundancy MOXA(config-rdnt)# exit MOXA(config)# exit MOXA# exit	
Error messages	N/A	
Related commands	quit	

## flowcontrol

To set the method of data flow control between the terminal or other device, use the **flowcontrol** interface configuration command. Use the **no** form of this command to disable flow control

### Commands

#### flowcontrol

#### no flowcontrol

Syntax Description	<b>flowcontrol</b>	Configure flowcontrol
Defaults	The default is disable	

Command Modes	Interface configuration
Usage Guidelines	
Examples	MOXA# configure terminal MOXA(config)# interface trunk 1 MOXA(config-if)# flowcontrol MOXA(config-if)# no flowcontrol
Error messages	Fiber port can not be set flow control!! Force speed can not be set flow control!! Cannot configure on trunk member port 1/1! This setting cannot be applied on trunk port!
Related commands	show interfaces ethernet
Related commands	show relay-warning

## garp

Use **garp join-time** global configuration commands to configure GARP join timer parameters. Use **garp leave-time** global configuration commands to configure GARP leave timer parameters. Use **garp leaveall-time** global configuration commands to configure GARP leaveall timer parameters. Use **no** form of this command to reset to default setting.

### Commands

**garp join-time** *time*

**garp leave-time** *time*

**garp leaveall-time** *time*

**no garp timer**

**no garp join-time**

**no garp leave-time**

**no garp leaveall-time**

Syntax	<b>garp</b>	garp
Description	<b>join-time</b>	Configure GARP join timer parameters
	<i>time</i>	Configure GARP join timer parameters
	<b>leave-time</b>	Configure GARP leave timer parameters
	<i>time</i>	Configure GARP leave timer parameters
	<b>leaveall-time</b>	Configure GARP leaveall timer parameters
	<i>time</i>	Configure GARP leaveall timer parameters
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# garp join-table 5 MOXA(config)# garp leave-time 15 MOXA(config)# garp leaveall-time	
Error messages	leave time should be at least two times more than join time leave all time should be larger than leave time	
Related commands	MOXA# show garp timer	

## gmrp

Use the **gmrp** interface configuration command on the switch to activate the IEEE 802.1D-1998 GMRP (GARP Multicast Registration Protocol). Use the **no** form of this command to stop this function.

### Commands

**gmrp**

**no gmrp**

Syntax Description	<b>gmrp</b>	Enable GMRP (GARP Multicast Registration Protocol)
Defaults	gmrp is default disable	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config)# interface ethernet 1/1 MOXA(config-if)# gmrp  MOXA(config-if)# no gmrp	
Error messages	GMRP cannot be enabled on static multicast member port!!!	
Related commands		

## gvrp

Use the **gvrp** global configuration command on the switch to enable GVRP. Use the **no** form of this command to disable it.

### Commands

**gvrp**

**no gvrp**

Syntax Description	<b>gvrp</b>	Enable/Disable GVRP
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# gvrp	
Error messages	N/A	
Related commands	show gvrp	

## hostname

To specify or modify the host name for the network server, use the **hostname** global configuration command. To return to the default, use the **no** form of this command.

**Commands****hostname** [*token1*] [*token2*] [*token3*] [*token4*] [*token5*]**no hostname**

Syntax	<b>hostname</b>	Set system's network name (maximum 30 characters)
Description	<i>token1~5</i>	Combine <i>token1~5</i> to switch name string.
Defaults	Name is the default switch name with the serial number	
Command Modes	Global configuration	
Usage Guidelines	Maximum string tokens are 5. Maximum switch name length is 30 characters. If device support PROFINET, only token1 will be set to switch name.	
Examples	<pre>MOXA# configure terminal MOXA(config)# hostname MOXA(config)# hostname 1 MOXA(config)# hostname 1 2 MOXA_1(config)# hostname 1 2 3 MOXA_1(config)# hostname 1 2 3 4 MOXA_1(config)# hostname 1 2 3 4 5</pre>	
Error messages	Length of switch hostname is too long Parse error	
Related commands	show system	

## Interface ethernet

Use the **interface ethernet** global configuration command on the switch to enter the ethernet configuration mode.

**Commands****interface ethernet** *mod\_port*

Syntax	<b>interface</b>	Select an interface to configure
Description	<b>ethernet</b>	Configure trunk interface
	<i>mod_port</i>	Port ID or list.
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1</pre>	
Error messages	Unavailable module Illegal parameter	
Related commands	N/A	

## interface mgmt

Use the **interface mgmt** global configuration command on the switch to enter the VLAN configuration mode of Mgmt-VLAN.

**Commands****interface mgmt**

Syntax	<b>interface</b>	Select an interface to configure
Description	<b>mgmt</b>	Configure management VLAN
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)#	
Error messages	N/A	
Related commands	show interfaces mgmt	

## Interface trunk

Use the **interface trunk** global configuration command on the switch to enter the trunk configuration mode.

### Commands

**interface trunk** *trunk\_id\_range*

Syntax	<b>interface</b>	Select an interface to configure
Description	<b>trunk</b>	Configure trunk interface
	<i>trunk_id_range</i>	Trunk ID (or list)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface trunk 1	
Error messages	There is no member in Trunk <i>trunk_id</i> Illegal parameter	
Related commands	N/A	

## ip address

Use the **ip address** VLAN configuration command on the switch to configure the IP retrieve mechanism of the switch. Use **no** form of this command to return to the default.

### Commands

**ip address** {**static** *ip-address netmask* | **dhcp** | **bootp** }

**no ip address**

Syntax	<b>ip</b>	Configure IP paramters
Description	<b>address</b>	Congiare IP address
	<b>static</b>	E.g., 11.22.33.44
	<i>ip-address</i>	IP address
	<i>netmask</i>	Subnet mask
	<b>dhcp</b>	Use DHCP to retrieve IP setting automatically
	<b>bootp</b>	Use BOOTP to retrieve IP setting automatically
Defaults	N/A	



Command Modes	Management configuration
Usage Guidelines	N/A
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# ip address static 192.168.127.200 255.255.0.0 MOXA(config-vlan)# ip address dhcp MOXA(config-vlan)# ip address bootp
Error messages	N/A
Related commands	show interfaces mgmt

## ip auto-assign

Use the **ip auto-assign** interface configuration command on the switch to enable and set the auto IP assignment of specified interfaces. Use the **no** form of this command to remove an Ethernet port from a trunk group.

### Commands

**ip auto-assign** *ipaddr*

**no ip auto-assign**

Syntax	<b>ip</b>	Configure IP paramters
Description	<b>auto-assign</b>	Automatic port IP assignment through DHCP/BootP/RARP
	<i>ipaddr</i>	IPv4 address
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	This specified IP address must be in the same subnet of the system IP address	
Examples (static IP)	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# ip auto-assign 192.168.127.1 MOXA(config-if)# no ip auto-assign	
Error messages	Cannot configure on trunk member port This IP address must be in the same subnet of the system IP address	
Related commands	show ip auto-assign	

## ip auto-logout

Use the **ip ip auto-logout** global configuration command to configure auto-logout timer. To reset to default, use the **no** form of this command.

### Commands

**ip auto-logout** *Minutes*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>auto-logout</b>	Auto-logout timer
	<i>Minutes</i>	0 for disable, or 1 ~ 1440 minutes
Defaults	Minutes: 5	

Command Modes	Global configuration
Usage Guidelines	<b>Minutes:</b> 0 for disable, or 1 ~ 1440 minutes
Examples	MOXA# configure terminal MOXA(config)# ip auto-logout 5
Error messages	N/A
Related commands	N/A

## ip default-gateway

Use the **ip default-gateway** VLAN configuration command on the switch to configure the IP default gateway address. Use the **no** form of this command to return to the default.

### Commands

**ip default-gateway** *ip-address*

**no default-gateway**

Syntax Description	<b>ip</b>	Configure IP parameters
	<b>default-gateway</b>	Configure default gateway address
	<i>ip-address</i>	IP address
Defaults	N/A	
Command Modes	Management configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# ip default-gateway 192.168.127.1	
Error messages	Warning! IP and gateway are not in the same subnet	
Related commands	show interfaces mgmt	

## ip dhcp retry

Use **ip dhcp retry** to enable the DHCP request retry for a specified period and times. Use the **no** form of this command to return to the default.

### Commands

**ip dhcp retry** *times period seconds*

**no ip dhcp retry**

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>dhcp</b>	DHCP related configuration
	<b>retry</b>	Configure DHCP client request retry parameter
	<i>times</i>	0 - 65535 times, 0 means retry forever
	<b>Period</b>	Retry period
	<i>seconds</i>	1 - 30 seconds
Defaults	Default retry times = 0, retry period=1	
Command Modes	Management configuration	

Usage	times range: 0 - 65535 times, 0 means retry forever
Guidelines	seconds range: 1 - 30 seconds
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# ip dhcp retry 0 period 1
Error messages	Illegal parameter!
Related commands	show interface mgmt

## ip dhcp-relay option82

Use the **ip dhcp-relay option82** global and interface configuration command to enable DHCP Relay with Option 82 messages. To disable it, use the **no** form of this command.

### Commands

**ip dhcp-relay option82**

**no ip dhcp-relay option82**

Syntax	<b>ip</b>	Configure IP parameters
Description	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>option82</b>	Option 82
Defaults	Default is disabled.	
Command	Global configuration	
Modes	Interface configuration	
Usage	N/A	
Guidelines		
Examples	MOXA# configure terminal MOXA(config)# ip dhcp-relay option82 MOXA(config)# no ip dhcp-relay option82  MOXA(config)# interface ethernet 1/1 MOXA(config-if)# ip dhcp-relay option82	
Error messages	Please enable Option82 first	
Related commands	show ip dhcp-relay	

## ip dhcp-relay option82 man-id

Use **ip dhcp-relay option82 man-id** to manually set the remote id instead of the predefined ones.

### Commands

**ip dhcp-relay option82 man-id** *manualId*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>option82</b>	Option 82
	<b>man-id</b>	Manual remote ID
	<i>manualId</i>	Manual remote ID, maximum 15 characters
Defaults	N/A	
Command	Global configuration	
Modes		

Usage Guidelines	N/A
Examples	MOXA# configure terminal MOXA(config)# ip dhcp-relay option82 man-id abcdef
Error messages	Manual Id is over 15 characters
Related commands	N/A

## ip dhcp-relay option82 remote-id-type

Use the **ip dhcp-relay option82 remote-id-type** global configuration command to select the remote ID information of DHCP option82 messages.

### Commands

**ip dhcp-relay option82 remote-id-type** *remoteIdType*

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>option82</b>	Option 82
	<b>remote-id-type</b>	Remote Id type
	<i>remoteIdType</i>	ip   mac   client-id   other
Defaults	Default remote-id-type is IP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ip dhcp-relay option82 remote-id-type ? <STRING:remoteIdType> - ip   mac   client-id   other MOXA(config)# ip dhcp-relay option82 remote-id-type mac  MOXA(config)# ip dhcp-relay option82 remote-id-type other	
Error messages	Invalid remote ID type	
Related commands	N/A	

## ip dhcp-relay server

Use **ip dhcp-relay server** to configure the DHCP server address that the switch will forward DHCP messages to. To remove the DHCP server address, use the **no** form of this command.

### Commands

**ip dhcp-relay server** *serverIndex serverAddr*

**no ip dhcp-relay server** *serverIndex*

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>server</b>	DHCP server IP address
	<i>serverIndex</i>	DHCP server address index, 1 to 4
	<i>serverAddr</i>	DHCP server IP address
Defaults	N/A	

Command Modes	Global configuration
Usage Guidelines	N/A
Examples	MOXA# configure terminal MOXA(config)# ip dhcp-relay server 1 192.168.127.100 MOXA(config)# ip dhcp-relay server 3 192.168.127.200
Error messages	Invalid server index Invalid IPv4 address
Related commands	show ip dhcp-relay

## ip http-server login-message

Use the **ip http-server login-message** global configuration HTTP/HTTPS login message. To reset to default, use the **no** form of this command.

### Commands

**ip http-server login-message** *msgstr*

**no ip http-server login-message**

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>http-server</b>	Enable Moxa Service
	<b>login-message</b>	Configure HTTP/HTTPS login message
	<i>msgstr</i>	Login message (max. 256 characters)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<b>msgstr</b> : max. 256 characters (Not allow "space")	
Examples	MOXA# configure terminal MOXA(config)# ip http-server login-message 12345	
Error messages	N/A	
Related commands	N/A	

## ip igmp mcast-fast-forwarding

Use the **ip igmp mcast-fast-forwarding** global configuration command on the switch to configure the multicast fast forwarding function. Use the **no** form of this command to return to the default.

### Commands

**ip igmp mcast-fast-forwarding**

**no ip igmp mcast-fast-forwarding**

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>igmp</b>	IGMP
	<b>mcast-fast-forwarding</b>	multicast fast forwarding
Defaults	Globally disabled on the switch	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	MOXA# configure terminal MOXA(config)# ip igmp mcast-fast-forwarding
Error messages	N/A
Related commands	show mac-address-table mcast

## ip igmp static-group

Use the **ip igmp static-group** global configuration command on the switch to add a static multicast MAC address and its member ports. Use the **no** form of this command to remove the static multicast group or just its member ports.

### Commands

**ip igmp static-group** *MAC-address* **interface** *module/port*

**no ip igmp static-group** [*MAC-address*] [**interface** *module/port*]

Syntax	<b>Ip</b>	Global IP configuration subcommands
Description	<b>Igmp</b>	IGMP
	<b>static-group</b>	Add New Static Multicast MAC Address
	<i>Mac-address</i>	MAC address XX:XX:XX:XX:XX:XX
	<b>Interface</b>	Binding ports
	<i>Module/port</i>	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ip igmp static-group 01:00:00:00:00:01 interface 1/2-3 MOXA(config)# no ip igmp static-group	
Error messages	Add new static multicast MAC address Fail !!!	
	Please check the multicast mac address's type !!!	
	Add new static multicast MAC address Fail !!!	
	Not enough space to add a new static multicast MAC address !!!	
Related commands	The member port should not be GMRP-enabled port !!!	
	show mac-address-table mcast	

## ip igmp-snooping

Use the **ip igmp-snooping** global configuration command on the switch to globally enable Internet Group Management Protocol (IGMP) snooping on the switch. Use the command with keywords to enable IGMP snooping. Use the **no** form of this command to disable IGMP snooping.

### Commands

**ip igmp-snooping**

**no ip igmp-snooping**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
Defaults	IGMP snooping is globally disabled	
Command Modes	Global configuration	

Usage Guidelines	N/A
Examples	MOXA# configure terminal MOXA(config)# ip igmp-snooping MOXA(config)# no ip igmp-snooping
Error messages	IGMP Function is only supported by 802.1Q VLAN mode!
Related commands	ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp

## ip igmp-snooping querier vlan

Use the **ip igmp-snooping querier vlan** global configuration command to enable and configure the IGMP querier feature on a VLAN interface. Use **ip igmp-snooping querier vlan vlan-id v3** can make the switch to send IGMP V3 query, otherwise the default is V2 query.

### Commands

**ip igmp-snooping querier vlan** *vlan-id*

**ip igmp-snooping querier vlan** *vlan-id* **v3**

**no ip igmp-snooping querier vlan** *vlan-id*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>querier</b>	IGMP snooping query enable
	<b>vlan</b>	VLAN parameters
	<i>vlan-id</i>	1 to 4094
	<b>v3</b>	IGMPv3 mode
Defaults	The IGMP snooping querier feature is globally disabled on the switch	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	MOXA# configure terminal MOXA(config)# ip igmp-snooping querier vlan 1 MOXA(config)# ip igmp-snooping querier vlan 1 v3 MOXA(config)# no ip igmp-snooping querier vlan 1	
Error messages	Vlan entry not found!!! Vlan IGMP Function is Disabled !!! IGMP Function is Disabled !!! IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp	

## ip igmp-snooping query-interval

Use the **ip igmp-snooping query-interval** global configuration command on the switch to configure the interval between IGMP queries. Use the **no** form of this command to return to the default.

**Commands****ip igmp-snooping query-interval** *interval*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>query-interval</b>	IGMP snooping query interval
	<i>interval</i>	20 to 600 seconds
Defaults	Query interval default value is 125 seconds	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	MOXA# configure terminal MOXA(config)# ip igmp-snooping query-interval 125	
Error messages	The range of Querier interval value should be between 20 and 600 !!! IGMP Function is Disabled !!! IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping enhanced show ip igmp	

## ip igmp-snooping vlan

Use the **ip igmp-snooping vlan** global configuration command on the switch to globally enable Internet Group Management Protocol (IGMP) snooping on a VLAN. Use the **no** form of this command to disable IGMP snooping on a vlan.

**Commands****ip igmp-snooping vlan** *vlan-id* [**mrouter** *module/port*]**no ip igmp-snooping vlan** *vlan-id* [**mrouter** *module/port*]

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>vlan</b>	VLAN parameters
	<i>vlan-id</i>	1 to 4094
	<b>mrouter</b>	IGMP snooping query port enable
	<i>Module/port</i>	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk4
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping must be enabled first.	
Examples	MOXA# configure terminal MOXA(config)# ip igmp-snooping vlan 1 MOXA(config)# ip igmp-snooping vlan 1 mrouter 1/1 MOXA(config)# no ip igmp-snooping vlan 1 MOXA(config)# no ip igmp-snooping vlan 1 mrouter 1/1	
Error messages	Vlan entry not found!!! IGMP Function is Disabled !!! Vlan IGMP Function is Disabled !!! IGMP Function is only supported by 802.1Q VLAN mode!	



Related commands	ip igmp-snooping ip igmp-snooping querier ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp
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## ip max-login-users

Use the **ip max-login-users** global configuration command to configure HTTP/HTTPS maximum login users. To reset to default, use the **no** form of this command.

### Commands

**ip {http-server | telnet} max-login-users Users**

**no ip http-server max-login-users**

**no ip telnet max-login-users**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>http-server</b>	Enable Moxa Service
	<b>telnet</b>	Telnet support
	<b>max-login-users</b>	Configure HTTP/HTTPS maximum login users
	<i>Users</i>	1 ~ 10 users
Defaults	Enabled.	
Command Modes	Global configuration	
Usage Guidelines	<b>Users:</b> 1 ~ 10	
Examples	MOXA# configure terminal MOXA(config)# ip http-server max-login-users 5 MOXA(config)# ip telnet max-login-users 5	
Error messages	N/A	
Related commands	ip http-server port port-number ip http-server secure port port-number ip telnet port port-number	

## ip moxa-service

Use the **ip moxa-service** global configuration command to enable SNMP Agent. To disable, use the **no** form of this command.

### Commands

**ip moxa-service**

**no ip moxa-service**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>moxa-service</b>	Enable Moxa Service
Defaults	Enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal ip moxa-service	

Error messages	N/A
Related commands	N/A

## ip name-server

Use the **ip name-server** VLAN configuration command on the switch to configure the DNS server for the switch. Use the **no** form of this command to return to the default.

### Commands

**ip name-server** *dns-ip-address1* [*dns-ip-address2*]

**no name-server**

Syntax	<b>ip</b>	Configure IP paramters
Description	<b>name-server</b>	Configure DNS server address
	<i>dns-ip-address1</i>	IP address
	<i>dns-ip-address2</i>	IP address
Defaults	N/A	
Command Modes	Management configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# ip name-server 192.168.127.2 MOXA(config-vlan)# ip name-server 192.168.127.2 192.168.127.3	
Error messages	Warning! IP and gateway are not in the same subnet	
Related commands	show interfaces mgmt	

## ip snmp-agent

Use the **ip snmp-agent** global configuration command to enable SNMP Agent. To disable, use the **no** form of this command

### Commands

**ip snmp-agent**

**no ip snmp-agent**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>snmp-agent</b>	Enable SNMP Agent
Defaults	Enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ip snmp-agent	
Error messages	N/A	
Related commands	N/A	

## ipv6 address

Use the **ipv6 address** command in VLAN configuration mode as a management VLAN to set the IPv6 address for the device. Use the **no** form of the command to return to the default.

### Commands

**ipv6 address** *ipv6\_prefix*

**no ipv6 address**

Syntax	<b>ipv6</b>	Configure IPv6
Description	<b>address</b>	IPv6 address setting
	<i>ipv6_prefix</i>	IPv6 address prefix
Command Modes	Management configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# ipv6 address 1::1	
Error messages	Invalid prefix!	
Related commands	show interface mgmt	

## link-swap-fast-recovery

Use the **link-swap-fast-recovery** global configuration command on switch to enable Link Swap Fast Recovery. Use the **no** form of this command to stop the function.

### Commands

**link-swap-fast-recovery**

**no link-swap-fast-recovery**

Syntax	<b>link-swap-fast-recovery</b>	Enable Link Swap Fast Recovery feature
Description		
Defaults	Enable Link Swap Fast Recovery	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# link-swap-fast-recovery	
Error messages	N/A	
Related commands	N/A	

## Ildp

Use the **Ildp enable** global configuration command to enable LLDP. To stop LLDP, use the **no** form of this command. TBD

### Commands

**Ildp enable**

**Ildp timer** *frequency*

**no Ildp enable**

**no Ildp timer**

Syntax	<b>lldp</b>	Configure LLDP parameters
Description	<b>enable</b>	Start up
	<b>timer</b>	Transmission frequency of LLDP updates
	<i>frequency</i>	frequency time
Defaults	LLDP is enabled. LLDP timer frequency is 30 second	
Command Modes	Global configuration	
Usage Guidelines	<i>frequency</i> is 5 ~ 32768 seconds	
Examples	MOXA# configure terminal MOXA(config)# lldp enable MOXA(config)# no lldp enable MOXA(config)# lldp timer 20 MOXA(config)# no lldp timer	
Error messages	N/A	
Related commands	show lldp	

## logging

Use the **logging** global configuration command on the switch to configure the remote SYSLOG server. Use the **no** form of this command to remove the server.

### Commands

**logging** {*ip-address* | *default* }

**no logging** *ip-address*

Syntax	<b>logging</b>	Syslog server setting
Description	<i>default</i>	Set syslog to default value
	<i>ip-address</i>	IP or DNS name w/w.o. port, Ex:1.2.3.4 or 1.2.3.4:5678
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# logging 192.168.127.20 MOXA(config)# logging default	
Error messages	Logging server configurations are full!	
Related commands	show logging	

## logging-capacity

Use the **logging-capacity** global configuration command on set the warning threshold of logging capacity. Use the **no** form of this command to default setting.

### Commands

**logging-capacity** *threshold*

**no logging-capacity**

Syntax	<b>logging-capacity</b>	Enable and configure log capacity warning threshold.
Description	<i>threshold</i>	50 ~ 100%
Defaults	Disable logging capacity and the threshold is 0%.	
Command Modes	Global configuration	
Usage Guidelines	Threshold: 50 ~ 100%	
Examples	MOXA# configure terminal MOXA(config)# logging-capacity 90	
Error messages	Event log capacity threshold should between 50~100	
Related commands	show logging-capacity	

## Logging-capacity email-warning

Use the **logging-capacity email-warning** global configuration command on switch to enable event log capacity email warning when it meets the threshold of logging capacity. Use the **no** form of this command to stop the warning.

### Commands

**logging-capacity email-warning**

**no logging-capacity email-warning**

Syntax	<b>logging-capacity</b>	Enable and configure log capacity warning threshold.
Description	<b>email-warning</b>	Enable event log capacity email warning.
Defaults	Enable email warning	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# logging-capacity email-warning	
Error messages	N/A	
Related commands	Logging-capacity snmp-trap-warning show logging-capacity	

## logging-capacity over-size-action

Use the **logging-capacity over-size-action** global configuration command on switch to set event log over-size action. Use the **no** form of this command to stop the function.

### Commands

**logging-capacity over-size-action {overwrite-oldest | stop-recording }**

Syntax	<b>logging-capacity</b>	Enable and configure log capacity warning threshold.
Description	<b>over-size-action</b>	Set event log over-size action.
	<b>overwrite-oldest</b>	Overwrite oldest log when event log is over-size.
	<b>stop-recording</b>	Stop recording when event log is over-size.
Defaults	overwrite-oldest	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# logging-capacity over-size-action overwrite-oldest MOXA(config)# logging-capacity over-size-action stop-recording	
Error messages	N/A	
Related commands	show logging-capacity	

## logging-capacity snmp-trap-warning

Use the **logging-capacity snmp-trap-warning** global configuration command on switch to enable event log capacity SNMP trap warning when it meets the threshold of logging capacity. Use the **no** form of this command to stop the warning.

### Commands

**logging-capacity snmp-trap-warning**

**no logging-capacity snmp-trap-warning**

Syntax	<b>logging-capacity</b>	Enable and configure log capacity warning threshold.
Description	<b>snmp-trap-warning</b>	Enable event log capacity SNMP trap warning
Defaults	Enable SNMP trap warning	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# logging-capacity snmp-trap-warning	
Error messages	N/A	
Related commands	Logging-capacity email-warning show logging-capacity	

## login mode

Use the **login mode** global configuration command to change the login UI mode from the console or telnet connection of the switch.

### Commands

**login mode {cli | menu}**

Syntax	<b>login</b>	Change login mode
Description	<b>mode</b>	Login mode
	<b>cli</b>	Command line interface
	<b>menu</b>	Legacy Menu Mode
Defaults	Default UI mode is MENU mode	
Command Modes	Privileged EXEC \ Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# login mode menu MOXA# login mode cli  MOXA(config)# login mode menu MOXA(config)# login mode cli	
Error messages	N/A	
Related commands	N/A	

## login-lockout

Use the **Password-policy minimum-length** global configuration command on switch to configure login lockout retry threshold and lockout time. Use the **no** form of this command to default setting.

**Commands****login-lockout****no login-lockout****login-lockout retry-threshold** *retry***no login-lockout retry-threshold****login-lockout lockout-time** *minutes***no login-lockout lockout-time**

Syntax	<b>login-lockout</b>	Enable account login failure lockout
Description	<b>retry-threshold</b>	Configure login lockout retry threshold.
	<i>retry</i>	1 ~ 10 times.
	<b>lockout-time</b>	Configure login lockout time.
	<i>minutes</i>	1 ~ 60 minutes
Defaults	Disable account login failure lockout retry: 5 minutes: 5	
Command Modes	Global configuration	
Usage Guidelines	Data range: retry: 1 ~ 10 times minutes: 1 ~ 60 minutes	
Examples	MOXA# configure terminal MOXA(config)# login-lockout MOXA(config)# login-lockout retry-threshold 5 MOXA(config)# login-lockout lockout-time 60	
Error messages	login lockout threshold should between 1~10 login lockout threshold should between 1~60	
Related commands	N/A	

## Loop protection

Use the **loopprotection** command to disable/enable loop protection support

**Commands****loopprotection****no loopprotection**

Syntax	<b>loopprotection</b>	Enable loop protection
Description		
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# loopprotection MOXA(config)# no loopprotection	
Error messages	N/A	
Related commands	Show loopprotection	

## mab

Use the **mab** interface configuration command on the switch to activate the Mac address Bypass authentication function. Use the **no** form of this command to stop this function.

### Commands

**mab**

**no mab**

Syntax	<b>mab</b>	MAB settings
Description		
Defaults	802.1x port authentication default disable	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples		
Error messages	% Cannot enable MAC-Authentication-Bypass, please disable Static-Port-Lock on port G1 first !!!	

## mac-address-sticky

Use the **mac-address-sticky** command on the switch to configure the MAC address sticky function. Use the **no** form of this command to disable the MAC address sticky function on the switch.

### Commands

**mac-address-sticky limit** *stickyLimit*

**mac-address-sticky** *MacAddress vid vid*

**no mac-address-sticky** *MacAddress vid vid*

**mac-address-sticky flush**

**mac-address-sticky violation-port-disable**

**no mac-address-sticky violation-port-disable**

**no mac-address-sticky**

Syntax Description	<b>mac-address-sticky</b>	Setting MAC address sticky
	<b>limit</b>	Enable mac address sticky and set limit
	<i>stickyLimit</i>	Enable mac address sticky and set limit
	<i>MAC-address</i>	MAC address XX:XX:XX:XX:XX:XX
	<b>vid</b>	Add mac address with vid
	<i>vid</i>	Add mac address in the list
	<b>flush</b>	Flush mac address list
	<b>Violation-port-disable</b>	Enable mac sticky violation Port Disable
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	



Examples	<pre>MOXA# config MOXA(config)# interface Ethernet 1/1 MOXA(config-if)# switchport mac-address-sticky MOXA(mac-sticky)# mac-address-sticky limit 50 % The port G1 is in Static-Port-Lock mode  MOXA(mac-sticky)# mac-address-sticky 00:00:00:00:00:01 vid 2 % The port G1 is not in MAC-Address-Sticky mode  MOXA(mac-sticky)# mac-address-sticky flush % The port G1 is not in MAC-Address-Sticky mode  MOXA(mac-sticky)# mac-address-sticky violation-port-disable % The port G1 is not in MAC-Address-Sticky mode</pre>
Error messages	Add new static unicast MAC address Fail !!!
Related commands	show mac address sticky list

## mac-address-table aging-time

Use the **mac-address-table aging-time** global configuration command on the switch to configure the aging time of the MAC address. Use the **no** form of this command to return to the default.

### Commands

**mac-address-table aging-time** *seconds*

**no mac-address-table aging-time**

Syntax	<b>mac-address-table</b>	Configure MAC address table
Description	<b>aging-time</b>	Aging time
	<i>seconds</i>	15 to 3825 seconds
Defaults	Default aging time is 300 sec	
Command Modes	Global configuration	
Usage Guidelines	Aging-time range: 15 to 3825 seconds	
Examples	<pre>MOXA# configure terminal MOXA(config)# mac-address-table aging-time 100</pre>	
Error messages	Age time should between 15~3825s!	
Related commands	show mac-address-table aging-time	

## Management-Interface

Use the **ip** global configuration command on the switch to set management interface

### Commands

**ip { http-server [ secure ] | telnet | ssh } [ port port-number ]**

**no ip { http-server [ secure ] | telnet | ssh }**

Syntax	<b>http-server</b>	Enable Http-server service
Description	<b>secure</b>	Enable SSL service
	<b>telnet</b>	Enable Telnet service

	<b>ssh</b>	Enable SSH service
	<b>Port</b>	Port
	<i>Port-number</i>	Listening port number
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ip http-server port 1 MOXA(config)# ip http-server secure port 2 MOXA(config)# ip telnet port 200 MOXA(config)# ip ssh port 201	
Error messages	Assigning duplicate port numbers is not allowed HTTP/SSH/Telnet/SSL port number is invalid, the interval is from 1 to 65535.	
Related commands	N/A	

## media cable-mode

Use the **media cable-mode** interface configuration command on the switch to enable the medium-dependent interface crossover feature on the interface. Use the **no** form of this command to disable Auto-MDIX.

### Commands

**media cable-mode [mdi | mdix | auto]**

**no media cable-mode**

Syntax Description	<b>media</b>	Select a media
	<b>cable-mode</b>	Select cable mode
	<b>mdi</b>	MDI
	<b>mdix</b>	MDIX
	<b>auto</b>	Auto select MDI/MDIX
Defaults	The default is <b>auto</b>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# media cable-mode auto MOXA(config-if)# no media cable-mode	
Error messages	Fiber port can not be set MDI/MDIX!! This setting cannot be applied on trunk port! Cannot configure on trunk member port 1/1!	
Related commands	show interface ethernet	

## modbus

Use the **modbus** global configuration command on the switch to enable Modbus/TCP industrial Ethernet protocol supported. Use the **no** form of this command to disable Modbus support.

### Commands

**modbus**

**no modbus**

Syntax Description	<b>modbus</b>	Enable Modbus
Defaults	Default is enable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# modbus MOXA(config)# no modbus	
Error messages	N/A	
Related commands	show modbus	

## monitor

Use **monitor** global configuration commands to enable the monitoring of data transmitted/received by a specific port. Use the **no** form of this command to disable the monitoring.

**Commands**

**monitor source interface** *mod\_port* [*direction*]

**no monitor source interface**

**monitor destination interface** *mod\_port*

**no monitor destination interface**

Syntax Description	<b>monitor</b>	Configure Port mirror
	<b>source</b>	Monitored port
	<b>interface</b>	Port
	<b>destination</b>	Mirror port
	<i>modPort</i>	Port ID. E.g., 1/3, Trk2,...
	<i>direction</i>	tx   rx   both
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Traffic send/receive by a source port (Monitored port) will be mirrored to the destination port (Mirror port).	
Examples	MOXA# configure terminal MOXA(config)# monitor source interface 3/1 both Warning !!! Mirror Port don't set ! MOXA(config)# monitor destination interface <STRING:mirrorPort> - Port ID. E.g., 1/3, 2/1, ... MOXA(config)# monitor destination interface 3/1,2 % Invalid format MOXA(config)# monitor destination interface 3/1 % Monitored Port is the same with Mirror Port !!!  MOXA(config)# monitor destination interface 3/2 MOXA(config)# monitor source interface 1/1-2	
Error messages	Monitored Port is the same with Mirror Port !!! Invalid parameter Warning !!! Mirror Port don't set ! Warning !!! Monitored Port don't set !	

Related commands	show port monitor
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## name

Use the **name** interface configuration command to configure the interface name. To remove the configuration, use the **no** form of this command.

### Commands

**name**

**no name**

Syntax	<b>name</b>	Port name
Description		
Defaults	None	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface trunk 1 MOXA(config-if)# name interfacel_trunk1 MOXA(config-if)# no name</pre>	
Error messages	<p>The length of port name must between 1 and 63!</p> <p>Cannot configure on trunk member port 1/1</p>	
Related commands	<pre>show interfaces ethernet show interfaces trunk</pre>	

## ntp authenticate

Use the **ntp authenticcate** global configuration command on the switch to configure the authenticate time sources. Use the **no** form of this command to return to the default.

### Commands

**ntp authenticate**

**no ntp authenticate**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>authenticate</b>	Authenticate time sources
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# ntp authenticate</pre>	
Error messages	N/A	
Related commands	show ntp authentication-status	

## ntp authenticate-key

Use the **ntp authenticcate-key** global configuration command on the switch to configure the authentication key of time sources. Use the **no** form of this command to return to the default.

**Commands****ntp authentication-key** *key-id md5 md5-string***no ntp authentication-key** *key-id*

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>authentication-key</b>	Authentication key for trusted time sources
	<i>key-id</i>	Key number
	<b>md5</b>	MD5 authentication
	<i>md5-string</i>	Authentication key
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ntp authentication-key 1 md5 123	
Error messages	N/A	
Related commands	show ntp authentication-keys	

## ntp peer servaddr

Use the **ntp peer servaddr** global configuration command on the switch to configure the Hostname/IP address of Network Time Protocol (NTP) peer key. Use the **no** form of this command to return to the default.

**Commands****ntp peer servaddr** [*key id*]**no ntp peer servaddr**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>peer</b>	Configure NTP peer
	<i>servaddr</i>	Hostname/IP address of peer
	<i>key-id</i>	Configure peer authentication key
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ntp peer 192.168.127.20 MOXA(config)# ntp peer 192.168.127.20 123	
Error messages	N/A	
Related commands	show ntp peers	

## ntp refresh-time

Use the **ntp refresh-time** global configuration command on the switch to configure the interval of each NTP query. Use the **no** form of this command to return to the default.

**Commands****ntp refresh-time** *seconds***no ntp refresh-time**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>refresh-time</b>	Configure NTP query intervals
	<i>seconds</i>	1-9999 seconds
Defaults	Default query interval is 600 sec	

Command Modes	Global configuration
Usage Guidelines	Data range: seconds: 1~9999
Examples	MOXA# configure terminal MOXA(config)# ntp refresh-time 300
Error messages	Time is out of range
Related commands	show clock

## ntp server

Use the **ntp server** global configuration command on the switch to enable the switch as an NTP server. Use the **no** form of this command to return to disable it.

### Commands

**ntp server**

**no ntp server**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>server</b>	Enable NTP server
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ntp server	
Error messages	N/A	
Related commands	show clock	

## ntp trusted-key

Use the **ntp trusted-key** global configuration command on the switch to activate the authentication key of time sources. Use the **no** form of this command to return to the default.

### Commands

**ntp trusted-key key-id**

**no ntp trusted-key key id**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>trusted-key</b>	Key numbers for trusted time sources
	<i>key-id</i>	Key number
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ntp trusted-key 1	
Error messages	N/A	
Related commands	show ntp trusted-keys	

## password-policy complexity-check

Use the **Password-policy minimum-length** global configuration command on switch to configure password complexity check. Use the **no** form of this command to default setting.

### Commands

**password-policy complexity-check [ { digit | alphabet | special-characters } ]**

**no password-policy complexity-check**

**no password-policy complexity-check digit**

**no password-policy complexity-check alphabet**

**no password-policy complexity-check special-characters**

Syntax	<b>password-policy</b>	Configure password policy
Description	<b>complexity-check</b>	Enable password complexity check.
	<b>digit</b>	Add password complexity check with digit.
	<b>alphabet</b>	Add password complexity check with alphabet.
	<b>special-characters</b>	Add password complexity check with special-characters.
Defaults	Disable complexity-check	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# password-policy complexity-check MOXA(config)# password-policy complexity-check digit MOXA(config)# password-policy complexity-check alphabet MOXA(config)# password-policy complexity-check special-characters	
Error messages	N/A	
Related commands	N/A	

## Password-policy minimum-length

Use the **Password-policy minimum-length** global configuration command on switch to configure the minimum password length. Use the **no** form of this command to default setting.

### Commands

**password-policy minimum-length length**

**no password-policy minimum-length**

Syntax	<b>password-policy</b>	Configure password policy
Description	<b>minimum-length</b>	Configure the minimum password length.
	length	4 ~ 16 characters
Defaults	4 characters	
Command Modes	Global configuration	
Usage Guidelines	Length range: 4 ~ 16 characters	
Examples	MOXA# configure terminal MOXA(config)# password-policy minimum-length 5	
Error messages	Password minimum length should between 4~16	
Related commands	N/A	

## ping

Use the **ping** user EXEC command on the switch to diagnose the remote host if it is alive.

**Commands****ping** *destaddr*

Syntax	<b>ping</b>	Send echo messages
Description	<i>destaddr</i>	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	MOXA# ping 192.168.127.20 Ping statistics for 192.168.127.20: Packets: Sent = 4, Received = 4, Lost = 0	
Error messages	N/A	
Related commands	N/A	

**poe**

Use the **poe** interface configuration command on the specific ports to set poe output mode.

**Commands****poe auto****poe force budget** *watt***poe high-power**

Syntax Description	<b>poe</b>	Power over Ethernet
	<b>auto</b>	PoE auto mode
	<b>force</b>	Set PoE port to force mode
	<b>budget</b>	Set force mode power budget
	<i>watt</i>	Set power budget(watt)
	<b>high-power</b>	Set PoE port to high power mode
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe</i> can only be enabled on poe-supported-interface <i>watt</i> is range from 1 to 36	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe auto MOXA(config-if)# poe high-power MOXA(config-if)# poe force budget 26	
Error messages	This port is not a POE port. POE port Watt should be between 1 and 36	
Related commands	poe enable	

**poe enable**

Use the **poe enable** configuration command on the specific ports to enable poe. Use the **no poe** command on the specific ports to disable poe.



**Commands****poe enable****no poe**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>enable</b>	Enable port PoE
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i>	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# no poe	
Error messages	This port is not a POE port.	
Related commands	poe auto poe force budget poe high-power poe legacy-pd-detect poe power-priority poe pdfail poe pdfail ip poe pdfail periods poe pdfail no-response-timeout poe pdfail no-response-action poe timetabling	

## poe legacy-pd-detect

Use the **poe legacy-pd-detect** interface configuration command on the specific ports to enable poe legacy-pd-detect. Use the **no** form of this command on the specific ports to disable poe legacy-pd-detect.

**Commands****poe legacy-pd-detect****no poe legacy-pd-detect**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>legacy-pd-detect</b>	Disable legacy PD detection
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i>	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe legacy-pd-detect MOXA(config-if)# no poe legacy-pd-detect	
Error messages	This port is not a POE port.	
Related commands	poe enable	

## poe pdfail

Use the **poe pdfail** configuration command on the specific ports to enable poe pd failure check. Use the **no** form of this command on the specific ports to disable.

### Commands

**poe pdfail**

**no poe pdfail**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>pdfail</b>	PD failure check
Defaults	PD-failure-check is default disabled.	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i>	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe pdfail MOXA(config-if)# no poe pdfail</pre>	
Error messages	This port is not a POE port.	
Related commands	<pre>poe enable poe pdfail ip poe pdfail periods poe pdfail no-response-timeout poe pdfail no-response-action</pre>	

## poe pdfail ip

Use the **poe pdfail ip** configuration command on the specific ports to configure the ip address of powered device to do failure check. Use the **no** form of this command on the specific ports to reset ip address default.

### Commands

**poe pdfail ip ipaddr**

**no poe pdfail ip**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>pdfail</b>	PD failure check
	<b>ip</b>	Failure check ip
	<i>ipaddr</i>	IP
Defaults	NULL	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i>	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe pdfail MOXA(config-if)# poe pdfail ip 192.168.127.253 MOXA(config-if)# no poe pdfail ip</pre>	

Error messages	This port is not a POE port. ip invalid.
Related commands	poe enable poe pdfail poe pdfail periods poe pdfail no-response-timeout poe pdfail no-response-action

## poe pdfail no-response-action

Use the **poe pdfail no-response-action** configuration command on the specific ports to configure poe pd failure check no-response-timeout action. Use the **no** form of this command on the specific ports to reset no-response-action default.

### Commands

**poe pdfail no-response-action { no-action | reboot-pd | power-off-pd }**  
**no poe pdfail no-response-action**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>pdfail</b>	PD failure check
	<b>no-response-action</b>	Set PD failure check no response action
	<b>no-action</b>	No action
	<b>reboot-pd</b>	Reboot PD
	<b>power-off-pd</b>	Power off PD
Defaults	<i>no-action</i>	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i>	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe pdfail MOXA(config-if)# poe pdfail no-response-action no-action MOXA(config-if)# poe pdfail no-response-action reboot-pd MOXA(config-if)# poe pdfail no-response-action power-off-pd	
Error messages	This port is not a POE port.	
Related commands	poe enable poe pdfail poe pdfail ip poe pdfail periods poe pdfail no-response-timeout	

## poe pdfail no-response-timeout

Use the **poe pdfail no-response-timeout** configuration command on the specific ports to configure poe pd failure check no-response-timeout cycle. Use the **no** form of this command on the specific ports to reset no-response-timeout default.

### Commands

**poe pdfail no-response-timeout timeout**  
**no poe pdfail no-response-timeout**

Syntax Description	<b>poe</b>	Power over Ethernet
	<b>pdfail</b>	PD failure check
	<b>no-response-timeout</b>	Set PD failure check no response timeout
	<i>timeout</i>	Set no response timeout cycle
Defaults	<i>timeout</i> is 3	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i> <i>timeout</i> is range from 1 to 10	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe pdfail MOXA(config-if)# poe pdfail no-response-timeout 4 MOXA(config-if)# no poe pdfail no-response-timeout</pre>	
Error messages	<p>This port is not a POE port.</p> <p>Cycles should be between 1 and 10</p>	
Related commands	<p>poe enable</p> <p>poe pdfail</p> <p>poe pdfail ip</p> <p>poe pdfail periods</p> <p>poe pdfail no-response-action</p>	

## poe pdfail periods

Use the **poe pdfail periods** configuration command on the specific ports to configure poe pd failure check period of time. Use the **no** form of this command on the specific ports to reset period of time default.

### Commands

**poe pdfail periods** *periods*

**no poe pdfail periods**

Syntax Description	<b>poe</b>	Power over Ethernet
	<b>pdfail</b>	PD failure check
	<b>periods</b>	Failure check periods
	<i>periods</i>	sec
Defaults	<i>periods</i> is 10	
Command Modes	Interface configuration	
Usage Guidelines	<i>poe can only be enabled on poe-supported-interface</i> <i>periods</i> is range from 5 to 300	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe pdfail MOXA(config-if)# poe pdfail periods 30 MOXA(config-if)# no poe pdfail periods</pre>	
Error messages	<p>This port is not a POE port.</p> <p>Periods should be between 5 and 300.</p>	
Related commands	<p>poe enable</p> <p>poe pdfail</p> <p>poe pdfail ip</p> <p>poe pdfail no-response-timeout</p> <p>poe pdfail no-response-action</p>	

## poe power-priority

Use the **poe power-priority** interface configuration command on the specific ports to set poe port priority. Use the **no** form of this command on the specific ports to reset to default priority.

### Commands

**poe power-priority** *priority*

**no poe power-priority**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>power-priority</b>	Set PoE port power priority
	<i>priority</i>	Port power priority
Defaults	<i>priority</i> is mapping to port number; For example, port G1's priority is 1; G4's priority is 4	
Command Modes	Interface configuration	
Usage Guidelines	<p><i>poe</i> can only be enabled on poe-supported-interface</p> <p>smaller <i>priority</i> is higher priority</p> <p>port power priority is used in measured power mode only</p>	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe power-priority 2 MOXA(config-if)# no poe power-priority</pre>	
Error messages	<p>This port is not a POE port.</p> <p>Power priority should be between 1 and 8.</p>	
Related commands	poe enable	

## poe system

Use the **poe system enable** configuration command on the switch to enable Power over Ethernet function on the switch. Use the **no** form of this command to return to the default. Use the **poe system power-budget budget** configuration command on the switch to set budget value.

### Commands

**poe system enable**

**poe system power-budget budget** *budgetvalue*

**no poe system**

Syntax	<b>poe</b>	Power over Ethernet
Description	<b>system</b>	PoE system setting
	<b>enable</b>	PoE system power enable
	<b>power-budget</b>	PoE system power budget setting
	<b>budget</b>	Power budget
	<i>budgetvalue</i>	Power budget value
Defaults	<i>budgetvalue</i> = 30*PortNum	
Command Modes	Global configuration	
Usage Guidelines	<i>budgetvalue</i> is range from 30 to 1000	
Examples	<pre>MOXA# configure terminal MOXA(config)# poe system enable MOXA(config)# poe system power-budget budget 30</pre>	

Error messages	System power budget should be between 30 and 1000 Not support POE on this switch The assigned power value cannot be lower than the allocated power: 240 watts.
Related commands	poe system threshold

## poe system threshold

Use the **poe system threshold power** configuration command on the switch to set threshold value. Use the **poe system cutoff** configuration command on the switch to switch to measured power mode on the switch. Use the **no poe system cutoff** form of this command to return to the default.

### Commands

**poe system threshold power** *threshold*

**poe system threshold cutoff**

**no poe system threshold** { *power* | *cutoff* }

Syntax Description	<b>poe</b>	Power over Ethernet
	<b>system</b>	PoE system setting
	<b>threshold</b>	PoE system power threshold/cutoff enable setting
	<b>power</b>	PoE system power threshold setting
	<b>cutoff</b>	PoE system power threshold cut off enable
	<i>threshold</i>	PoE system power threshold
Defaults	<i>threshold</i> = 30*PortNum	
Command Modes	Global configuration	
Usage Guidelines	<i>threshold</i> is range from 30 to 1000	
Examples	MOXA# configure terminal MOXA(config)# poe system threshold cutoff MOXA(config)# poe system threshold power 50	
Error messages	System power budget should be between 30 and 1000 Not support POE on this switch	
Related commands	poe system threshold	

## poe timetabling

Use the **poe timetabling** configuration command on the specific ports to enable poe time tabling function. Use the **poe timetabling** configuration command with *week\_day*, *start\_time* and *end\_time* on the specific ports to enable weekday time tabling and also set start time and end time. Use the **no poe timetabling** command on the specific ports to disable time tabling. Use the **no poe timetabling** command with *week\_day* on the specific ports to disable weekday time tabling.

### Commands

**poe timetabling** [*week\_day*] [*start\_time*] [*end\_time*]

**no poe timetabling** [*week\_day*]

Syntax Description	<b>poe</b>	Power over Ethernet
	<b>timetabling</b>	PoE timetabling
	<i>week_day</i>	Enable / Disable PoE timetabling in weekday
	<i>start_time</i>	Timetabling start time
	<i>end_time</i>	Timetabling end time

Defaults	Time-tabling is default disabled. <i>start_time</i> is default 0 <i>end_time</i> is default 24
Command Modes	Interface configuration
Usage Guidelines	<i>poe</i> can only be enabled on poe-supported-interface <i>week_day</i> is range from 0 to 6, 0 means Monday <i>end_time</i> cannot be smaller than <i>start_time</i>
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# poe enable MOXA(config-if)# poe timetabling MOXA(config-if)# poe timetabling 0 MOXA(config-if)# poe timetabling 0 12 MOXA(config-if)# poe timetabling 0 12 24 MOXA(config-if)# no poe timetabling 0 MOXA(config-if)# no poe timetabling
Error messages	This port is not a POE port. End time should be greater than Start time.
Related commands	poe enable

## port-security

Use the **port-security** command on the switch to configure the port security function. Use the **no** form of this command to disable the port security function on the switch.

### Commands

**[no] port security [MacAddress [vid vid]]**

Syntax	<b>port-security</b>	Set port security
Description	<i>MAC-address</i>	MAC address XX:XX:XX:XX:XX:XX
	<b>vid</b>	Add mac address with vid
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# config MOXA(config)# interface Ethernet 1/1 MOXA(config-if)# switchport port-security MOXA(port-sec)# port-security 00:00:00:00:00:01 MOXA(port-sec)# port-security 00:00:00:00:00:01 vid 2 MOXA(config-if)# no port-security 00:00:00:00:00:01	
Error messages	Add new static unicast MAC address Fail !!!	
Related commands	N/A	

## profinetio

Use the **profinetio** command to disable/enable PROFINET support.

### Commands

**profinetio**

**no profinetio**

Syntax	<b>profinetio</b>	Enable PROFINET IO
Description		
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# profinetio MOXA(config)# no profinetio	
Error messages	N/A	
Related commands	Show profinetio	

## ptp arb-time

Use the **ptp arb-time** configuration command on the switch to set the arb-time parameter of the local clock.

**Commands****ptp arb-time** *time*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>arb-time</b>	Set the ARB time parameter of the local clock
	<i>time</i>	Set the ARB time parameter of the local clock
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>time</i> : 0 to 2147483646	
Examples	MOXA# configure terminal MOXA(config)# ptp arb-time 0	
Error messages	Arb time must be in the range from 0 to 2147483646	
Related commands	Show ptp settings	

## ptp clockclass

Use the **ptp clockclass** configuration command on the switch to set the clockclass parameter of the local clock.

**Commands****ptp clockclass** *class*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>clockclass</b>	Set the clock class parameter of the local clock
	<i>class</i>	Set the clock class parameter of the local clock
Defaults	default is 248	
Command Modes	Global configuration	
Usage Guidelines	<i>Class</i> : 0 to 255	



Examples	MOXA# configure terminal MOXA(config)# ptp clockclass 248
Error messages	clockclass must be in the range from 0 to 255
Related commands	Show ptp settings

## ptp domain-number

Use the **ptp domain-number** configuration command on the switch to set the domain number of the local clock.

### Commands

**ptp domain-number** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>domain-number</b>	Set the domain number of the local clock
	<i>interval</i>	Sets the domain number of the local clock
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>interval</i> : 0 to 3	
Examples	MOXA# configure terminal MOXA(config)# ptp domain-number	
Error messages	domainNum must be in the range from 0 to 3	
Related commands	Show ptp settings	
Error messages	N/A	

## ptp enable

Use the **ptp enable** command on the switch to enable the PTP operation. Use the **no** form of this command to disable the PTP operation on the switch.

### Commands

**ptp enable**

**no ptp**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>enable</b>	Enable the ptp operation
Defaults	ptp is default disable	
Command Modes	Configuration Interface configuration mode	
Usage Guidelines	N/A	
Examples	MOXA(config)# ptp enable MOXA(config)# no ptp MOXA(config-if)# ptp enable MOXA(config-if)# no ptp	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp leap59

Use the **ptp leap59** global configuration command on the switch to enable the PTP leap59. Use the **no** form of this command to disable the PTP leap59 on the switch.

### Commands

**ptp leap59**

**no ptp leap59**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>leap59</b>	enable the last minute of the current UTC day contains 59 seconds
Defaults	default disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp leap59 MOXA(config)# no ptp leap59	
Error messages	N/A	
Related commands	Show ptp settings	

## ptp leap61

Use the **ptp leap61** global configuration command on the switch to enable the PTP leap61. Use the **no** form of this command to disable the PTP leap61 on the switch.

### Commands

**ptp leap61**

**no ptp leap61**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>leap61</b>	enable the last minute of the current UTC day contains 61 seconds
Defaults	default disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp leap61 MOXA(config)# no ptp leap61	
Error messages	N/A	
Related commands	Show ptp settings	

## ptp log-announce-interval

Use the **ptp log-announce-interval** global configuration command on the switch to set the log-announce-interval parameter.

**Commands****ptp log-announce-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-announce-interval</b>	Set the logarithm to the base 2 of the mean AnnounceInterval
	<i>interval</i>	Setsthe logarithm to the base 2 of the mean AnnounceInterval
Defaults	default is 1	
Command Modes	Global configuration	
Usage Guidelines	<i>interval</i> : 0 to 4	
Examples	MOXA# configure terminal MOXA(config)# ptp log-announce-interval	
Error messages	logAnnounceInterval must be in the range from 0 to 4	
Related commands	Show ptp settings	

## ptp log-min-delay-req-interval

Use the **ptp log-min-delay-req-interval** global configuration command on the switch to set the *log-min-delay-req-interval* parameter.

### Commands

**ptp log-min-delay-req-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-min-delay-req-interval</b>	Set the logarithm to the base 2 of the mean minDelayReqInterval
	<i>interval</i>	Sets the logarithm to the base 2 of the mean minDelayReqInterval
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>interval</i> : 0 to 5	
Examples	MOXA# configure terminal MOXA(config)# ptp log-min-delay-req-interval	
Error messages	logMinDelayReqInterval must be in the range from 0 to 5	
Related commands	Show ptp settings	

## ptp log-min-pdelay-req-interval

Use the **ptp log-min-pdelay-req-interval** global configuration command on the switch to set the *log-min-pdelay-req-interval* parameter.

### Commands

**ptp log-min-pdelay-req-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-min-pdelay-req-interval</b>	Set the logarithm to the base 2 of the mean minPDelayReqInterval
	<i>interval</i>	Sets the logarithm to the base 2 of the mean minPDelayReqInterval
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>interval</i> : -1 to 5	
Examples	MOXA# configure terminal MOXA(config)# ptp log-min-pdelay-req-interval	
Error messages	logMinPDelayReqInterval must be in the range from -1 to 5	
Related commands	Show ptp settings	

## ptp log-sync-interval

Use the **ptp log-sync-interval** global configuration command on the switch to set the log-sync-interval parameter.

### Commands

**ptp log-sync-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-sync-interval</b>	Set the logarithm to the base 2 of the mean SyncInterval
	<i>interval</i>	Sets the logarithm to the base 2 of the mean SyncInterval
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>interval</i> : -3 to 1	
Examples	MOXA# configure terminal MOXA(config)# ptp log-sync-interval 1	
Error messages	logSyncInterval must be in the range from -3 to 1	
Related commands	Show ptp settings	

## ptp mode

Use the **ptp mode** global configuration command on the switch to set the PTP operation mode.

### Commands

**ptp mode v1-bc**

**ptp mode v2-e2e-bc**

**ptp mode v2-p2p-bc**

**ptp mode v2-e2e-2step-tc**

**ptp mode v2-p2p-2step-tc**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>mode</b>	Set the ptp operation mode
	<b>v1-bc</b>	ptp v1 boundary clock mode
	<b>v2-e2e-bc</b>	ptp v2 end-to-end boundary clock mode
	<b>v2-p2p-bc</b>	ptp v2 peer-to-peer boundary clock mode
	<b>v2-e2e-2step-tc</b>	ptp v2 end-to-end 2-step transparent clock mode
	<b>v2-p2p-2step-tc</b>	ptp v2 peer-to-peer 2-step transparent clock mode
	Defaults	Default setting of ptp is v1-bc mode
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp mode v1-bc	
Error messages	N/A	
Related commands	Show ptp settings	

## ptp preferred-master

Use the **ptp preferred-master** global configuration command on the switch to the local clock as the master clock (only valid in v1-bc mode).

### Commands

**ptp preferred-master**

**no ptp preferred-master**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>preferred-master</b>	Set the local clock as the master clock(only valid in v1-bc mode)
Defaults	default disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp preferred-master MOXA(config)# no ptp preferred-master	
Error messages	N/A	
Related commands	Show ptp settings	

## ptp priority1

Use the **ptp priority1** configuration command on the switch to set the priority1 parameter of the local clock.

### Commands

**ptp priority1** *priority*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>priority1</b>	Set the priority1 parameter of the local clock
	<i>priority</i>	Set the priority1 parameter of the local clock
Defaults	default is 128	
Command Modes	Global configuration	
Usage Guidelines	<i>Priority</i> : 0 to 255	
Examples	MOXA# configure terminal MOXA(config)# ptp priority1 128	
Error messages	priority1 must be in the range from 0 to 255	
Related commands	Show ptp settings	

## ptp priority2

Use the **ptp priority2** configuration command on the switch to set the priority2 parameter of the local clock.

### Commands

**ptp priority2** *priority*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>Priority2</b>	Set the priority2 parameter of the local clock

	<i>priority</i>	Set the priority2 parameter of the local clock
Defaults	default is 128	
Command Modes	Global configuration	
Usage Guidelines	<i>Priority</i> : 0 to 255	
Examples	MOXA# configure terminal MOXA(config)# ptp priority2 128	
Error messages	priority2 must be in the range from 0 to 255	
Related commands	Show ptp settings	

## ptp timescale

Use the **ptp timescale** configuration command on the switch to set the transport type of the ptp domain.

### Commands

#### ptp timescale [arb|ptp]

Syntax Description	<b>ptp</b>	Configure PTP
	<b>timescale</b>	Set the timescale parameter of the local clock
	<b>arb</b>	Set the timescale parameter of the local clock to ARB
	<b>ptp</b>	Set the timescale parameter of the local clock to PTP
Defaults	default is ptp	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp timescale arb MOXA(config)# ptp timescale ptp	
Error messages	N/A	
Related commands	Show ptp settings	

## ptp transport

Use the **ptp transport** configuration command on the switch to set the transport type of the ptp domain.

### Commands

#### ptp transport [802\_3|ipv4]

Syntax Description	<b>ptp</b>	Configure PTP
	<b>transport</b>	Set the transport type of the ptp domain
	<b>802_3</b>	Set the transport type of the PTP domain to 802.3/Ethernet
	<b>ipv4</b>	Set the transport type of the PTP domain to IPv4
Defaults	default is ipv4	
Command Modes	Global configuration	
Usage Guidelines	N/A	



Examples	MOXA# configure terminal MOXA(config)# ptp transport 802_3 MOXA(config)# ptp transport ipv4
Error messages	It can not set transport type as 802.3 when clock mode is V1 BC.
Related commands	Show ptp settings

## ptp utc-offset

Use the **ptp utc-offset** configuration command on the switch to set the PTP utc-offset field.

### Commands

**ptp utc-offset** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>utc-offset</b>	sets the offset between TAI and UTC
	<i>interval</i>	sets the offset between TAI and UTC
Defaults	default is 0	
Command Modes	Global configuration	
Usage Guidelines	<i>Interval: 0 to 65535</i>	
Examples	MOXA# configure terminal MOXA(config)# ptp utc-offset 0	
Error messages	utc_offset must be in the range from 0 to 65535	
Related commands	Show ptp settings	

## ptp utc-offset-valid

Use the **ptp utc-offset-valid** configuration command on the switch to enable the PTP utc-offset field. Use the **no** form of this command to disable the PTP utc-offset field on the switch.

### Commands

**ptp utc-offset-valid**

**no ptp utc-offset-valid**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>utc-offset-valid</b>	UTC Offset field is valid
Defaults	default disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# ptp utc-offset-valid MOXA(config)# no ptp utc-offset-valid	
Error messages	N/A	
Related commands	Show ptp settings	

## qos default-cos

Use the **qos default-cos** interface configuration command on the switch to configure the default CoS priority of the Ethernet ports/Trunks. Use the **no** form of this command to return to the default.

### Commands

**qos default-cos** *cos-value*

**no qos default-cos**

Syntax	<b>qos</b>	Configure QoS
Description	<b>default-cos</b>	Configure Default CoS of each port
	<i>cos-value</i>	CoS value (0 to 7)
Defaults	Default CoS value is 3	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# qos default-cos 7  MOXA(config-if)# no qos default-cos</pre>	
Error messages	N/A	
Related commands	show qos	

## qos inspect

Use the **qos inspect** global/interface configuration command on the switch to enable the inspect criteria. Use the **no** form of this command to disable it.

### Commands

**qos inspect dscp**

**no qos inspect dscp**

**qos inspect cos**

**no qos inspect cos**

Syntax	<b>qos</b>	Configure QoS
Description	<b>inspect</b>	Configure inspection criteria
	<b>dscp</b>	Enable DSCP inspection
	<b>cos</b>	Enable CoS inspection of each port
Defaults	N/A	
Command Modes	Global configuration Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# qos inspect cos MOXA(config-if)# qos inspect dscp MOXA(config-if)# no qos inspect cos MOXA(config-if)# no qos inspect dscp</pre>	
Error messages	N/A	

Related commands	show qos
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## qos mapping

Use the **qos mapping** global configuration command on the switch to configure the Priority and DSCP mappings. Use the **no** form of this command to return to the default.

### Commands

**qos mapping priority-to-queue** *priority queue*

**no qos mapping priority-to-queue**

**qos mapping dscp-to-priority** *dscp priority*

**no qos mapping dscp-to-priority**

Syntax Description	<b>qos</b>	Configure QoS
	<b>mapping</b>	Configure QoS mapping
	<b>priority-to-queue</b>	Priority to traffic queue
	<i>Priority</i>	Priority value
	<i>queue</i>	Traffic queue
	<b>dscp-to-priority</b>	DSCP to priority mapping
	<i>dscp-value</i>	DSCP value
	<b>dscp-to-queue</b>	DSCP to traffic queue
Defaults	Priority (queue): 0 (0), 1(0), 2(1), 3(1), 4(2), 5(2), 6(3), 7(3) DSCP(priority): 0-15(0), 16-31(1), 32-47(2), 48-63(3)	
Command Modes	Global configuration	
Usage Guidelines	<i>Priority</i> : 0 to 7 <i>queue</i> : 0 to 3 <i>dscp</i> : 0 to 63	
Examples	MOXA# configure terminal MOXA(config)# qos mapping priority-to-queue 7 3 MOXA(config)# no qos mapping priority-to-queue MOXA(config)# qos mapping dscp-to-priority 23 7 MOXA(config)# no qos mapping dscp-to-priority	
Error messages	Invalid parameter. Priority value must be 0~7 and queue value must be 0~3 Invalid parameter. DSCP value must be 0~63 and priority value must be 0~7	
Related commands	show qos priority-to-queue show qos dscp-to-priority	

## qos mode

Use the **qos mode** global configuration command on the switch to configure the current QoS strategy. Use the **no** form of this command to return to the default.

### Commands

**qos mode { weighted-fair | strict }**

**no qos mode**

Syntax Description	<b>qos</b>	Configure QoS
	<b>mode</b>	Configure queuing mechanism
	<b>weighted-fair</b>	Weighted fair queuing
	<b>strict</b>	Strict queuing
Command Modes	Global configuration	

Usage Guidelines	N/A
Examples	MOXA# configure terminal MOXA(config)# qos mode weighted-fair MOXA(config)# qos mode strict
Error messages	N/A
Related commands	show qos

## qos port-priority

Use the **qos port-priority** interface configuration command on the switch to set the Port Priority of the ingress frames. Use the **no** form of this command to return to the default.

### Commands

**qos port-priority** priority

**no qos port-priority**

Syntax	<b>qos</b>	Configure QoS
Description	<b>port-priority</b>	port priority
	priority	Configure port priority of each port
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# qos port-priority 1 MOXA(config-if)# no qos port-priority	
Error messages	N/A	
Related commands	show qos	

## quit

Use **quit** to quit the current configuration mode.

### Commands

**exit**

Syntax	<b>quit</b>	Exit command line interface
Description		
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# quit	
Error messages	N/A	

Related commands	Exit
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## rate-limit

Use the **rate-limit** interface configuration command on the switch to configure the traffic rate allowed for the specified port. Use the **no** form of this command to return to the default. For Marvell 88E6095 chipsets, use **rate-limit ingress rate** to set the ingress rate limiting; for Broadcom chipsets, use **rate-limit ingress percentage** to set the ingress rate limiting.

### Commands

**rate-limit { ingress | egress } percentage** *percentage*

**no rate-limit { ingress | egress }**

**[no] rate-limit action { drop-packet | port-disable }**

**rate-limit drop-packet { ingress | egress } percentage** *percentage*

**no rate-limit drop-packet { ingress | egress }**

**rate-limit port-disable period** *period*

**rate-limit port-disable ingress rate { none | 44640 | 74410 | 148810 | 223220 | 372030 | 520840 | 744050 }**

Syntax Description	<b>rate-limit</b>	Rate limiting
	<b>drop-packet</b>	Rate limiting normal drop-packet
	<b>port-disable</b>	Rate limiting port-disable mode
	<b>ingress</b>	Ingress rate limiting
	<b>egress</b>	Egress rate limiting
	<b>percentage</b>	Percentage correspond to current port speed
	<i>percentage</i>	Limit percentage, and will take effect at the percentage 0/3/5/10/15/25/35/50/65/85
	<b>rate</b>	Specify the rate
	<b>period</b>	Port disable period
	<i>period</i>	Seconds
Defaults	<b>0</b> or <b>none</b> means unlimiting.	
Command Modes	Interface configuration	
Usage Guidelines	The <i>percentage</i> will only take effect at the 0/3/5/10/15/25/35/50/65/85 %. For port disable mode, the port will be disabled when the ingress rate reach the specified packet rate.	
Examples	<pre>MOXA(config-if)# rate-limit percentage &lt;UINT:percent&gt;      - Limit percentage, and will take effect at the percentage 0/3/5/10/15/25/35/50/65/85 MOXA(config-if)# rate-limit ingress rate none none none none  MOXA(config-if)# rate-limit port-disable ingress period 30 MOXA(config-if)# rate-limit port-disable ingress rate 148810</pre>	
Error messages	Cannot configure on trunk member port 1/1! This setting cannot be applied on trunk port!	
Related commands	show interfaces rate-limit	

## redundancy

Use the **redundancy** global configuration command on the switch to enter the redundancy configuration mode.

**Commands****redundancy**

Syntax	<b>redundancy</b>	Enter redundancy configuration mode
Description		
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA (config)# redundancy MOXA (config-rdnt)# exit MOXA (config)#	
Error messages	N/A	
Related commands	show redundancy mode	

## redundancy default

Use the **redundancy default** global configuration command to reset the redundancy protocol mode.

**Commands****redundancy default**

Syntax	<b>redundancy</b>	Enter redundancy configuration mode
Description	<b>default</b>	RSTP
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA (config)# redundancy default	
Error messages	N/A	
Related commands	show redundancy mode	

## redundancy mode

Use the **redundancy mode** global configuration command on the switch to change the redundancy protocol mode.

**Commands****redundancy mode { mst | rstp | turbo-ring-v1 | turbo-ring-v2 | turbo-chain }**

Syntax Description	<b>redundancy</b>	Enter redundancy configuration mode
	<b>mode</b>	Specify the redundancy protocol
	<b>mst</b>	MSTP
	<b>rstp</b>	Rapid Spanning Tree
	<b>turbo-ring-v1</b>	Turbo ring version 1
	<b>turbo-ring-v2</b>	Turbo ring version 2

	<b>turbo-chain</b>	Turbo chain
Defaults	The default redundancy protocol mode is RSTP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA(config)# redundancy mode rstp MOXA(config)# redundancy mode turbo-ring-v1 MOXA(config)# redundancy mode turbo-ring-v2 MOXA(config)# redundancy mode turbo-chain MOXA(config)# redundancy mode mst</pre>	
Error messages	N/A	
Related commands	show redundancy mode	

## relay-warning event (System)

Use **relay-warning event** global configuration commands to enable the warning events trigger to the relay. Use the **no** form of this command to disable it.

### Commands

**relay-warning event { power-input1-fail | power-input2-fail | turbo-ring-break }**

**no relay-warning event { power-input1-fail | power-intput2-fail | turbo-ring-break }**

Syntax	<b>relay-warning</b>	Configure relay warning
Description	<b>event</b>	System events
	<b>power-input1-fail</b>	Power input 1 failure (On->Off)
	<b>power-input2-fail</b>	Power input 2 failure (On->Off)
	<b>turbo-ring-break</b>	Turbo Ring break
Defaults	All system events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# relay-warning MOXA(config)# relay-warning event power-input1-fail MOXA(config)# relay-warning event power-input2-fail MOXA(config)# relay-warning event turbo-ring-break MOXA(config)# no relay-warning event power-input1-fail MOXA(config)# no relay-warning event power-input2-fail MOXA(config)# no relay-warning event turbo-ring-break</pre>	
Error messages	N/A	
Related commands	show relay-warning	

## relay-warning event (Port)

Use **relay-warning event** interface configuration commands to enable the warning events trigger to the relay. Use the **no** form of this command to disable it.

**Commands****relay-warning event { link-on | link-off }****relay-warning event traffic-overload [ rxThreshold duration]****no relay-warning event { link | traffic-overload }**

Syntax	<b>relay-warning</b>	Configure relay warning
Description	<b>event</b>	Port events
	<b>link-on</b>	Link ON
	<b>link-off</b>	Link OFF
	<b>traffic-overload</b>	Traffic overloading
	<i>rxThreshold</i>	0 to 100
	<i>duration</i>	1 to 300
	<b>link</b>	All link events
Defaults	All interface events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA(config)# interface ethernet 3/1 MOXA(config-if)# relay-warning event ?   link-on           - Link ON   link-off          - Link OFF   traffic-overload  - Traffic overloading MOXA(config-if)# relay-warning event link-off MOXA(config-if)# relay-warning event traffic-overload</pre>	
Error messages	Threshold should be between 0 and 100	
	Duration should be between 1 and 300	
Related commands	show relay-warning	

## relay-warning override

Use **relay-warning override relay** to override the relay warning setting temporarily. Releasing the relay output will allow administrators to fix any problems with the warning condition. Use the **no** form of this command to disable the override.

**Commands****relay-warning override relay****no relay-warning override relay**

Syntax	<b>relay-warning</b>	Configure relay warning
Description	<b>override</b>	Override the relay warning setting
	<b>relay</b>	Relay
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# relay-warning override relay MOXA(config)# no relay-warning override relay</pre>	
Error messages	N/A	



Related commands	show relay-warning config
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## reload

Use the **reload** privileged command on the switch to restart the Moxa Switch. Use the **reload factory-default** privileged command to restore the switch configuration to the factory default values.

### Commands

#### reload [factory-default]

Syntax	<b>reload</b>	Halt and perform a cold restart
Description	<b>factory-default</b>	Halt and perform a cold restart with factory default
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# reload Proceed with reload ? [Y/n ]  MOXA# reload factory-default Proceed with reload to factory default? [Y/n]	
Error messages	N/A	
Related commands	N/A	

## save config

Use the **save config** command to save the running configuration to the startup configuration on flash.

### Commands

#### save config

Syntax	<b>save</b>	Save running configuration to flash
Description	<b>config</b>	Save running configuration to flash
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# save config  Saving configuration ...Success	
Error messages	N/A	
Related commands	N/A	

## show acl

Use the **show acl** user EXEC command to display the ACL configuration information.

**Commands****show acl id****show acl summary**

Syntax	<b>show</b>	Show running system information
Description	<b>acl</b>	Display ACL information
	<i>id</i>	The access list ID
	<b>summary</b>	Display active ACL status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show acl 10 ACL ID      : 10 Name        : Type        : MAC-base  Rule Index      : 1 Action          : deny Source MAC Address : 00:11:22:33:44:55/FF:FF:FF:00:00:00 Destination MAC Address : AA:BB:CC:DD:EE:FF/FF:FF:FF:00:00:00 Ether Type      : 2048 VLAN ID         : 10 Ingress Port Map : 0 Egress Port Map : 0  -----  MOXA# show acl summary  Type   ID   Attached Port   Name ----- MAC-base 1                               test_acl1 MAC-base 10</pre>	
Error messages	Invalid ID!	
Related commands	acl id	

## show authentication dot1x

Use the **show authentication dot1x** user EXEC command to display 802.1x authentication login setting information

**Commands****show authentication dot1x****show authentication radius dot1x-mab****show authentication local dot1x**

Syntax	<b>show</b>	Show running system information
Description	<b>authentication</b>	Display authentication settings
	<b>dot1x</b>	Display dot1x authentication settings
	<b>radius</b>	Display radius settings
	<b>local</b>	Display local db settings
Defaults	N/A	

Command Modes	Privileged EXEC
Usage Guidelines	N/A
Examples	<pre> MOXA# show authentication dot1x Dot1x Database Option : Local  Re-Authentication      : Enable Re-Authentication Period : 3600  Port 802.1X Enable ----- 1/2  Disable 1/3  Disable 1/4  Disable 1/5  Disable 1/6  Disable 1/7  Disable 1/8  Disable 1/9  Disable 1/10 Disable 1/11 Disable 1/12 Disable 1/13 Disable 1/14 Disable 1/15 Disable 1/16 Disable  MOXA# show authentication radius dot1x-mab 1st Radius Server  : 1st Server Port    : 1812 1st Shared Key     : 2nd Radius Server  : 2nd Server Port    : 1812 2nd Shared Key     :  MOXA# show authentication local dot1x Index User Name          Description ----- </pre>
Error messages	N/A
Related commands	<pre> authentication dot1x {radius [local]   local   reauth [period seconds]} no authentication dot1x [{reauth [period]}] authentication radius dot1x-mab {use login server   1stServer server authentication radius dot1x-mab {1stServer   2ndServer} {server-ip server_ip   server-port server_port   shared-key shared_key} no authentication radius dot1x-mab {use login server   1stServer   2ndServer} authentication local dot1x username username password password desc description no authentication local dot1x {all user   username username} </pre>

## show authentication login

Use the **show authentication login** user EXEC command to display authentication login setting information

**Commands****show authentication login****show authentication radius login****show authentication tacacs+ login**

Syntax	<b>show</b>	Show running system information
Description	<b>authentication</b>	Display authentication settings
	<b>login</b>	Display login authentication settings
	<b>radius</b>	Display radius settings
	<b>tacacs+</b>	Display tacacs+ settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show authentication login  Auth Server Mode: Local  MOXA# show authentication radius login Radius information:   Status          : Disabled   Auth server     :   Shared key      :   Auth type       : PAP   Server Timeout  : 5 secs  MOXA# show authentication tacacs+ login  Tacacs+ information:   Status          : Disabled   Auth server     :   Shared key      :   Auth type       : ASCII   Server Timeout  : 5 secs  MOXA# show authentication local dot1x Index User Name          Description ----- </pre>	
Error messages	N/A	
Related commands	<pre>authentication login {radius [local]   tacacs+ [plus local]   local} no authentication login authentication radius login {server ip <i>serve_ip</i>   server port <i>server_port</i>   shared key <i>shared_key</i>   timeout <i>timeout</i>   auth-type {pap   chap}} no authentication radius login authentication tacacs+ login {server ip <i>serve_ip</i>   server port <i>server_port</i>   shared key <i>shared_key</i>   timeout <i>timeout</i>   auth-type {ascii   pap   chap   mschap}} no authentication tacacs+ login [auth-type]</pre>	

## show authentication mab

Use the **show authentication mab** user EXEC command to display MAC Address Bypass (MAB) authentication login setting information

**Commands****show authentication mab**

Syntax	<b>show</b>	Show running system information
Description	<b>authentication</b>	Display authentication settings
	<b>mab</b>	Display mab authentication settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show authentication mab MAB db: radius server  MAB re-authorizing timer is disabled  MAB re-start timer is disabled  All Ports disable MAB</pre>	
Error messages	N/A	
Related commands	<pre>authentication mab {radius   reauth [period seconds]   restart [period seconds]} no authentication mab [{reauth [period]   restart [period]}]</pre>	

## show clock

Use the **show clock** user EXEC command to display time-related settings.

**Commands****show clock**

Syntax	<b>show</b>	Show running system information
Description	<b>clock</b>	Display the system clock
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show clock  Current Time           : Thu Jan 01 04:10:36 1970 Clock Source           : Local Daylight Saving   Start Date           :   End Date              :   Offset                : Time Zone              : GMT-0:00 Time Server            : time.nist.gov NTP/SNTP Server        : Disabled</pre>	
Error messages	N/A	

Related commands	clock set clock summer-time clock timezone ntp refresh-time ntp remote-server ntp server
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## show dip-switch

Use the **show dip-switch** user EXEC command to display DIP switch configuration.

### Commands

#### show dip-switch

Syntax	<b>show</b>	Show running system information
Description	<b>dip-switch</b>	Display DIP switch configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show dip-switch Dip switch is Enable. Dip switch mode is Turbo-ring V2.	
Error messages	N/A	
Related commands	dip switch disable dip switch enable dip switch mode turbo-ring-v1 dip switch mode turbo-ring-v2	

## show dot1x

To check the 802.1x setting, use the **show dot1x** command.

### Commands

#### show dot1x

Syntax	<b>show</b>	Show running system information
Description	<b>dot1x</b>	Display 802.1x settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre> MOXA# show dot1x Database Option : Local 1st Radius Server : 1st Server Port : 1812 1st Shared Key : 2nd Radius Server : 2nd Server Port : 1812 2nd Shared Key : Re-Auth : Enable Re-Auth Period : 3600  Port 802.1X Enable ----- 1/2 Disable 1/3 Disable 1/4 Disable 1/5 Disable 1/6 Disable 1/7 Disable 1/8 Disable 1/9 Disable 1/10 Disable 1/11 Disable 1/12 Disable 1/13 Disable 1/14 Disable 1/15 Disable 1/16 Disable </pre>
Error messages	N/A
Related commands	<pre> authentication dot1x {radius   local   radius local} authentication dot1x reauth [period seconds] </pre>

## show eip

Use the **show eip** user EXEC command to display the EtherNet/IP configuration information.

### Commands

#### show eip

Syntax	<b>show</b>	Show running system information
Description	<b>eip</b>	Display EtherNet/IP configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre> MOXA# show eip eip disable </pre>	
Error messages	N/A	
Related commands	eip no eip	

# show email-warning config

Use the **show email-warning config** user EXEC command to display email warning configuration information.

## Commands

### show email-warning config

Syntax	<b>show</b>	Show running system information
Description	<b>email-warning</b>	Display Email warning configuration
	<b>config</b>	Email warning configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre> MOXA# show email-warning config Mail Server and Email Setup   SMTP Server IP/Name  :   SMTP Port           : 25   Account Name        :   Account Password    :    1st email address  :   2nd email address  :   3rd email address  :   4th email address  :  System Events   Cold Start          : Disable   Warm Start          : Disable   Conf. Changed       : Disable   Power On-&gt;Off       : Disable   Power Off-&gt;On       : Disable   Auth. Failure       : Disable   Topology Changed   : Disable --More-- Port Events Setting       Link      Link      Traffic  RX      Traffic Port   ON       OFF       Overload Threshold(%) Duration(s) ----- 1-1    Disable   Disable   Disable  0        1 1-2    Disable   Disable   Disable  0        1 1-3    Disable   Disable   Disable  0        1 1-4    Disable   Disable   Disable  0        1 1-5    Disable   Disable   Disable  0        1 1-6    Disable   Disable   Disable  0        1 1-7    Disable   Disable   Disable  0        1 1-8    Disable   Disable   Disable  0        1 3-1    Disable   Disable   Disable  0        1 3-2    Disable   Disable   Disable  0        1 3-3    Disable   Disable   Disable  0        1 3-4    Disable   Disable   Disable  0        1 3-5    Disable   Disable   Disable  0        1 3-6    Disable   Disable   Disable  0        1 3-7    Disable   Disable   Disable  0        1 </pre>	



	3-8	Disable	Disable	Disable	0	1
Error messages	N/A					
Related commands	email-warning event					

## show fiber-status

Use the **show fiber status** user EXEC command to display the fiber DDM (Digital Diagnostics Monitoring) status.

### Commands

#### show fiber-status

Syntax	<b>show</b>	Show running system information
Description	<b>fiber-status</b>	Display Fiber DDM Status
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show fiber-status	
Error messages	N/A	
Related commands	N/A	

## show garp timer

Use the **show garp timer** user EXEC command to display the GARP timer settings.

### Commands

#### show garp timer

Syntax	<b>show</b>	Show running system information
Description	<b>garp timer</b>	Display GARP Timer
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show garp timer  GARP Timer: Join Time:200 (ms) Leave Time:600 (ms) Leaveall Time:10000 (ms)	
Error messages	N/A	
Related commands	garp join-time <i>time</i> garp leave-time <i>time</i> garp leaveall-time <i>time</i>	

## show gmrp

Use the **show gmrp** user EXEC command to display the GMRP table of the switch.



Usage Guidelines	N/A
Examples	<pre>MOXA# show interfaces ethernet 2/1 acl  Type      ID      Direction  Index -----  - IP-base   2       Inbound    1 MAC-base  4       Inbound    2 IP-base   7       Inbound    3 MAC-base  11      Outbound   4</pre>
Error messages	Invalid ID!
Related commands	

## show interfaces counters

Use the **show interfaces counters** user EXEC command to display traffic statistics information of interfaces.

### Commands

**show interfaces counters**

**show interfaces ethernet *port-id* counters**

**show interfaces trunk *trunk-id* counters**

Syntax Description	<b>show</b>	Show running system information
	<b>interfaces</b>	Interface status and configuration
	<b>counters</b>	Display counters
	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	<b>trunk</b>	Show interface trunk information
	<i>port-id</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<i>trunk-id</i>	Trunk ID (or list)
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Detail counter information will contain the differences information from last query.	
Examples	<pre>MOXA# show interfaces counters  Port      Tx Packets (Load%)      Rx Packets (Load%) -----  - G1                0 ( 0)                0 ( 0) G2                0 ( 0)                0 ( 0) G3                0 ( 0)                0 ( 0) G4                0 ( 0)                0 ( 0) G5                0 ( 0)                0 ( 0) G6                0 ( 0)                0 ( 0) G7                0 ( 0)                0 ( 0) G8                0 ( 0)                0 ( 0) G9                490 ( 0)              975 ( 0) G10               0 ( 0)                0 ( 0) G11               0 ( 0)                0 ( 0) G12               0 ( 0)                0 ( 0) G13               0 ( 0)                0 ( 0) G14               0 ( 0)                0 ( 0) G15               0 ( 0)                0 ( 0)</pre>	

	<pre> G16                0( 0)                0( 0)  MOXA# show interfaces ethernet 1/1 counters Port 1/1 (last sample time: 13655 secs ago) - TX -   Unicast Packets   : 0                  +0   Multicast Packets : 0                  +0   Broadcast Packets : 0                  +0   Collision Packets : 0                  +0 - RX -   Unicast Packets   : 0                  +0   Multicast Packets : 0                  +0   Broadcast Packets : 0                  +0   Pause Packets     : 0                  +0 - Error -   TX Late           : 0                  +0   TX Excessive      : 0                  +0   RX CRC error      : 0                  +0   RX Discard        : 0                  +0   RX Undersize      : 0                  +0   RX Fragments      : 0                  +0   RX Oversize       : 0                  +0   RX Jabber         : 0                  +0  MOXA# show interfaces trunk 1/17 counters Trk1 (last sample time: 13877 secs ago) - TX -   Unicast Packets   : 0                  +0   Multicast Packets : 0                  +0   Broadcast Packets : 0                  +0   Collision Packets : 0                  +0 - RX -   Unicast Packets   : 0                  +0   Multicast Packets : 0                  +0   Broadcast Packets : 0                  +0   Pause Packets     : 0                  +0 - Error -   TX Late           : 0                  +0   TX Excessive      : 0                  +0   RX CRC error      : 0                  +0   RX Discard        : 0                  +0   RX Undersize      : 0                  +0   RX Fragments      : 0                  +0   RX Oversize       : 0                  +0   RX Jabber         : 0                  +0                 </pre>
Error messages	<pre> There is no member in Trunk 1 Illegal parameter Invalid trunk id Invalid port                 </pre>
Related commands	<pre> N/A                 </pre>

# show interfaces ethernet

To check the status of interfaces, use the **show interfaces ethernet** command.

## Commands

**show interfaces ethernet** [ *module/port* [ *config* ] ]

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	<i>module/port</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<b>config</b>	Show interface module/port settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show interfaces ethernet Port Link   Description           Speed   FDX Flow Ctrl MDI/MDIX ----- 1/3  Off    1000TX,RJ45.         --      --             -- 1/4  Off    1000TX,RJ45.         --      --             -- 1/5  Off    1000TX,RJ45.         --      --             -- 1/6  Off    1000TX,RJ45.         --      --             -- 1/7  Off    1000TX,RJ45.         --      --             -- 1/8  Off    1000TX,RJ45.         --      --             -- 1/9  On     1000TX,RJ45.         1G-Full Off         Auto 1/10 Off    1000TX,RJ45.         --      --             -- 1/11 Off    1000TX,RJ45.         --      --             -- 1/12 Off    1000TX,RJ45.         --      --             -- 1/13 Off    1000FX,miniGBIC.    --      --             -- 1/14 Off    1000FX,miniGBIC.    --      --             -- 1/15 Off    1000FX,miniGBIC.    --      --             -- 1/16 Off    1000FX,miniGBIC.    --      --             -- Trk1 Off  MOXA# show interfaces ethernet 1/3 Port Link   Description           Speed   FDX Flow Ctrl MDI/MDIX ----- 1/3  Off    1000TX,RJ45.         --      --             --  MOXA# show interfaces ethernet 1/3 config Port Enable Description           Speed   FDX Flow Ctrl MDI/MDIX ----- 1/3  Yes    1000TX,RJ45.         Auto    Disable       Auto</pre>	
Error messages	N/A	
Related commands	N/A	

# show interfaces mgmt

Use the **show interfaces mgmt** user EXEC command to display the Mgmt-VLAN settings.

**Commands****show interfaces mgmt**

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>mgmt</b>	Display management VLAN information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show interfaces mgmt  IPv4   Management VLAN id   : 1   IP configuration     : Static   IP address           : 192.168.127.250   Subnet mask          : 255.255.255.0   Default gateway      : 0.0.0.0   DNS server           :  IPv6   Global Unicast Address Prefix :   Global Unicast Address       : ::   Link-Local Address           : fe80::a8bb:ccff:fedd:eeff</pre>	
Error messages	N/A	
Related commands	ip address ip default-gateway ip name-server bind vlan	

**show interfaces mgmt access-ip**

Use the **show interfaces mgmt access-ip** user EXEC command to display the settings of accessible IP list.

**Commands****show interfaces mgmt access-ip**

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>mgmt</b>	Display management VLAN information
	<b>access-ip</b>	Display accessible IP list
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show interfaces mgmt access-ip Trusted Access IP List: Disable Index  IP / Netmask</pre>	
Error messages	N/A	

Related commands	access-ip
------------------	-----------

## show interfaces mgmt trusted-access

Same as **show interfaces mgmt access-ip**.

### Commands

#### show interfaces mgmt trusted-access

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>mgmt</b>	Display management VLAN information
	<b>trusted-access</b>	Display trusted access IP list
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show interfaces mgmt trusted-access Trusted Access IP List: Disable Index IP / Netmask	
Error messages	N/A	
Related commands	trusted-access	

## show interfaces rate-limit

Use the **show interfaces rate-limit** user EXEC command to display the setting of Rate-limiting.

### Commands

#### show interfaces ethernet module/port rate-limit

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	<i>module/port</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<b>rate-limit</b>	Rate limiting configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show interfaces ethernet 1/3 rate-limit Normal mode : Port 1/3:     Ingress Limit Rate: 3%  MOXA# show interfaces ethernet 1/3-5 rate-limit Normal mode : Port 1/3:     Ingress Limit Rate: 3%  Port 1/4:     Ingress Limit Rate: Not Limited  Port 1/5:     Ingress Limit Rate: Not Limited</pre>	
Error messages	N/A	
Related commands	rate-limit	

## show ip auto-assign

Use the **show ip auto-assign** user EXEC command to display the setting of the Auto IP Assignment feature.

### Commands

#### show ip auto-assign

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>auto-assign</b>	Display automatic ip assignment settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip auto-assign	



Error messages	N/A
Related commands	ip auto-assign

## show ip dhcp-relay config

Use the **show ip dhcp-relay config** user EXEC command to display the setting of the DHCP relay feature.

### Commands

#### show ip dhcp-relay config

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>dhcp-relay</b>	Display DHCP relay configuration
	<b>config</b>	DHCP relay configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show ip dhcp-relay config DHCP Relay Agent Setting   1st server IP :   2nd server IP :   3rd server IP :   4th server IP : DHCP Relay Option 82: Enable   Remote ID type   : Other   Remote ID value  : 1234567890123   Remote ID display: 31323334353637383930313233 --More-- DHCP Function Table Port  Circuit-ID      Option 82 ----- 1-1   01000101         Disable 1-2   01000102         Disable 1-3   01000103         Disable 1-4   01000104         Disable 1-5   01000105         Disable 1-6   01000106         Disable 1-7   01000107         Disable 1-8   01000108         Disable 3-1   01000111         Disable 3-2   01000112         Disable 3-3   01000113         Disable 3-4   01000114         Disable 3-5   01000115         Disable 3-6   01000116         Disable 3-7   01000117         Disable 3-8   01000118         Disable</pre>	
Error messages	N/A	
Related	N/A	

commands	
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## show ip http-server status

Use **show ip http-server status** to display HTTP server related settings.

### Commands

#### show ip http-server status

Syntax Description	<b>show</b>	Show running system information
	<b>ip</b>	Display IP information
	<b>http-server</b>	HTTP server information
	<b>status</b>	Status
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip http-server status HTTP service is enable HTTP server capability : Present HTTPS secure server capability : Present Auto-logout : 5 minutes	
Error messages	N/A	
Related commands	N/A	

## show ip igmp

Use the **show ip igmp** user EXEC command to display the Internet Group Management Protocol (IGMP) snooping configuration and IGMP table of the switch.

### Commands

#### show ip igmp [{vlan *vlan\_id* | querier [vlan *vlan\_id* ] | group [*group\_addr*] [vlan *vlan\_id*]}]

Commands	<b>show</b>	Show running system information
	<b>ip</b>	Display IP information
	<b>igmp</b>	Show IGMP snooping settings
	<b>vlan</b>	Show IGMP snooping tables by the vlan id
	<i>vlan_id</i>	VLAN ID
	<b>querier</b>	Show IGMPv3 querier table
	<b>group</b>	Show IGMPv3 group table
	<i>group_addr</i>	group address
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre>MOXA# show ip igmp IGMP Snooping           :Enable IGMP Snooping Enhanced Mode :Enable Query Interval           :125(sec) Multicast Fast Forwarding Mode:Disable  MOXA# show ip igmp querier VID  Static(S) / Learned(L) / Multicast Querier  Enable Querier Querier State    Port &amp; Querier(Q) connected Port                              ----- 1                                     Enable (V2)   Querier</pre>
Error messages	N/A
Related commands	

## show ipv6 neighbors

Use *show show ipv6 neighbors* to display IPv6 information.

### Commands

#### show ipv6 neighbors

Syntax Description	<b>show</b>	Show running system information
	<b>ipv6</b>	Display IPv6 information
	<b>neighbors</b>	IPv6 neighbors
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show ipv6 neighbors                  IPv6 address           Link Layer address   Status -----                 fe80::a8bb:ccff:fedd:eeff aa:bb:cc:dd:ee:ff Reachable</pre>	
Error messages	N/A	
Related commands	N/A	

## show lldp

Use the *show lldp* command to display the LLDP settings and the LLDP neighbor information.

### Commands

#### show lldp [entry]

Syntax Description	<b>show</b>	Show running system information
	<b>lldp</b>	Display LLDP information
	<b>entry</b>	LLDP entries
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre>MOXA# show lldp LLDP Enable           : Enable Message Transmit Interval: 30 seconds  MOXA# show lldp entry Port   : 23 Neighbor ID       : 00:90:e8:0a:0a:0a Neighbor Port     : 3 Neighbor Port Descript : 100TX,RJ45. Neighbor System   : Managed Redundant Switch 00000  Port   : 19 Neighbor ID       : 00:90:e8:0a:0a:0a Neighbor Port     : 2 Neighbor Port Descript : 100TX,RJ45. Neighbor System   : Managed Redundant Switch 00000  Port   : 24 Neighbor ID       : 00:90:e8:0a:0a:0a Neighbor Port     : 1 Neighbor Port Descript : 100TX,RJ45. Neighbor System   : Managed Redundant Switch 00000</pre>
Error messages	N/A
Related commands	<pre>[no] lldp enable lldp timer [transFreq] no lldp timer</pre>

## show logging

Use the **show logging** user EXEC command to display the setting of the IP filter feature.

### Commands

#### show logging [event-log]

Syntax Description	<b>show</b>	Show running system information
	<b>logging</b>	Display syslog information
	<b>event-log</b>	Display system event logs
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show logging  Syslog server #1: Syslog server #2: Syslog server #3:  MOXA# show logging event-log Idx Boot      Time or Uptime                               Log ----- 1  10 0d3h36m3s           Configuration change activated 2  10 0d3h50m55s           Account 'admin' auth. success 3  10 0d3h51m12s           Configuration change activated</pre>	
Error	N/A	

messages	
Related commands	logging

## show logging-capacity

Use the **show logging-capacity** user EXEC command to display the system event logs.

### Commands

**show logging-capacity**

Syntax	<b>show</b>	Show running system information
Description	<i>logging-capacity</i>	Display system event logs
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show logging-capacity Logging Capacity Threshold: 0% Logging Capacity Threshold Warning by Trap: On Logging Capacity Threshold Warning by Email: On Logging Capacity Oversize Action: Overwrite Oldest</pre>	
Error messages	N/A	
Related commands	logging	

## show loopprotection

Use the **show loopprotection** user EXEC command to display loop protection settings information.

### Commands

**show loopprotection**

Syntax	<b>show</b>	Show running system information
Description	<b>loopprotection</b>	Display loop protection settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show loopprotection loop protection disable</pre>	
Error messages	N/A	
Related commands	[no] loopprotection	

## show mac-address-sticky-list

Use the **show mac-address-sticky-list** EXEC command to display MAC address sticky list information.

**Commands****show mac-address-sticky-list**

Syntax	<b>show</b>	Show running system information
Description	<b>mac-address-sticky-list</b>	mac address sticky list
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show mac-address-sticky-list Total: 0 / 1024	
Error messages	N/A	
Related commands	N/A	

## show mac-address-table

Use the **show mac-address-table** user EXEC command to display MAC addresses in the MAC address table.

**Commands**

**show mac-address-table** [{**static** | **learned** | **mcast** }]

**show mac-address-table** [**interface** {**ethernet** *module/port* | **trunk** *trunk-id* } ]

Syntax	<b>show</b>	Show running system information
Description	<b>mac-address-table</b>	Display MAC address forwarding table
	<b>static</b>	Retrieve static MAC addresses
	<b>learned</b>	Retrieve learned MAC addresses
	<b>mcast</b>	Retrieve Multicast address
	<b>interface</b>	Retrieve MAC address by interface
	<b>ethernet</b>	Ethernet Port interface
	<i>module/port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>trunk</b>	Trunk interface
	<i>trunk-id</i>	Trunk ID. From 1 to 4
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	

Examples	<pre> MOXA# show mac-address-table   Line Swap Fast Recovery : Enabled s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type      VLAN  Port ----- 1    C4:E9:84:03:E5:E8  ucast(1)  1    1/9  MOXA# show mac-address-table static s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type      VLAN  Port ----- 1    C4:E9:84:03:E5:E8  ucast(1)  1    1/9  MOXA# show mac-address-table learned s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type      VLAN  Port ----- 1    C4:E9:84:03:E5:E8  ucast(1)  1    1/9  MOXA# show mac-address-table mcast s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type      VLAN  Port ----- </pre>
Error messages	N/A
Related commands	N/A

## show mac-address-table aging-time

Use the **show mac-address-table aging-time** user EXEC command to display the aging time setting of the MAC address table.

### Commands

#### show mac-address-table aging-time

Syntax	<b>show</b>	Show running system information
Description	<b>mac-address-table</b>	Display MAC address forwarding table
	<b>aging-time</b>	MAC entry aging time
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	

Usage Guidelines	N/A
Examples	MOXA# show mac-address-table aging-time  MAC address aging time: 300 sec
Error messages	N/A
Related commands	mac-address-table aging-time

## show mac-address-table interface

Use the **show mac-address-table** user EXEC command to display MAC addresses in the MAC address table.

### Commands

**show mac-address-table [interface {ethernet module/port | trunk trunk-id } ]**

Syntax Description	<b>show</b>	Show running system information
	<b>mac-address-table</b>	Display MAC address forwarding table
	<b>interface</b>	Retrieve MAC address by interface
	<b>ethernet</b>	Ethernet Port interface
	<i>module/port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>trunk</b>	Trunk interface
	<i>trunk-id</i>	Trunk ID. From 1 to 4
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show mac-address-table interface ethernet 1/3  s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type    VLAN  Port ----- -----  MOXA# show mac-address-table interface trunk 1  s: static l: learn ucast: unicast lock: static port lock MAC address. Idx  MAC                Type    VLAN  Port ----- -----</pre>	
Error messages	N/A	
Related commands	N/A	



## show modbus

Use the **show modbus** user EXEC command to display Modbus configuration.

### Commands

#### show modbus

Syntax	<b>show</b>	Show running system information
Description	<b>modbus</b>	Display Modbus configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show modbus Modbus enable	
Error messages	N/A	
Related commands	modbus no modbus	

## show ntp authentication-keys

Use the **show ntp authentication-keys** user EXEC command to display Authentication key for trusted time sources.

### Commands

#### show ntp authentication-keys

Syntax	<b>show</b>	Show running system information
Description	<b>ntp</b>	Network time protocol
	<b>authentication-keys</b>	Authentication key for trusted time sources
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ntp authentication-keys  ----- Auth key MD5 String -----	
Error messages	N/A	
Related commands	show ntp trusted-keys show ntp peers show ntp authentication-status	

## show ntp authentication-status

Use the **show ntp authentication-status** user EXEC command to display status of authenticate time sources.

### Commands

#### show ntp authentication-status



Defaults	N/A
Command Modes	Privileged EXEC
Usage Guidelines	N/A
Examples	MOXA# show ntp trusted-keys  Trusted Keys:
Error messages	N/A
Related commands	show ntp authentication-keys show ntp peers show ntp authentication-status

## show poe

Use the **show poe** user EXEC command to display system poe configuration information.

### Commands

**poe system enable**

**poe system power-budget budget** *budgetvalue*

**no poe system**

Syntax	<b>show</b>	Show running system information
Description	<b>poe</b>	Show PoE status
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre> MOXA# show poe PoE system status:   PoE power output      : Enable   PoE power budget      : 50 Watts   PoE power threshold   : 240 Watts   PoE threahold cutoff  : Nothing   Sum of allocated power : 0 Watts   Sum of measured power  : 0 Watts ----- --+             Power           Consumption Voltage Current PD Failure PD Status    Port Status Output Class      (W)           (V)           (mA) Check      Description  -----+-----   G1 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G2 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G3 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G4 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G5 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G6 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present   G7 Enable Off   N/A           N/A           N/A           N/A Disable   NIC   G8 Enable Off   N/A           N/A           N/A           N/A Disable   Not Present                 </pre>
Error messages	N/A
Related commands	poe system threshold

## show port monitor

Use the **show port monitor EXEC** command to display the port mirror settings.

### Commands

#### show port monitor

Syntax	<b>show</b>	Show running system information
Description	<b>port</b>	Display Port configuration
	<b>monitor</b>	Display Port mirror configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	



Syntax	<b>show</b>	Show running system information
Description	<b>profinetio</b>	Display PROFINET configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA> show profinetio profinet io disable	
Error messages	N/A	
Related commands	profinetio no profinetio	

## show ptp port

Use the **show ptp port** user EXEC command to display the Precision Time Protocol (PTP) port status information.

### Commands

**show ptp port** *mod\_port*

Syntax	<b>show</b>	Show running system information
Description	<b>ptp</b>	Display PTP information
	<b>port</b>	Display PTP port disable/enable state
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ptp port 1 % Unavailable module MOXA# show ptp port 1/1 Port PTP Port Enable          Status ----- 1/1 Disable                  PTP_DISABLED	
Error messages	N/A	
Related commands	show ptp settings show ptp status	

## show ptp settings

Use the **show ptp settings** user EXEC command to display the Precision Time Protocol (PTP) setting information.

### Commands

**show ptp settings**

Syntax	<b>show</b>	Show running system information
Description	<b>ptp</b>	Display PTP information
	<b>settings</b>	Display current PTP configuration
Defaults	N/A	

Command Modes	Privileged EXEC
Usage Guidelines	N/A
Examples	<pre>MOXA# show ptp settings Operation IEEE 1588/PTP   Operation           : Disable Configuration IEEE 1588/PTP   Clock Mode          : v1 BC   LogSyncInterval     : 0   LogMinDelayReqInterval : 0   SubDomain Name      : _DFLT   Preferred Master     : FALSE</pre>
Error messages	N/A
Related commands	<pre>ptp enable no ptp ptp mode {v1-bc   v2-e2e-bc   v2-p2p-bc   v2-e2e-2step-tc   v2-p2p-2step-tc}</pre>

## show ptp status

Use the **show ptp status** user EXEC command to display the Precision Time Protocol (PTP) status information.

### Commands

#### show ptp status

Syntax	<b>show</b>	Show running system information
Description	<b>ptp</b>	Display PTP information
	<b>status</b>	Display current PTP port state
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show ptp settings Operation IEEE 1588/PTP   Operation           : Disable Configuration IEEE 1588/PTP   Clock Mode          : v1 BC   LogSyncInterval     : 0   LogMinDelayReqInterval : 0   SubDomain Name      : _DFLT   Preferred Master     : FALSE  MOXA# show ptp status   Offset To Master(nsec)           : 0   Grandmaster UUID                 : 00:90:e8:4f:00:6f   Parent UUID                      : 00:90:e8:4f:00:6f   Clock Stratum                    : 0   Clock Identifier                  : DFLT</pre>	
Error messages	N/A	
Related commands	<pre>show ptp settings show ptp port mod port</pre>	

# show qos

Use the **show qos** user EXEC command to display Quality of Service (QoS) settings information.

## Commands

**show qos [priority-to-queue | dscp-to-priority]**

Syntax	<b>show</b>	Show running system information
Description	<b>qos</b>	Display QoS configuration
	<b>priority-to-queue</b>	Priority to traffic queue mappings
	<b>dscp-to-priority</b>	DSCP to Priority mappings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre> MOXA# show qos  Queuing Mechanism   : Weighted Fair (1:2:4:8) Tos Inspection   Module 1          : Disabled   Module 3          : Disabled  Int# CoS Inspection CoS ----- 1/3      Enabled   3 1/4      Enabled   3 1/5      Enabled   3 1/6      Enabled   3 3/1      Enabled   3 3/2      Enabled   3 3/3      Enabled   3 3/4      Enabled   3 3/5      Enabled   3 3/6      Enabled   3 3/7      Enabled   3 3/8      Enabled   3 Trk1     Enabled   3  MOXA# show qos priority-to-queue  CoSPriority Queue # ----- 0      Q0 1      Q0 2      Q1 3      Q1 4      Q2 5      Q2 6      Q3 7      Q3  MOXA# show qos dscp-to-priority  DSCP Priority  DSCP Priority  DSCP Priority  DSCP Priority </pre>	



	0	0	1	0	2	0	3	0
	4	0	5	0	6	0	7	0
	8	1	9	1	10	1	11	1
	12	1	13	1	14	1	15	1
	16	2	17	2	18	2	19	2
	20	2	21	2	22	2	23	2
	24	3	25	3	26	3	27	3
	28	3	29	3	30	3	31	3
	32	4	33	4	34	4	35	4
	36	4	37	4	38	4	39	4
	40	5	41	5	42	5	43	5
	44	5	45	5	46	5	47	5
	48	6	49	6	50	6	51	6
	52	6	53	6	54	6	55	6
	56	7	57	7	58	7	59	7
	60	7	61	7	62	7	63	7
Error messages	N/A							
Related commands	qos mode {weighted fair   strict} no qos mode qos inspect {cos   dscp} no qos inspect qos mapping qos default-cos qos mapping {cos-to-queue <i>cos_queue</i>   dscp-to-queue <i>dscp_queue</i>   priority-to-queue <i>priority_queue</i>   dscp-to-priority <i>dscp_priority</i> } no qos mapping { cos-to-queue   dscp-to-queue   priority-to-queue   dscp-to-priority}							

## show redundancy mode

Use the **show redundancy mode** user EXEC command to display current redundancy protocol mode.

### Commands

#### show redundancy mode

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>mode</b>	Current redundancy protocol mode
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show redundancy mode Current redundancy mode : RSTP (IEEE 802.1D 2004) Active Protocol : None	
Error messages	N/A	
Related commands	N/A	

## show redundancy mst cist

Use the **show redundancy mst cist** user EXEC command to display cist status of Multiple Spanning Tree (MSTP).

**Commands****show redundancy mst cist**

Syntax Description	<b>show</b>	Show running system information
	<b>redundancy</b>	Display redundancy protocol status
	<b>mst</b>	Display multiple spanning tree settings
	<b>cist</b>	Display MSTP cist status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show redundancy mst cist MSTP cist root status:  CIST Root: --- MSTP cist bridge status:     Birdge Priority: 32768  Int#  Enable   Prio   Cost   Oper Cost   Edge   State   Role -----</pre>	
Error messages	N/A	
Related commands	spanning-tree mst	

## show redundancy mst configure

Use the **show redundancy mst configure** user EXEC command to display settings of Multiple Spanning Tree (MSTP).

**Commands****show redundancy mst configuration**

Syntax Description	<b>show</b>	Show running system information
	<b>redundancy</b>	Display redundancy protocol status
	<b>mst</b>	Display multiple spanning tree settings
	<b>configure</b>	Display multiple spanning tree global settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show redundancy mst configuration MSTP global setting:     Forwarding Delay:      15     Hello Time:            2     Max Hops:              20     Max Age:               20     Revision Level:        0     Region Name:           MSTP</pre>	
Error messages	N/A	

Related commands	spanning-tree mst
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## show redundancy mst instance

Use the **show redundancy mst instance** user EXEC command to display Multiple Spanning Tree (MSTP) instance state information.

### Commands

**show redundancy mst instance** *instance-id*

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>mst</b>	Display multiple spanning tree settings
	<b>instance</b>	Display MSTP msti status
	<i>instance-id</i>	MSTP instance ID
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show redundancy mst instance 1 MSTP msti root status:  MSTI Root: --- MSTP msti 1 bridge status:   Vlan Mapping:   Birdge Priority: 32768  Int#  Enable   Prio   Cost   Oper Cost   Edge   State   Role ----- -----</pre>	
Error messages	N/A	
Related commands	spanning-tree mst instance	

## show redundancy spanning-tree

Use the **show redundancy spanning-tree** user EXEC command to display spanning-tree state information

### Commands

**show redundancy spanning-tree**

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>spanning-tree</b>	Display spanning tree settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	



Examples	<pre>MOXA# show redundancy turbo-chain       Role           :-- ----- Port Role           Port Number Port Status ----- 1st Member Port G15      -- 2nd Member Port G16      --</pre>
Error messages	N/A
Related commands	N/A

## show redundancy turbo-ring-v1

Use the **show redundancy turbo-ring-v1** user EXEC command to display Turbo Ring v1 configure and state information.

### Commands

#### show redundancy turbo-ring-v1

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>turbo-ring-v1</b>	Display turbo ring v1 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show redundancy turbo-ring-v1  Turbo Ring V1 settings:   Set as master: Disabled   1st port:      1/15   2nd port:      1/16   Ring Coupling: Disabled   Coupling Port: 1/13   Coupling Control Port: 1/14  Turbo Ring V1 status:   Master/Slave:  ---   Redundant Ports Status:     1st port:      ---     2nd port:      ---   Ring Coupling Ports Status:  ---   Coupling Port:  ---   Coupling Control Port:  ---</pre>	
Error messages	N/A	
Related commands	turbo-ring-v1	

## show redundancy turbo-ring-v2

Use the **show spanning-tree turbo-ring-v2** user EXEC command to display Turbo Ring v2 configuration and state information.

### Commands

#### show redundancy turbo-ring-v2

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>turbo-ring-v2</b>	Display turbo ring v2 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show redundancy turbo-ring-v2  Turbo Ring V2 settings:   Ring 1: Enabled            Set as master: Disabled            1st port:      G15            2nd port:      G16   Ring 2: Disabled            Set as master: Disabled            1st port:      G13            2nd port:      G14   Ring Coupling: Disabled            Primary Port:G13            Backup Port:G14  Turbo Ring V2 status:   Ring 1:            Status:---            Master/Slave:---            1st Ring Port Status:---            2nd Ring Port Status:---   Ring 2:            Status:---            Master/Slave:---            1st Ring Port Status:---            2nd Ring Port Status:---   Coupling:            Mode:---            Coupling Port Status: ---</pre>	
Error messages	N/A	
Related commands	turbo-ring-v2	

## show relay-warning

Use the **show relay-warning** user EXEC command to display the Relay Warning settings.

**Commands****show relay-warning config****show relay-warning status**

Syntax	<b>show</b>	Show running system information
Description	<b>relay-warning</b>	Display relay warning configuration
	<b>config</b>	Relay warning configuration
	<b>status</b>	Current relay warning list
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre> MOXA# show relay-warning config System Events Setting   Override Relay Warning Settings      : Disable   Power Input 1 failure(On-&gt;Off)      : Disable   Power Input 2 failure(On-&gt;Off)      : Disable   Turbo Ring Break                     : Disable  Port Events Setting  Port      Link          Traffic      RX          Traffic          Link          Overload    Threshold(%)  Duration(s) ----- 1-1      Ignore          Disable     1           1 1-2      Ignore          Disable     1           1 1-3      Ignore          Disable     1           1 1-4      Ignore          Disable     1           1 1-5      Ignore          Disable     1           1 1-6      Ignore          Disable     1           1 1-7      Ignore          Disable     1           1 1-8      Ignore          Disable     1           1 3-1      Ignore          Disable     1           1 3-2      Ignore          Disable     1           1 3-3      Ignore          Disable     1           1 3-4      Ignore          Disable     1           1 3-5      Ignore          Disable     1           1 3-6      Ignore          Disable     1           1 3-7      Ignore          Disable     1           1 3-8      Ignore          Disable     1           1  MOXA# show relay-warning status Index  Event                      Relay ----- </pre>	
Error messages	N/A	
Related commands	N/A	

## show running-config

Use **show running-config** to display the current running configuration of the switch.

**Commands****show running-config**

Syntax	<b>show</b>	Show running system information
Description	<b>running-config</b>	Current operating configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show running-config Building configuration ...  ! login mode cli auto-import no auto-backup hostname snmp-server description EDS-G516E username admin password 810448e13d53513dddd17d6c045025ab911840745a37665201104373d0d04180 privilege 1 username user password 810448e13d53513dddd17d6c045025ab911840745a37665201104373d0d04180 privilege 2 ! authentication radius login auth-type pap ! ip auto-logout 5 ! interface mgmt  ip address static 192.168.127.250 255.255.255.0 ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp enable lldp timer 5 ! ip dhcp-relay option82 remote-id-type ip ! interface ethernet 1/1  no shutdown --More--</pre>	
Error messages	N/A	
Related commands	show startup-config	

## show snmp

To check the status of Simple Network Management Protocol (SNMP) communications, use the **show snmp** command.

### **Commands**

**show snmp**



Syntax	<b>show</b>	Show running system information
Description	<b>snmp</b>	Display SNMP configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show snmp SNMP Read/Write Settings   SNMP Agent           : Enabled   SNMP Versions        : v1-v2c   V1,V2c Read Community : public   V1,V2c Write/Read Community: private  Trap Settings   1st Trap Server IP/Name :   1st Trap Community      : public   2nd Trap Server IP/Name :   2nd Trap Community      : public  Trap Mode   Mode                  : Trap V1  Private MIB information   Switch Object ID      : enterprise.8691.7.71</pre>	
Error messages	N/A	
Related commands	<pre>snmp-server community snmp-server host snmp-server trap-mode snmp-server user snmp-server version</pre>	

## show startup-config

Use **show startup-config** to display the system startup configuration of the switch.

### Commands

#### **show running-config**

Syntax	<b>show</b>	Show running system information
Description	<b>startup-config</b>	Contents of startup configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show startup-config Building configuration ...  ! login mode cli auto-import no auto-backup hostname snmp-server description EDS-G516E username admin password 810448e13d53513dddd17d6c045025ab911840745a37665201104373 d0d04180 privilege 1</pre>	

	<pre> username user password 810448e13d53513ddddd17d6c045025ab911840745a37665201104373d 0d04180 privilege 2 ! authentication radius login auth-type pap ! ip auto-logout 5 ! interface mgmt  ip address static 192.168.127.250 255.255.255.0 ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp enable lldp timer 5 ! ip dhcp-relay option82 remote-id-type ip ! interface ethernet 1/1  no shutdown --More-- </pre>
Error messages	N/A
Related commands	show running-config

## show static-port-lock

Use the **show static-port-lock** user EXEC command to display static port lock state information.

### Commands

**show static-port-lock [mod\_port]**

Syntax	<b>show</b>	Show running system information
Description	<b>static-port-lock</b>	Display static port lock table
	<b>mod_port</b>	Port ID or list.
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre> MOXA# show static-port-lock Port Index  Mac Address          VID          Status -----  - </pre>	
Error messages	N/A	
Related commands	N/A	

## show storm-control

Use the **show storm-control** user EXEC command to display the setting of storm protection.

**Commands****show storm-control**

Syntax	<b>show</b>	Show running system information
Description	<b>storm-control</b>	Display storm protection settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show storm-control  Storm Supress : Broadcast (64 Kfps)	
Error messages	N/A	
Related commands	storm-control	

## show system

Use the **show system** command to display system identification settings.

**Commands****show system**

Syntax	<b>show</b>	Show running system information
Description	<b>system</b>	System hardware and software status
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show system  System Information System Name : System Location : Switch Location System Description : EDS-G516E Contact Information : MAC Address : AA:BB:CC:DD:EE:FF System Uptime : 0d3h40m30s Serial No. : 12345678909 Memory Size : 134217728 Bytes Memory Utilization : 20.80 %	
Error messages	N/A	
Related commands	snmp-server description snmp-server contact snmp-server location	

## show users

Use the **show users** user EXEC command to display the username/password configuration.

**Commands****show users**

Syntax	<b>show</b>	Show running system information
Description	<b>Users</b>	Display login user settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show users  Login account information:       Name             Authority           Active       -----       admin            admin              Active       user             user               Active</pre>	
Error messages	N/A	
Related commands	username	

## show version

Use the **show version** user EXEC command to display system version information.

**Commands****show version**

Syntax	<b>show</b>	Show running system information
Description	<b>version</b>	System version information
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	<pre>MOXA# show version Model Name       : EDS-G516E Firmware Version : V5.1 build 16072215</pre>	
Error messages	N/A	
Related commands	N/A	

## show vlan

Use the **show vlan** user EXEC command to display VLAN status information.

**Commands****show vlan**

Syntax	<b>show</b>	Show running system information
Description	<b>vlan</b>	Display VLAN status
Defaults	N/A	

Command Modes	Privileged EXEC
Usage Guidelines	N/A
Examples	<pre>MOXA# show vlan vlan mode: 802.1Q vlan mgmt vlan: 1  VLAN 1:   Name:   Access Ports: 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8,                 1/9, 1/10, 1/11, 1/12, 1/13, 1/14, 1/15, 1/16,    Trunk Ports:   Hybrid Ports:</pre>
Error messages	N/A
Related commands	N/A

## show vlan config

Use the **show vlan** user EXEC command to display VLAN configuration information.

### Commands

#### **show vlan config**

Syntax	<b>show</b>	Show running system information
Description	<b>vlan</b>	Display VLAN status
	<b>config</b>	Display VLAN configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre> MOXA# show vlan config vlan mode: 802.1Q vlan VLAN    Ports (Type) -----  - 1       1/1 (A), 1/2 (A), 1/3 (A), 1/4 (A), 1/5 (A), 1/6 (A), 1/7 (A), 1/8 (A),         1/9 (A), 1/10 (A), 1/11 (A), 1/12 (A), 1/13 (A), 1/14 (A), 1/15 (A), 1/16 (A),  =====  Port    Trunk Native vlan  Port    Fixed VLAN (Tagged)  Port    Fixed VLAN (Untagged)  Port    Forbidden VLAN  Current VLAN interface vid:         1, </pre>
Error messages	N/A
Related commands	interface vlan

## shutdown

To disable an interface, use the **shutdown** interface configuration command. To restart a disabled interface, use the **no** form of this command.

### Commands

#### **shutdown**

#### **no shutdown**

Syntax	<b>shutdown</b>	Shutdown the selected interface
Description		
Defaults	None	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre> MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# shutdown MOXA(config-if)# no shutdown </pre>	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show interfaces ethernet show interfaces trunk	

## snmp-server authority

To configure a user and its authentication type and password to a Simple Network Management Protocol (SNMP), use the **snmp-server authority** global configuration command.

### Commands

**snmp-server authority** *authority\_type* **auth** *auth-type* [*data\_encryption\_key*]

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>authority</b>	SNMP authority setting
	<i>authority_type</i>	admin/user
	<b>auth</b>	SNMP authentication
	<i>auth-type</i>	no-auth   md5   sha
	<i>data_encryption_key</i>	Encryption password (maximum 30 characters)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<i>authority_type</i> is only allowed to be set as "admin" or "user" <i>auth-type</i> is only allowed to be set as "no-auth", "md5" or "sha"	
Examples	MOXA# configure terminal MOXA(config)# snmp-server authority admin auth md5 MOXA(config)# snmp-server authority admin auth md5 12345678	
Error messages	SNMP user must be ( admin   user )!!	
	SNMP authtype must be ( no-auth   md5   sha )!!	
	Admin Data Encryption must between 8 and 30 characters!!!	
Related commands	show snmp	

## snmp-server community

To set up the community access string to permit access to the Simple Network Management Protocol (SNMP), use the **snmp-server community** global configuration command.

### Commands

**snmp-server community** *community* *mode*

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>community</b>	SNMP community setting
	<i>community</i>	SNMP community string
	<i>mode</i>	ro   rw
Defaults	Public community is ro Private community is rw	
Command Modes	Global configuration	
Usage Guidelines	Specifies read-only access. Authorized management stations are only able to retrieve MIB objects. Specifies read-write access. Authorized management stations are able to both retrieve and modify MIB objects	
Examples	MOXA# configure terminal MOXA(config)# snmp-server community 123 ro MOXA(config)# snmp-server community 123 rw	
Error messages	SNMP community mode must be ( ro rw )!!	
	The longest snmp community string length is 30!!	

Related commands	show snmp
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## snmp-server contact

To set the system contact string, use the **snmp-server contact** global configuration command. To remove the contact string, use the **no** form of this command.

### Commands

**snmp-server contact** [*token1*] [*token2*] [*token3*] [*token4*] [*token5*]

**no snmp-server contact**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>contact</b>	Switch maintainer contact information
	<i>token1~5</i>	Combine <i>token1~5</i> to Switch maintainer contact information.
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<p>"<i>text</i>" parameter can be set as string separated by space.</p> <p>Maximum string tokens are 5.</p> <p>Maximum length of switch maintainer contact info is 40.</p>	
Examples	<pre>MOXA# configure terminal MOXA(config)# snmp-server contact 1 MOXA(config)# snmp-server contact 1 2 MOXA(config)# snmp-server contact 1 2 3 MOXA(config)# snmp-server contact 1 2 3 4 MOXA(config)# snmp-server contact 1 2 3 4 5</pre>	
Error messages	Length of maintainer info is too long	
	Parse error	
Related commands	show snmp	

## snmp-server default

To reset the snmp configuration to default, use the **snmp-server default** global configuration command.

### Commands

**snmp-server default**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>default</b>	Set snmp community, snmp inform and trap version to default
Defaults	<pre>snmp community:   V1,V2c Read Community: public   V1,V2c Write/Read Community: private snmp inform:   Retries: 3   Timeout: 10 trap version: Trap V1</pre>	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# snmp-server default</pre>	



Error messages	N/A
Related commands	show snmp

## snmp-server description

To set the system description string, use the **snmp-server description** global configuration command. To remove the description string, use the **no** form of this command.

### Commands

**snmp-server description** [*token1*] [*token2*] [*token3*] [*token4*] [*token5*]

**no snmp-server description**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>description</b>	Switch description
	<i>token1~5</i>	Combine <i>token1~5</i> to Switch description string.
Defaults	The default description is the model name.	
Command Modes	Global configuration	
Usage Guidelines	<p>"text" parameter can be set as string separated by space.</p> <p>Maximum string tokens are 5.</p> <p>Maximum length of switch maintainer contact info is 40.</p>	
Examples	<pre>MOXA# configure terminal MOXA(config)# snmp-server description 1 MOXA(config)# snmp-server description 1 2 MOXA(config)# snmp-server description 1 2 3 MOXA(config)# snmp-server description 1 2 3 4 MOXA(config)# snmp-server description 1 2 3 4 5</pre>	
Error messages	<p>Length of system description is too long</p> <p>Parse error</p>	
Related commands	show snmp	

## snmp-server host

To specify the recipient of a Simple Network Management Protocol (SNMP) notification operation, use the **snmp-server host** global configuration command. To remove the specified host, use the **no** form of this command

### Commands

**snmp-server host** *host-addr* *community-string*

**no snmp-server host** [*host-addr*]

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>host</b>	SNMP host setting
	<i>host-addr</i>	SNMP host address
	<i>community-string</i>	SNMP Community string
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	MOXA# configure terminal MOXA(config)# snmp-server host 192.168.127.20 123 MOXA(config)# no snmp-server host
Error messages	Trap server are full, please remove at least one first!!!
Related commands	show snmp

## snmp-server location

To set the system location string, use the **snmp-server location** global configuration command. To remove the location string, use the **no** form of this command.

### Commands

**snmp-server location** [*token1*] [*token2*] [*token3*] [*token4*] [*token5*]

**no snmp-server location**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>location</b>	Switch location
	<i>token1~5</i>	Combine <i>token1~5</i> to switch location string.
Defaults	The default text is Switch Location	
Command Modes	Global configuration	
Usage Guidelines	<p>"<i>text</i>" parameter can be set as string separated by space.</p> <p>Maximum string tokens are 5.</p> <p>Maximum length of switch location is 80.</p>	
Examples	MOXA# configure terminal MOXA(config)# snmp-server location 1 MOXA(config)# snmp-server location 1 2 MOXA(config)# snmp-server location 1 2 3 MOXA(config)# snmp-server location 1 2 3 4 MOXA(config)# snmp-server location 1 2 3 4 5	
Error messages	Length of location is too long Parse error	
Related commands	show snmp	

## snmp-server trap-mode inform

Use the **snmp-server trap-mode** global configuration command to configure SNMP Trap/Inform mode setting, retry times, and timeout timer.

### Commands

**snmp-server trap-mode** {**inform-v2c** | **inform-v3**} [**retry times** **timeout seconds**]

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>trap-mode</b>	SNMP Trap/Inform mode setting
	<b>inform-v2c</b>	SNMP Inform v2c
	<b>inform-v3</b>	SNMP Inform v3
	<b>retry</b>	Inform retries times
	<i>times</i>	1 to 99
	<b>timeout</b>	Timeout timer
	<i>seconds</i>	1 to 300 seconds
Defaults	Times: 3, seconds: 10	

Command Modes	Global configuration
Usage Guidelines	Data range: times : 1~99 seconds : 1~300
Examples	MOXA# configure terminal MOXA(config)# snmp-server trap-mode inform-v2c MOXA(config)# snmp-server trap-mode inform-v2c retry 5 timeout 300 MOXA(config)# snmp-server trap-mode inform-v3 MOXA(config)# snmp-server trap-mode inform-v3 retry 5 timeout 300
Error messages	To enable INFORM v3, please configure trap user name first!! Invalid inform retries value !!! Invalid inform timeout value !!!
Related commands	show snmp

## snmp-server trap-mode trap

To enable all Simple Network Management Protocol (SNMP) notifications (traps or informs) available on your system, use the **snmp-server trap-mode** global configuration command. To disable all available SNMP notifications, use the **no** form of this command.

### Commands

**snmp-server trap-mode trap**

**snmp-server trap-mode trap-v2c**

**snmp server trap mode trap-v3**

**no snmp-server trap-mode**

Syntax Description	<b>snmp-server</b>	Configure SNMP server
	<b>trap-mode</b>	SNMP Trap/Inform mode setting
	<b>trap</b>	SNMP Trap V1
	<b>trap-v2c</b>	SNMP Trap V2c
	<b>trap-v3</b>	SNMP Trap V3
Defaults	The default mode is "trap"	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# snmp-server trap-mode trap MOXA(config)# snmp-server trap-mode trap-v2c MOXA(config)# snmp-server trap-mode trap-v3	
Error messages	To enable TRAP v3, please configure trap user name first!!	
Related commands	show snmp	

## snmp-server trap-mode user

Use the **snmp-server trap-mode user** global configuration command to configure SNMPv3 Trap/Inform user setting. To disable available trap-mode user setting, use the **no** form of this command

### Commands

**snmp-server trap-mode user** *username*

```

snmp-server trap-mode user username [auth no-auth]
snmp-server trap-mode user username [auth md5 auth-pwd [data-encryption-key] ]
snmp-server trap-mode user username [auth sha auth-pwd [data-encryption-key]]
no snmp-server trap-mode user

```

Syntax Description	<b>snmp-server</b>	Configure SNMP server
	<b>trap-mode</b>	SNMP Trap/Inform mode setting
	<b>user</b>	SNMPv3 Trap/Inform USM setting
	<i>username</i>	Set Trap/Inform user name
	<b>auth</b>	Set Trap/Inform authentication
	<b>no-auth</b>	No authentication algorithm use
	<b>md5</b>	Specifies the MD5 authentication algorithm
	<b>sha</b>	Specifies the SHA authentication algorithm
	<i>auth-pwd</i>	Authentication password (maximum 16 characters)
	<i>data-encryption-key</i>	Encryption password (maximum 30 characters)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre> MOXA# configure terminal MOXA(config)# snmp-server trap-mode user 123 MOXA(config)# snmp-server trap-mode user 123 auth no-auth MOXA(config)# snmp-server trap-mode user 123 auth md5 12345678 MOXA(config)# snmp-server trap-mode user 123 auth md5 12345678 abcdefghi MOXA(config)# snmp-server trap-mode user 123 auth sha 12345678 MOXA(config)# snmp-server trap-mode user 123 auth sha 12345678 abcdefghi </pre>	
Error messages	Auth. password must between 8 and 16 characters!!	
	Data Encryption Key must between 8 and 30 characters!!	
Related commands	show snmp	

## snmp-server version

To set up the snmp version, use the **snmp-server version** global configuration command.

### Commands

```
snmp-server version [v1-v2c-v3 | v1-v2c | v3]
```

Syntax Description	<b>snmp-server</b>	Configure SNMP server
	<b>version</b>	SNMP version setting
	<b>v1-v2c-v3</b>	Version 1, 2C and 3 support
	<b>v1-v2c</b>	Version 1 and 2C support
	<b>v3</b>	Only version 3 support
Defaults	Default version is v1-v2c	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre> MOXA# configure terminal MOXA(config)# snmp-server version v1-v2c-v3 MOXA(config)# snmp-server version v1-v2c MOXA(config)# snmp-server version v3 </pre>	

Error messages	N/A
Related commands	show snmp

## spanning-tree

Use the **spanning-tree** interface configuration command on the switch to enable the spanning-tree feature of the specified interfaces. Use the **no** form of this command to disable it.

### Commands

**spanning-tree**

**no spanning-tree**

Syntax Description	<b>spanning-tree</b>	Enable spanning tree
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config-if)# spanning-tree	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	redundancy mode show redundancy spanning-tree	

## spanning-tree cost

Use the **spanning-tree cost** interface configuration command on the switch to set the path cost for spanning-tree algorithms calculations. If a loop occurs, spanning tree considers the path cost when selecting an interface to put in the forwarding state. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree cost** *cost*

**no spanning-tree cost**

Syntax Description	<b>spanning-tree</b>	Enable spanning tree
	<b>cost</b>	Configure port path cost
	<i>cost</i>	Range from 1 to 200000000
Defaults	cost = 200000	
Command Modes	Interface configuration	
Usage Guidelines	1 <= Cost <= 200000000	
Examples	MOXA(config-if)# spanning-tree cost <UINT:cost> - Range from 1 to 200000000	
Error messages	Cost value must be in the range 1 to 200000000 Cannot configure on trunk member port 1/1!	
Related commands	show redundancy spanning-tree	

## spanning-tree edge-port

Use the **spanning-tree edge-port** interface configuration command on the switch to enable the Edge Port feature on an interface in all its associated VLANs. When the Edge Port feature is enabled, the interface changes directly from a blocking state to a forwarding state without making the intermediate spanning-tree state changes. Use the **no** form of this command to disable the feature.

### Commands

**spanning-tree edge-port { auto | force }**

**no spanning-tree edge-port**

Syntax	<b>spanning-tree</b>	Enable spanning tree
Description	<b>edge-port</b>	Configure as edge port
	<b>auto</b>	Auto determine as edge port
	<b>force</b>	Force the port as edge port
Defaults	port-fast = auto	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA(config-if)# spanning-tree edge-port   auto           - Auto determine as edge port   force          - Force the port as edge port</pre>	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show redundancy spanning-tree	

## spanning-tree forward-delay

Use the **spanning-tree forward-delay** redundancy configuration command on the switch to set the forward-delay time for the spanning-tree. The forwarding time specifies how long each of the listening and learning states last before the interface begins forwarding. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree forward-delay seconds**

**no spanning-tree forward-delay**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>forward-delay</b>	Configure spanning tree BPDU forward delay
	<i>seconds</i>	forward delay time value
Defaults	Forward delay = 15 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$ <i>seconds</i> is range from 6 to 40	
Examples	<pre>MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree forward-delay 30</pre>	
Error messages	The BPDU forward delay time must be in the range from 4 to 30 sec. The formula must be obeyed: $2 * (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 * (\text{Forward Delay} - 1 \text{ sec})$	

Related commands	spanning-tree hello-time spanning-tree max-age show redundancy spanning-tree
------------------	--

## spanning-tree hello-time

Use the **spanning-tree hello-time** redundancy configuration command on the switch to set the interval between hello bridge protocol data units (BPDUs) sent by root switch configuration messages. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree hello-time** *seconds*

**no spanning-tree hello-time**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>hello-time</b>	Configure spanning tree BPDU hello time
	<i>seconds</i>	hello time value
Defaults	Hello time = 2 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$ <i>seconds</i> is range from 1 to 2	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree hello-time 2	
Error messages	BPDU hello time must be in the range from 1 to 2 sec. The formula must be obeyed: $2 * (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 * (\text{Forward Delay} - 1 \text{ sec})$	
Related commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree	

## spanning-tree max-age

Use the **spanning-tree max-age** redundancy configuration command on the switch to set the interval between messages that the spanning tree receives from the root switch. If a switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, it recomputes the spanning-tree topology. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree max-age** *seconds*

**no spanning-tree max-age**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>max-age</b>	Configure spanning tree max age
	<i>seconds</i>	max age time value
Defaults	Forward delay = 20 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$ <i>seconds</i> is range from 6 to 40	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree max-age 40	

Error messages	The BPDU forward delay time must be in the range from 4 to 30 sec. The formula must be obeyed: $2 \times (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 \times (\text{Forward Delay} - 1 \text{ sec})$
Related commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree

## spanning-tree mst cist cost

Use the **spanning-tree mst cist cost** interface configuration command on the switch to set the port cost of the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist cost** *cost*

**no spanning-tree mst cist cost**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>cist</b>	Configure mstp cist port
	<b>cost</b>	Configure mstp cist port path cost
	<i>cost</i>	Configure mstp cist port path cost
	Defaults	<i>cost=0</i>
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config-if)# spanning-tree mst cist cost 2000000 <UINT:time> - Set mstp forwarding delay	
Error messages	MSTP port path cost must be in the range from 0 to 200000000 MSTP port 2/1 path cost set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst cist port-priority

Use the **spanning-tree mst cist port-priority** interface configuration command on the switch to set the port priority for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist port-priority** *priority*

**no spanning-tree mst cist port-priority**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>cist</b>	Configure mstp cist port
	<b>port-priority</b>	Configure mstp cist port priority
	<i>priority</i>	Configure mstp cist port priority
	Defaults	<i>priority =128</i>
Command Modes	Interface configuration	
Usage Guidelines	N/A	



Examples	MOXA(config-if)# spanning-tree mst cist port-priority 128 <UINT:priority> - Configure mstp cist port priority
Error messages	MSTP port priority must be in the range from 0 to 240 MSTP port %s priority set error MSTP port priority should be 16 times the value
Related commands	show redundancy mst configuration

## spanning-tree mst cist priority

Use the **spanning-tree mst cist priority** redundancy configuration command on the switch to set the switch priority for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist priority** *priority*

**no spanning-tree mst cist priority**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>cist</b>	Configure mstp cist
	<b>priority</b>	Set mstp cist bridge priority
	<i>priority</i>	Set mstp cist bridge priority
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	<i>priority</i> is range from 0 to 61140	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst cist priority 32768	
Error messages	MSTP bridge priority must be in the range from 0 to 61140 MSTP cist bridge priority set error CIST bridge priority should be 4096 times the value	
Related commands	show redundancy mst cist	

## spanning-tree mst edge-port

Use the **spanning-tree mst edge-port** interface configuration command on the switch to enable the Edge port feature for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to disable the setting.

### Commands

**spanning-tree mst edge-port**

**no spanning-tree mst edge-port**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>edge-port</b>	Enable mstp edge port
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	MOXA(config-if)# spanning-tree mst edge <edge> - Enable mstp edge port
Error messages	MSTP edge port enable set error
Related commands	show redundancy mst configuration

## spanning-tree mst enable

Use the **spanning-tree mst enable** interface configuration command on the switch to enable the Multiple Spanning Tree (MSTP) feature on the port. Use the **no** form of this command to disable the setting.

### Commands

**spanning-tree mst enable**

**no spanning-tree mst**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>enable</b>	Enable mstp port
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config-if)# spanning-tree mst enable <enable> - Enable mstp port	
Error messages	MSTP port 2-1 enable set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst forward-delay

Use the **spanning-tree mst forward-delay** redundancy configuration command on the switch to set the forward delay of Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting. TBD

### Commands

**spanning-tree mst forward-delay time**

**no spanning-tree mst forward- delay**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>forward-delay</b>	Set mstp forwarding delay
	<i>time</i>	mstp forwarding delay
Defaults	<i>time=15</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec) <i>time</i> is range from 4 to 30	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst forward-delay 15	

Error messages	MSTP forward delay must be in the range from 4 to 30 MSTP forward delay set error
Related commands	show redundancy mst configuration

## spanning-tree mst hello-time

Use the **spanning-tree priority redundancy configuration** command on the switch to set the hello time of Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst hello-time** *time*

**no spanning-tree mst hello-time**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>hello-time</b>	set mstp hello time
	<i>time</i>	mstp hello time value
Defaults	<i>time=2</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec) <i>time</i> is range from 1 to 10	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst hello-time 1	
Error messages	MSTP hello time must be in the range from 1 to 10 MSTP hello time set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst instance

Use the **spanning-tree mst instance redundancy configuration** command on the switch to setting the MSTP instances. Use the **no** form of this command to remove the setting. TBD

### Commands

**spanning-tree mst instance** *instance-id* **vlan** *vlan-id-list*

**no spanning-tree mst instance** *instance-ids*

**no spanning-tree mst instance** *instance-ids* **vlan** *vlan-id-list*

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>Instance</b>	Configure mstp msti
	<i>instance-id</i>	MSTP instance ID
	<b>vlan</b>	Configure mstp msti vlan mapping
	<i>vlan-id-list</i>	Configure mstp msti vlan mapping
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	<i>instance-id</i> is range from 1 to 16 <i>vlan-id</i> is range from 1 to 4094	

Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config)# spanning-tree mst instance 1 vlan 2
Error messages	The instance id must be in the range from 1 to 16. vlan 4097 is invalid!! should be range from 1 to 4094 The maximum VLAN mapping is 64. The vlan id 2 setting is exist in another instance. MSTI 1 vlan id 2 set error
Related commands	show redundancy mst instance

## spanning-tree mst instance cost

Use the **spanning-tree mst instance cost** interface configuration command on the switch to set the port cost of the MSTP instances. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst instance** *instance-id-list* **cost** *cost*

**no spanning-tree mst instance** *instance-id-list* **cost**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti port
	<i>instance-id-list</i>	MSTP instance IDs
	<b>cost</b>	Configure mstp msti port path cost
	<i>cost</i>	Configure mstp msti port path cost
Defaults	<i>cost</i> =0	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config-if)# spanning-tree mst cist cost 0 <UINT:cost> - Configure mstp msti port path cost	
Error messages	MSTP port path cost must be in the range from 0 to 200000000 MSTP forward delay set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst instance port-priority

Use the **spanning-tree mst instance port-priority** interface configuration command on the switch to set the port priority for the MSTP instances. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst instance** *instance-id-list* **port-priority** *priority*

**no spanning-tree mst instance** *instance-id-list* **port-priority**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti port
	<i>instance-id-list</i>	MSTP instance ID
	<b>port-priority</b>	Configure mstp msti port priority
	<i>priority</i>	Configure mstp msti port priority
Defaults	<i>priority</i> =128	

Command Modes	Interface configuration
Usage Guidelines	N/A
Examples	MOXA(config-if)# spanning-tree mst instance 1 port-priority 128 <STRING:instids> - Configure mstp msti port priority <UINT:priority> - Configure mstp msti port priority
Error messages	MSTP port priority must be in the range from 0 to 240 MSTI 2 port 2-1 priority set error MSTI 2 port priority should be 16 times the value
Related commands	show redundancy mst configuration

## spanning-tree mst instance priority

Use the **spanning-tree mst instance priority** redundancy configuration command on the switch to set the switch priority for the MSTP instances. Use the **no** form of this command to return to the default setting. TBD

### Commands

**spanning-tree mst instance** *instance-id* **priority** *priority*

**spanning-tree mst instance** *instance-id-list* **priority** *priority*

**no spanning-tree mst instance** *instance-id-list* **priority**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti
	<i>instance-id</i>	MSTP instance ID
	<b>priority</b>	Set mstp msti bridge priority
	<i>priority</i>	Set mstp msti bridge priority
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	<i>priority</i> is range from 0 to 61140	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst instance 1 priority 32768	
Error messages	MSTP bridge priority must be in the range from 0 to 61140 MSTP cist bridge priority set error MSTI bridge priority should be 4096 times the value	
Related commands	show redundancy mst instance	

## spanning-tree mst max-age

Use the **spanning-tree mst max-age** redundancy configuration command on the switch to set the switch maximum age time for Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst max-age** *age*

**no spanning-tree mst max-age**

Syntax	<b>spanning-tree</b>	Configure spanning tree
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Description	<b>mst</b>	Configure mstp
	<b>max-age</b>	Set mstp max age
	<i>age</i>	mstp max age
Defaults	<i>age=20</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec)	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst max-age 10 <UINT:age>               - Set mstp max age	
Error messages	MSTP max age must be in the range from 6 to 40 MSTP max age set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst max-hops

Use the **spanning-tree max-hops** redundancy configuration command on the switch to set the switch maximum hop number for Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst max-hops** *hops*

**no spanning-tree mst max-hops**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>max-hops</b>	Set mstp max hops
	<i>hops</i>	mstp max hops
Defaults	<i>hops=20</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec)	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst max-hops 10	
Error messages	MSTP max hops must be in the range from 6 to 40 MSTP max hops set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst name

Use the **spanning-tree mst name** redundancy configuration command on the switch stack to set the name of MSTP region for the spanning-tree.

### Commands

**spanning-tree mst name** *region-name*

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp

	<b>name</b>	Set mstp regional name
	<i>region-name</i>	Set mstp regional name
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	The length of <i>region-name</i> should be smaller than 32	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst name mstp	
Error messages	The length of mstp regional name should be smaller than 32 MSTP regional name set error	
Related commands	show redundancy mst instance	

## spanning-tree mst revision

Use the **spanning-tree mst revision** redundancy configuration command on the switch to set revision level for Multiple Spanning Tree (MSTP).

### Commands

**spanning-tree mst revision** *revision-level*

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>revision</b>	Set mstp revision level
	<i>revision-level</i>	mstp revision level value
Defaults	<i>revision-level=0</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	<i>revision-level</i> is range from 0 to 65535	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# spanning-tree mst revision 1	
Error messages	MSTP revision level must be in the range from 0 to 65535 MSTP revision level set error	
Related commands	show redundancy mst configuration	

## spanning-tree priority

Use the **spanning-tree priority** interface configuration command on the switch to set the interfaces priority for the spanning-tree. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree priority** *priority*

**no spanning-tree priority**

Syntax	<b>spanning-tree</b>	Enable spanning tree
Description	<b>priority</b>	Configure port priority
	<i>priority</i>	Range from 0 to 240, in steps of 16
Defaults	priority = 128	

Command Modes	interface configuration
Usage Guidelines	0 <= priority <= 240, and must be multiples of 16.
Examples	MOXA(config-rdnt)# spanning-tree priority <UINT:prio> - Range from 0 to 61440, in steps of 4096
Error messages	The bridge priority must be in the range from 0 to 240 The bridge priority must be multiples of 16
Related commands	show redundancy spanning-tree

## speed-duplex

Use the **speed-duplex** interface configuration command to specify the speed of the interface and its duplex mode. Use the **no** form of this command to return the interface to its default value.

### Commands

**speed-duplex {10M-Full | 10M-Half | 100M-Full | 100M-Half | Auto}**

**no speed-duplex**

Syntax	<b>speed-duplex</b>	Configure speed and duplex operation
Description	<b>10M-Full</b>	Speed 10M-full
	<b>10M-Half</b>	Speed 10M-Half
	<b>100M-Full</b>	Speed 100M-Full
	<b>100M-Half</b>	Speed 100M-Half
	<b>Auto</b>	Speed Auto
Defaults	The default is <b>Auto</b>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface trunk 1 MOXA(config-if)# speed-duplex 100M-Full MOXA(config-if)# no speed-duplex	
Error messages	Fiber port can not be set speed-duplex!!! This port can not be set to 1G!!! Parameter does not be defined!!! Cannot configure on trunk member port 1/1 This setting cannot be applied on trunk port!	
Related commands	show interfaces ethernet	

## sshkeygen

Use the **sshkeygen** user EXEC command to generate SSL host key.

### Commands

**sshkeygen**

Syntax	<b>sshkeygen</b>	Generate SSH host key
Description		
Defaults	N/A	



Command Modes	Privileged EXEC
Usage Guidelines	N/A
Examples	MOXA# sshkeygen generating ssh host key ... generating ssh host key : done
Error messages	N/A
Related commands	N/A

## sslcertgen

Use the **sslcertgen** user EXEC command to generate SSL certificate.

### Commands

#### sslcertgen

Syntax Description	<b>sslcertgen</b>	Generate SSL certificate
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# sslcertgen generating ssl certificate ... generating ssl certificate : done	
Error messages	N/A	
Related commands	N/A	

## storm-control

Use the **storm-control** global configuration command on the switch to enable the storm protection. Use the **no** form of this command to disable it or return to the default.

### Commands

**storm-control { bcast | mcast | dlif}**

**no storm-control bcast**

**no storm-control mcast**

**no storm-control dlif**

**no storm-control**

Syntax Description	<b>storm-control</b>	Storm protection
	<b>bcast</b>	Storm protection for broadcast traffic
	<b>mcast</b>	Storm protection for Multicast traffic
	<b>dlif</b>	Storm protection for unknown destination traffic
Defaults	The broadcast storm protection is default enabled.	
Command Modes	Global configuration	



**no switchport hybrid fixed vlan untag**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
	<b>untag</b>	Configure egress traffic as VLAN untagged traffic
	<b>tag</b>	Configure egress traffic as VLAN tagged traffic
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport hybrid fixed vlan add 1,3-5,7 tag <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk hybrid vlan remove	

## switchport hybrid fixed vlan remove

Use the **switchport hybrid fixed vlan add** interface configuration command on the switch to remove the trunk hybrid characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

**Commands**

**switchport hybrid fixed vlan remove** *vlan-id-list* {**tag|untag**}

**no switchport hybrid fixed vlan** {**tag|untag**}

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
	<b>untag</b>	Configure egress traffic as VLAN untagged traffic
	<b>tag</b>	Configure egress traffic as VLAN tagged traffic
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport hybrid fixed vlan remove 1,3-5,7 tag <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk hybrid vlan remove	

## switchport hybrid forbidden vlan add

Use the **switchport hybrid forbidden vlan add** interface configuration command on the switch to add the trunk forbidden characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

### Commands

**switchport hybrid forbidden vlan add** *vlan-id-list*

**no switchport hybrid forbidden vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport hybrid forbidden vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport hybrid forbidden vlan remove	

## switchport hybrid forbidden vlan remove

Use the **switchport hybrid forbidden vlan add** interface configuration command on the switch to remove the trunk forbidden characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

### Commands

**switchport hybrid forbidden vlan remove** *vlan-id-list*

**no switchport hybrid forbidden vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport hybrid forbidden vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	

Related commands	show vlan show vlan config switchport hybrid forbidden vlan add
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## switchport hybrid native vlan

Use the **switchport hybrid native vlan** interface configuration command on the switch to configure PVID of a port. Use the **no** form of this command to return to the default PVID.

### Commands

**switchport hybrid native vlan** *vlan-id*

**no switchport hybrid native vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>native</b>	Set trunking native characteristics
	<b>vlan</b>	Set pvid vlanid in hybrid mode
	<i>vlan-id</i>	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport hybrid native vlan 2 <UINT:vlanid> - 1 to 4094	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	

## switchport pvlan

Use the **switchport pvlan** interface configuration command on the switch stack to define a port-based VLAN association for an isolated or community port or a mapping for a promiscuous port. Use the **no** form of this command to remove the port-based VLAN association or mapping from the port.

### Commands

**switchport pvlan** *vlan-groups*

**no switchport pvlan** *vlan-groups*

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>pvlan</b>	Configure port-based vlan
	<i>vlan-groups</i>	Set/unset port-based vlan group
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA(config-if)# switchport pvlan 2,3,4 <STRING:groups> - set port-based vlan group	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	

## switchport trunk fixed vlan add

Use the **switchport trunk fixed vlan add** interface configuration command on the switch to add the trunk characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk fixed vlan add** *vlan-id-list*

**no switchport trunk fixed vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport trunk fixed vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk fixed vlan remove	

## switchport trunk fixed vlan remove

Use the **switchport trunk fixed vlan add** configuration command on the switch stack to remove the trunk characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk fixed vlan remove** *vlan-id-list*

**no switchport trunk fixed vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport trunk fixed vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	

Related commands	show vlan show vlan config switchport trunk fixed vlan add
------------------	--

## switchport trunk forbidden vlan add

Use the **switchport trunk forbidden vlan add** configuration command on the switch to add the trunk forbidden characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk forbidden vlan add** *vlan-id-list*

**no switchport trunk forbidden vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport trunk forbidden vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk forbidden vlan remove	

## switchport trunk forbidden vlan remove

Use the **switchport trunk forbidden vlan remove** configuration command on the switch stack or on a standalone switch to remove the trunk forbidden characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk forbidden vlan remove** *vlan-id-list*

**no switchport trunk forbidden vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	

Examples	MOXA(config-if)# switchport trunk forbidden vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!
Related commands	show vlan show vlan config switchport trunk forbidden vlan add

## switchport trunk native vlan

Use the **switchport trunk native vlan** interface configuration command on the switch to configure PVID of a port as a trunking port. Use the **no** form of this command to return to the default.

### Commands

**switchport trunk native vlan** *vlan-id*

**no switchport trunk native vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>native</b>	Set trunking native characteristics
	<b>vlan</b>	Set pvid vlanid in trunk mode
	<i>vlan-id</i>	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport trunk native vlan 2 <UINT:vlanid> - 1 to 4094	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	

## terminal

Use the **terminal** command on the switch to configure the display length of terminal interface.

### Commands

**terminal length** *pageLength*

**terminal default length**

Syntax Description	<b>terminal</b>	Change terminal page length
	<b>length</b>	Terminal page length
	<b>default</b>	Default terminal length is 20
	<i>pageLength</i>	0 or 20~100, 0 mean unlimited to prevent pagination
Defaults	Default terminal length is 20	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	



Examples	MOXA# terminal default length MOXA# terminal length 100 MOXA# terminal length 200 % pageLength should be between 20 and 100
Error messages	pageLength should be between 20 and 100
Related commands	N/A

## trunk-group

Use the **trunk-group** interface configuration command on the switch to assign an Ethernet port to a trunk group. Use the **no** form of this command to remove an Ethernet port from a trunk group.

### Commands

**trunk-group** *trunk\_id*

**no trunk-group**

Syntax	<b>trunk-group</b>	Join trunk group as members
Description	<i>trunk_id</i>	Trunk ID.
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	<i>trunk_id</i> : 1 to 4	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# trunk-group 2 MOXA(config-if)# no trunk-group 2	
Error messages	This setting cannot be applied on trunk port! Trunk ID is only allowed from 1 to 4	
Related commands	show interfaces trunk	

## trunk-mode

Use the **trunk-mode** interface configuration command on the switch to set the trunk mode of the specified trunk group. Use the **no** form of this command to return to the default setting.

### Commands

**trunk-mode** { **static** | **lACP** }

Syntax	<b>trunk-mode</b>	Trunk mode configuration
Description	<b>static</b>	Configure as static trunk
	<b>lACP</b>	Configure as LACP trunk
Defaults	The default trunk mode of creating trunk manually is static.	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# trunk-mode static MOXA(config-if)# trunk-mode lACP	

Error messages	This setting cannot be applied on normal port!
Related commands	show interfaces trunk

## trusted-access

Same as **access-ip**.

### Commands

**trusted-access** [*ip-address netmask*]

**no trusted-access** [*ip-address netmask*]

Syntax	<b>trusted-access</b>	Enable the trusted IP list for access
Description	<i>ip-address</i>	IP address
	<i>netmask</i>	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	Management configuration	
Usage Guidelines	This feature will take effect when the " <b>trusted-access</b> " command is executed.	
Examples	<pre>MOXA# configure terminal MOXA(config)# interface mgmt MOXA(config-vlan)# trusted-access MOXA(config-vlan)# trusted-access 192.168.127.22 255.255.0.0</pre>	
Error messages	Trusted access ip list full	
	IP: IP-format mask: mask-format does not exist in trusted access IP list	
Related commands	show interface mgmt trusted-access	

## turbo-chain

Use the **turbo-chain** redundancy configuration command on the switch stack or on a standalone switch to configure Turbo Chain.

### Commands

**turbo-chain role { head | member | tail } primary interface module/port secondary interface module/port**

Syntax Description	<b>turbo-chain</b>	Configure turbo chain
	<b>role</b>	Turbo chain role setting
	<b>head</b>	Turbo chain role head setting
	<b>member</b>	Turbo chain role member setting
	<b>tail</b>	Turbo chain role tail setting
	<b>primary</b>	Turbo chain primary port setting
	<b>interface</b>	Turbo chain port interface setting
	<b>secondary</b>	Turbo chain secondary port setting
	<i>module/port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	redundancy configuration	
Usage Guidelines	N/A	

Examples	<pre>MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-chain role head primary interface 1/1 secondary interface 1/2 MOXA(config-rdnt)# turbo-chain role member primary interface 1/1 secondary interface 1/2 MOXA(config-rdnt)# turbo-chain role tail primary interface 1/1 secondary interface 1/2</pre>
Error messages	N/A
Related commands	show redundancy turbo-chain

## turbo-ring-v1

Use the **turbo-ring-v1** redundancy configuration command on the switch to enable the Turbo Ring v1 with specified Ring ports.

### Commands

**turbo-ring-v1 primary interface primary-port secondary interface secondary-port**

Syntax	<b>turbo-ring-v1</b>	Configure turbo ring v1
Description	<b>primary</b>	Turbo ring v1 ring ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, Trk2,...
	<b>secondary</b>	Turbo ring v1 ring ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>secondary-port</i>	Port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v1 primary interface 2/1 secondary interface 2/2 &lt;STRING:pri_port&gt; - Port ID. E.g., 1/3, Trk2,... &lt;STRING:sec_port&gt; - Port ID. E.g., 1/3, Trk2,...</pre>	
Error messages	<p>Interface 2-1 not exist</p> <p>One port is the same in ring ports or coupling ports</p>	
Related commands	show redundancy turbo-ring-v1	

## turbo-ring-v1 coupling

Use the **turbo-ring-v1 coupling** redundancy configuration command on the switch to set the coupling for Turbo Ring v1. Use the **no** form of this command to disable it.

### Commands

**turbo-ring-v1 coupling interface primary-port coupling-control-port interface secondary-port**  
**no turbo-ring-v1 coupling**

Syntax	<b>turbo-ring-v1</b>	Configure turbo ring v1
Description	<b>coupling</b>	Configure ring coupling

	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>primary-port</i>	Primary port ID. E.g., 1/3, Trk2,...
	<b>coupling-control-port</b>	Turbo ring v1 coupling ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>secondary-port</i>	Secondary port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v1 coupling interface 2/1 coupling-control-port interface 2/2 &lt;STRING:pri_port&gt; - Port ID. E.g., 1/3, Trk2,... &lt;STRING:sec_port&gt; - Port ID. E.g., 1/3, Trk2,...</pre>	
Error messages	Interface 2-1 not exist One port is the same in ring ports or coupling ports	
Related commands	show redundancy turbo-ring-v1	

## turbo-ring-v1 master

Use the **turbo-ring-v1 master** redundancy configuration command on the switch to set the switch as the Turbo Ring v1 Master. Use the **no** form of this command to return to the normal Turbo Ring v1 member.

### Commands

**turbo-ring-v1 master**

**no turbo-ring-v1 master**

Syntax	<b>turbo-ring-v1</b>	Configure turbo ring v1
Description	<b>master</b>	Set ring as master
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	<pre>MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v1 master</pre>	
Error messages	N/A	
Related commands	show redundancy turbo-ring-v1	

## turbo-ring-v2

Use the **turbo-ring-v2** redundancy configuration command on the switch to configure the Turbo Ring v2 with specified Ring ports. Use the **no** form of this command to disable the specified ring.

### Commands

**turbo-ring-v2** *ring-id* **primary interface** *primary-port* **secondary interface** *secondary-port*

**no turbo-ring-v2** *ring-id*

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<i>ring-id</i>	Turbo ring v2 ring id
	<b>primary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>secondary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>secondary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v2 1 primary interface 2/1 secondary interface 2/2 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2, ... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2, ...	
Error messages	Turbo ring v2 only supports maximum 2 ring domains Interface 2-1 not exist Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!! Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Primary port couldn't be set as Ring2 redundant port simultaneously !!! Backup port couldn't be set as Ring2 redundant port simultaneously !!! Coupling port couldn't be set as Ring2 redundant port simultaneously !!! Please select at least one Ring!!! Ring1, ring2, coupling couldn't be enabled simultaneously!!! Please enable one Ring in "Ring Coupling" mode!!!	
Related commands	show redundancy turbo-ring-v2	

## turbo-ring-v2 coupling backup

Use the **turbo-ring-v2 coupling redundancy configuration** command on the switch to configure the backup port of Ring coupling for Turbo Ring v2. Use the **no** form of this command to disable the coupling.

### Commands

**turbo-ring-v2 coupling backup interface** *backup-port*

**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>backup</b>	Configure ring coupling mode
	<b>interface</b>	Turbo ring v2 coupling ports setting
	<i>backup-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	

Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v2 coupling backup interface 2/1 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2,...
Error messages	Turbo ring v2 only supports maximum 2 ring domains Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!! Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Primary port couldn't be set as Ring2 redundant port simultaneously !!! Backup port couldn't be set as Ring2 redundant port simultaneously !!! Coupling port couldn't be set as Ring2 redundant port simultaneously !!! Please select at least one Ring!!! Ring1, ring2, coupling couldn't be enabled simultaneously!!! Please enable one Ring in "Ring Coupling" mode!!!
Related commands	show redundancy turbo-ring-v2

## turbo-ring-v2 coupling dual-homing

Use the **turbo-ring-v2 coupling dual-homing** redundancy configuration command on the switch to enable dual homing feature of Ring coupling for the Turbo Ring v2. Use the no form of this command to disable it.

### Commands

**turbo-ring-v2 coupling dual-homing primary interface** *primary-port* **backup interface** *secondary-port*  
**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>dual-homing</b>	Configure dual homing mode
	<b>primary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>backup</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>secondary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v2 coupling dual-homing primary interface 2/1 secondary interface 2/2 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2, ... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2, ...	

Error messages	Turbo ring v2 only supports maximum 2 ring domains Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!! Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Primary port couldn't be set as Ring2 redundant port simultaneously !!! Backup port couldn't be set as Ring2 redundant port simultaneously !!! Coupling port couldn't be set as Ring2 redundant port simultaneously !!! Please select at least one Ring!!! Ring1, ring2, coupling couldn't be enabled simultaneously!!! Please enable one Ring in "Ring Coupling" mode!!!
Related commands	show redundancy turbo-ring-v2

## turbo-ring-v2 coupling primary

Use the **turbo-ring-v2 coupling primary** redundancy configuration command on the switch to configure the primary port of Ring coupling for Turbo Ring v2. Use the no form of this command to return to the default setting.

### Commands

**turbo-ring-v2 coupling primary interface** *primary-port*  
**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>primary</b>	Configure ring coupling mode
	<b>interface</b>	Turbo ring v2 coupling ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	MOXA# configure terminal MOXA(config)# redundancy MOXA(config-rdnt)# turbo-ring-v2 coupling primary interface 2/1 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2,...	
Error messages	Turbo ring v2 only supports maximum 2 ring domains Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!! Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!! Primary port couldn't be set as Ring2 redundant port simultaneously !!! Backup port couldn't be set as Ring2 redundant port simultaneously !!! Coupling port couldn't be set as Ring2 redundant port simultaneously !!! Please select at least one Ring!!! Ring1, ring2, coupling couldn't be enabled simultaneously!!! Please enable one Ring in "Ring Coupling" mode!!!	
Related commands	show redundancy turbo-ring-v2	





Error messages	N/A
Related commands	show users

## vlan create

Use the **vlan create** global configuration command on the switch to create a VLAN in the VLAN database. Use the **no** form of this command to delete a VLAN.

### Commands

**vlan create** *vlan-id-list*

**no vlan create** *vlan-id-list*

Syntax	<b>vlan</b>	Configure VLAN parameters
Description	<b>create</b>	Configure VLAN parameters
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA# configure terminal MOXA(config)# vlan create 1,3-5,7	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 256 !!	
Related commands	vlan mode	

## vlan default

Use the **vlan default** configuration command on the switch to reset vlan.

### Commands

**vlan default**

Syntax	<b>vlan</b>	Configure VLAN parameters
Description	<b>default</b>	Reset vlan
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# vlan default	
Error messages	N/A	
Related commands	vlan mode	

## vlan mode

Use the **vlan mode** configuration command on the switch to change current VLAN mode operated on the switch. Use the **no** form of this command to return to the default.

### Commands

**vlan mode { 1qvlan | pvlan }**

**no vlan mode**

Syntax Description	<b>vlan</b>	Configure VLAN parameters
	<b>mode</b>	Set vlan mode
	<b>1qvlan</b>	IEEE 802.1Q
	<b>pvlan</b>	Port-based vlan
Defaults	The default mode is 802.1Q mode in the product with 802.1Q supported; otherwise is port-based VLAN mode.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# vlan mode 1qvlan MOXA(config)# vlan mode pvlan	
Error messages	Port-based VLAN is only supported when IGMP Snooping is disabled	
Related commands	vlan default	

## vlan set

Use the **vlan set** global configuration command on the switch to set name for specific VLAN. Use the **no** form of this command to reset VLAN name.

### Commands

**vlan set vlanid name [token1] [token2] [token3] [token4] [token5]**

**no vlan set vlanid name**

Syntax Description	<b>vlan</b>	Configure VLAN parameters
	<b>set</b>	set <vid> name <name>
	<i>vlanid</i>	set <vid> name <name>
	<b>name</b>	set <vid> name <name>
	<i>token1</i>	set <vid> name <name> (maximum 30 characters)
	<i>token2</i>	set <vid> name <name> (maximum 30 characters)
	<i>token3</i>	set <vid> name <name> (maximum 30 characters)
	<i>token4</i>	set <vid> name <name> (maximum 30 characters)
	<i>token5</i>	set <vid> name <name> (maximum 30 characters)
Defaults	NULL	
Command Modes	Global configuration	
Usage Guidelines	<i>vlanid</i> is range from 1 to 4094 VLAN name is a string containing token1 to token5 sperated by space for example: <b>vlan set 5 name a b c d e</b> will result VLAN name in "a b c d e"	
Examples	MOXA# configure terminal MOXA(config)# vlan set 2 name vlan1	

Error messages	Name should be assigned after VLAN member port setting Length of VLAN name is at most 31 character
Related commands	vlan mode

## warning-notification port-event

Use **warning-notification port-event** interface configuration commands to enable the port warning events trigger to email, relay, syslog or trap. Use **no** form of this command to disable it.

### Commands

**warning-notification port-event {event { link-on | link-off | traffic-overload rxThreshold duration} | action action-index |severity severity-level | active}**

**no warning-notification port-event {event { link-on | link-off | traffic-overload} | active}**

Syntax Description	<b>warning-notification</b>	Warning notification
	<b>port-event</b>	Port event setting
	<b>event</b>	Select and configure event
	<b>link-on</b>	Link ON
	<b>link-off</b>	Link OFF
	<b>traffic-overload</b>	Traffic overloading
	<i>rx-threshold</i>	0 ~ 100
	<i>duration</i>	1 ~ 300
	<b>action</b>	Enable Action setting
	<i>action-index</i>	0 ~ 31
	<b>severity</b>	Severity setting
	<i>severity-level</i>	0 ~ 7
<b>active</b>	Activate	
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	<i>action-index</i> as follow, Trap only(1), Email only(2), Trap+Email(3), Syslog only(4), Trap+Syslog(5), Email+Syslog(6), Trap+Email+Syslog(7), Relay1 only(8), Trap+Relay1(9), Email+Relay1(10), Trap+Email+Relay1(11), Syslog+Relay1(12), Trap+Syslog+Relay1(13), Email+Syslog+Relay1(14), Trap+Email+Syslog+Relay1(15), Relay2 only(16), Trap+Relay2(17), Email+Relay2(18), Trap+Email+Relay2(19), Syslog+Relay2(20), Trap+Syslog+Relay2(21), Email+Syslog+Relay2(22), Trap+Email+Syslog+Relay2(23), Relay1+Relay2(24), Trap+Relay1+Relay2(25), Syslog+Relay1+Relay2(28), Email+Syslog+Relay1+Relay2(30), Trap+Email+Syslog+Relay1+Relay2(31), None(0) <i>severity-level</i> as follow, Emergency(0), Alert(1), Critical(2), Error(3), Warning(4), Notice(5), Information(6), Debug(7)	
Examples	MOXA(config-if)#warning-notification port-event event traffic-overload 30 150 MOXA(config-if)# no warning-notification port-event event link-on	
Error messages	Invalid action value or non-support this combination action Invalid severity type	
Related commands	show relay-warning config	

# warning-notification system-event

Use **warning-notification system-event** global configuration commands to enable the system warning events trigger to email, relay, syslog or trap. Use **no** form of this command to disable it.

## Commands

```
warning-notification system-event { cold-start | warm-start | config-changed | pwr1-trans-on |
pwr2-trans-on | pwr1-trans-off | pwr2-trans-off | auth-fail | password-changed |
tacacs-auth-success | tacacs-auth-fail | radius-auth-success | radius-auth-fail | topology-changed
| coupling-changed | master-changed | master-mismatch | rstp-admin-changed |
rstp-topology-changed | turbo-ring-break | di1-trans-on|di1-trans-off| abc02-status| web-login |
rate-limited-on | rate-limited-off| port-looping | ptp-time | lldp-table-changed | fiber-warning |
login-success | account-info-changed | config-imported | cert-imported | login-failure-lockout |
mac-sticky-violation-port-disable } {action action-index | severity severity-level| active}
no warning-notification system-event { cold-start | warm-start | config-changed | pwr1-trans-on
| pwr2-trans-on | pwr1-trans-off | pwr2-trans-off | auth-fail | password-changed |
tacacs-auth-success | tacacs-auth-fail | radius-auth-success | radius-auth-fail | topology-changed
| coupling-changed | master-changed | master-mismatch | rstp-admin-changed |
rstp-topology-changed | turbo-ring-break | di1-trans-on|di1-trans-off| abc02-status| web-login |
rate-limited-on | rate-limited-off| port-looping | ptp-time | lldp-table-changed | fiber-warning |
login-success | account-info-changed | config-imported | cert-imported | login-failure-lockout |
mac-sticky-violation-port-disable } active}
```

Syntax Description	<b>warning-notification</b>	Configure warning-notification
	<b>system-event</b>	System event
	<b>cold-start</b>	Power is cut off and then reconnected.
	<b>warm-start</b>	The Moxa switch is rebooted, such as when network parameters are changed (IP address, subnet mask, etc.).
	<b>config-changed</b>	Any configuration item has been changed.
	<b>pwr1-trans-on</b>	The Moxa switch power 1 is powered on.
	<b>pwr2-trans-on</b>	The Moxa switch power 2 is powered on.
	<b>pwr1-trans-off</b>	The Moxa switch power 1 is powered down.
	<b>pwr2-trans-off</b>	The Moxa switch power 2 is powered down.
	<b>auth-fail</b>	An incorrect password was entered.
	<b>password-changed</b>	User changes the account password
	<b>tacacs-auth-success</b>	Correct authentication details were entered
	<b>tacacs-auth-fail</b>	Incorrect authentication details were entered
	<b>radius-auth-success</b>	Correct authentication details were entered
	<b>radius-auth-fail</b>	Incorrect authentication details were entered
	<b>topology-changed</b>	<ul style="list-style-type: none"> <li>• If the Master of the Turbo Ring has changed or the backup path is activated</li> <li>• If the Turbo Ring path is disconnected</li> <li>• If the MSTP topology has changed</li> </ul>
	<b>coupling-changed</b>	Backup path is activated
	<b>master-changed</b>	Master of the Turbo Ring has changed
	<b>master-mismatch</b>	Master of the Turbo Ring has mismatch
	<b>rstp-admin-changed</b>	If the RSTP root has changed
<b>rstp-topology-change d</b>	If any Rapid Spanning Tree Protocol switches have changed their position (applies only to the root of the tree)	
<b>turbo-ring-break</b>	Turbo Ring path is disconnected	
<b>di1-trans-on</b>	Digital Input 1 is triggered by an off to on transition	
<b>di1-trans-off</b>	Digital Input 1 is triggered by an on to off transition	
<b>abc02-status</b>	Detects if the ABC-02-USB-T is connected or disconnected to the	

		switch when the ABC-02-USB-T automatically imports/exports/backs-up the configuration
	<b>web-login</b>	Any account has logged in to the web-based configuration console
	<b>rate-limited-on</b>	When the port is disabled due to the ingress throughput exceeds the configured rate limit.
	<b>rate-limited-off</b>	When the port is disabled due to the ingress throughput exceeds the configured rate limit.
	<b>port-looping</b>	Port looping event is triggered
	<b>ptp-time</b>	PTP time event is triggered
	<b>lldp-table-changed</b>	Nearly connected devices are changed and shown in the LLDP table
	<b>fiber-warning</b>	If the corresponding value of the fiber port status exceeds the threshold defined by the Fiber Check function
	<b>login-success</b>	Account login success
	<b>account-info-changed</b>	Account information changed
	<b>config-imported</b>	Configuration imported
	<b>cert-imported</b>	Certification imported
	<b>login-failure-lockout</b>	Login failure lockout
	<b>mac-sticky-violation-port-disable</b>	Mac sticky violation port disable
	<b>action</b>	Action
	<i>action-index</i>	Action option
	<b>severity</b>	Severity
	<i>severity-level</i>	Severity option
	<b>active</b>	active
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<p>action-index as follow,  Trap only(1), Email only(2), Trap+Email(3), Syslog only(4), Trap+Syslog(5), Email+Syslog(6), Trap+Email+Syslog(7), Relay1 only(8), Trap+Relay1(9), Email+Relay1(10), Trap+Email+Relay1(11), Syslog+Relay1(12), Trap+Syslog+Relay1(13), Email+Syslog+Relay1(14), Trap+Email+Syslog+Relay1(15), Relay2 only(16), Trap+Relay2(17), Email+Relay2(18), Trap+Email+Relay2(19), Syslog+Relay2(20), Trap+Syslog+Relay2(21), Email+Syslog+Relay2(22), Trap+Email+Syslog+Relay2(23), Relay1+Relay2(24), Trap+Relay1+Relay2(25), Syslog+Relay1+Relay2(28), Email+Syslog+Relay1+Relay2(30), Trap+Email+Syslog+Relay1+Relay2(31), None(0)</p> <p>severity-level as follow,  Emergency(0), Alert(1), Critical(2), Error(3), Warning(4), Notice(5), Information(6), Debug(7)</p>	
Examples	<pre>MOXA# configure terminal MOXA(config)# warning-notification system-event cold-start action 5 MOXA (config)# warning-notification system-event cold-start severity 3 MOXA (config)# no warning-notification system-event cold-start active</pre>	
Error messages	Invalid action value or non-support this combination action Invalid severity type	
Related commands	show relay-warning config	