Moxa Managed Switch Next-generation OS (v3.x) Layer 2 Command Line Interface

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www.moxa.com/products

Models covered by this user manual:
MDS-G4000-4XGS Series Managed Ethernet Switches
MDS-G4000-L3-4XGS Series Managed Ethernet Switches
RKS-G4000 Series Managed Ethernet Switches

Moxa Managed Switch Next-generation OS (v3.x) Layer 2 Command Line Interface

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1. About This Manual

This chapter describes how to use the command line to configure Moxa's managed Ethernet switches. Besides the web interface configuration, the command line interface helps system administrators easily and quickly manage, monitor, and configure Moxa's managed Ethernet switch.

2. Understanding the Command Line Interface

This chapter helps users understand the command line interface, and demonstrates a general ideal on the command line operation.

Accessing the Switch

Users can connect to the switch using one of two methods: by console or by Telnet.

Logging in using the RS-232 Console

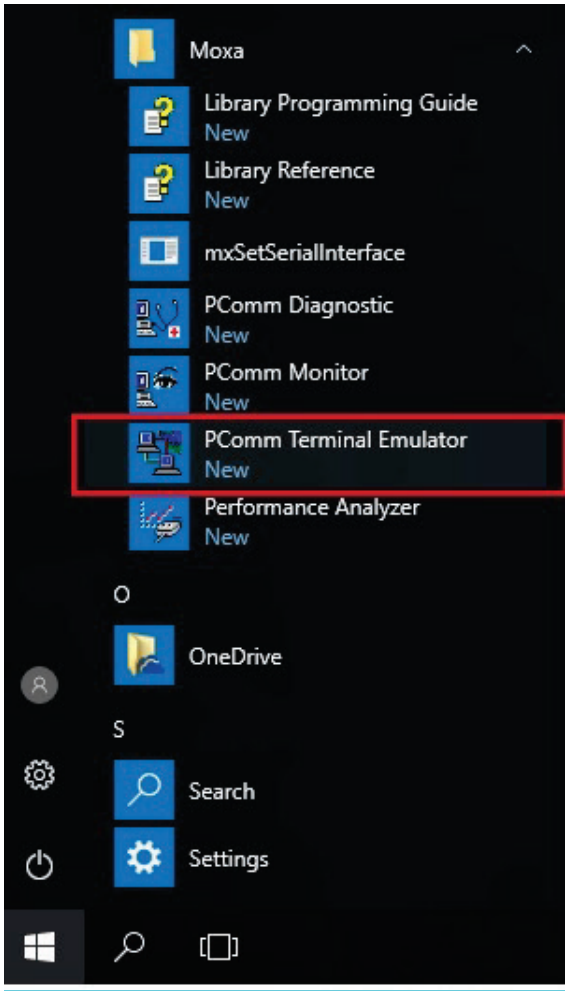
The Moxa managed switch features an RJ45 serial console port to allow users to connect to the switch and configure settings.

NOTE

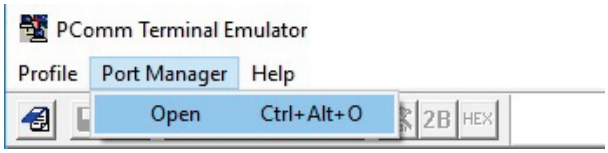
Moxa recommends using PComm Terminal Emulator for serial communication. This software is available for free on the Moxa website. You can use other serial communication software, but the following instructions may be different.

1. Use the RS-232 serial cable with RJ45 interface that is included with the switch.
2. Connect the RJ45 interface end to the console port on the switch, and the other end to the computer.
3. Download the **PComm Terminal Emulator** from the Moxa website and install the software.

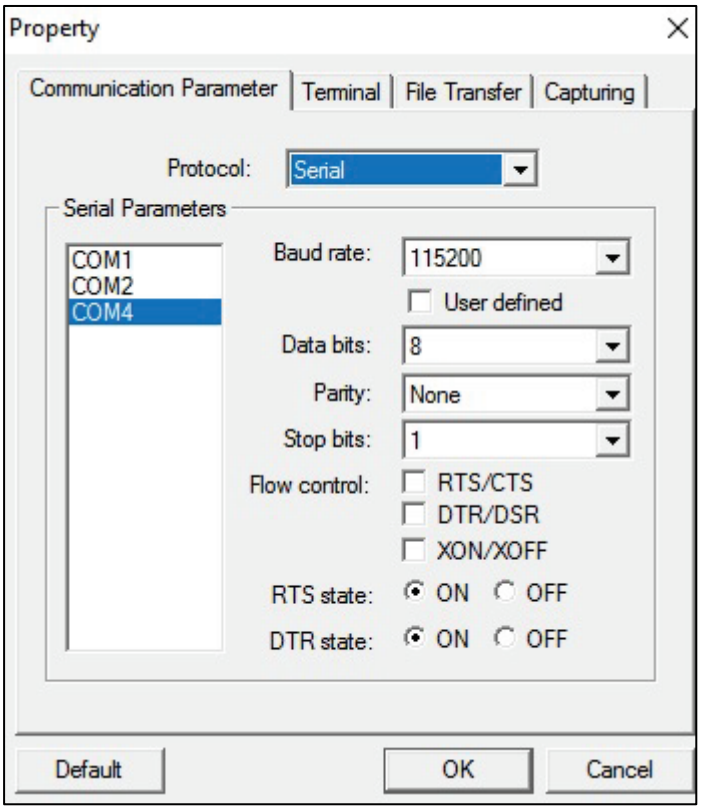
4. In Windows, click **Start > Moxa > PComm Terminal Emulator**.



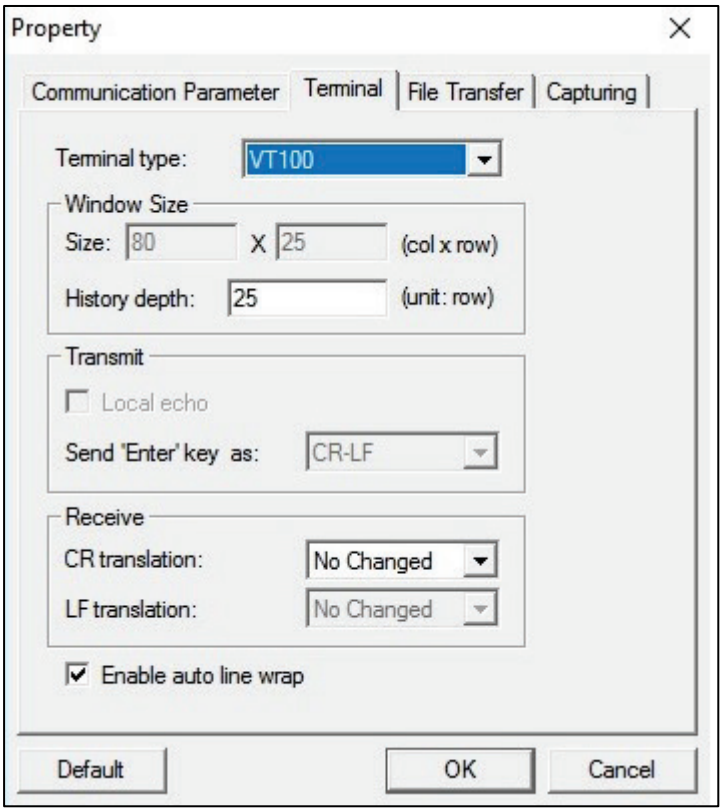
5. Click **Port Manager > Open** to establish a new connection.
   The Property window will appear.



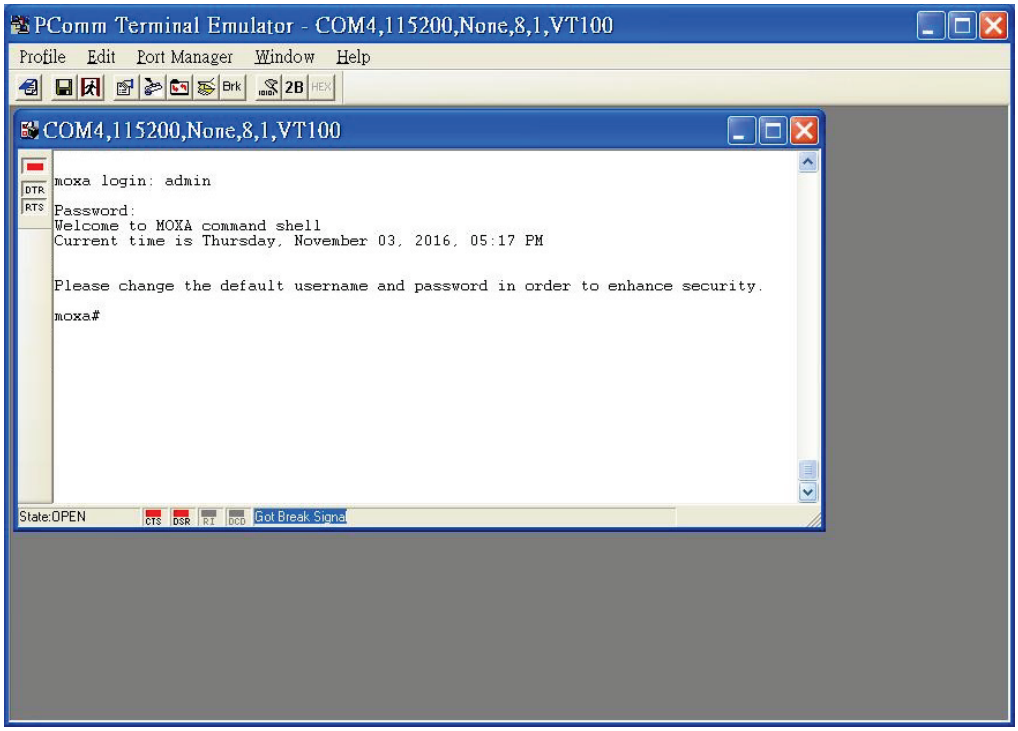
6. On the **Communication Parameter** tab, select the COM port that will be used for the console connection. Configure the fields as follows: **115200** for **Baud rate**, **8** for **Data bits**, **None** for **Parity**, and **1** for **Stop bits**.



7. On the **Terminal** tab, select **VT100** as the **Terminal Type**, and click **OK** to continue.



8. Log in to the console using the default login name **admin** and password **moxa**. This password will be required to access any of the consoles (web, serial, Telnet).



9. When successfully connected to the switch, you can start configuring the switch parameters by using command line instructions.

> **NOTE**
>
> By default, the password assigned to the Moxa switch is **moxa**. We recommended changing the default password after logging in for the first time to help keep your system secure.

Logging in using Telnet

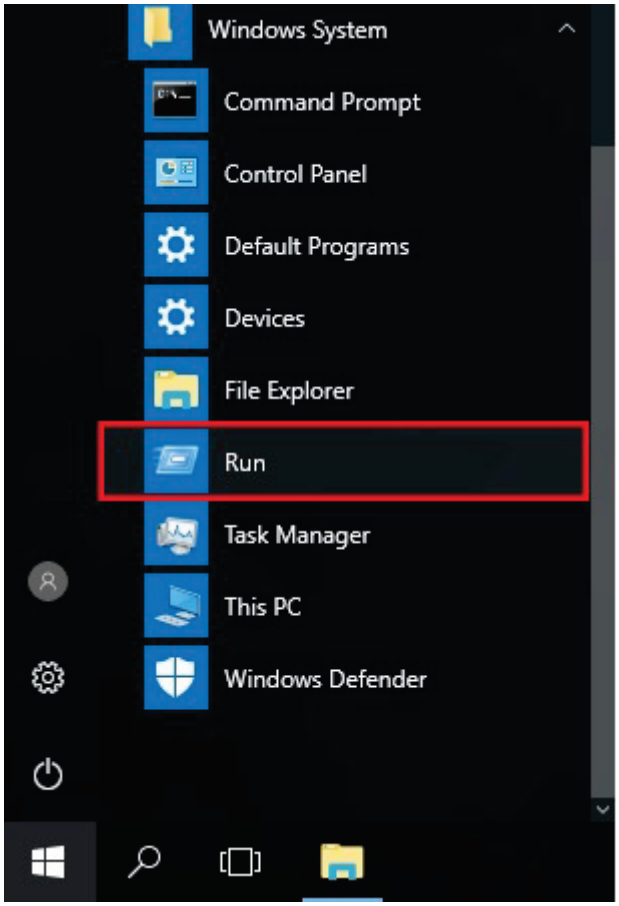
Opening the Moxa switch's Telnet or web console over a network requires that the PC host and Moxa switch are on the same logical subnet. You may need to change your PC host's IP address and subnet mask. By default, the Moxa switch's IP address is **192.168.127.253** and the subnet mask is **255.255.255.0**. Your PC's IP address must be configured with an IP of the form 192.168.127.xxx and a subnet mask of 255.255.255.0.

> **NOTE**
>
> When connecting to the Moxa switch through Telnet or the web console, first connect one of the Moxa switch's Ethernet ports to your Ethernet LAN, or directly to your PC's Ethernet port. You may use either a straight-through or cross-over Ethernet cable.

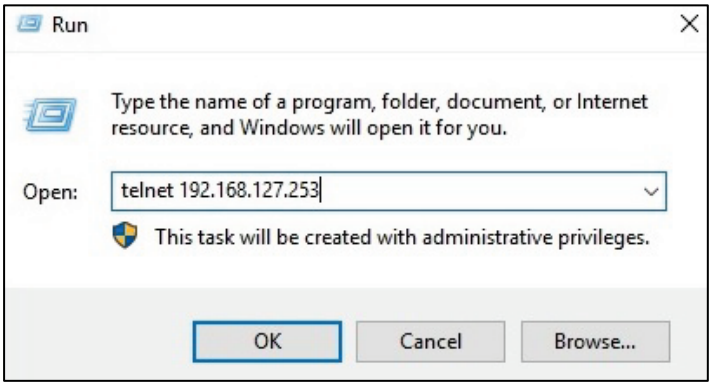
> **NOTE**
>
> The Moxa switch's default IP address is 192.168.127.253 with subnet mask of 255.255.255.0.

After making sure that the Moxa switch is connected to the same LAN and logical subnet as your PC, open the Moxa switch's Telnet console as follows:

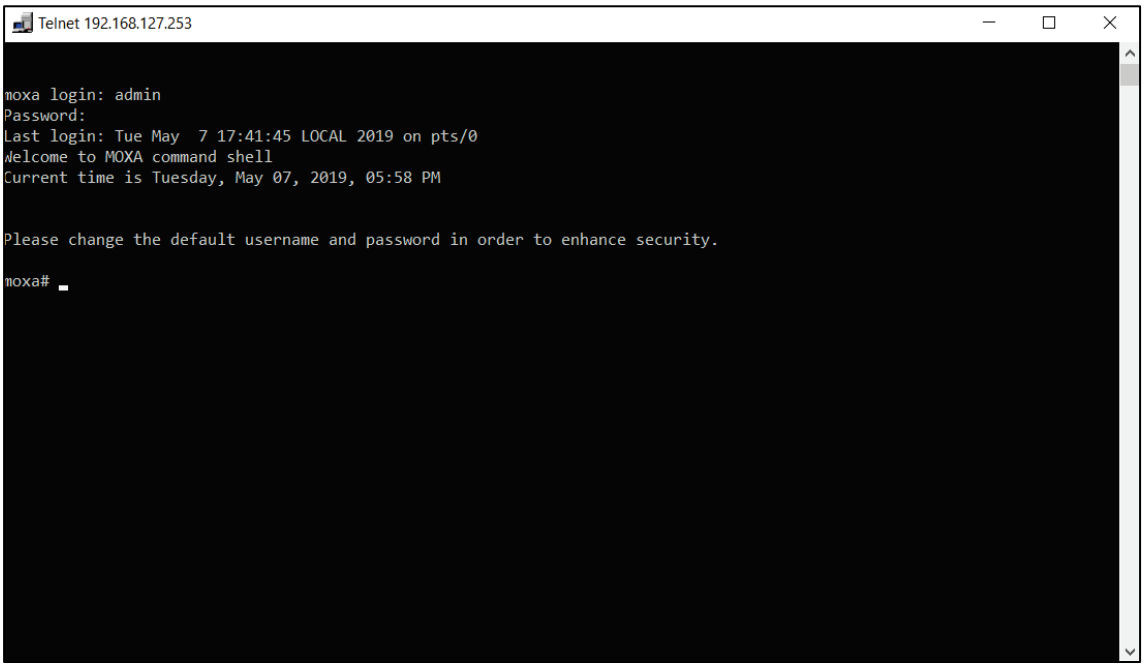
10. In Windows, click **Start > Run**.



11. In the Windows Run window, enter **telnet** followed by the Moxa switch's IP address (192.168.127.253). You can also issue the Telnet command from a DOS prompt.



12. Log in to the Telnet console using the default login name **admin** and password **moxa**. This password will be required to access any of the consoles (web, serial, Telnet).



13. When successfully connected to the switch, you can start configuring the switch parameters by using command line instructions.

NOTE

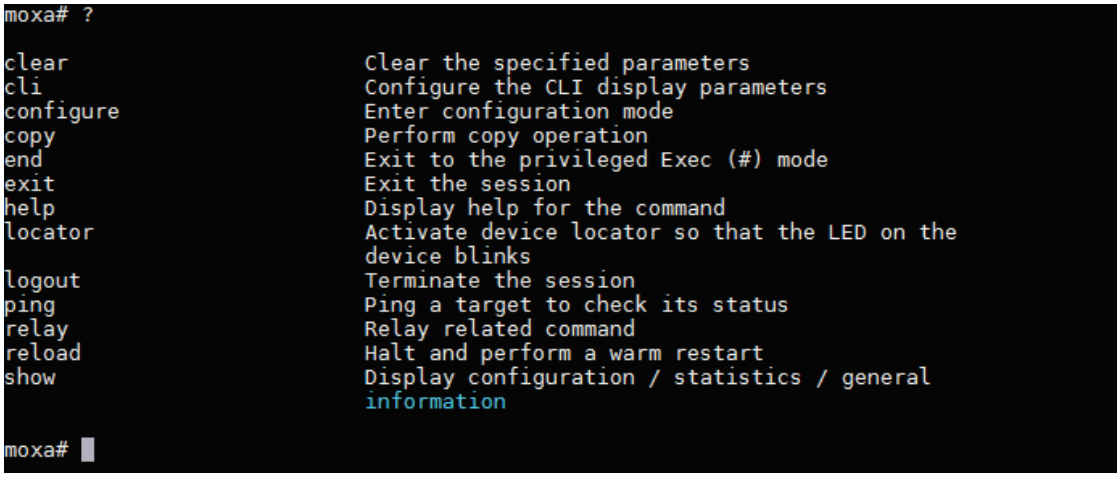
By default, the password assigned to the Moxa switch is moxa. We recommended changing the default password after logging in for the first time to help keep your system secure.

Command Modes

Basic Configuration

The CLI (Command Line Interface) for Moxa's Managed switches can be accessed through either the serial console or the Telnet console. For either type of connection, access to the CLI is generally referred to as an EXEC session.

The CLI is organized using different configuration levels. When you first enter the CLI, type "**?**" to view a list of basic commands and a description of each function. Type any of the commands shown on the screen to access the next configuration level. The help panel can be accessed from any configuration level by typing "**?**". The switch will show all the commands for the current configuration mode.



Understanding All Command Modes

The Moxa switch's CLI supports multiple types of configuration levels for performing different functions. Refer to the following table for an overview of all available modes.

Mode	Access Method	Prompt	Exit Method	About This Mode
User EXEC	Begin a new session and login as **user**.	moxa>	Enter the **exit** command. This will return you to the previous configuration mode.	Use this mode to display system information.
Privileged EXEC	Begin a session and login as **admin**.	moxa #	Enter the **exit** command. This will return you to the previous configuration mode.	Use this mode to verify commands that you have entered.
Global configuration	Enter the **configure** command while in Privileged EXEC mode.	moxa (config)#	Enter the **exit** command. This will return you to the previous configuration mode.	Use this mode to configure parameters that will apply to the entire switch.
Interface configuration	While in global configuration mode, enter the **interface** command, followed by an interface identification.	moxa (config-if)#	Enter the **exit** command. This will return you to the previous configuration mode.	Use this mode to configure parameters for the specified interface.

Refer to the following example of changing configuration modes below.

Type **config** at the command prompt to enter configuration mode.

```
moxa# config
moxa(config)#
```

Type **exit** to return to the previous configuration mode.

```
moxa(config)# exit
moxa#
```

Type **end** from within any configuration level to return to privileged Exec mode.

```
moxa(config)# end
moxa#
```

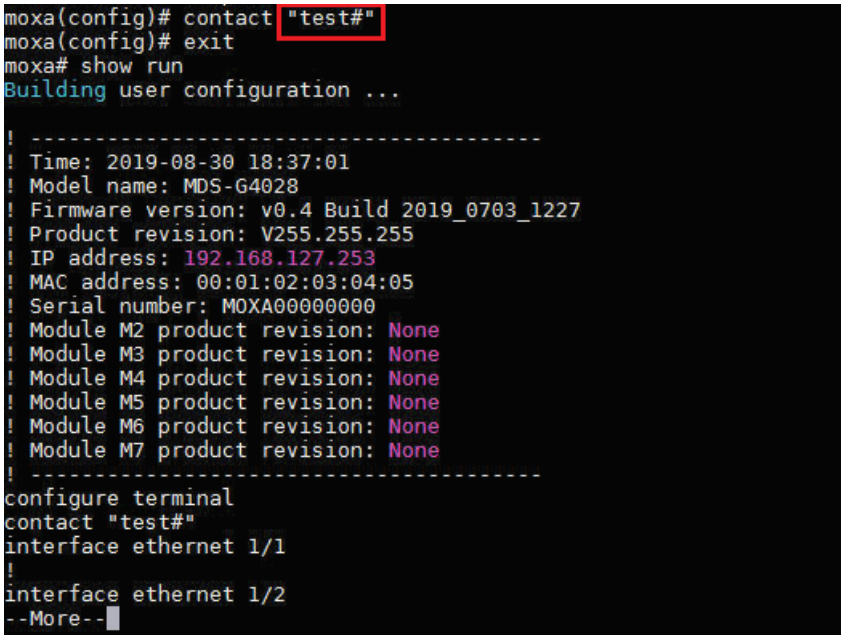
Help Messages

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

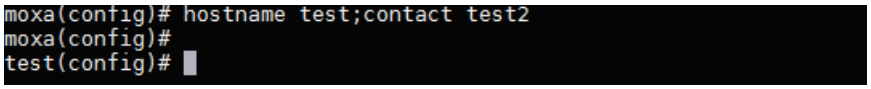
Command	Purpose
?	Shows a brief description of the Help feature in any command level.
Partial command?	Shows a list of commands that begin with the entered character string. There should be no space between the command and the question mark.
Partial command<Tab>	Completes a partially entered command name. There should be no space between the command and <**Tab**>.
Command ?	Shows the keywords, arguments, or both associated with the command. There should be a space between the command and the question mark.
Command keyword ?	Shows the arguments that are associated with the keyword There should be a space between the command and the keyword, and between the keyword and the question mark.

Special Usage and Limitations

If the command contains any special characters, such as *****, **#**, and **%**, you need to use the quotation marks (“”) to cover these special characters. Refer to the following figure for an example.



In addition, you may use a semicolon mark (;) to separate several commands. Refer to the figure below for an example.



Abbreviated Commands

The exclamation mark “**!**” can be used to enter the global configuration mode, as shown in the example below.

In addition, you can input one or more letters to quickly see all commands starting with these letters. For example, if you type **c?**, all commands starting with c will be shown. Refer to the figure below as the example.

In addition, when pressing **Tab** after typing the prefix letter, the syntax of the commands starting with that letter will be shown. See the figure below for details.

```
moxa# c
EXEC commands :

  clear logging event-log
  clear screen
  clear spanning-tree detected protocols interface { <interface-type> <interface
-id> | port-channel <integer> }
  clear statistics [interfaces {port-channel <integer> | <interface-type> <inter
face-id> }]
  cli eth-index-naming { modular | non-modular }
  cli pagination turn {on | off}
  configure [ terminal ]
  copy event-log {tftp://server/filename | sftp://<user-name>:<pass-word>@server
/filename}
  copy running-config startup-config
  copy running-config {tftp://server/filename | sftp://<user-name>:<pass-word>@s
erver/filename} [included-default] [password <string(60)>]
  copy startup-config {tftp://server/filename | sftp://<user-name>:<pass-word>@s
erver/filename} [included-default] [password <string(60)>]
  copy { tftp://server/filename running-config | sftp://<user-name>:<pass-word>@
server/filename running-config } [password decrypt-password]
  copy { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename
--More--
```

No and Default Forms of Commands

A "**no**" command can be used to perform the "delete", "disable", or "reset to default" functions. Type "**no ?**" to check how parameters can be used.

```
moxa(config)# no ?

contact                     Reset the contact information of the device
description                 Reset the description of the device
dot1x                       Configure dot1x parameters
event-notification          Configure event notification parameters
hostname                    Reset the hostname of the device
interface                   Configure interface parameters
ip                          Configure IP parameters
ipv6                        Configure IPv6 parameters
lldp                        Configure LLDP parameters
location                    Reset the location information of the device
logging                     Configure logging parameters
logging-server              Logging server parameters
login                       Configure login related configuration
mac-address-table           Configure MAC address table parameters
management                  Configure management parameters
monitor                     Configure Port Mirror parameters
ntp                         Configure NTP/SNTP parameters
poe                         Configure PoE parameters
port-channel                Configure port-channel parameters
radius-server               Configure RADIUS server configuration
--More--
```

The following example shows how a "**no**" command can run the "reset to default" function.

```
moxa(config)# hostname test
moxa(config)#
test(config)# no hostname
test(config)#
moxa(config)#
```

The following example shows how "**no**" can run the "disable" function.

```
moxa(config-if)# gvrp
moxa(config-if)# no gvrp
moxa(config-if)#
```

CLI Error Messages

You may encounter some error messages while configuring Moxa's Ethernet switch. Refer the following table for an overview of error messages and solutions.

Error Message	Meaning	Solution
% Ambiguous command	The characters you entered are insufficient for the switch to recognize the command.	Re-enter the command with a space between the command and the question mark (?). The possible keywords with the command will appear.
% Incomplete command	The keywords or values you entered are incomplete.	Re-enter the command with a space between the command and the question mark (?). The possible keywords with the command will appear.
% Invalid input detected at '^' marker.	The command you entered is incorrect. The point of invalid input will be indicated by a caret (^).	Enter a question mark (?) to display all the available commands in this command mode. The possible keywords with the command will appear.

Command History

Use the Up arrow and Down arrow keys to show to cycle through the history of previously entered commands.

Pressing the Up arrow will display the previously entered command. Pressing the Down arrow will display the next command in the history.

3. Commands

This chapter covers all commands for users to configure Moxa's managed Ethernet switch.

System

System Management

Information Setting

Configure Device Hostname

Commands

hostname device-name

no hostname

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	hostname	Configure the device hostname parameters
	device-name	The hostname of the device consisting of lower-case letters, numbers, and hyphens
Defaults	hostname: moxa	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# hostname device-name device-name(config)# no hostname moxa(config)#	
Error Messages	N/A	
Related Commands	N/A	

Configure Device Description

Commands

description text

no description

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	description	Configure the device description parameters
	text	The description of the device
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# description "description data" moxa(config)# no description	
Error Messages	N/A	
Related Commands	N/A	

Configure Contact Information

Commands

contact text

no contact

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	contact	Configure device contact information
	text	The contact information of the device
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# contact "contact info" moxa(config)# no contact	
Error Messages	N/A	
Related Commands	N/A	

Show Location Information

Commands

location text

no location

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	location	Configure the device location information
	text	The location information of the device
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# location "location info" moxa(config)# no location	
Error Messages	N/A	
Related Commands	N/A	

Show System Information

Commands

show system information

Syntax Description	**show**	Display configuration/status information
	system	Display system information
	information	Display system information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show system information Hardware Version : V0.0.0 Firmware Version : v0.3 build 2019_050202111 Device Contact : Device Name : moxa Device Location : Device Description : Device Uptime : 0 Days, 1 Hrs, 35 Mins, 21 Secs Login Authentication Mode : Local	
Error Messages	N/A	
Related Commands	N/A	

Firmware Upgrade

Upgrade the Firmware

Commands

copy { tftp_url | sftp_url> } **device-firmware**

Syntax Description	**copy**	Copy the target file or input
	device-firmware	The system firmware
	tftp_url	The address of the remote TFTP server in the format "tftp://server/filename"
	sftp_url	The address of the remote SFTP server in the format "sftp://username:password@server/filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	copy tftp://192.168.127.2/FWR_TSN-G5000_v0.1_2019_0904_1452.rom device-firmware	
Error Messages	N/A	
Related Commands	N/A	

Configuration Backup and Restore

Copy Running Configuration

Commands

copy running-config { <tftp_url> | <sftp_url> }

copy { <tftp_url> | <sftp_url> } **running-config**

Syntax Description	**copy**	Copy the target file or input
	running-config	The running configuration to be copied
	tftp_url	The location of the file to be copied on the remote TFTP server
	sftp_url	The location of the file to be copied on the remote SFTP server
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	copy running-config tftp://192.168.127.2 copy tftp://192.168.127.2 running-config	
Error Messages	N/A	
Related Commands	N/A	

Copy Startup Configuration

Commands

copy startup-config { <tftp_url> | <sftp_url>}

copy { <tftp_url> | <sftp_url>} **startup-config**

Syntax Description	**copy**	Copy the target file or input
	startup-config	The startup configuration to be copied
	tftp_url	The location of the file to be copied on the remote TFTP server
	sftp_url	The location of the file to be copied on the remote SFTP server
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	copy startup-config tftp://192.168.127.2 copy tftp://192.168.127.2 startup-config	
Error Messages	N/A	
Related Commands	N/A	

Event Log Backup

Commands

copy event-log { <tftp_url> | <sftp_url> }

Syntax Description	**copy**	Copy the target file or input
	event-log	The system event log to be copied
	tftp_url	The address of the remote TFTP server in the format "tftp://server/filename"
	sftp_url	The address of the remote SFTP server in the format "sftp://username:password@server/filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	copy event-log tftp://192.168.127.2	
Error Messages	N/A	
Related Commands	N/A	

Account Management

User Account

Configure User Account Setting

Commands

username <username> **password** <passwd> **group** { admin | user | supervisor } **status** { enable | disable } **email** <email>

no username username

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	username	Configures username parameters
	username	The username to be used for login
	password	Configures password parameters
	password	The password to be entered by the user
	group	Configures the user privilege level
	group	Valid values are "admin", "supervisor", and "user" "admin" for admin group, "supervisor" for supervisor, and "user" for normal user group
	status	Configures user status parameters
	enable	Enable the user
	disable	Disable the user
	email	Configures the user email
	email	The user's email address
Defaults	N/A.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# username testuser password test123 group admin status enable email test@test.com	
Error Messages	% Max User Account Amount Reached % Invalid Username Format % Password doesn't comply with password rules. % Invalid Email Format % Invalid Password Format % User does not exist % At least one admin should be active. % User status cannot be updated by self. % User Deletion Failed % User cannot be disabled by self % User cannot be modified group by self % User cannot be deleted by self	
Related Commands	Show user	

Show User Information

Commands

show user

Syntax Description	**show**	Display running information for the function
	user	Display user parameters
Defaults	N/A	
Command Modes	Global configuration/ User EXEC	
Usage Guidelines	N/A	
Examples	# show user USER ACTIVE PRIVILEGE EMAIL admin 1 admin admin@sample.com user 1 user user@sample.com supervisor 1 supervisor supervisor@sample.com	
Error Messages	N/A	
Related Commands	username	

Password Policy

Configure Password Maximum Lifetime

Commands

password max-life-time [<days (0-365)>]

Syntax Description	**password**	Configure password parameters
	max-life-time	Configure the maximum lifetime of the password
	days	Maximum lifetime in days; a 0 or "no" value means it does not expire
Defaults	0	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# password max-life-time 30 moxa(config)# password max-life-time	
Error Messages	N/A	
Related Commands	show password max-life-time	

Configure Password Validation Rules

Commands

password validate-rules [lowercase] [uppercase] [numbers] [symbols]

Syntax Description	**password**	Configure password parameters
	validate-rules	Configure validation rules
	lowercase	Configure at least 1 lowercase flag for password validation
	uppercase	Configure at least 1 uppercase flag for password validation
	numbers	Configure at least 1 numbers flag for password validation
	symbols	Configure at least 1 symbols flag for password validation
Defaults	There are no validation rules configured by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# password validate-rules lowercase numbers moxa(config)# password validate-rules	
Error Messages	N/A	
Related Commands	show password validate-rules	

Configure Password Minimum Length

Commands

password minimum-length <minimum-len (4-63)>

Syntax Description	**password**	Configure password parameters
	minimum-length	Configure the minimum password length
	minimum-len	The minimum password length
Defaults	4	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# password minimum-length 8	
Error Messages	N/A	
Related Commands	show password minimum-length	

Show Password Minimum Length

Commands

show minimum password minimum-length

Syntax Description	**show**	Display running information for the function
	password	Display password parameters
	minimum-length	Display the minimum length of the password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show password minimum-length 8	
Error Messages	N/A	
Related Commands	password minimum-length	

Show Password Validation Rules

Commands

show password validate-rules

Syntax Description	**show**	Display running information for the function
	password	Display password parameters
	validate-rules	Display the password validation rules
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show password validate-rules	
Error Messages	N/A	
Related Commands	password validate-rules	

Online Account

Show System Online Account

Commands

show system online-account

Syntax Description	**show**	Display running information for the function
	system	Display system related information
	online-account	Accounts already logged into this device
Defaults	N/A	
Command Modes	Privilege EXEC	
Usage Guidelines	N/A	
Examples	moxa# show system online-account Online Account -------------------------- Account Role IP Address Interface ID Idle Admin Admin 192.168.127.253 HTTP(S) 4a5d6d51 1 Chris Supervisor 192.168.127.252 HTTP(S) 19ad4348 10 User User 192.168.127.251 Telnet 86ac3734 20 Jason User 192.168.127.250 SSH 5c73d2a2 30 Tim User Local Console 5c73d2a2 50	
Error Messages	N/A	
Related Commands	N/A	

Remove System Online Account

Commands

remove system online-account id <id>

Syntax Description	**remove**	Remove an online account
	system	Display system related information
	online-account	Accounts already logged into this device
	id	Login account ID in the table
Defaults	N/A	
Command Modes	Privilege EXEC	
Usage Guidelines	N/A	
Examples	moxa# remove system online-account id 1a2b3c4d	
Error Messages	This ID is not valid.	
Related Commands	N/A	

Network

IP Configuration

Configure IP Management Address

Commands

ip management address { dhcp | ipv4-address ipv4-netmask [ipv4-gateway] }

Syntax Description	**ip**	Configure IP parameters
	management	Configure IPv4 management address parameters
	address	Configure the IPv4 management address of the device
	dhcp	Assign the IPv4 address by DHCP
	ipv4-address	The IPv4 address
	ipv4-netmask	The IPv4 subnet mask
	ipv4-gateway	The IPv4 gateway
Defaults	ipv4-address: 192.168.127.253 ipv4-netmask: 255.255.255.0 ipv4-gateway: 0.0.0.0	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip management address dhcp moxa(config)# ip management address 10.1.1.1 255.255.255.0 10.1.1.254	
Error Messages	Invalid: Invalid IPv4 Management Address ipv4-address/ipv4-netmask. Invalid: Gateway ipv4-gateway is not reachable.	
Related Commands	N/A	

DHCP Server

Show IP DHCP

Commands

show ip dhcp [{ binding | static | port-based-ip-assignment }]

Syntax Description	**show**	Display configuration/status information
	ip	Display IP information
	dhcp	Display DHCP server information
	binding	Display binding information
	static	Display MAC-based IP assignment information
	port-based-ip-assignment	Display port-based IP assignment information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ip dhcp DHCP Server Mode: DHCP / MAC-based IP Assignment DHCP Pool List ---------- Index : 1 State : Enable First IP Address : 192.168.127.10 Last IP Address : 192.168.127.20 Netmask : 255.255.255.0 Lease Time (secs) : 86400 Default Gateway : NTP Server : DNS Server 1 :	

	DNS Server 2 :
	moxa# show ip dhcp binding
	Host Name IP Address MAC Address Time Left
	---------- ---------- ---------- ----------
	VirtualBox 192.168.127.10 08:00:27:f6:bf:98 23 h: 59 m: 55 s
	// A MAC-based IP assignment is created
	moxa# show ip dhcp static
	DHCP Server Mode: DHCP / MAC-based IP Assignment
	MAC-based IP Assignment List
	---------- 	
	Index : 1
	State : Enable
	Host Name : host1
	Host IP Address : 192.168.127.30
	Host Netmask : 255.255.255.0
	MAC Address : 08:00:27:f6:bf:98
	Lease Time (secs) : 86400
	Default Gateway :
	NTP Server :
	DNS Server 1 :
	DNS Server 2 :
	moxa# show ip dhcp binding
	Host Name IP Address MAC Address Time Left
	---------- ---------- ---------- ----------
	host1 192.168.127.30 08:00:27:f6:bf:98 (static)
	// A Port-based IP assignment is created
	moxa# show ip dhcp port-based-ip-assignment
	DHCP Server Mode: Port-based IP Assignment
	Port-based IP Assignment List
	---------- 	
	Port : 2
	State : Enable
	Static IP Address : 192.168.127.40
	Host Netmask : 255.255.255.0
	Lease Time (secs) : 86400
	Default Gateway :
	NTP Server :
	DNS Server 1 :
	DNS Server 2 :
	moxa# show ip dhcp binding
	Host Name IP Address MAC Address Time Left
	---------- ---------- ---------- ----------
	192.168.127.40 (static)

Error Messages	N/A
Related Commands	N/A

Configure/Disable DHCP Server Mode

Commands

dhcp-server mode disable

dhcp-server mode dhcp-and-mac-based-ip-assignment

dhcp-server mode port-based-ip-assignment

Syntax Description	**dhcp-server**	Configure DHCP server parameters
	mode	Configure DHCP server mode parameters
	disable	Disable the DHCP server
	dhcp-and-mac-based-ip-assignment	Standard DHCP server and MAC-based DHCP
	port-based-ip-assignment	Port-based DHCP sever
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	Moxa(config)# dhcp-server mode disable	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable IP DHCP Pool

Commands

ip dhcp pool <integer> [{ enable | disable }]

Syntax Description	**ip**	Configure IP parameters
	dhcp	Configure DHCP server parameters
	pool	Configure address pool parameters
	<integer>	Pool number
	enable	Enable the address pool
	disable	Disable the address pool
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ip dhcp pool 1 enable moxa(dhcp-config)#	
Error Messages	N/A	
Related Commands	N/A	

Remove IP DHCP Pool

Commands

no ip dhcp pool <integer>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ip	Configure IP parameters
	dhcp	Configure DHCP server parameters
	pool	Configure address pool parameters
	<integer>	The address pool number
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# no ip dhcp pool 1	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable IP DHCP Static Pool

Commands

ip dhcp static pool <string (63)> [{ enable | disable }]

Syntax Description	**ip**	Configure IP parameters
	dhcp	Configure DHCP server parameters
	static	Configure MAC-based IP assignment parameters
	pool	Configure address pool parameters
	<string (63)>	The client host name (DHCP option 12)
	enable	Enable the address pool
	disable	Disable the address pool
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ip dhcp static pool host1 enable moxa(dhcp-config)#	
Error Messages	N/A	
Related Commands	N/A	

Remove IP DHCP Static Pool

Commands

no ip dhcp static pool <string (63)>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ip	Configure IP parameters
	dhcp	Configure DHCP server parameters
	static	Configure MAC-based IP assignment parameters
	pool	Configure address pool parameters
	string (63)	The client host name (DHCP option 12)
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no ip dhcp static pool host1	
Error Messages	N/A	
Related Commands	N/A	

DHCP and MAC-based IP Assignment

Configure DHCP Server Pool

Commands

network <ucast_addr> <ucast_addr> <ip_mask>

Syntax Description	**network**	Configure network parameters
	<ucast_addr>	The address pool starting IP address
	<ucast_addr>	The address pool ending IP address
	<ip_mask>	The subnet mask
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# network 192.168.127.10 192.168.127.20 255.255.255.0	
Error Messages	N/A	
Related Commands	N/A	

Configure DHCP Server Host IP Address

Commands

host <ucast_addr> <ip_mask>

Syntax Description	**host**	Configure host parameters
	<ucast_addr>	The unicast IP address
	<ip_mask>	The subnet mask
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# host 192.168.127.100	
Error Messages	N/A	
Related Commands	N/A	

Configure DHCP Server Host MAC Address

Commands

hardware-address <ucast_mac>

Syntax Description	**hardware-address**	Configure the MAC address
	<ucast_mac>	The MAC address
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# hardware-address 00:90:e8:11:22:33	
Error Messages	N/A	
Related Commands	N/A	

Configure Lease Time

Commands

lease <integer (10-604800)>

Syntax Description	**lease**	Configure the IP lease duration
	<integer (10-604800)>	The IP lease duration in seconds
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# lease 3600	
Error Messages	N/A	
Related Commands	N/A	

Reset Lease time

Commands

no lease

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lease	Configure the IP lease duration
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# no lease	
Error Messages	N/A	
Related Commands	N/A	

Configure Default Router IP Address

Commands

default-router <ucast_addr>

Syntax Description	**default-router**	Configure the default router
	<ucast_addr>	The unicast IP address
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# default-router 192.168.127.254	
Error Messages	N/A	
Related Commands	N/A	

Remove Default Router IP Address

Commands

no default-router

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	default-router	Configure the default router
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# no default-router	
Error Messages	N/A	
Related Commands	N/A	

Configure DNS Server IP Address

Commands

dns-server <ucast_addr> [<ucast_addr>]

Syntax Description	**dns-server**	Configure the DNS server
	<ucast_addr>	The unicast IP address
	<ucast_addr>	The unicast IP address
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# dns-server 192.168.127.254 moxa(dhcp-config)# dns-server 192.168.127.251 192.168.127.252	
Error Messages	N/A	
Related Commands	N/A	

Remove DNS Server IP Address

Commands

no dns-server

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	dns-server	Configure the DNS server
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# no dns-server	
Error Messages	N/A	
Related Commands	N/A	

Configure NTP Server IP Address

Commands

ntp-server <ucast_addr>

Syntax Description	**ntp-server**	Configure the NTP server
	<ucast_addr>	The unicast IP address
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# ntp-server 192.168.127.254	
Error Messages	N/A	
Related Commands	N/A	

Remove NPT Server IP Address

Commands

no ntp-server

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ntp-server	Configure the NTP server
Defaults	N/A	
Command Modes	Privileged EXEC DHCP Configuration	
Usage Guidelines	N/A	
Examples	moxa(dhcp-config)# no ntp-server	
Error Messages	N/A	
Related Commands	N/A	

Configure Port-based IP Assignment

Commands

ip dhcp port-based-ip-assignment <ucast_addr> <ip_mask>

Syntax Description	**ip**	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
	<ucast_addr>	The unicast IP address
	<ip_mask>	The subnet mask
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface ethernet 1/2 moxa(config-if)# ip dhcp port-based-ip-assignment 192.168.127.100 255.255.255.0	
Error Messages	N/A	
Related Commands	N/A	

Remove Port-based IP Assignment

Commands

no ip dhcp port-based-ip-assignment

Syntax Description	**no**	Remove configuration / delete entry / reset to default value
	ip	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface ethernet 1/2 moxa(config-if)# no ip dhcp port-based-ip-assignment	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable Port-based IP Assignment

Commands

ip dhcp port-based-ip-assignment { enable | disable }

Syntax Description	**ip**	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
	enable	Enable port-based IP assignment
	disable	Disable port-based IP assignment
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface ethernet 1/2 moxa(config-if)# ip dhcp port-based-ip-assignment enable moxa(config-if)# ip dhcp port-based-ip-assignment disable	
Error Messages	N/A	
Related Commands	N/A	

Configure Port-based IP Assignment Parameters

Commands

ip dhcp port-based-ip-assignment { { lease <integer (10-604800)> } | { default-router <ucast_addr> } | { dns-server <ucast_addr> [<ucast_addr>] } | { ntp-server <ucast_addr> } }

Syntax Description	**ip**	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
	lease	Configure duration of lease
	<integer (10-604800)>	The duration of the lease in seconds
	default-router	Configure the default router
	<ucast_addr>	The unicast IP address
	dns-server	Configure the DNS server
	<ucast_addr>	The primary DNS server IP address
	<ucast_addr>	The secondary DNS server IP address
	ntp-server	Configure the NTP server
	<ucast_addr>	The unicast IP address
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# ip dhcp port-based-ip-assignment lease 3600 moxa(config-if)# ip dhcp port-based-ip-assignment default-router 192.168.127.254 moxa(config-if)# ip dhcp port-based-ip-assignment dns-server 192.168.127.254 moxa(config-if)# ip dhcp port-based-ip-assignment dns-server 192.168.127.251 192.168.127.252 moxa(config-if)# ip dhcp port-based-ip-assignment ntp-server 192.168.127.254	
Error Messages	N/A	
Related Commands	N/A	

Remove Port-based IP Assignment Parameters

Commands

no ip dhcp port-based-ip-assignment { lease | default-router | dns-server | ntp-server }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ip	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
	lease	Configure the IP lease duration
	default-router	Configure the default router
	dns-server	Configure the DNS server
	ntp-server	Configure the NTP server
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# no ip dhcp port-based-ip-assignment lease moxa(config-if)# no ip dhcp port-based-ip-assignment default-router moxa(config-if)# no ip dhcp port-based-ip-assignment dns-server moxa(config-if)# no ip dhcp port-based-ip-assignment ntp-server	
Error Messages	N/A	
Related Commands	N/A	

Time

Time Zone

Configure Clock Time Zone

Commands

clock timezone { "-12" | "-11" | "-10" | "-9:30" | "-9" | "-8" | "-7" | "-6" | "-5" | "-4" | "-3:30" | "-3" | "-2" | "-1" | "0" | "1" | "2" | "3" | "3:30" | "4" | "4:30" | "5" | "5:30" | "5:45" | "6" | "6:30" | "7" | "8" | "8:30" | "8:45" | "9" | "9:30" | "10" | "10:30" | "11" | "12" | "12:45" | "13" | "14" }

Syntax Description	**clock**	Configure system clock parameters
	timezone	Configure the timezone
	"-12"	UTC-12:00
	"-11"	UTC-11:00
	"-10"	UTC-10:00
	"-9:30"	UTC-09:30
	"-9"	UTC-09:00
	"-8"	UTC-08:00
	"-7"	UTC-07:00
	"-6"	UTC-06:00
	"-5"	UTC-05:00
	"-4"	UTC-04:00
	"-3:30"	UTC-03:30
	"-3"	UTC-03:00
	"-2"	UTC-02:00
	"-1"	UTC-01:00
	"0"	UTC+00:00
	"1"	UTC+01:00
	"2"	UTC+02:00
	"3"	UTC+03:00
	"3:30"	UTC+03:30
	"4"	UTC+04:00
	"4:30"	UTC+04:30
	"5"	UTC+05:00
	"5:30"	UTC+05:30
	"5:45"	UTC+05:45
	"6"	UTC+06:00
	"6:30"	UTC+06:30
	"7"	UTC+07:00
	"8"	UTC+08:00
	"8:30"	UTC+08:30
	"8:45"	UTC+08:45
	"9"	UTC+09:00
	"9:30"	UTC+09:30
	"10"	UTC+10:00
	"10:30"	UTC+10:30
	"11"	UTC+11:00
	"12"	UTC+12:00
	"12:45"	UTC+12:45
	"13"	UTC+13:00
	"14"	UTC+14:00
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock timezone "8"	
Error Messages	N/A	

Related Commands	N/A

System Time

Configure Clock Source

Commands

clock source { local | ntp | sntp }

Syntax Description	**clock**	Configure system clock parameters
	source	Configure the source of the system clock
	local	Use the local clock
	ntp	Use Network Time Protocol (NTP)
	sntp	Use Simple Network Time Protocol (SNTP)
Defaults	clock source: local	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock source local	
Error Messages	N/A	
Related Commands	N/A	

Configure Clock Setting

Commands

clock set hh:mm:ss [month] [day] [year]

Syntax Description	**clock**	Configure system clock parameters
	set	Configure the system time
	hh:mm:ss	The system time in the format hh:mm:ss
	month	The month, January (1) to December (12)
	day	The day of the month (1 to 31)
	year	The year
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock set 11:11:11 12 31 2019	
Error Messages	N/A	
Related Commands	N/A	

Enable Clock Summer Time

Commands

clock summer-time enable

Syntax Description	**clock**	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	enable	Enable Daylight Savings Time
Defaults	Daylight saving time is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time enable	
Error Messages	Invalid: The start date plus offset should before the end date.	
Related Commands	N/A	

Disable Clock Summertime

Commands

clock summer-time disable

Syntax Description	**clock**	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	disable	Disable Daylight Savings Time
Defaults	Daylight saving time is disabled by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time disable	
Error Messages	N/A	
Related Commands	N/A	

Configure Clock Summertime Start Date

Commands

clock summer-time start-date [month] [day] [year] [hour minute hh:mm:ss]

Syntax Description	**clock**	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	start-date	Configure the start date of Daylight Saving Time
	month	The month, January (1) to December (12)
	day	The day of the month (1 to 31)
	year	The year
	hour	The hour
	minute	The minutes
Defaults	The daylight saving time start date is set to Jan 01 2000 00:00	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time start-date 1 1 2019 23 30	
Error Messages	Invalid: Start date is invalid. Invalid: The start date plus offset should before the end date.	
Related Commands	N/A	

Configure Clock Summertime End Date

Commands

clock summer-time end-date month day year hour minute

Syntax Description	**clock**	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	end-date	Configure the end date of Daylight Savings Time
	month	The month, January (1) to December (12)
	day	The day of the month (1 to 31)
	year	The year
	hour	The hour
	minute	The minutes
Defaults	The daylight saving time end date is set to Dec 31 2000 23:00	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time end-date 7 31 2019 23 30	
Error Messages	Invalid: End date is invalid Invalid: The start date plus offset should before the end date.	
Related Commands	N/A	

Configure Clock Summertime Offset

Commands

clock summer-time offset offset-hour [offset-minute]

Syntax Description	**clock**	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	offset	Configure the offset of Daylight Saving Time
	offset-hour	The time offset hours
	offset-minute	The time offset minutes
Defaults	daylight saving time offset: 0 Hour 0 Minutes	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time offset 1 30	
Error Messages	Invalid: The start date plus offset should before the end date.	
Related Commands	N/A	

Configure NTP Authentication Key

Commands

ntp authentication-key key-index key-id md5 key-string

no ntp authentication-key key-index

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ntp	Configure NTP/SNTP parameters
	authentication-key	Configure the NTP authentication key
	key-index	The index of the key, ranging from 1 to 10
	key-id	The key ID, ranging from 1 to 65535
	md5	Use MD5 authentication
	key-string	The authentication key with a maximum length of 32 characters for plain text, 66 characters for Moxa-encrypted hex
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp authentication-key 1 1 md5 1a2b3c4d moxa(config)# no ntp authentication-key 1	
Error Messages	Invalid: Authentication key ID key-id is duplicated.	
Related Commands	N/A	

Configure NTP Remote Server

Commands

ntp remote-server ntp server-index server-address [authentication key key-id]

no ntp remote-server ntp server-index [authentication]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ntp	Configure NTP/SNTP parameters
	remote-server	Configure remote time server parameters
	ntp	Configure NTP server parameters
	server-index	The index of the server, ranging from 1 to 2
	server-address	The NTP server address
	authentication	Configure NTP authentication parameters
	key	Use key authentication
	key-id	The ID of the authentication key
Defaults	NTP time server: time.nist.gov	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp remote-server ntp 1 1.1.1.1 moxa(config)# ntp remote-server ntp 2 2.2.2.2 authentication key 1 moxa(config)# no ntp remote-server ntp 2 authentication moxa(config)# no ntp remote-server ntp 1	
Error Messages	Invalid: Authentication key ID key-id of NTP client server-index does not exist.	
Related Commands	N/A	

Configure SNTP Remote Server

Commands

ntp remote-server sntp server-index server-address

no ntp remote-server sntp server-index server-address

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ntp	Configure NTP/SNTP parameters
	remote-server	Configure remote time server parameters
	sntp	Configure SNTP server parameters
	server-index	The index of the server, ranging from 1 to 2
	server-address	The SNTP server address
Defaults	The default SNTP time server is set to time.nist.gov	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp remote-server sntp 1 1.1.1.1 moxa(config)# no ntp remote-server sntp 1	
Error Messages	N/A	
Related Commands	N/A	

Enable NTP Server

Commands

ntp server enable

Syntax Description	**ntp**	Configure NTP/SNTP parameters
	server	Configure NTP server parameters
	enable	Enable the NTP server
Defaults	NTP server: disable	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp server enable	
Error Messages	N/A	
Related Commands	N/A	

Disable NTP Server

Commands

ntp server disable

Syntax Description	**ntp**	Configure NTP/SNTP parameters
	server	Configure NTP server parameters
	disable	Disable the NTP server
Defaults	The NTP server is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp server disable	
Error Messages	N/A	
Related Commands	N/A	

Configure NTP Server Authentication

Commands

ntp server authentication

Syntax Description	**ntp**	Configure NTP/SNTP parameters
	server	Configure NTP server parameters
	authentication	Enable authentication
Defaults	NTP server authentication is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp server authentication	
Error Messages	N/A	
Related Commands	N/A	

Disable NTP Server Authentication

Commands

no ntp server authentication

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ntp	Configure NTP/SNTP parameters
	server	Configure NTP server parameters
	authentication	NTP authentication
Defaults	NTP server authentication is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# no ntp server authentication	
Error Messages	N/A	
Related Commands	N/A	

Show Clock Information

Commands

show clock

Syntax Description	**show**	Display configuration/status information
	clock	Display system clock information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show clock Clock Source : Local Time Zone : UTC+00:00 Current Time : Fri May 03 22:59:33 2019 Daylight Saving : Disabled Start Date : Jan 01 2000 00:00 End Date : Dec 31 2000 23:00 Offset : 0 Minutes Authentication Keys NTP Client Time Server [1] time.nist.gov (No Auth) SNTP Client Time Server [1] time.nist.gov NTP/SNTP Server : Disabled Authentication : Disabled	
Error Messages	N/A	
Related Commands	N/A	

Show PTP Global Information/Status

Commands

show ptp

Syntax Description	**show**	Display configuration/status information
	ptp	Display PTP information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ptp PTP GLOBAL INFO: PTP Status : Enabled Current Profile : 1588v2 Default Profile Offset From Master(ns): -7.0 Mean Path Delay(ns) : 79 Steps Removed : 2 Sync. Status : Locked PTP Clock Time(TAI) : Wed Jan 01 01:09:20 2020	
Error Messages	N/A	
Related Commands	N/A	

Show IEEE1588 PTP Information/Status

Commands

show ptp profile default

Syntax Description	**show**	Display configuration/status information
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ptp profile default 1588v2 CLOCK DATA SET PTP Clock Type : Peer-to-Peer Boundary Clock PTP Device Profile : 1588v2 Default Profile Clock Identity : 00:90:e8:ff:fe:d1:5a:53 Transport Type : 802.3 Ethernet Clock Domain : 0 Two-Step Flag : True Number of PTP Ports : 28 Priority1 : 129 Priority2 : 128 Clock Quality: Class : 248 Accuracy : 254 Offset From Master(ns): 2.0 Mean Path Delay(ns) : 8.0 Steps Removed : 2 Maximum Steps Removed : 255 Slave Port : 5 Sync. Status : LOCKED Accuracy Alert(ns) : 1000 PTP Clock Time(TAI) : Wed Jan 20 19:10:20 2021 1588v2 PARENT DATA SET Parent Clock: Parent Clock Identity : 00:90:e8:ff:fe:71:1e:a5 Parent Port Number : 10 Grandmaster Clock: Grandmaster Clock Identity : 00:50:c2:ff:fe:c2:db:ad Grandmaster Clock Quality: Class : 6 Accuracy : 254 Priority1 : 10 Priority2 : 128	
Error Messages	N/A	
Related Commands	show ptp profile default parent show ptp profile default clock	

Show PTP Profile Default Clock

Commands

show ptp profile default clock

Syntax Description	**show**	Display configuration/status information
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	clock	Display clock information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ptp profile default clock 1588v2 CLOCK DATA SET PTP Clock Type : End-to-End Boundary Clock PTP Device Profile : 1588v2 Default Profile Clock Identity : Transport Type : 802.3 Ethernet Clock Domain : 0 Two-Step Flag : True Number of PTP Ports : 4 Priority1 : 128 Priority2 : 128 Clock Quality: Class : 248 Accuracy : 254 Offset From Master(ns): 0 Mean Path Delay(ns) : 0 Steps Removed : 0 Maximum Steps Removed: 254 Slave Port : Sync. Status : Syncing Accuracy Alert(ns) : 1000 PTP Clock Time(TAI) : Wed Jan 01 00:00:00 2020 ## ###### For Transparent moxa# show ptp profile default clock 1588v2 CLOCK DATA SET PTP Clock Type : End-to-End Transparent Clock PTP Device Profile : 1588v2 Default Profile Clock Identity : Transport Type : 802.3 Ethernet Clock Domain : 0 Two-Step Flag : True Number of PTP Ports : 4 Sync. Status : Syncing Accuracy Alert (ns) : 1000	
Error Messages	N/A	
Related Commands	show ptp profile default parent	

Show PTP Profile Default Parent

Commands

show ptp profile default parent

Syntax Description	**show**	Display configuration/status information
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	parent	Display parent information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	

Examples	moxa# show ptp profile default parent
	1588v2 PARENT DATA SET
	  Parent Clock:
	  Parent Clock Identity : 0x70:C9:C6:FF:FE:96:34:80
	  Parent Port Number : 1
	  Grandmaster Clock:
	  Grandmaster Clock Identity :
	  Grandmaster Clock Quality:
	  Class : 248
	  Accuracy : 254
	  Priority1 : 246
	  Priority2 : 248
	##
	######
	For Transparent
	moxa# show ptp profile default parent
	1588v2 PARENT DATA SET	

Error Messages	N/A	
Related Commands	N/A	

Show PTP Profile Default Port

Commands

show ptp profile default port [<interface-type> <interface-id>]

Syntax Description	**show**	Display configuration/status information
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	port	Display port information
	<interface-type>	Ethernet (interface-type)
	<interface-id>	Interface-id : <1-X>/<1-Y> slot number/port number
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ptp profile default port Ethernet 1/1 1588v2 PORT DATA SET: Port Identity : 00:90:E8:FF:FE:11:22:40-1 Port State : Master Announce Interval(log) : 1 Announce Receipt Timeout : 3 Sync Interval(log) : 0 Delay Req Interval(log) : 0 Pdelay Req Interval(log) : 0 Peer Mean Path Delay(ns) : 60 ## ###### moxa# show ptp profile default port Ethernet 1/1 1588v2 PORT DATA SET: Port Identity : 00:90:E8:FF:FE:11:22:40-1 Pdelay Req Interval(log) : 0 Peer Mean Path Delay(ns) : 60	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable PTP Service

Commands

ptp enable

ptp disable

Syntax Description	**ptp**	Display PTP information
	enable	Enable PTP service
	disable	Disable PTP service
Defaults	Enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp enable moxa(config)# ptp disable	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Global Settings

Commands

ptp profile default mode {boundary | transparent} **delay-mechanism** {e2e | p2p}

Syntax Description	**ptp**	Configure PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	mode	Mode related configuration of the PTP Clock
	boundary	PTP Clock is configured as boundary Clock
	transparent	PTP Clock is configured as transparent Clock
	delay-mechanism	Propagation delay mechanism configuration
	e2e	End-to-end delay mechanism is applied
	p2p	Peer-to-peer delay mechanism is applied
Defaults	End-to-End boundary clock	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default mode boundary delay-mechanism e2e	
Error Messages	N/A	
Related Commands	N/A	

Apply/Remove PTP Profile Default Priority1

Commands

ptp profile default priority1 <value>

no ptp profile default priority1

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	priority1	Configure the Priority1 parameters
	<value>	0-255
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default priority1 128 moxa(config)# no ptp profile default priority1	
Error Messages	N/A	
Related Commands	N/A	

Apply/Remove PTP Profile Default Priority2

Commands

ptp profile default priority2 <value>

no ptp profile default priority2

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	priority2	Configure the Priority2 parameters
	<value>	0-255
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default priority2 128 moxa(config)# no ptp profile default priority2	
Error Messages	N/A	
Related Commands	N/A	

Apply/Remove PTP Profile Default Domain

Commands

ptp profile default profile domain<domain-number>

no ptp profile default profile domain

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	domain	PTP domain parameters
	<domain-number>	0-255
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default domain 0 moxa(config)# no ptp profile default domain	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Network-transport Settings

Commands

ptp profile default network-transport {ethernet | ipv4 }

Syntax Description	**ptp**	Display PTP information
	profile	PTP profile selection
	default	1588v2 default profile
	network-transport	Network transport type related configuration
	ethernet	L2 802.3 transport type
	ipv4	Internet Protocol version4 transport type
Defaults	802.3	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default network-transport 802.3	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable PTP Profile Default Two-Step Setting

Commands

ptp profile default two-step {enable | disable}

Syntax Description	**ptp**	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	two-step	Generate follow-up message for synchronization event messages
	enable	Enable Two-Step mode
	disable	Disable Two-Step mode
Defaults	Two-step enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default two-step enable	
Error Messages	N/A	
Related Commands	N/A	

Apply/Remove PTP Profile Default Maximum-step-removed Setting

Commands

ptp profile default maximum-step-removed <max step removed>

no ptp profile default maximum-step-removed

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	maximum-step-removed	Configure maximum step removed for PTP
Defaults	254	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default maximum-step-removed 50	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Accuracy-alert Setting

Commands

ptp profile default accuracy-alert <nanosecond>

no ptp profile default accuracy-alert

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	accuracy-alert	Configure accuracy alert threshold for time synchronization status
	<nanosecond>	The value for the default accuracy alert
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ptp profile default accuracy-alert 300	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Port Setting

Commands

ptp profile default

no ptp profile default

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 /* Enable port ptp */ moxa(config-if)# ptp profile default /* Disable port ptp */ moxa(config-if)# no ptp profile default	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Announcement Interval

Commands

ptp profile default announce interval <value>

no ptp profile default announce interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	announce	Configure the Announcement message
	interval	Configure the Announcement message interval
	<value>	Announcement: 0~4
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default announce interval 0 moxa(config-if)# no ptp profile default announce interval	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Synchronization Interval

Commands

ptp profile default sync interval <value>

no ptp profile default sync interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	sync	Configure the Synchronization message
	interval	Configure the Synchronization message interval
	<value>	Synchronization: -3~5
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default sync interval -3 moxa(config-if)# no ptp profile default sync interval	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Delay Request Interval

Commands

ptp profile default delay-req interval <value>

no ptp profile default delay-req interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	delay-req	Configure the Delay Request message
	interval	Configure the Delay Request message interval
	<value>	Delay Request: -3~5
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default delay-req interval 0 moxa(config-if)# no ptp profile default delay-req interval	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default PDelay Request Interval

Commands

ptp profile default pdelay-req interval <value>

no ptp profile default pdelay-req interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	pdelay-req	Configure the PDelay Request message
	interval	Configure the PDelay Request message interval
	<value>	PDelay Request: -3~5
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default pdelay-req interval 0 moxa(config-if)# no ptp profile default pdelay-req interval	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Announcement Timeout

Commands

ptp profile default announce timeout <value>

no ptp profile default announce timeout

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	announce	Configure the Announcement message
	timeout	Configure the Announcement receipt timeout
	<value>	Announcement: 2-10
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default announce timeout 3 moxa(config-if)# no ptp profile default announce timeout	
Error Messages	N/A	
Related Commands	N/A	

Configure PTP Profile Default Delay Asymmetry

Commands

ptp profile default delay-asymmetry 0

no ptp profile default delay-asymmetry

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ptp	Configure PTP parameters
	profile	PTP profile selection
	default	1588v2 default profile
	Delay-asymmetry	Configure the Announcement message
	<value>	nanoseconds
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# interface Ethernet 1/1 moxa(config-if)# ptp profile default delay-asymmetry 0 moxa(config-if)# no ptp profile default delay-asymmetry	
Error Messages	N/A	
Related Commands	N/A	

Port

Port Interface

Port Setting

Show Interface Status

Commands

show interface status

Syntax Description	**show**	Show running system information
	interface	Display interface information
	status	The status of the interface
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show interface status Port Status Duplex Speed Negotiation MDI/MDIX ---- ------ ------ ----- ----------- ---------- Eth1/1 connected Full 1 Gbps Auto MDIX(Auto) Eth1/2 connected Full 1 Gbps Auto MDIX(Auto) Eth1/3 not connected Half - Auto - Eth1/4 not connected Half - Auto - Eth2/1 not present - - - - Eth2/2 not present - - - - Eth2/3 not present - - - - Eth2/4 not present - - - - Eth3/1 not connected Half - Auto - Eth3/2 not connected Half - Auto - Eth3/3 not connected Half - Auto -	
Error Messages	N/A	
Related Commands	N/A	

Show Interface Type and ID

Commands

show interfaces [<interface-type> <interface-id>]

show interfaces [{ [<interface-type> <interface-id>] [{ description | storm-control | flowcontrol | status }] }]

Syntax Description	**show**	Display configuration/statistics/general
	interfaces	Display interface information
	interface-type	The Ethernet type
	interface-id	The slot number/port number
	description	Description about the interface
	storm-control	Broadcast, multicast, and unicast storm control suppression levels for an interface
	flowcontrol	Receive or send flow control value for an interface
	status	The status of the interface
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show interfaces ethernet 1/1 Eth1/1 up, line protocol is down (not connect) Bridge Port Type: Customer Bridge Port Interface SubType: gigabitEthernet Interface Alias: Slot1/1 Media Type: 1000TX,RJ45,PTP Hardware Address is 00:00:00:00:00:05 MTU 1522 bytes, Half duplex, 1 Gbps, Auto-Negotiation HOL Block Prevention enabled. CPU Controlled Learning disabled. Auto-MDIX invalid Input flow-control is off,output flow-control is off Port State: Discarding Link Up/Down Trap is enabled Reception Counters Octets : 0 Unicast Packets : 0 Multicast Packets : 0 Octets : 0 Unicast Packets : 0 Multicast Packets : 0 Broadcast Packets : 0 Discarded Packets : 0 Error Packets : 0 Unknown Protocol : 0 CRC Errors : 0 Symbol Errors : 0 Good CRC Frame Size Errors: 0 Oversized w/ Bad CRC : 0 Transmission Counters Octets : 0 Unicast Packets : 0 Multicast Packets : 0 Broadcast Packets : 0 Discarded Packets : 0 Error Packets : 0	

	Bad CRC : 0 Error Drops : 0 Timeout Drops : 0 Error Packets : 0
Error Messages	N/A
Related Commands	N/A

Show Port-channel Interface

Commands

show interfaces port-channel

Syntax Description	**show**	Display configuration/statistics/general information
	interfaces	Display interface information
	port-channel	Display the port-channel interface
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show interfaces port-channel Port : Eth1/2 ---------- Port State = Down, Not in Bundle Reason for port-down : Oper status of the port is down Channel Group : 1 Mode : LACP Actual Port-channel = Null Configured port-channel = Po1 LACP port-priority = 128 LACP Wait-time = 2 secs LACP Port Identifier = 2 LACP Activity : Active LACP Timeout : Long LACP Error State : None Aggregation State : Aggregation, Defaulted LACP Port Admin Oper Port State Priority Key Key ---------- Eth1/2 Down 128 1 1 Port-channel : Po1 ---------- Number of Ports = 1 Protocol = LACP Aggregator-MAC 00:90:e8:72:56:2e Maximum number of Ports = 8 Port-Channel Speed = 0 Mbps	
Error Messages	N/A	
Related Commands	N/A	

Show Interface Description

Commands

show interface description

Syntax Description	**show**	Display configuration/statistics/general information
	interface	Display interface information
	description	Description about the interface
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show interfaces description Interface AdminStatus OperProtocol Description --------- ----------- ------------ ----------- Eth1/1 up down Eth1/2 up down Eth1/3 up down Eth1/4 up down Eth2/1 up down Eth2/2 up down Eth2/3 up down Eth2/4 up down Eth3/1 up down Eth3/2 up down Eth3/3 up down Eth3/4 up down Eth4/1 up down Eth4/2 up down Eth4/3 up down Eth4/4 up down Eth5/1 up down	
Error Messages	N/A	
Related Commands	N/A	

Show Flow Control

Commands

show flow-control [interface [{ port-channel <port-channel-id>| ethernet <slot>/<port> }]]

Syntax Description	**show**	Display configuration/statistics/general information
	flow-control	Display flow-control information
	interface	Protocol-specific configuration of the interface
	port-channel	The port channel interface
	port-channel-id	The port channel ID
	interface-type	The Ethernet interface
	slot/port	The slot number or port number
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show flow-control Port Admin Oper Tx Pause Rx Pause HC TxPause HC RxPause ---- ------- ------- -------- -------- ---------- ---------- Eth1/1 off off 0 0 0 0 Eth1/2 off off 0 0 0 0 Eth1/3 off off 0 0 0 0 Eth1/4 off off 0 0 0 0 Eth2/1 off off 0 0 0 0 Eth2/2 off off 0 0 0 0 Eth2/3 off off 0 0 0 0 Eth2/4 off off 0 0 0 0 Eth3/1 off off 0 0 0 0 Eth3/2 off off 0 0 0 0 Eth3/3 off off 0 0 0 0 Eth3/4 off off 0 0 0 0 Eth4/1 off off 0 0 0 0 Eth4/2 off off 0 0 0 0 Eth4/3 off off 0 0 0 0 Eth4/4 off off 0 0 0 0 Eth5/1 off off 0 0 0 0 Eth5/2 off off 0 0 0 0 Eth5/3 off off 0 0 0 0	
Error Messages	N/A	
Related Commands	N/A	

Show Linkup Delay Status

Commands

show linkup-delay

show linkup-delay [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/statistics/general
	linkup-delay	Display linkup-delay information
	interface	Interface-related configuration
	iftype	The Ethernet type
	ifnum	The slot number or port number
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show linkup-delay LinkUp Delay Table --- Interface Id : Eth1/1 Link Up Delay System Status : DISABLED Link Up Delay Port Status : DISABLED Link Up Delay Port Time : 2 Seconds Link Up Delay Remaining Time : 0 Seconds LinkUp Delay Table --- Interface Id : Eth1/2 Link Up Delay System Status : DISABLED Link Up Delay Port Status : DISABLED Link Up Delay Port Time : 2 Seconds Link Up Delay Remaining Time : 0 Seconds	
Error Messages	N/A	
Related Commands	N/A	

Configure Shutdown Settings

Commands

shutdown

no shutdown

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	shutdown	Configure shutdown parameters
Defaults	Physical ports are enabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# shutdown	
Error Messages	N/A	
Related Commands	N/A	

Configure Description Settings

Commands

description <description of this interface>

no description

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	description	Configure description parameters
	description of this interface	The description of the interface
Defaults	Empty string	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# description moxa	
Error Messages	% Port Setting: Invalid: data.portTable[0].description must be shorter than or equal to 127 characters	
Related Commands	N/A	

Configure Duplex Settings

Commands

duplex { full | half }

Syntax Description	**duplex**	Configure duplex parameters
	full	Set the port to full-duplex mode
	half	Set the port to half-duplex mode
Defaults	The port is full-duplex without auto-negotiation by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# no auto-negotiation moxa(config-if)# duplex full	
Error Messages	% Port Setting: Invalid: Fiber port can only be configured to full duplex/auto-mdix. % Port Setting: Invalid: Speed, Duplex and MDI/MDIX can only be configured when the port exists.	
Related Commands	speed { 10 | 100 }	

Configure Speed Settings

Commands

speed { 10 | 100 }

Syntax Description	**speed**	Configure port speed parameters
	10	Set the port to run at 10 Mbps
	100	Set the port to run at 100 Mbps
Defaults	The port is set to 100 Mbps by default if auto-negotiation is disabled on the port	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# no auto-negotiation moxa(config-if)# speed 100	
Error Messages	% Port Setting: Invalid: Speed cannot configure a speed which is over the ability of the port. % Port Setting: Invalid: If a speed is equal to or faster than 10G, the port cannot configure autoNego/duplex/speed. % Port Setting: Invalid: Speed, Duplex and MDI/MDIX can only be configured when the port exists.	
Related Commands	duplex { full | half }	

Enable/Disable Flow Control Setting

Commands

flowcontrol { on | off }

Syntax Description	**flowcontrol**	Configure flow-control parameters
	on	Enable flow control
	off	Disable flow control
Defaults	Flow control is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# flowcontrol off	
Error Messages	N/A	
Related Commands	N/A	

Configure MDIx Setting

Commands

mdix { auto | mdi | mdix }

Syntax Description	**mdix**	Configure MDI/MDIX parameters
	auto	Set the port as an auto-crossover port
	mdi	Set the port as an MDI port
	mdix	Set the port as an MDIX port
Defaults	Auto-crossover is enabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# mdix auto	
Error Messages	% Port Setting: Invalid: Fiber port can only be configured to full duplex/auto-mdix. % Port Setting: Invalid: Speed, Duplex and MDI/MDIX can only be configured when the port exists.	
Related Commands	N/A	

Linkup Delay

Enable/Disable Linkup Delay

Commands

linkup-delay { enable | disable }

no linkup-delay

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	linkup-delay	Configure linkup-delay parameters
	enable	Enable linkup-delay in the system
	disable	Disable linkup-delay in the system
Defaults	System-wide linkup-delay is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# linkup-delay disable	
Error Messages	N/A	
Related Commands	linkup-delay linkup-delay timer <integer (1-1000)>	

Configure Linkup Delay Timer

Commands

linkup-delay timer <integer (1-1000)>

Syntax Description	**linkup-delay**	Configure linkup-delay parameters
	timer	Set the timer for linkup-delay
	integer (1-1000)	Timer value ranger from 1 to 1000 seconds
Defaults	The linkup delay timer is 2 seconds by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# linkup-delay timer 2	
Error Messages	N/A	
Related Commands	linkup-delay [enable | disable] linkup-delay	

Configure Auto-Negotiation Setting

Commands

auto-negotiation

no auto-negotiation

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	auto-negotiation	Configure auto-negotiation parameters
Defaults	Auto-negotiation is enabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# auto-negotiation	
Error Messages	N/A	
Related Commands	speed { 10 | 100 } duplex { full | half }	

Link Aggregation

Port Channel

Configure Interface Port Channel

Commands

interface port-channel <port-channel-id>

no interface port-channel [<port-channel-id>]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	interface	Configure interface parameters
	port-channel	The port-channel interface
	port-channel-id	Configure port-channel ID parameters
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface port-channel 10 moxa(config-if)# no shutdown moxa(config-if)# exit moxa(config)# no interface port-channel 10	
Error Messages	'Invalid: Link Aggregation/Port-Channel group is out of range.' 'Invalid: Port channel should be activated before setting the selection policy configuration.' 'Invalid: The port-channel does not exist.'	
Related Commands	show port-channel load-balance	

Configure Port Channel Shutdown Settings

Commands

shutdown

no shutdown

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	shutdown	Shut down the port-channel
Defaults	N/A	
Command Modes	port channel Interface Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface port-channel 10 moxa(config-if)# no shutdown moxa(config-if)# shutdown	
Error Messages	N/A	
Related Commands	show port-channel port	

Configure Port Channel Load Balance

Commands

port-channel load-balance { src-mac | dest-mac | src-dest-mac } [<port-channel-id>]

no port-channel load-balance [<port-channel-id>]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	port-channel	Configure port-channel parameters
	load-balance	Configure load balancing policy parameters
	src-mac	Load distribution is based on the source MAC address
	dest-mac	Load distribution is based on the destination MAC address
	src-dest-mac	Load distribution is based on the source and destination MAC address
	<port-channel-id>	Configure port-channel ID parameters
Defaults	Port-channel load balancing is set to source/destination MAC address (src-dest-mac) by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface port-channel 10 moxa(config-if)# no shutdown moxa(config-if)# exit moxa(config-if)# port-channel load-balance src-mac 10 moxa(config-if)# no port-channel load-balance src-mac 10	
Error Messages	'Invalid: Link Aggregation/Port-Channel group is out of range.' 'Invalid: Port channel should be activated before setting the selection policy configuration.' 'Invalid: The port-channel does not exist.'	
Related Commands	show port-channel load-balance	

Configure Channel Group Mode

Commands

channel-group <port-channel-id> **mode** { on | active | passive }

no channel-group

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	channel-group	Configure port-channel parameters
	port-channel-id	Configure channel group number parameters
	mode	Configure mode for port-channel parameters
	on	Configure the interface to use static trunk channel without LACP
	active	Configure LACP negotiation to start unconditionally
	passive	Configure LACP negotiation to start only when a LACP packet is received from the peer
Defaults	N/A	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# channel-group 10 mode on moxa(config-if)# channel-group 10 mode active moxa(config-if)# channel-group 10 mode passive moxa(config-if)# no channel-group	
Error Messages	'Invalid: Switch shall have at least 2 ports.' 'Invalid: This port cannot join as it exceeds the maximum number of port channels.' 'Invalid: Interface index duplication.' 'Invalid: Link Aggregation/Port-Channel group is out of range.' 'Invalid: When a port joins the port channel, the Interface Duplexity should be Full Duplex.' 'Invalid: Port-channel cannot be created when flow control on the port is enabled.' 'Invalid: This port-channel is used by Turbo Ring/Turbo Chain/Dual Homing, it could not be destroyed.' 'Invalid: The port-channel does not exist.' 'Invalid: In the same port-channel, the member port mode should be the same.' 'Invalid: Port-channel cannot be created when ports are operating at different speeds.'	
Related Commands	show port-channel [<channel-group-ID>] {detail | load-balance | port | port-channel | summary | protocol } show interface [<interface-type> <interface-id>] port-channel	

Configure LACP Wait Time

Commands

lacp wait-time < wait-time-value >

no lacp wait-time

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lacp	Configure LACP parameters
	wait-time	Configure LACP wait-time parameters
	wait-time-value	Configure the LACP wait-time value
Defaults	The default wait time is 2 seconds	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# lacp wait-time 5 moxa(config-if)#no lacp wait-time moxa(config-if)# end	
Error Messages	N/A	
Related Commands	N/A	

Configure LACP Timeout Settings

Commands

lacp timeout { long | short }

no lacp timeout

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lacp	Configure LACP parameters
	timeout	Configure timeout parameters
	long	Configure the longest timeout of 90 seconds
	short	Configure the shortest timeout of 3 seconds
Defaults	LACP timeout is set to long be default	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# lacp timeout short moxa(config-if)#no lacp timeout moxa(config-if)# end	
Error Messages	N/A	
Related Commands	N/A	

Show Link Aggregation Information

Commands

show port-channel [<port-channel-id>] [{ detail | load-balance | port | port-channel | summary | protocol }]

Syntax Description	**show**	Display configuration / status information
	port-channel	Display port-channel information
	port-channel-id	Display channel group information
	detail	Display detailed information
	load-balance	Display load-balance scheme among ports in the port-channel
	port	Display port-channel port information
	port-channel	Display port-channel information
	summary	Display summary per channel group
	protocol	Display protocol used in the port-channel
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show port-channel 10 detail moxa# show port-channel 10 load-balance moxa# show port-channel 10 port moxa# show port-channel 10 port-channel moxa# show port-channel 10 summary moxa# show port-channel	
Error Messages	'Invalid: The port-channel does not exist.'	
Related Commands	interface port-channel channel-group <channel-group-id> mode { on |active | passive}	

Show Port Channel Interfaces

Commands

show interfaces { [{ <interface-type> <interface-id > }] port-channel }

Syntax Description	**show**	Display configuration / status information
	interfaces	Display interface specific information
	interface-type	Display interface type
	interface-id	Display interface id
	port-channel	Display port-channel information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show interfaces ethernet 0/1 port-channel	
Error Messages	N/A	
Related Commands	channel-group <channel-group-id> mode { on |active | passive} show port-channel [<port-channel-id>] [{ detail | load-balance | port | port-channel | summary | protocol }]	

PoE

PoE General Settings

Enable/Disable PoE Output Setting

Commands

poe { enable | disable }

Syntax Description	**poe**	Configure PoE parameters
	enable	Enable PoE on the switch
	disable	Disable PoE on the switch
Defaults	PoE is enabled by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Enable global power output.	
Examples	moxa(config)# poe disable	
Error Messages	N/A	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Configure Power Budget Setting

Commands

poe system-power-budget <watt: integer (30- maximum power budget value of product)>

Syntax Description	**poe**	Configure PoE parameters
	system-power-budget	The total power budget for all PDs connected to the switch
	watt: integer (30- maximum power budget value of product)	Set the power budget depending on the external power supply's (EPS) output ability
Defaults	The default power budget is set to 720 watts	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Data range: watt: 30- maximum power budget value of product	
Examples	moxa(config)# poe system-power-budget 90	
Error Messages	'Invalid: Sum of power allocation cannot exceed system power budget.'	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Configure Auto Power Cutting Settings

Commands

poe auto-power-cutting
no poe auto-power-cutting

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	auto-power-cutting	Cut power automatically when the PoE power consumption exceeds the system power budget
Defaults	PoE automatic power cutting is disabled by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Enable auto-power-cutting to ensure the power supply for higher priority PDs	
Examples	moxa(config)# poe auto-power-cutting moxa(config)# no poe auto-power-cutting	
Error Messages	N/A	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis} poe priority {critical | high | low}	

PD Failure Check

Configure Port PD Failure Check Setting

Commands

poe pd-failure-check [{ device-ip <ucast_addr> | check-frequency <seconds: integer(5-300)> | **no-response-times** <times: integer(1-10)> | **action** { no-action | restart-pd | **shutdown**-pd } }]

no poe pd-failure-check

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	pd-failure-check	Check the PD fail status
	device-ip	Check the device IP
	ucast_addr	The device IP address
	check-frequency	Check device frequency
	seconds: integer (5-300)	The check frequency in seconds
	no-response-times	The limit for the amount of no response checks the switch performs
	times: integer (1-10)	The amount of checks
	action	Trigger an action if the no response times reaches the set limit
	no-action	Perform no action
	restart-pd	Restart the PD
	shutdown-pd	Shutdown the PD
Defaults	**device-ip:** 0.0.0.0 seconds: 10 times: 3 **action: no-action** Data range: seconds: 5-300 times: 1-10	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Set PoE PD Failure Check on ports. The switch pings **device-ip** every **check-frequency** second(s). The **Action** will be triggered if the no response times of ping reach **no-response-times**.	
Examples	moxa(config-if)# poe pd-failure-check device-ip 192.168.127.101 moxa(config-if)# no poe pd-failure-check	
Error Messages	'Invalid: Device IP is not a valid IP address.'	
Related Commands	show poe pd-failure-check	

PoE Scheduling

Configure Scheduling Rule Setting

Commands

poe scheduling <rule-name: string(63)> <start-date-year: integer(1970-2038)> <start-date-month: integer(1-12)> <start-date-day: integer(1-31)> <start-time-hour: integer(0-24)> <start-time-min: integer(0-59)> <end-time-hour: integer(0-24)> <end-time-min: integer(0-59)>

Syntax Description	**poe**	Configure PoE parameters
	scheduling	Schedule PoE availability with rules
	rule-name: string (63)	The scheduling rule name
	start-date-year: integer (1970-2038)	The scheduling rule starting year
	start-date-month: integer (1-12)	The scheduling rule starting month
	start-date-day: integer (1-31)	The scheduling rule starting day
	start-time-hour: integer (0-24)	The scheduling rule starting hour
	start-time-min: integer (0-59)	The scheduling rule starting minute
	end-time-hour: integer (0-24)	The scheduling rule ending hour
	end-time-min: integer (0-59)	The scheduling rule ending minute
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Add a scheduling rule or modify rule times of an existing rule. By default, a new rule is not activate and is non-repeating. Rules need to be applied to ports.	
Examples	moxa(config)# poe scheduling bt01 2036 10 5 23 0 23 50	
Error Messages	'Invalid: Schedule is not valid.' 'Invalid: Start Date is not valid.' 'Invalid: Start Time is not valid.' 'Invalid: End Time is not valid.' 'Invalid: The start time cannot exceed the end time.' 'Invalid: Schedule is conflict.'	
Related Commands	show poe scheduling [<rule-name: string(63)>] no poe scheduling <rule-name: string(63)> poe scheduling <rule-name: string(63)> activate no poe scheduling <rule-name: string(63)> activate poe scheduling <rule-name: string(63)> repeat {daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday} no poe scheduling <rule-name: string(63)> repeat {daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday} poe scheduling <rule-name: string(63)> no poe scheduling <rule-name: string(63)>	

Apply Port Scheduling Rule

Commands

poe scheduling <rule-name: string (63)>

no poe scheduling <rule-name: string (63)>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	scheduling	Schedule PoE with rules
	rule-name: string(63)	The scheduling rule name as the index key
Defaults	Scheduling rules are not applied to ports by default	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Apply PoE scheduling rules to ports.	
Examples	moxa(config-if)# poe scheduling bt01 moxa(config-if)# no poe scheduling bt01	
Error Messages	N/A	
Related Commands	show poe scheduling [<rule-name: string (63)>]	

Remove PoE Schedule Setting

Commands

no poe scheduling <rule-name: string (63)>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	scheduling	Schedule PoE with rules
	rule-name: string (63)	The scheduling rule name as the index key
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Delete a scheduling rule.	
Examples	moxa(config)# no poe scheduling bt01	
Error Messages	N/A	
Related Commands	show poe scheduling [<rule-name: string(63)>] poe scheduling <rule-name: string(63)> <start-date-year: integer(1970-2038)> <start-date-month: integer(1-12)> <start-date-day: integer(1-31)> <start-time-hour: integer(0-24)> <start-time-min: integer(0-59)> <end-time-hour: integer(0-24)> <end-time-min: integer(0-59)>	

Configure Scheduling Rule Setting

Commands

poe scheduling <rule-name: string(63)> activate

no poe scheduling <rule-name: string(63)> activate

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	scheduling	Schedule PoE with rules
	rule-name: string (63)	The scheduling rule name as the index key
	activate	Activate the PoE scheduling rule
Defaults	The scheduling rule is not activated by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Activate a rule to apply the rule.	
Examples	moxa(config)# poe scheduling <rule-name: string (63)> activate moxa(config)# no poe scheduling <rule-name: string (63)> activate	
Error Messages	N/A	
Related Commands	show poe scheduling [<rule-name: string(63)>] poe scheduling <rule-name: string(63)> <start-date-year: integer(1970-2038)> <start-date-month: integer(1-12)> <start-date-day: integer(1-31)> <start-time-hour: integer(0-24)> <start-time-min: integer(0-59)> <end-time-hour: integer(0-24)> <end-time-min: integer(0-59)>	

Configure Scheduling Repeat Setting

Commands

poe scheduling <rule-name: string(63)> **repeat** { daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday }

no poe scheduling <rule-name: string(63)> **repeat** { daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	scheduling	Schedule PoE with rules
	rule-name: string (63)	The scheduling rule name as the index key
	repeat	Repeat PoE scheduling rules
	daily	Repeat daily
	weekday	Repeat on weekdays
	weekend	Repeat on weekends
	sunday	Repeat every Sunday
	monday	Repeat every Monday
	tuesday	Repeat every Tuesday
	wednesday	Repeat every Wednesday
	thursday	Repeat every Thursday
	friday	Repeat every Friday
	saturday	Repeat every Saturday
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Set PoE scheduling rules to repeat on the specified day(s).	
Examples	moxa(config)# no poe scheduling <rule-name: string(63)> repeat {daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday}	
Error Messages	N/A	
Related Commands	moxa(config)# poe scheduling bt01 repeat daily moxa(config)# no poe scheduling bt01 repeat daily	

Configure Port Power Output Setting

Commands

poe
no poe

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
Defaults	Port PoE power output is enabled by default	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# poe moxa(config-if)# no poe	
Error Messages	N/A	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Configure Port Power Output Mode Setting

Commands

poe output-mode { auto | high-power | force power-allocation <watt: integer(0-39)> }

Syntax Description	**poe**	Configure PoE parameters
	output-mode	The power output mode depending on the connected PD
	auto	Standard output mode
	force	Non-standard or legacy output mode
	power-allocation	Power output limit for high-power mode and force mode
	watt: integer (0-39)	The port PoE power output limit
	The output mode is set to auto by default	
Defaults	The output-mode is set to auto by default	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Auto mode is suitable for 802.3bt standard PDs. The power allocation value is 0. Force mode is suitable for non-standard PDs.	
Examples	moxa(config-if)# poe output-mode force power-allocation 30	
Error Messages	'Invalid: In PoE Output Auto Mode, the Power Allocation value is not valid.' 'Invalid: Sum of power allocation cannot exceed system power budget.	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Reset PoE Output Mode

Commands

no poe output-mode

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	output-mode	The power output mode depending on the connected PD
Defaults	The output-mode is set to auto by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# no poe output-mode	
Error Messages	'Invalid: In PoE Output Auto Mode, the Power Allocation value is not valid.'	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Configure Port Legacy PD Detection Settings

Commands

poe legacy-pd-detection
no poe legacy-pd-detection

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	legacy-pd-detection	Use legacy PD detection to power PDs if the capacitance of the PD is higher than 2.7 μF or less than 10 μF
Defaults	Legacy PD detection is disabled by default.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Enable legacy PD detection on ports to power PDs within the 2.7 to 10 μF capacitance range	
Examples	moxa(config-if)# poe legacy-pd-detection moxa(config-if)# no poe legacy-pd-detection	
Error Messages	N/A	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis}	

Configure Port Auto Power Cutting Priority Setting

Commands

poe priority { critical | high | low }
no poe priority

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	poe	Configure PoE parameters
	priority	The priority for automatically PoE cutting power
	critical	Critical priority
	high	High priority
	low	Low priority
Defaults	The priority is set to low by default	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Set the port priority for automatically cutting PoE power. Lower priority devices will be cut off first.	
Examples	moxa(config-if)# poe priority critical moxa(config-if)# no poe priority	
Error Messages	N/A	
Related Commands	show poe [interface <iftype> <ifnum>] {config | status | diagnosis} poe auto-power-cutting no poe auto-power-cutting	

PoE Status

Show System and Port Setting, Status, and Diagnosis

Commands

show poe [interface <iftype> <ifnum>] { config | status | diagnosis }

Syntax Description	**show**	Display configuration/status information
	poe	Display PoE information
	interface	Interface information
	iftype	The interface type
	ifnum	The interface number
	config	The current PoE configuration applied to the port
	status	The PoE status
	diagnosis	PoE diagnosis
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show poe diagnosis SS – Single Signature, DS – Dual Signature Port Device Type Config Suggestion ------ ---------- ---------- Eth1/1 Not present No suggestion Eth1/2 Not present No suggestion Eth1/3 Not present No suggestion Eth1/4 Not present No suggestion Eth1/5 Not present No suggestion Eth1/6 Not present No suggestion Eth1/7 Not present No suggestion Eth1/8 802.3 bt DS Select PoE output mode to Auto moxa# show poe status System Power Budget: 240 Actual Power Budget: 180 Power Budget Limit: 180 Consumed Power: 1 Remaining Available Power: 179 Port Power Output Classification Current Voltage Consumption ------ ---------- ---------- ------- ------- ----------- Eth1/1 Off Unknown 0.00 0.00 0.00 Eth1/2 Off Unknown 0.00 0.00 0.00 Eth1/3 Off Unknown 0.00 0.00 0.00 Eth1/4 Off Unknown 0.00 0.00 0.00 Eth1/5 Off 0 0.00 0.00 0.00 Eth1/6 Off 0 0.00 0.00 0.00 Eth1/7 Off 0 0.00 0.00 0.00 Eth1/8 On 3,4 14.65 48.59 0.71	
Error Messages	N/A	
Related Commands	poe {enable | disable} poe system-power-budget <watt: integer(30-720)> poe auto-power-cutting no poe auto-power-cutting poe no poe poe output-mode { auto | high-power | force power-allocation <watt: integer(0-36)> } poe legacy-pd-detection no poe legacy-pd-detection poe priority { critical | high | low } no poe priority	

Show Port PD Failure Check Setting and Status

Commands

show poe pd-failure-check [interface <iftype> <ifnum>] { config | status }

Syntax Description	**show**	Display configuration/status information
	poe	Display PoE information
	pd-failure-check	Check the PD failure status
	interface	Interface information
	iftype	The interface type
	ifnum	The interface number
	config	The current PoE configuration applied to the port
	status	PoE status
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show poe pd-failure-check interface ethernet 2/4 config Enable: Enabled Device IP: 192.168.127.101 Check Frequency (sec): 5 No Response Times: 1 Action: Restart PD	
Error Messages	N/A	
Related Commands	poe pd-failure-check [{ device-ip <ucast_addr> | check-frequency <seconds: integer(5-300)> | no-response-times <times: integer(1-10)> | action { no-action | restart-pd | shutdown-pd } }] no poe pd-failure-check	

Show Scheduling Rule Setting

Commands

show poe scheduling [<rule-name: string(63)>]

Syntax Description	**show**	Display configuration/status information
	poe	Display PoE information
	scheduling	Schedule PoE availability with rules
	rule-name:string (63)	The scheduling rule name
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show poe scheduling rule1 Rule Name: test Enable: Enabled Start Date (YYYY/MM/DD): 2020/05/29 Schedule Time: 08:00-15:00, None Apply the same setting to port: Eth1/4	
Error Messages	N/A	
Related Commands	poe scheduling <rule-name: string(63)> <start-date-year: integer(1970-2038)> <start-date-month: integer(1-12)> <start-date-day: integer(1-31)> <start-time-hour: integer(0-24)> <start-time-min: integer(0-59)> <end-time-hour: integer(0-24)> <end-time-min: integer(0-59)> poe scheduling <rule-name: string(63)> activate no poe scheduling <rule-name: string(63)> activate poe scheduling <rule-name: string(63)> repeat { daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday } no poe scheduling <rule-name: string(63)> repeat { daily | weekday | weekend | sunday | monday | tuesday | wednesday | thursday | friday | saturday } poe scheduling <rule-name: string(63)> no poe scheduling <rule-name: string(63)>	

Layer 2 Switching

VLAN

IEEE 802.1Q

Show VLAN Device Information

Commands

show vlan device info

Syntax Description	**vlan**	Display VLAN bridge status and information
	device	The VLAN device
	info	Information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show vlan device info vlan device configurations -------------------------- vlan Status : Enabled vlan Oper status : Enabled gvrp status : Enabled gmrp status : Enabled gvrp Oper status : Enabled gmrp Oper status : Enabled Bridge Mode : Customer Bridge Base-Bridge Mode : Vlan Aware Bridge blan Operational Learning Mode : IVL Hybrid Default Learning Mode : IVL Version number : 1 Max vlan id : 4094 Max supported vlans : 256	
Error Messages	N/A	
Related Commands	gvrp gmrp bridge-mode	

Show VLAN Interface Status

Commands

show vlan [{brief | id <vlan-range> | summary | ascending}]

Syntax Description	**show**	Display configuration/statistics/general information
	vlan	Display the VLAN interface status
	brief	Display the VLAN entry related information of all active VLANs and VLANs (that are not active) for which the port details are configured.
	id	The VLAN index
	vlan-range	The VLAN index range (ex: 1-10 means the VID 1 to VID 10)
	summary	Display the total number of VLANs
	ascending	Display information for all VLANs in ascending order
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show vlan brief vlan database ---------- vlan ID : 1 Member Ports : Eth1/1, Eth1/2, Eth1/3, Eth1/4, Eth2/1, Eth2/2 Eth2/3, Eth2/4, Eth3/1, Eth3/2, Eth3/3, Eth3/4 Eth4/1, Eth4/2, Eth4/3, Eth4/4, Eth5/1, Eth5/2 Eth5/3, Eth5/4, Eth6/1, Eth6/2, Eth6/3, Eth6/4 Eth7/1, Eth7/2, Eth7/3, Eth7/4 Untagged Ports : Eth1/1, Eth1/2, Eth1/3, Eth1/4, Eth2/1, Eth2/2 Eth2/3, Eth2/4, Eth3/1, Eth3/2, Eth3/3, Eth3/4 Eth4/1, Eth4/2, Eth4/3, Eth4/4, Eth5/1, Eth5/2 Eth5/3, Eth5/4, Eth6/1, Eth6/2, Eth6/3, Eth6/4 Eth7/1, Eth7/2, Eth7/3, Eth7/4 Forbidden Ports : None Name : Status : Permanent Egress Ethertype : 0x8100 ----------	
Error Messages	N/A	
Related Commands	vlan <vlan-id> ports add <interface-type> <1/a-b> untagged <interface-type> <1/a-b> forbidden <interface-type> <1/a-b> vlan active vlan name	

Show VLAN Port Configuration

Commands

show vlan port config port [port {port-channel <integer> | < interface-type > < interface-id> }]

Syntax Description	**show**	Display configuration/statistics/general information
	vlan	Display VLAN interface status
	port	The port interface
	config	The port's configuration
	port	The port interface
	port-channel <integer>	The port channel ID This number is the max number of trunk group IDs
	interface-type	The Ethernet type
	interface-id integer	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show vlan port config port ethernet 1/3 Vlan Port configuration table ------------------------------ Port Eth1/3 Bridge Port Type : Customer Bridge Port Port vlan ID : 1 Port Acceptable Frame Type : Admit All Port Ingress Filtering : Disabled Port Mode : Hybrid Port Gvrp Status : Enabled Port Gmrp Status : Enabled Port Gvrp Failed Registrations : 0 Gvrp last pdu origin : 00:00:00:00:00:00 Port Restricted Vlan Registration : Disabled Port Restricted Group Registration : Disabled Default Priority : 0 Filtering Criteria : Default Ingress EtherType : 0x8100 Egress EtherType : 0x8100	
Error Messages	N/A	
Related Commands	Switchport pvid Switchport acceptable-frame-type Switchport ingress-filter Switchport mode gvrp gmrp vlan restricted group restricted switchport filtering-utility-criteria	

Show MAC Address Table Information

Commands

show mac-address-table [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface <interface-type> <interface-id>]

show mac-address-table aging-time

show mac-address-table count [vlan <vlan-id>]

show mac-address-table dynamic multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table dynamic unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table static multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table static unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

Syntax Description	**show**	Display configuration/statistics/general information
	mac-address-table	Display MAC address information
	address	MAC address entry
	aging-time	Maximum age of a Mac address table entry
	count	Number of MAC addresses present on all the VLANs or on a specified VLAN
	dynamic	Dynamic learned MAC address
	static	Static configured MAC address
	multicast	Multicast MAC address
	unicast	Unicast MAC address
	vlan	The VLAN interface
	vlan-range	The VLAN ID range for which the details will be displayed. This value ranges from 1 to 4094. For example, 4000-4010 will show information for those VLAN IDs.
	interface-type port-channel	The Ethernet type
	interface-id integer	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show mac-address-table vlan Mac Address Type ConnectionId Ports ---- ----------- ---- ----------- ----- 1 00:00:5e:00:01:02 Learnt Eth1/3 1 00:21:cc:62:f7:0b Learnt Eth1/3 1 00:21:cc:72:a8:d7 Learnt Eth1/3 Total Mac Addresses displayed: 3	
Error Messages	N/A	
Related Commands	mac-address-table	

Show MAC Address Table for Dynamic Multicast and Unicast

Commands

show mac-address-table dynamic multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table dynamic unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

Syntax Description	**show**	Display configuration/statistics/general information
	mac-address-table	Display MAC address information
	dynamic	Display dynamically learned MAC addresses
	multicast	The multicast MAC addresseses
	unicast	The unicast MAC addresses
	vlan	The VLAN interface
	vlan-range	The VLAN ID range for which the details will be displayed. This value ranges from 1 to 4094. For example, 4000-4010 will show information for those VLAN IDs.
	interface-type port-channel	The Ethernet type The port-channel
	interface-id	The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show mac-address-table dynamic unicast vlan Mac Address Type ConnectionId Ports ---- ----------- ---- ------------ ----- 1 00:00:5e:00:01:02 Learnt Eth1/3 1 00:05:1b:a1:ae:62 Learnt Eth1/3 1 00:0c:29:9b:83:e9 Learnt Eth1/3 …. Total Mac Addresses displayed: 44 iss# show mac-address-table dynamic multicast vlan Mac Address Type ConnectionId Ports ---- ----------- ---- ------------ ----- Total Mac Addresses displayed: 0	
Error Messages	N/A	
Related Commands	mac-address-table	

Show MAC Address Table for Static Multicast and Unicast

Commands

show mac-address-table static multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table static unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

Syntax Description	**show**	Display configuration/statistics/general information
	mac-address-table	Display MAC address information
	static	Static entry
	multicast	The multicast MAC address
	unicast	The unicast MAC address
	vlan	The VLAN interface
	vlan-range	The VLAN ID range for which the details will be displayed. This value ranges from 1 to 4094. For example, 4000-4010 will show information for those VLAN IDs.
	interface-type port-channel	The Ethernet type The port-channel
	interface-id	The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show mac-address-table static multicast vlan 1 Static Multicast Table ---------- Vlan : 1 Mac Address : 01:00:00:00:11:22 Receive Port : Eth1/3 Member Ports : Eth1/1 Forbidden Ports : Status : Permanent ---------- Vlan : 1 Mac Address : 01:00:00:11:22:33 Receive Port : Member Ports : Eth1/1, Eth1/2, Eth1/3, Eth1/4, Eth1/5, Eth1/6 Eth1/7, Eth1/8, Eth1/9, Eth1/10, Eth1/11, Eth1/12 Forbidden Ports : Status : Permanent ---------- Total Mac Addresses displayed: 2 iss# show mac-address-table static unicast vlan Mac Address RecvPort Status ConnectionId Ports ---- ---------- -------- ------ ---------- ----- 1 00:12:23:34:45:56 Permanent Eth1/3 1 00:31:13:31:13:13 DeleteOnReset Eth1/3 1 00:44:33:44:33:44 Permanent Eth1/4 Total Mac Addresses displayed: 3	
Error Messages	N/A	
Related Commands	mac-address-table	

Show GVRP Statistics

Commands

show gvrp statistics [{port {port-channel <integer> | <interface-type> <interface-id>}]

Syntax Description	**show**	Display configuration/statistics/general information
	gvrp statistics	Display GVRP statistics
	interface-type port-channel	The Ethernet type The port-channel
	interface-id	The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show gvrp statistics port ethernet 1/3 GVRP Statistics for Port Eth1/3 --------------------------------------- Total valid GVRP Packets Received: 18 Join Emptys 0 Join In 1 Leave In 0 Leave All 17 Leave Empty 0 Empty 0 Total valid GVRP Packets Transmitted: 324 Join Emptys 0 Join In 324 Leave In 0 Leave All 0 Leave Empty 0 Empty 0 moxa# show gmrp statistics port ethernet 1/3 GMRP Statistics for Port Eth1/3 --------------------------------------- Total valid GMRP Packets Received 0: Join Emptys 0 Join In 0 Leave In 0 Leave All 0 Leave Empty 0 Empty 0 Total valid GMRP Packets Transmitted:358 Join Emptys 0 Join In 358 Leave In 0 Leave All 0 Leave Empty 0 Empty 0	
Error Messages	N/A	
Related Commands	vlan active	

Show VLAN Management

Commands

show management vlan

Syntax Description	**show**	Display configuration/statistics/general information
	management	Display Management VLAN information
	vlan	The VLAN interface
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show management vlan Management VLAN-List 1,2, …..	
Error Messages	N/A	
Related Commands	Management vlan No management vlan	

Create/Delete a VLAN

Commands

vlan <vlan-id>

no vlan <vlan-id>

vlan active

vlan name < vlan name string >

SyntaxDescription	**vlan/no vlan**	Create/delete a VLAN
	vlan-id	The VLAN identifier
	active	Activate the VLAN
	name < vlan name string >	The VLAN name string consisting of a total of 32 characters
Defaults	N/A	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# vlan 100 moxa(config-vlan)# vlan active moxa(config)# no vlan 100 moxa(config)#	
Error Messages	N/A	
Related Commands	interface vlan <vlan-id> show vlan	

Configure VLAN Mode

Commands

ports add {member ([<iftype> <iface_list>][port-channel <integer>]) | untagged ([<iftype> <iface_list>][port-channel <integer>]) | forbidden ([<iftype> <iface_list>][port-channel <integer>])}

vlan ports set member ([<iftype> <iface_list>][port-channel <integer>]) [untagged ([<iftype> <iface_list>][port-channel <integer>])] [forbidden ([<iftype> <iface_list>][port-channel <integer>])]

vlan ports add {member | untagged | forbidden} [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>]

no ports [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>] [untagged ([<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>])] [forbidden ([<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>])]

Syntax Description	**ports/no ports**	Set/delete member/untagged/forbidden port
	add	Add member/untag/forbidden port
	set	Overwrite member/untagged/forbidden port
	slot/port-port	The slot number/port number
	interface-type	The Ethernet type
	port-channel	<1-N> Set the list of port channel interfaces or a specific port channel identifier.
	member	Configure the ports to be set as a member of the VLAN
	untagged	Configure the ports that will be used by the VLAN to transmit egress traffic as untagged packets.
	forbidden	Configures the ports to never receive packets from the VLAN
Defaults	N/A	
Command Modes	Config VLAN mode	
Usage Guidelines	This command can only be executed from within VLAN configuration mode. From Configuration mode, enter vlan <vlan-id> to enter VLAN config mode.	
Examples	moxa(config)# vlan 10 moxa(config-vlan)#ports add member ethernet 1/3 untagged all moxa(config-vlan)#ports add member ethernet 1/3 untagged ethernet 1/3 forbidden ethernet 1/2	
Error Messages	N/A	
Related Commands	vlan active switchport mode show vlan show mac-address-table count	

Configure a Static Unicast MAC Address in the Forwarding Database

Commands

mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan <vlan-id> set [interface ([<interface-type> <slot/port-port,slot/port,...>] [<interface-type> <slot/port-port,slot/port,...>] [port-channel <a,b,c-d>])] [status { permanent }]

no mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan <vlan-id>

Syntax Description	**mac-address-table**	Configure mac-address-table parameters
	static	The statically configured MAC address
	unicast	Configure the unicast MAC address
	aa:aa:aa:aa:aa:aa	The unicast MAC address
	vlan	Configure the VLAN
	vlan-id	The VLAN ID
	set	Set the unicast MAC address to a specified port
	interface-type	The Ethernet type The port-channel
	interface-id	The slot number/port number
	status	Set the status of the static unicast entry
	permanent	The entry remains even after the next reset of the bridge
Defaults	N/A	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)#mac-address-table static unicast 00:11:22:33:22:11 vlan 1 set ethernet 1/2 status permanent	
Error Messages	N/A	
Related Commands	mac-address-table static multicast vlan vlan ports add show mac-address-table static unicast	

Globally Enable/Disable GVRP on All Ports

Commands

gvrp {enable | disable}

Syntax Description	**gvrp**	Configure GVRP parameters
	enable	Enable on all ports and start the GVRP on the switch
	disable	Disable GVRP on all ports.
Defaults	GVRP is disabled by default	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# gvrp enable	
Error Messages	N/A	
Related Commands	bridge-mode show vlan device info show gvrp statistics	

Enable/Disable GVRP on Specific Ports

Commands

gvrp

no gvrp

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	gvrp	Configure GVRP parameters GVRP: Enable GVRP on the specific port(s) No GVRP: Disable GVRP on the specific port(s)
Defaults	GVRP is disabled by default	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa# interface Ethernet 1/1 moxa(config-if)# gvrp	
Error Messages	N/A	
Related Commands	show vlan port config show gvrp statistics	

Configure MAC Address Table Aging Time

Commands

mac-address-table aging-time <10-300 seconds>

no mac-address-table aging-time

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mac-address-table	Configure the MAC-address-table
	aging-time	Maximum age of an entry in the MAC address table to its default value.
	second	The aging time ranging from 10 to 300 seconds
Defaults	300s	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mac-address-table aging-time 100	
Error Messages	N/A	
Related Commands	show mac-address-table aging-time	

Configure PVID on a Specified Port

Commands

switchport pvid <vlan-id>

no switchport pvid

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	pvid	Configure port-based VLAN parameters
	vlan-id	The VLAN ID, ranging from 1 to 4094.
Defaults	1	
Command Modes	Configuration	
Usage Guidelines	If a PVID does not exist for this system, it will be created automatically after configuration. If the port is configured to be in Access Mode, the actions below will be applied automatically. Remove this port from member port list if it is bound to another VID which is different from PVID Modify this port into an untagged member of this PVID If the port is configured to be in Trunk Mode, the port will automatically be modified into a tagged member of this PVID.	
Examples	moxa(config-if)# switchport pvid 1	
Error Messages	N/A	
Related Commands	switchport vlan vlan active switchport acceptable-frame-type	

Configure VLAN-dependent BPDU Frames

Commands

switchport acceptable-frame-type {all | tagged | untaggedAndPrioritytagged }

Syntax Description	**acceptable-frame-type**	Configure acceptable-frame-type parameters
	all	Configures the acceptable frame type as all which are acceptable and subjected to ingress filtering.
	tagged	Configures the acceptable frame type as tagged.
	untaggedAndPrioritytagged	Configures the acceptable frame type as untagged and priority tagged.
Defaults	all	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# switchport acceptable-frame-type untaggedAndPrioritytagged	
Error Messages	N/A	
Related Commands	switchport switchport pvid switchport ingress-filter switchport mode show vlan port config	

Enable/Disable Ingress Filter

Commands

switchport ingress-filter

no switchport ingress-filtering

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	switchport	The switch port
	ingress-filtering	Enable ingress-filtering
Defaults	disable	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	moxa (config-if)# switchport ingress-filter moxa (config-if)# no switchport ingress-filter	
Error Messages	N/A	
Related Commands	switchport switchport acceptable-frame-type show vlan port config	

Configure Switch Port Operation Mode

Commands

switchport mode {access | trunk | hybrid}

Syntax Description	**switchport**	Configure the switch port
	mode	Configure switch port mode parameters
	access	Configure the port as an access port that accepts and sends only untagged packets. This kind of port is added as a member to a specific VLAN and only carries traffic for the VLAN to which the port is assigned. The port can only be set as an access port if the following 4 conditions are met: GVRP is disabled for that port. The acceptable frame type is set as "Admit untagged and pri-tagged". The port is not a tagged member of any VLAN. The PVID is the same as the only untagged VLAN it joined.
	trunk	Configures the port as trunk port that accepts and sends only tagged frames. This kind of port is added as members of several existing VLANs, and carries traffic for all of them. The port can only be set as a trunk port. if the following 2 conditions are met: The acceptable frame type is set as "Admit tagged only" The port is not an untagged member of any VLAN.
	hybrid	Configures the port as a hybrid port that accepts and sends both tagged and untagged frames
Defaults	The default port operation mode is set to Hybrid	
Command Modes	Configuration	
Usage Guidelines	When changing from trunk or hybrid to access mode, the following changes will be automatically applied: Forces the port to become an untagged member of the PVID domain If the port exists in another VLAN, it will be removed Forces the accept frame type to be set to "Admit untagged and pri-tagged" When changing from access or hybrid to trunk mode, the following changes will be automatically applied: Forces the port to become a tagged member of the PVID domain If the port was an untagged member in another VLAN, it will change into a tagged member. Forces the accept frame type to be set to "Admit tagged only" When changing from access or trunk to hybrid mode, there will be no changes	
Examples	moxa (config-if)# switchport mode hybrid	
Error Messages	N/A	

Related Commands	switchport port gvrp vlan ports switchport acceptable-frame-type show vlan port config

Configure Restricted VLAN Registration

Commands

vlan restricted

Syntax Description	**vlan restricted**	Configure restricted VLAN parameters Enable or disable the restricted VLAN registration feature on the port. Enabled means the creation or modification of a dynamic VLAN entry is permitted only for VLANs for which static VLAN registration entries exist. Disabled means the creation or modification of a dynamic VLAN entry is permitted for all VLANs.
Defaults	Restricted VLAN registration is disabled by default	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa(config-if)# vlan restricted	
Error Messages	N/A	
Related Commands	show vlan port config	

Create Filtering Utility Criteria

Commands

switchport filtering-utility-criteria {default | enhanced}

Syntax Description	**filtering-utility-criteria**	Configure VLAN filtering utility criteria
	default	Only allow the learning of a source MAC from a packet received on the port if there is at least one member port for a VLAN mentioned in the packet.
	enhanced	Only allow the learning of source MAC from a packet received on the port if the following conditions are met: At least one VLAN that uses the FID indicates the reception port and at least one other port with a port state of learning or forwarding in its member set Ingress to the VLAN is permitted through a port other than the source and reception ports. This port can be or not be a member of the VLAN.
Defaults	By default, the VLAN filtering utility criteria is set to default	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa(config-if)# switchport filtering-utility-criteria default	
Error Messages	N/A	
Related Commands	show vlan port config	

Set VLAN Access Port

Commands

switchport access vlan <vlan-id>

Syntax Description	**switchport access**	Configure the port as an access port
	vlan <vlan-id>	The specified VLAN ID for which this access port will carry traffic, ranging from 1 to 4094.
Defaults	The port mode is set to access port by default	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Disgarding the current operation mode of the port, this command will change the port to access mode and the following changes will automatically apply: Forces the acceptable frame type to be set to "untagged AND priority tagged" Sets PVID to specified a VLAN Changes the port into an untagged member of a specified VLAN and removes this port from any other VLANs. Sets the port mode to access mode	
Examples	moxa(config-if)# switchport access vlan 10	
Error Messages	N/A	
Related Commands	show vlan port config show vlan	

Configure VLAN Management

Commands

management vlan <vlan-id>

no management vlan <vlan>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	management	Configure management
	vlan	Configure the management VLAN
	vlan-id	The management VLAN ID
Defaults	The default management VLAN ID is set to 1	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa(config)# management vlan 1	
Error Messages	N/A	
Related Commands	N/A	

Show VLAN Statistic

Commands

show vlan statistics [vlan <vlan-range>]

Syntax Description	**show**	Display configuration/statistics/general information
	vlan	Configure VLAN parameters
	statistics	Display VLAN-related statistics
	vlan	Display the VLAN
	vlan-range	Display the VLAN range
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show vlan statistics vlan 3 Software Statistics Disabled Unicast/broadcast Vlan statistics	
Error Messages	N/A	
Related Commands	N/A	

GARP

Show GARP Timer

Commands

show garp timer [port {port-channel <integer> | <interface-type> <interface-id>}]

Syntax Description	**show**	Display configuration/statistics/general information
	garp timer	Display GARP timer information
	interface-type port-channel	The Ethernet type The port-channel
	interface-id	The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show garp timer Garp Port Timer Info (in milli seconds) ---------- Port Join-time Leave-time Leave-all-time ----- --------- ---------- -------------- Eth1/1 200 600 10000 Eth1/2 200 600 10000 Eth1/3 200 600 10000 Eth1/4 200 600 10000 Eth2/1 200 600 10000 Eth2/2 200 600 10000 Eth2/3 200 600 10000 Eth2/4 200 600 10000 …..	
Error Messages	N/A	
Related Commands	garp timer no shutdown garp	

MAC

Static Unicast

Configure a Static Unicast MAC Address in the Forwarding Database

Commands

config mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan <vlan-id> **set** [interface ([<interface-type> <slot/port-port,slot/port,...>] [<interface-type> <slot/port-port,slot/port,...>] [port-channel <a,b,c-d>])] [status { permanent }]

config no mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan <vlan-id>

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mac-address-table	Configure MAC address table parameters
	static	Statically configured MAC address
	unicast	The unicast MAC address
	set	Overwrite port
	interface-type	The Ethernet type The port-channel
	interface-id	The slot number/port number
	status	Specify the status of the static unicast entry: permanent - entry remains even after the next reset of the bridge
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa(config)# mac-address-table static unicast aa:aa:aa:bb:bb:cc vlan 168 set interface ethernet 2/4 status permanent	
Error Messages	N/A	
Related Commands	mac-address-table static multicast vlan vlan ports add show mac-address-table static unicast	

MAC Address Table

Show MAC Address Table Information

Commands

show mac-address-table [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface <interface-type> <interface-id>]

show mac-address-table aging-time

show mac-address-table count [vlan <vlan-id>]

show mac-address-table dynamic multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table dynamic unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table static multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

show mac-address-table static unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [interface {port-channel <integer> | <interface-type> <interface-id> }]

Syntax Description	**mac-address-table**	Display MAC address information
	address	The MAC address entry
	aging-time	The maximum age of a MAC address table entry
	count	The number of MAC addresses present on all VLANs or on a specified VLAN
	dynamic	Dynamically learned MAC address
	static	Statically configured MAC address
	multicast	The multicast MAC address
	unicast	The unicast MAC address
	vlan	The VLAN interface
	vlan-range	The VLAN ID range for which the details will be displayed. This value ranges from 1 to 4094. For example, 4000-4010 will show information for those VLAN IDs.
	interface-type port-channel	The Ethernet type The port-channel
	interface-id	The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show mac-address-table vlan Mac Address Type ConnectionId Ports ---- ----------- ---- ----------- ----- 1 00:00:5e:00:01:02 Learnt Eth1/3 1 00:21:cc:62:f7:0b Learnt Eth1/3 1 00:21:cc:72:a8:d7 Learnt Eth1/3 Total Mac Addresses displayed: 3	
Error Messages	N/A	
Related Commands	mac-address-table	

QoS

Classification

Configure Mapping Rule for DSCP Priority

Commands

qos ip-dscp-mapping dscp-priority <dscp-priority(0-63)> cos-priority <cos-priority(0-7)>

Syntax Description	**qos**	Configure QoS parameters
	ip-dscp-mapping	Configure mapping rules for DSCP priority
	dscp-priority	The DSCP priority
	dscp-priority (0-63)	The Differentiated Services Code Point (DSCP) value
	cos-priority	The CoS priority
	cos-priority (0-7)	The Class of Service (CoS) value
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa (config)# qos ip-dscp-mapping dscp-priority 0 cos-priority 1	
Error Messages	N/A	
Related Commands	moxa # show qos ip-dscp-mapping [dscp-priority <integer (0-63)>]	

Configure COS Mapping Rule

Commands

qos cos-mapping cos-priority <cos-priority(0-7)> queue-id <queue-id(1-8)>

Syntax Description	**qos**	Configure QoS parameters
	cos-mapping	Configure mapping rules for CoS priority
	cos-priority	The CoS priority
	cos-priority (0-7)	The VLAN priority
	queue-id	The queue index
	queue-id (1-8)	The queue index value, ranging from 1 to 8
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa (config)# qos cos-mapping cos-priority 1 queue-id 2	
Error Messages	N/A	
Related Commands	moxa# show qos cos-mapping [cos-priority <integer (0-7)>]	

Configure QoS Default Priority Setting

Commands

qos default-priority <default-priority(0-7)>

Syntax Description	**qos**	Configure QoS parameters
	default-priority	Configure the default user priority
	default-priority (0-7)	The VLAN priority
Defaults	N/A	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos default-priority 1	
Error Messages	N/A	
Related Commands	moxa # show qos defaultPriority [interface <iftype> <ifnum>]	

Configure QoS P-bit Preference

Commands

qos pbit-preference {dscp | cos}

Syntax Description	**qos**	Configure QoS parameters
	pbit-preference	Configure pbit preference parameters
	dscp	Use DSCP priority
	cos	Use CoS priority
Defaults	N/A	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)#qos pbit-preference dscp	
Error Messages	N/A	
Related Commands	moxa # show qos pbit-preference [interface <iftype> <ifnum>]	

Show QoS DSCP Mapping Rule

Commands

show qos ip-dscp-mapping [dscp-priority <integer (0-63)>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	ip-dscp-mapping	Display the QoS DSCP mapping table
	dscp-priority	The DSCP priority
	dscp-priority (0-63)	The Differentiated Services Code Point (DSCP) value
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa # show qos ip-dscp-mapping dscp-priority 1 QoS DSCP Priority Mapping --- Dscp Priority 1 mapping to CoS Priority 0 moxa# show qos ip-dscp-mapping QoS DSCP Priority Mapping --- Dscp Priority 0 mapping to CoS Priority 0 Dscp Priority 1 mapping to CoS Priority 0 Dscp Priority 2 mapping to CoS Priority 0 Dscp Priority 3 mapping to CoS Priority 0 Dscp Priority 4 mapping to CoS Priority 0 Dscp Priority 5 mapping to CoS Priority 0 Dscp Priority 6 mapping to CoS Priority 0 …….. Dscp Priority 63 mapping to CoS Priority 7	
Error Messages	N/A	
Related Commands	moxa (config)# qos ip-dscp-mapping dscp-priority <dscp-priority(0-63)> cos-priority <cos-priority(0-7)>	

Show QoS COS Mapping Rule

Commands

show qos cos-mapping [cos-priority <integer (0-7)>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	cos-mapping	Display the QoS CoS mapping table
	cos-priority	The CoS priority
	cos-priority (0-7)	The VLAN priority value
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show qos cos-mapping cos-priority 1 QoS CoS Priority Mapping ---------- CoS Priority 1 mapping to Queue ID 2 moxa # show qos cos-mapping QoS CoS Priority Mapping ---------- CoS Priority 0 mapping to Queue ID 1 CoS Priority 1 mapping to Queue ID 2 CoS Priority 2 mapping to Queue ID 3 CoS Priority 3 mapping to Queue ID 4 CoS Priority 4 mapping to Queue ID 5 CoS Priority 5 mapping to Queue ID 6 CoS Priority 6 mapping to Queue ID 7 CoS Priority 7 mapping to Queue ID 8	
Error Messages	N/A	
Related Commands	moxa (config)# qos cos-mapping cos-priority <cos-priority(0-7)> queue-id <queue-id(1-8)>	

Show QoS Default Priority Setting

Commands

show qos default-priority [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	default-priority	Display the QoS default user priority
	interface	Interface information
	iftype	The interface type
	ifnum	The interface index
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa # show qos default-priority interface ethernet 1/1 QoS Default Priority ---------- Interface Ethernet 1/1 Default Priority is 3 moxa # show qos default-priority QoS Default Priority ---------- Interface Ethernet 1/1 Default Priority is 3 Interface Ethernet 1/2 Default Priority is 3 Interface Ethernet 1/3 Default Priority is 3 Interface Ethernet 1/4 Default Priority is 3 Interface Ethernet 2/1 Default Priority is 3 Interface Ethernet 2/2 Default Priority is 3 …… Interface Ethernet 7/4 Default Priority is 3	
Error Messages	N/A	
Related Commands	moxa (config)# qos default-priority <default-priority(0-7)>	

Show QoS P-bit Preference

Commands

show qos pbit-preference [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	pbit-preference	Display the pbit preference
	interface	Interface information
	iftype	The interface type
	ifnum	The interface index
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	If no interface is entered, the QoS pbit preference is shown for all ports.	
Examples	moxa # show qos pbit-preference interface ethernet 1/1 QoS P-bit Preference Status ---------- Interface Ethernet 1/1 P-bit Preference is CoS moxa # show qos pbit-preference QoS P-bit Preference Status ---------- Interface Ethernet 1/1 P-bit Preference is CoS Interface Ethernet 1/2 P-bit Preference is CoS Interface Ethernet 1/3 P-bit Preference is CoS Interface Ethernet 1/4 P-bit Preference is CoS Interface Ethernet 2/1 P-bit Preference is CoS Interface Ethernet 2/2 P-bit Preference is CoS Interface Ethernet 2/3 P-bit Preference is CoS Interface Ethernet 2/4 P-bit Preference is CoS …….. Interface Ethernet 7/4 P-bit Preference is CoS	
Error Messages	N/A	
Related Commands	moxa (config)# qos pbit-preference {dscp | cos}	

Ingress Rate Limit

Configure Ingress Rate Limit Simple Token Bucket Conform Action: None

Commands

qos rate-limit-type simple-token-bucket cir <cir(1-1000)> [cbs <cbs(10-10240)>] **conform-action do-nothing violate-action drop**

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	simple-token-bucket	Simple Token Bucket
	cir	Committed Information Rate
	cir(1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs(10-10240)	Committed burst size in KByte
	conform-action	Configure the conform action parameter
	do-nothin	Do not perform any action
	violate-action	Configure the violate action parameter
	drop	Drop the packet
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type simple-token-bucket cir 100 cbs 2000 conform-action do-nothing violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In Simple token bucket mode, when violation action is not drop, conform action and violate action should be the same.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>	

Configure Ingress Rate Limit Simple Token Bucket Conform Action: Remark-cos

Commands

qos rate-limit-type simple-token-bucket cir <cir(1-1000)> [cbs <cbs(10-10240)>] **conform-action remark-cos** <cos-priority(0-7)> **violate-action** {drop | remark-cos <cos-priority(0-7)>}

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	simple-token-bucket	Simple Token Bucket
	cir	Committed Information Rate
	Cir (1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs (10-10240)	Committed burst size in KByte
	conform-action	Configure the conform action parameter
	remark-cos	Remark packet CoS priority
	cos-priority (0-7)	The VLAN priority value
	violate-action	Configure the violate action parameter
	drop	Drop the packet
	remark-cos	Remark the packet CoS priority
	cos-priority (0-7)	The VLAN priority value
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type simple-token-bucket cir 500 cbs 2000 conform-action remark-cos 6 violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In Simple token bucket mode, when violation action is not drop, conform action and violate action should be the same.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>]	

Configure Ingress Rate Limit Simple Token Bucket Conform Action: Remark-dscp

Commands

qos rate-limit-type simple-token-bucket cir <cir(1-1000)> [cbs <cbs(10-10240)>] **conform-action remark-dscp** <dscp-priority(0-63)> **violate-action** {drop | remark-dscp <dscp-priority(0-63)>}

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	simple-token-bucket	Simple Token Bucket
	cir	Committed Information Rate
	cir (1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs (10-10240)	Committed burst size in KByte
	conform-action	Configure the conform action parameter
	remark-dscp	Remark the packet DSCP priority
	dscp-priority (0-63)	The Differentiated Services Code Point (DSCP) value
	violate-action	Configure the violate action parameter
	drop	Drop the packet
	remark-dscp	Remark the packet DSCP priority
	dscp-priority (0-63)	The Differentiated Services Code Point (DSCP) value
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type simple-token-bucket cir 500 cbs 2000 conform-action remark-dscp 50 violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In Simple token bucket mode, when violation action is not drop, conform action and violate action should be the same.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>]	

Configure Ingress Rate Limit srTCM Conform Action: None

Commands

qos rate-limit-type srtcm cir <cir(1-1000)> [cbs <cbs(1-10240)>] [ebs <ebs(1-10240)>] **conform-action none exceed-action drop violate-action drop**

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	srtcm	Single Rate Three Color Marker
	cir	Committed Information Rate
	cir (1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs (10-10240)	Committed burst size in KByte
	ebs	Excess Burst Size (or PBS)
	ebs (10-10240)	Excess burst size that unit of KByte
	conform-action	Configure the conform action parameter
	none	Do not perform any action
	exceed-action	Configure the exceed action parameter
	drop	Drop the packet
	violate-action	Configure the violate action parameter
	drop	Drop the packet
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type srtcm cir 500 cbs 2000 ebs 2500 conform-action none exceed-action drop violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In srTCM mode, when exceed action is remark-cos, conform action should be remark-cos and violate action should not be remark-dscp.' 'Invalid: In srTCM mode, when exceed action is remark-dscp, conform action should be remark-dscp and violate action should not be remark-cos.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>]	

Configure Ingress Rate Limit srTCM Conform Action: Remark-cos

Commands

qos rate-limit-type srtcm cir <cir(1-1000)> [cbs <cbs(10-10240)>] [ebs <ebs(10-10240)>] **conform-action remark-cos** <cos-priority(0-7)> **exceed-action** {drop | remark-cos <cos-priority(0-7)>} **violate-action** {drop | remark-cos <cos-priority(0-7)>}

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	srtcm	Single Rate Three Color Marker
	cir	Committed Information Rate
	xir (1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs (10-10240)	Committed burst size that in KByte
	ebs	Excess Burst Size (or PBS)
	ebs (10-10240)	Excess burst size in KByte
	conform-action	Configure the conform action parameter
	remark-cos	Remark the packet CoS priority
	cos-priority (0-7)	The VLAN priority value
	exceed-action	Configure the exceed action parameter
	drop	Drop the packet
	remark-cos	Remark the packet CoS priority
	cos-priority (0-7)	The VLAN priority value
	violate-action	Configure the violate action parameter
	drop	Drop the packet
	remark-cos	Remark the packet CoS priority
	cos-priority (0-7)	The VLAN priority value
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type srtcm cir 500 cbs 2000 ebs 2500 conform-action remark-cos 7 exceed-action drop violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In srTCM mode, when exceed action is remark-cos, conform action should be remark-cos and violate action should not be remark-dscp.' 'Invalid: In srTCM mode, when exceed action is remark-dscp, conform action should be remark-dscp and violate action should not be remark-cos.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>]	

Configure Ingress Rate Limit srTCM Conform Action: Remark-dscp

Commands

qos rate-limit-type srtcm cir <cir(1-1000)> [cbs <cbs(10-10240)>] [ebs <ebs(10-10240)>] **conform-action remark-dscp** <dscp-priority(0-63)> **exceed-action** {drop | remark-dscp <dscp-priority(0-63)>} **violate-action** {drop | remark-dscp <dscp-priority(0-63)>}

Syntax Description	**qos**	Configure QoS parameters
	rate-limit-type	Configure QoS rate limit parameters
	srtcm	Single Rate Three Color Marker
	cir	Committed Information Rate
	cir (1-1000)	Committed information rate in Mbps
	cbs	Committed Burst Size
	cbs (10-10240)	Committed burst size in KByte
	ebs	Excess Burst Size (or PBS)
	ebs (10-10240)	Excess burst size that in KByte
	conform-action	Configure the conform action parameter
	remark-cos	Remark the packet CoS priority
	dscp-priority (0-7)	Differentiated Services Code Point(DSCP) value
	exceed-action	Configure the exceed action parameter
	drop	Drop the packet
	remark-cos	Remark the packet CoS priority
	dscp-priority (0-7)	The Differentiated Services Code Point (DSCP) value
	violate-action	Configure the violate action parameter
	drop	Drop the packet
	remark-cos	Remark the packet CoS priority
	<dscp-priority(0-7)>	The Differentiated Services Code Point (DSCP) value
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos rate-limit-type srtcm cir 500 cbs 2000 ebs 2500 conform-action remark-cos 7 exceed-action drop violate-action drop	
Error Messages	'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['meterCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCirValue'], max_rate) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj['shaperCbsValue'], max_size) 'Invalid: {} is greater than the maximum of {}'.format(pre_m_obj[key], max_size) 'Invalid: In srTCM mode, when exceed action is remark-cos, conform action should be remark-cos and violate action should not be remark-dscp.' 'Invalid: In srTCM mode, when exceed action is remark-dscp, conform action should be remark-dscp and violate action should not be remark-cos.'	
Related Commands	moxa # show qos rate-limit [interface <iftype> <ifnum>]	

Show Ingress Rate Limit Parameters

Commands

show qos rate-limit [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	rate-limit	Display QoS rate limit information
	interface	Interface information
	iftype	The interface type
	ifnum	The interface index
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa # show qos rate-limit interface ethernet 1/1 QoS Rate Limit Statue of Interface Ethernet 1/1 ---------- Meter Type : Simple Token Bucket CIR : Disable CBS : Disable EBS : Disable Color Mode : Blind Confirm Action : None Remark CoS Value : None Remark DSCP Value : None Exceed Action : Drop Remark CoS Value : None Remark DSCP Value : None Violate Action : Drop Remark CoS Value : None Remark DSCP Value : None moxa # show qos rate-limit QoS Rate Limit Statue of Interface Ethernet 1/1 ---------- Meter Type : Simple Token Bucket CIR : Disable CBS : Disable EBS : Disable Color Mode : Blind Confirm Action : None Remark CoS Value : None Remark DSCP Value : None Exceed Action : Drop Remark CoS Value : None Remark DSCP Value : None Violate Action : Drop Remark CoS Value : None Remark DSCP Value : None QoS Rate Limit Statue of Interface Ethernet 1/2 ---------- Meter Type : Simple Token Bucket CIR : Disable CBS : Disable EBS : Disable Color Mode : Blind	
Error Messages	N/A	

Related Commands	moxa(config-if)# qos rate-limit-type {simple-token-bucket | srtcm} [cir <cir(1-1000)>] [cbs <cbs(1-10240)>] [ebs <ebs(1-10240)>] [conform-action {none | remark-cos <cos-priority(0-7)> | remark-dscp <dscp-priority(0-63)>}] [exceed-action {drop | remark-cos <cos-priority(0-7)> | remark-dscp <dscp-priority(0-63)>}] [violate-action {drop | remark-cos <cos-priority(0-7)> | remark-dscp <dscp-priority(0-63)>}]

Scheduler

Configure Qos Scheduler Type Setting

Commands

qos scheduler-type {strict-priority | wrr}

Syntax Description	**qos**	Configure QoS parameters
	scheduler-type	Configure QoS scheduler parameters
	strict-priority	Strict Priority
	wrr	Weighted Round Robin
Defaults	The QoS scheduler type is set to strict priority by default	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos scheduler-type wrr	
Error Messages	N/A	
Related Commands	moxa # show qos scheduler [interface <iftype> <ifnum>]	

Show QoS Scheduler Setting

Commands

show qos scheduler [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	scheduler	Display QoS scheduler
	interface	The interface information
	iftype	The interface type
	ifnum	The interface index
Defaults	N/A	
Command Modes	Privileged EXEC mode	
Usage Guidelines	N/A	
Examples	moxa # show qos scheduler interface ethernet 1/1 QoS Scheduler Algorithm ---------- Interface Ethernet 1/1 Scheduler Algorithm is : Strict Priority moxa# show qos scheduler QoS Scheduler Algorithm ---------- Interface Ethernet 1/1 Scheduler Algorithm is : Strict Priority Interface Ethernet 1/2 Scheduler Algorithm is : Strict Priority Interface Ethernet 1/3 Scheduler Algorithm is : Strict Priority Interface Ethernet 1/4 Scheduler Algorithm is : Strict Priority Interface Ethernet 2/1 Scheduler Algorithm is : Strict Priority Interface Ethernet 2/2 Scheduler Algorithm is : Strict Priority Interface Ethernet 2/3 Scheduler Algorithm is : Strict Priority Interface Ethernet 2/4 Scheduler Algorithm is : Strict Priority Interface Ethernet 3/1 Scheduler Algorithm is : Strict Priority …..	
Error Messages	N/A	
Related Commands	moxa (config-if)# qos scheduler-type {strict-priority | wrr}	

Egress Shaper

Configure Shaper Setting

Commands

qos shaper cir <cir(1-1000)> **cbs** <cbs(10-10240>

Syntax Description	**qos**	Configure QoS parameters
	shaper	Configure QoS shaper parameters
	cir	Committed Information Rate
	cir (1-1000)	The Committed Information Rate in Kbps
	cbs	Committed Burst Size
	cbs (10-10240)	The Committed Burst Size in KByte
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos shaper cir 500 cbs 2000	
Error Messages	N/A	
Related Commands	moxa# show qos shaper [interface <iftype> <ifnum>]	

Show Shaper Setting

Commands

show qos shaper [interface <iftype> <ifnum>]

Syntax Description	**show**	Display configuration/status information
	qos	Display QoS information
	shaper	Display QoS shaper information
	interface	The interface information
	iftype	The interface type
	ifnum	The interface index
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show qos shaper interface ethernet 1/1 QoS Shaper Statue of Interface Ethernet 1/1 ---------- CIR : 1000 CBS : 2000 ---------- moxa# show qos shaper QoS Shaper Statue of Interface Ethernet 1/1 ---------- CIR : Disable CBS : Disable QoS Shaper Statue of Interface Ethernet 1/2 ---------- CIR : Disable CBS : Disable …..	
Error Messages	N/A	
Related Commands	moxa(config-if)# qos shaper cir <cir(1-1000)> cbs <cbs(10-10240)>	

Multicast

IGMP Snooping

Enable/disable System-based IGMP Snooping

Commands

igmp-sooping {enable | disable}

Syntax Description	**igmp-snooping**	Configure IGMP Snooping parameters
	enable	Enable system-based IGMP Snooping
	disable	Disable system-based IGMP Snooping
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	GMRP has to be disabled in order to enable GMP snooping	
Examples	moxa# configure terminal moxa(config)# igmp-snooping enable moxa# configure terminal moxa(config)# igmp-snooping disable	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp-snooping globals	

Configure VLAN-based IGMP Snooping

Commands

igmp-snooping

no igmp-snooping

Syntax Description	**igmp-snooping**	Configure IGMP Snooping parameters
	no	Remove configuration/delete entry/reset to default value
Defaults	VLAN-based IGMP Snooping is disabled by default	
Command Modes	Config-VLAN Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# no igmp-snooping	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp snooping [vlan < vlanid>]	

Configure IGMP Querier Role

Commands

igmp-snooping querier

no igmp-snooping querier

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	igmp-snooping	Configure IGMP Snooping parameters
	querier	Configure the IGMP Snooping role
Defaults	By default, the switch is configured as a non-querier	
Command Modes	Config-VLAN Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa(config-vlan)# igmp-snooping querier moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa(config-vlan)# no igmp-snooping querier	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID ca not have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp-snooping [vlan < vlanid>]	

Configure IGMP Snooping Version

Commands

igmp-snooping version {v1 | v2 | v3}

Syntax Description	**igmp-snooping**	Configure IGMP Snooping parameters
	version	The operating version of the IGMP Snooping switch for a specific VLAN
	v1	Configure IGMP Snooping to Version 1
	v2	Configure IGMP Snooping to Version 2
	v3	Configure IGMP Snooping to Version 3
Defaults	The default IGMP Snooping version is v2	
Command Modes	Config-VLAN Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa(config-vlan)# igmp-snooping version v3	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp-snooping [vlan < vlanid>]	

Configure IGMP Snooping General Query Interval

Commands

igmp-snooping query-interval <integer (20 - 600) second>

no igmp-snooping query-interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	igmp-snooping	Configure IGMP Snooping parameters
	query-interval	The interval in which the general queries are sent by the IGMP Snooping switch when configured as a querier
	integer (20-600)	The general query interval period in seconds
Defaults	The default IGMP Snooping general query interval is set to 125 seconds	
Command Modes	Config-VLAN Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping query-interval 200 moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# no igmp-snooping query-interval	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp-snooping [vlan < vlanid>]	

Assign IGMP Snooping Router Port

Commands

igmp-snooping router-port [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>]

no igmp-snooping router-port [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	igmp-snooping	Configure IGMP Snooping parameters
	router-port	The IGMP Snooping router port status
	interface-type	The interface type
	slot/port-port, slot/port,	The interface list (slot number/port ID, slot number/port ID-port ID....)
	port-channel	The port-channel interface
	integer	The port-channel index
Defaults	N/A	
Command Modes	Config-VLAN Mode	
Usage Guidelines	IGMP snooping of VLAN must enabled	
Examples	moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa(config-vlan)# igmp-snooping router-port ethernet 1/1-3 --- moxa# configure terminal moxa(config)# vlan 2 moxa(config-vlan)# igmp-snooping moxa(config-vlan)# no igmp-snooping router-port ethernet 1/1-3	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa# show igmp-snooping router-port [Vlan <vlan-id/vfi-id>]	

Show System IGMP Snooping Information

Commands

show igmp-snooping globals

Syntax Description	show	Display configuration/status information
	igmp-snooping	Display IGMP Snooping information
	globals	IGMP Snooping system-based information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show igmp-snooping globals IGMP Snooping global status is enabled	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa(config)# igmp-snooping {enable | disable}	

Show IGMP Information of VLAN

Commands

show igmp-snooping [vlan <vlan-id/vfi-id>]

Syntax Description	**show**	Display configuration/status information
	igmp-snooping	Display IGMP Snooping information
	vlan	Protocol specific information for the VLAN
	vlan-id/vfi-id	The VLAN ID range between 1-4094 and the VFI ID range between 4096-65535
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show igmp-snooping vlan 1 IGMP Snooping VLAN Configuration for the VLAN 1 IGMP Snooping enabled IGMP Snooping cmoxaonfigured version V2 IGMP Snooping is configured as Non-Querier IGMP Snooping is acting as Non-Querier General Query Interval is 125 seconds Startup Query Interval is 31 seconds Startup Query Count is 2 Other Querier Present Interval is 255 seconds	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa(config-vlan)# igmp-snooping moxa(config-vlan)# igmp-snooping querier moxa(config-vlan)# igmp-snooping version {v1 | v2 | v3} moxa(config-vlan)# igmp-snooping query-interval <(20 - 600) second>	

Show IGMP Information of Forwarding Database

Commands

show igmp-snooping forwarding-database [vlan <vlan-id/vfi-id>]

Syntax Description	**show**	Display configuration/status information
	igmp-snooping	Display IGMP Snooping information
	forwarding-database	Display the forwarding database
	vlan	Protocol specific information for the VLAN
	vlan-id/vfi-id	The VLAN ID range between 1-4094 and the VFI ID range between 4096-65535
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show igmp-snooping forwarding-database vlan1 VLAN Group Address Source Address Port List ---------- ---------- ---------- ---------- 1 12.0.0.10 227.1.1.1 Eth1/1, Eth1/3, Eth1/4 1 12.0.0.20 227.1.1.1 Eth1/1, Eth1/3, Eth1/4 1 12.0.0.30 227.1.1.1 Eth1/1, Eth1/2, Eth1/4	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	N/A	

Show IGMP Information of Group Membership Table

Commands

show igmp-snooping groups [vlan <vlan-id/vfi-id>]

Syntax Description	**show**	Display configuration/status information
	igmp-snooping	Display IGMP Snooping information
	groups	The group table information
	vlan	Protocol specific information for the VLAN
	vlan-id/vfi-id	The VLAN ID range between 1-4094 and the VFI ID range between 4096-65535
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show igmp-snooping groups vlan 1 VLAN Group Address Filter Mode Port List Source Address ---------- ---------- ---------- ---------- ---------- 1 224.1.1.1 EXCLUDE Eth 1/1 192.168.127.251	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	N/A	

Show IGMP Information of Router Port

Commands

show igmp-snooping router-port [vlan <vlan-id/vfi-id>]

Syntax Description	**show**	Display configuration/status information
	igmp-snooping	Display IGMP Snooping information
	router-port	The IGMP Snooping router port status
	vlan	Protocol specific information for the VLAN
	vlan-id/vfi-id	The VLAN ID range between 1-4094 and the VFI ID range between 4096-65535
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show igmp-snooping router-port VLAN Static Router Port List ---- ---------- 1 Eth 1/1 VLAN Dynamic Router Port List ---- ---------- 1 Eth 1/3	
Error Messages	'Invalid: If IGMP snooping is enabled, then GMRP must be disabled.' 'Invalid: VLAN ID cannot have duplicated data.' 'Invalid: VLAN ID must exist in the VLAN configuration.' 'Invalid: The port-channel does not exist.' 'Invalid: this port is a member port of port-channel.' 'Invalid: this port is not a member port of VLAN.'	
Related Commands	moxa(config-vlan)# igmp-snooping router-port [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>]	

GMRP

Show Global GMRP information

Commands

show vlan device info

Syntax Description	**show**	Display configuration/statistics/general information
	vlan device info	Display the VLAN device information
Defaults	N/A	
Command Modes	Privileged EXEC Mode.	
Usage Guidelines	N/A	
Examples	moxa# show vlan device info vlan device configurations --- vlan Status : Enabled vlan Oper status : Enabled gvrp status : Disabled gmrp status : Disabled gvrp Oper status : Disabled gmrp Oper status : Disabled Mac-vlan Status : Disabled Subnet-vlan Status : Disabled Protocol-Vlan Status : Enabled Bridge Mode : Provider Edge Bridge Base-Bridge Mode : Vlan Aware Bridge Traffic Classes : Enabled vlan Operational Learning Mode : IVL Hybrid Default Learning Mode : IVL Version number : 1 Max Vlan id : 4158 Max supported vlans : 4160 Global mac learning status : Enabled Filtering Utility Criteria : Enabled Unicast mac learning limit : 768	
Error Messages	N/A	
Related Commands	moxa(config)# set gmrp enable	

Show Port GMRP Information

Commands

show vlan port config [{port <interface-id>]

Syntax Description	**show**	Display configuration/statistics/general information
	vlan port config	Display VLAN port configuration
	port interface-id	The input port number
Defaults	N/A	
Command Modes	Privileged EXEC Mode.	
Usage Guidelines	N/A	
Examples	moxa# show vlan port config 1/1 vlan Port configuration table -------------------------------- Port 1-1 Bridge Port Type : Customer Bridge Port Port Vlan ID : 1 Port Acceptable Frame Type : Admit All Port Mac Learning Status : Enabled Port Ingress Filtering : Disabled Port Mode : Hybrid Port Gvrp Status : Enabled Port Gmrp Status : Disabled Port Gvrp Failed Registrations : 0 Gvrp last pdu origin : 00:00:00:00:00:00 Port Restricted Vlan Registration : Disabled Port Restricted Group Registration : Enabled Mac Based Support : Disabled Subnet Based Support : Disabled Port-and-Protocol Based Support : Enabled Default Priority : 0 Filtering Utility Criteria : Default Port Protected Status : Disabled Ingress EtherType : 0x8100 Egress EtherType : 0x8100 Egress TPID Type : Portbased Allowable TPID 1 : 0x0 Allowable TPID 2 : 0x0 Allowable TPID 3 : 0x0 Reflection Status : Disabled	
Error Messages	N/A	
Related Commands	moxa(config)# set port gmrp enable moxa(config-if)# group restrict enable	

Configure GMRP Global Setting

Commands

gmrp { enable | disable }

Syntax Description	**gmrp**	Configure the GMRP parameters
	enable	Enable GMRP on all switch ports and automatically start the GARP on the switch if the GARP is disabled.
	disable	Disable GMRP on all switch ports.
Defaults	Global GMRP is enabled by default	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# gmrp enable	
Error Messages	N/A	
Related Commands	moxa# show vlan device info	

Configure GMRP Port Setting

Commands

gmrp

no gmrp

Syntax Description	**gmrp**	Configure the GMRP parameters
Defaults	GMRP is enabled by default	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# interface ethernet 1/1 moxa(config-if)# no gmrp	
Error Messages	N/A	
Related Commands	moxa# show vlan port config	

Configure GMRP Group Restricted Setting

Commands

group restricted {enable | disable }

Syntax Description	**group restricted**	Configure the restricted group registration on a specified port
	enable	Enable restricted group registration on the port
	disable	Disable restricted group registration on the port
Defaults	GMRP group restriction is disabled by default	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# group restricted	
Error Messages	Wrong interface type for port	
Related Commands	moxa# show vlan port config	

Static Multicast

Show MAC Address Table for Static Multicast

Commands

show mac-address-table static multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>][{interface {port-channel <integer> | <interface-type> <interface-id>]

Syntax Description	**mac-address-table**	Display the MAC address table information
	static multicast	Display static multicast address information
	vlan <vlan-range>	Display all entries in the FDB table for the specified VLANs
	address <aa:aa:aa:aa:aa:aa>	Display the specified multicast MAC address in the FDB table
	Interface <interface-type> <interface-id> / Port-channel <integer>	Display all specified interface entries in the FDB table
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display static multicast address table	
Examples	moxa# show mac-address-table static multicast Static Multicast Table ---------- Vlan : 1 Mac Address : 01:02:03:04:05:06 Member Ports : Eth1/1 Forbidden Ports : Eth1/2 Status : Permanent ---------- Total Mac Addresses displayed: 1	
Error Messages	N/A	
Related Commands	mac-address-table static multicast	

Configure MAC Address Table for Static Multicast

Commands

mac-address-table static multicast <aa:aa:aa:aa:aa:aa> vlan <vlan-id> {add | set} interface [<interface-type> <slot/port-port,slot/port,...>] [port-channe l <integer>] [forbidden-ports [<interface-type> <slot/port-port,slot/port,...>] [port-channel <integer>]] [status permanent]

Syntax Description	**mac-address-table**	Configure the MAC address table
	static multicast	Configure the static multicast address
	aa:aa:aa:aa:aa:aa	The multicast destination MAC address
	vlan <vlan-id>	The VLAN ID of the VLAN the multicast destination MAC address belongs to
	add	Add the new interface port and forbidden port.
	Set	Overwrite the new interface port and forbidden port
	interface	Configure member ports details.
	forbidden-ports	Configure the set of ports to which frames destined for a specific multicast MAC address must not be forwarded, such as from GMRP.
	status	The status of the static multicast entry.
	permanent	Entry remains even after the next reset of the bridge
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the static multicast address	
Examples	moxa(config)# mac-address-table static multicast 01:02:03:04:05:06 vlan 1 add interface ethernet 1/1-2 forbidden-ports ethernet 2/1-2	
Error Messages	"Invalid: Duplicate MAC Address." "Invalid: Configuration fail." "Invalid: The port is not included in VLAN egress ports." "Invalid: The MAC+VID entry must be removed from Port Security first." "Invalid: The port must remove from port security." "Invalid: Reserved multicast address (01:80:C2) is not allowed to set static multicast." "Invalid: Egress Ports and Forbidden Ports are overlapping."	
Related Commands	show mac-address-table static multicast	

Network Redundancy

Layer 2 Redundancy

Spanning Tree

Enable/Disable Spanning Tree

Commands

spanning-tree

no spanning-tree

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
Defaults	Spanning Tree Protocol is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree moxa(config-if)# no spanning-tree	
Error Messages	Invalid: Port channel member port cannot be assigned to a redundant protocol. Invalid: Redundant Protocol and Port Security cannot be enabled on the same port. Invalid: Redundant Protocol and 802.1x/MAB cannot be enabled on the same port. Invalid: The port-channel group does not exist.	
Related Commands	show spanning-tree detail show spanning-tree summary	

Configure Spanning Tree Compatibility

Commands

spanning-tree compatibility { stp | rstp }

no spanning-tree compatibility

Syntax Description	**no**	Disable the configuration/delete the entry/resets to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	compatibility	The Spanning Tree compatibility version
	stp	Spanning Tree Protocol configuration
	rstp	Rapid Spanning Tree configuration
Defaults	Spanning Tree Protocol compatibility is set to rstp by default.	
Command Modes	Global Configuration	
Usage Guidelines	The "no spanning-tree compatibility" command will restore the default value	
Examples	moxa# configure terminal moxa(config)# spanning-tree compatibility stp moxa(config)# spanning-tree compatibility rstp moxa(config)# no spanning-tree compatibility	
Error Messages	N/A	
Related Commands	show spanning-tree show spanning-tree detail	

Configure Spanning Tree Priority

Commands

spanning-tree priority <value (0-61440)>

no spanning-tree priority

Syntax Description	**no**	Disable the configuration / deletes the entry / resets to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	priority	Configure switch priority for Spanning Tree instances
	value	The switch priority value ranging from 0 to 61440
Defaults	The default priority is set to 32768	
Command Modes	Global Configuration	
Usage Guidelines	The "no spanning-tree priority" command will restore the default value	
Examples	moxa# configure terminal moxa(config)# spanning-tree priority 61440 moxa(config)# no spanning-tree priority	
Error Messages	N/A	
Related Commands	show spanning-tree show spanning-tree detail	

Configure Spanning Tree Forward Time

Commands

spanning-tree forward-time <seconds (4-30)>

no spanning-tree forward-time

Syntax Description	**no**	Disable the configuration/deletes the entry/resets to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	forward-time	The interval (in seconds) in which a port stays in its current state before moving to next state
	seconds	The forwarding time ranging from 4 to 30 seconds
Defaults	The default forwarding time is 15 seconds	
Command Modes	Global Configuration	
Usage Guidelines	Command "no spanning-tree forward-time" will reset to default value 2*(ForwardDelay -1)>=MaxAge >= 2*(Hello Time + 1)	
Examples	moxa# configure terminal moxa(config)# spanning-tree forward-time 16 moxa(config)# no spanning-tree forward-time	
Error Messages	% RSTP: 2*(Forward time -1)>=Max age time >= 2*(Hello time + 1)	
Related Commands	show spanning-tree show spanning-tree detail	

Configure Spanning Tree Hello Time

Commands

spanning-tree hello-time <seconds (1-2)>

no spanning-tree hello-time

Syntax Description	**no**	Disable the configuration/deletes the entry/resets to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	hello-time	The interval (in seconds) between the transmission of configuration BPDUs
	seconds	The hello time interval ranging from 1 to 2 seconds
Defaults	The default hello time is set to 2 seconds	
Command Modes	Global Configuration	
Usage Guidelines	The "no spanning-tree hello-time" command will restore the default value 2*(ForwardDelay -1)>=MaxAge >= 2*(Hello Time + 1)	
Examples	moxa# configure terminal moxa(config)# spanning-tree hello-time 1 moxa(config)# no spanning-tree hello-time	
Error Messages	% RSTP: 2*(Forward time -1)>=Max age time >= 2*(Hello time + 1)	
Related Commands	show spanning-tree show spanning-tree detail	

Configure Spanning Tree Maximum Age

Commands

spanning-tree max-age <seconds (6-40)>

no spanning-tree max-age

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	max-age	The maximum age (in seconds) before learnt STP information is discarded
	seconds	The maximum age ranging from 6 to 40 seconds
Defaults	The STP maximum age is set to 20 seconds by default	
Command Modes	Global Configuration	
Usage Guidelines	The "no spanning-tree max-age" command will restore the default value 2*(ForwardDelay -1)>=MaxAge >= 2*(Hello Time + 1)	
Examples	moxa# configure terminal moxa(config)# spanning-tree max-age 21 moxa(config)# no spanning-tree max-age	
Error Messages	% RSTP: 2*(Forward time -1)>=Max age time >= 2*(Hello time + 1)	
Related Commands	show spanning-tree show spanning-tree detail	

Configure Spanning Tree Transmission Hold Counter

Commands

spanning-tree transmit hold-count <value (1-10)>

no spanning-tree transmit hold-count

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol
	transmit	Transmission hold counter configuration
	hold-count	Configure the hold counter to limit the maximum transmission rate of the switch
	value	The transmission hold counter value ranging from 1 to 10
Defaults	The STP hold counter is set to 6 by default	
Command Modes	Global Configuration	
Usage Guidelines	The "no spanning-tree transmit hold-count" command will restore the default value	
Examples	moxa# configure terminal moxa(config)# spanning-tree transmit hold-count 10 moxa(config)# no spanning-tree transmit hold-count	
Error Messages	N/A	
Related Commands	show spanning-tree detail	

Configure Spanning Tree Auto-edge

Commands

spanning-tree auto-edge

no spanning-tree auto-edge

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol
	auto-edge	Configure the automatic detection of bridges attached to an interface
Defaults	Spanning Tree auto-edge is enabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree auto-edge moxa(config-if)# no spanning-tree auto-edge	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Cost

Commands

spanning-tree cost <value (0-200000000)>

no spanning-tree cost

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol
	cost	Configure the path cost
	value	The Spanning Tree cost ranging from 0 to 200000000
Defaults	The default path cost is set to 0	
Command Modes	Interface Configuration	
Usage Guidelines	The "spanning-tree cost 0" command will auto-detect the cost based on port speed The "no spanning-tree cost" command will restore the default value	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree cost 20000 moxa(config-if)# no spanning-tree cost	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 detail show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Link Type

Commands

spanning-tree link-type { point-to-point | shared }

no spanning-tree link-type

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	link-type	Configure the link type as a point-to-point link or as a shared LAN segment on which another bridge is present
	point-to-point	Set the link a a point-to-point link
	shared	Set the link as a shared link
Defaults	The default Spanning Tree link-type is set to auto-detect	
Command Modes	Interface Configuration	
Usage Guidelines	The "no spanning-tree link-type" command will auto-detect the interface link type based on the port duplex mode	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree link-type point-to-point moxa(config-if)# spanning-tree link-type shared moxa(config-if)# no spanning-tree link-type	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Portfast

Commands

spanning-tree portfast

no spanning-tree portfast

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	portfast	Specify ports that have only hosts connected to enable immediate transition to a forwarding state
Defaults	Spanning Tree Portfast is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	Shut down the interface before enabling the Portfast function The Portfast function cannot be enabled on a port that has loop guard enabled	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree portfast moxa(config-if)# no spanning-tree portfast	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Port Priority

Commands

spanning-tree port-priority <value (0-240)>

no spanning-tree port-priority

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	port-priority	Configure the port priority value
	value	The Spanning Tree port priority ranging from 0 to 240
Defaults	The default Spanning Tree port priority is set to 128	
Command Modes	Interface Configuration	
Usage Guidelines	The "no spanning-tree port-priority" command will restore the default value	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree port-priority 16 moxa(config-if)# no spanning-tree port-priority	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Enable/Disable MSTP

Commands

mstp { enable | disable }

Syntax Description	**mstp**	Configure MSTP related parameters
	enable	Enable MSTP
	disable	Disable MSTP
Defaults	Disabled	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# mstp enable moxa# configure moxa(config)# mstp disable	
Error Messages	N/A	
Related Commands	N/A	

Configure the Compatibility Version for Spanning Tree Protocol

Commands

spanning-tree mst compatibility { stp | rstp | mstp }

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	compatibility	Spanning tree compatibility version
	stp	Spanning Tree Protocol configuration
	rstp	Rapid Spanning Tree configuration
	mstp	Multiple Spanning Tree
Defaults	Disabled	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# spanning-tree mst compatibility mstp	
Error Messages	N/A	
Related Commands	N/A	

Remove Spanning Tree Protocol Compatibility

Commands

no spanning-tree mst compatibility

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mst	Multiple Spanning Tree
	spanning-tree	Configure the related spanning tree parameters
	compatibility	Spanning tree compatibility version
Defaults	mstp (if MSTP enabled) or rstp (if MSTP disabled)	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no spanning-tree compatibility	
Error Messages	N/A	
Related Commands	N/A	

Configure the Maximum Number of Hops Permitted in MST

Commands

spanning-tree mst max-hops <short(6-40)>

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	max-hops	Maximum number of hops allowed
	6-40	Value for maximum hops
Defaults	20	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# spanning-tree mst max-hops 40	
Error Messages	N/A	
Related Commands	N/A	

Map VLANs to an MST Instance

Commands

spanning-tree mst instance <short(1-16)> **vlan** <vlan_range> [**priority** <short(0 -61440)>]

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Value for maximum hops
	vlan	VLAN range associated with a spanning tree instance
	<vlan-range)	Range (1-4094) of VLANs separated by a hyphen, or a series of VLANs separated by a comma
	priority	Switch priority configuration for spanning tree instance
	(0-61440)	Priority value
Defaults	20	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# spanning-tree mst instance 2 vlan 5-10 moxa(config)# spanning tree mst instance 3 vlan 15-50 priority 4096	
Error Messages	N/A	
Related Commands	N/A	

Note

The maximum instances vary on the number of targets.

Delete the MST Instance or Remove VLANs from MST Instance

Commands

no spanning-tree mst instance <short(1-16)> [**vlan** < vlan_range >]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	vlan	VLAN range associated with a spanning tree instance
	<vlan-range)	Range (1-4094) of VLANs separated by a hyphen, or a series of VLANs separated by a comma
Defaults	No	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no spanning-tree mst instance 2 moxa(config)# no spanning tree mst instance 1 vlan 5	
Error Messages	N/A	
Related Commands	N/A	

Configure Bridge Priority for Spanning Tree

Commands

spanning-tree mst {**instance** <short(1-16)> | **cist**} **priority** <short(0 -61440)>

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	cist	Common Internal Spanning Tree
	priority	Switch priority configuration for spanning tree instance
	(0-61440)	Priority value
Defaults	Priority: 32768	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# spanning-tree mst instance 1 priority 28672	
Error Messages	N/A	
Related Commands	N/A	

Reset Bridge Priority for the Spanning Tree to Its Default Value

Commands

no spanning-tree mst {**instance** <short(1-16)> | **cist**} **priority**

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	cist	Common Internal Spanning Tree
	priority	Switch priority configuration for spanning tree instance
Defaults	Priority: 32768	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no spanning-tree mst instance 1 priority	
Error Messages	N/A	
Related Commands	N/A	

Set Up Spanning Tree MST Configuration Name

Commands

spanning-tree mst { **name** <string(32)> | **revision** <short(0-65535)>}

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	name	Configure name for the MST region
	<string(32)>	Configuration name
	revision	Configure revision name for the MST region
	(0-65535)	Revision number for the MST region
Defaults	Name: MAC address, Revision: 0	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# spanning-tree mst name MSTP moxa(config)#spanning-tree mst revision 20	
Error Messages	N/A	
Related Commands	N/A	

Delete Spanning Tree MST Configuration Name

Commands

no spanning-tree mst { **name** | **revision** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	name	Configuration name
	revision	Configure revision number for the MST region
Defaults	Name: MAC address, Revision: 0	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no spanning-tree mst name moxa(config)# no spanning-tree mst revision	
Error Messages	N/A	
Related Commands	N/A	

Configure MSTP Timer

Commands

spanning-tree mst { **forward-time** <seconds(4-30)> | **hello-time** <seconds(1-2)> | **max-age** <seconds(6-40)> }

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	forward-time	Interval (in seconds) until which a port stays in a state before moving to next state
	(4-30)	Forward delay value
	hello-time	Interval (in seconds) between the transmission of configuration BPDUs
	(1-2)	Hello time value
	max-age	Maximum age (in seconds) for learnt STP information before discarding
	(6-40)	Value representing maximum age
Defaults	forward time: 15, hello-time: 2, max-age: 20	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa-(config)# spanning-tree mst forward-time 16 moxa-(config)# spanning-tree mst hello-time 1 moxa-(config)# spanning-tree mst max-age 30	
Error Messages	N/A	
Related Commands	N/A	

Reset the MSTP Timer to the Default Value

Commands

no spanning-tree mst { **forward-time** | **hello-time** | **max-age** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	forward-time	Interval (in seconds) until which a port stays in a state before moving to next state
	hello-time	Interval (in seconds) between the transmission of configuration BPDUs
	max-age	Maximum age (in seconds) for learnt STP information before discarding
Defaults	forward time: 15, hello-time: 2, max-age: 20	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa-(config)# no spanning-tree mst forward-time moxa-(config)# no spanning-tree mst hello-time moxa-(config)# no spanning-tree mst max-age	
Error Messages	N/A	
Related Commands	N/A	

Enable Spanning Tree MST Instance on This Port

Commands

spanning-tree mst { **instance** <short(1-16)> | **cist** | **all** }

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	cist	Common Internal Spanning Tree
	all	All instances on the device including CIST
Defaults	Disabled	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree mst instance 1	
Error Messages	N/A	
Related Commands	N/A	

Disable Spanning Tree MST Instance on This Port

Commands

no spanning-tree mst { **instance** <short(1-16)> | **cist** | **all** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	cist	Common Internal Spanning Tree
	all	All instances on the device including CIST
Defaults	Disabled	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# no spanning-tree mst instance 1	
Error Messages	N/A	
Related Commands	N/A	

Configure Spanning Tree Properties of an Interface for MSTP

Commands

spanning-tree mst {**instance** <short(1-16)> | **cist** } { **cost** <integer(1-200000000)> | **port-priority** <short(0-240)> }

Syntax Description	**spanning-tree**	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	cist	Common Internal Spanning Tree
	cost	The cost associate with the port
	(1-200000000)	The cost value associated with the port
	port-priority	Port priority
	(0-240)	Port priority value
Defaults	cost: 0, port-priority: 128	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree mst instance 1 cost 200 moxa(config-if)# spanning-tree mst instance 1 port-priority 144	
Error Messages	N/A	
Related Commands	N/A	

Reset Spanning Tree Properties of an Interface to Default Value

Commands

no spanning-tree mst { **instance** <short(1-16)> | **cist** } {**cost** | **port-priority** }

Syntax Description	**No**	Remove configuration/delete entry/reset to default value
	spanning-tree	Configure the related spanning tree parameters
	Mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	Cist	Common Internal Spanning Tree
	cost	The cost associate with the port
	port-priority	Port priority
Defaults	cost: 0, port-priority: 128	
Command Modes	Interface Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# no spanning-tree mst instance 1 cost moxa(config-if)# no spanning-tree mst instance 1 port-priority	
Error Messages	N/A	
Related Commands	N/A	

Show Multiple Spanning Tree Information

Commands

show spanning-tree mst [**instance** <short(1-16)>] [**detail**]

Syntax Description	**show**	Display configuration/status information
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	detail	Detailed information for the spanning tree mst instance
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree mst moxa# show spanning-tree mst detail moxa# show spanning-tree mst instance 1 moxa# show spanning-tree mst instance 1 detail	
Error Messages	N/A	
Related Commands	N/A	

Show Multiple Spanning Tree Instance Configuration

Commands

show spanning-tree mst configuration

Syntax Description	**show**	Display configuration/status information
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple spanning tree instance
	configuration	Multiple spanning tree instance configuration
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree mst configuration	
Error Messages	N/A	
Related Commands	N/A	

Show Multiple Spanning Tree Port Specific Configuration

Commands

show spanning-tree mst [**instance** <short(1-16)>] **interface** { <iftype> <ifnum> | **port-channel** <integer> } [{ **stats** | **detail** }]

Syntax Description	**show**	Display configuration/status information
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	instance	An MST instance
	(1-16)	Instance ID
	interface	Detailed information for the spanning tree mst instance
	iftype	Interface type
	ifnum	Interface ID
	port-channel	Port channel interface
	integer	Port channel ID
	stats	Input and output packets by switching path for the interface
	detail	Detailed multiple spanning tree port specific configuration
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree mst interface ethernet 1/1 moxa# show spanning-tree mst interface port-channel 1 moxa# show spanning-tree mst instance 1 interface ethernet 1/1 moxa# show spanning-tree mst instance 1 interface port-channel 1 moxa# show spanning-tree mst interface ethernet 1/1 stats moxa# show spanning-tree mst interface port-channel 1 detail moxa# show spanning-tree mst instance 1 interface ethernet 1/1 stats moxa# show spanning-tree mst instance 1 interface port-channel 1 detail	
Error Messages	N/A	
Related Commands	N/A	

Configure Spanning Tree BPDU Guard

Commands

spanning-tree bpduguard

no spanning-tree bpduguard

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	bpduguard	Configures an interface to transition into the error-disabled state when it receives a BPDU
Defaults	Spanning Tree BPDU guard is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree bpduguard moxa(config-if)# no spanning-tree bpduguard	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface gigabitethernet 0/1 bpduguard show spanning-tree interface gigabitethernet 0/1 detail	

Configure Spanning Tree BPDU Filter

Commands

spanning-tree bpdufilter

no spanning-tree bpdufilter

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	bpdufilter	Configure BPDU filtering
Defaults	Spanning Tree BPDU filtering is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree bpdufilter moxa(config-if)# no spanning-tree bpdufilter	
Error Messages	N/A	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Root Guard

Commands

spanning-tree rootguard

no spanning-tree rootguard

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	rootguard	Configure restricted forwarding on an interface
Defaults	Spanning Tree root guard is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	The Root guard function cannot be enabled on a port that has loop guard enabled	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree rootguard moxa(config-if)# no spanning-tree rootguard	
Error Messages	% RSTP: loopGuard and rootGuard should be exclusive	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Loop Guard

Commands

spanning-tree loopguard

no spanning-tree loopguard

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol parameters
	loopguard	Configure restricted forwarding on an interface
Defaults	Spanning Tree loop guard is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	The loop guard function cannot be enabled on a port that has portfast enabled The loop guard function cannot be enabled on a port that has root guard enabled	
Examples	moxa# configure terminal moxa(config)# interface ethernet 1/1 moxa(config-if)# spanning-tree loopguard moxa(config-if)# no spanning-tree loopguard	
Error Messages	% RSTP: loopGuard and rootGuard should be exclusive	
Related Commands	show spanning-tree detail show spanning-tree interface ethernet 1/1 show spanning-tree interface ethernet 1/1 detail	

Configure Spanning Tree Errordisabled Recovery Interval

Commands

spanning-tree errordisable recovery-interval <second (30-65535)>

no spanning-tree errordisable recovery-interval

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	spanning-tree	Configure Spanning Tree Protocol
	errordisable	Configure the error-disable timer
	recovery-interval	The interval (in seconds) for a port to recover from error-disabled state
	second	The errordisabled recovery interval ranging from 30 to 65535 seconds
Defaults	The default error-disabled recovery interval is set to 300 seconds	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# spanning-tree errordisable recovery-interval 30	
Error Messages	N/A	
Related Commands	show spanning-tree detail	

Clear Spanning Tree Detected Protocols

Commands

clear spanning-tree detected protocols interface { <interface-id> | port-channel <integer> }

Syntax Description	**clear**	Clear the configuration
	spanning-tree	Configure Spanning Tree Protocol parameters
	detected	Spanning Tree detected protocols
	protocols	Spanning Tree detected protocols
	interface	Configure the interface
	interface-id	The interface ID
	port-channel	The port channel
Defaults	N/A	
Command Modes	User EXEC mode	
Usage Guidelines	N/A	
Examples	moxa# clear spanning-tree detected protocols interface ethernet 1/1 moxa# clear spanning-tree detected protocols interface port-channel 1	
Error Messages	N/A	
Related Commands	N/A	

Show Spanning Tree Bridge Information

Commands

show spanning-tree bridge

Syntax Description	**show**	Display the Configuration/statistics/general information
	spanning-tree	Spanning Tree-related information
	bridge	Spanning Tree bridge information
Defaults	N/A	
Command Modes	User EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree bridge Bridge ID HelloTime MaxAge FwdDly Protocol ---------- --------- -------- -------- ---------- 80:00:00:01:02:03:04:05 2 sec 20 sec 15 sec rstp moxa#	
Error Messages	N/A	
Related Commands	N/A	

Show Spanning Tree Root Information

Commands

show spanning-tree root

Syntax Description	**show**	Display the configuration/statistics/general information
	spanning-tree	Spanning Tree-related information
	root	Spanning Tree root information
Defaults	N/A	
Command Modes	User EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree root Root ID RootCost MaxAge FwdDly RootPort --------- ---------- -------- -------- ---------- 00:00:00:00:00:00:00:00 0 sec 20 sec 15 sec 0 moxa#	
Error Messages	N/A	
Related Commands	N/A	

Show Spanning Tree Interface Information

Commands

show spanning-tree interface { ethernet <slot/port> | port-channel <id> }

show spanning-tree interface { ethernet <slot/port> | port-channel <id> } detail

show spanning-tree interface { ethernet <slot/port> | port-channel <id> } inconsistency

Syntax Description	**show**	Display the configuration/statistics/general information
	spanning-tree	Spanning Tree-related information
	interface	Spanning Tree interface information
	ethernet <slot/port>	The Ethernet slot or port number
	port-channel <id>	The port channel ID
	detail	Detailed information about the port and bridge
	inconsistency	Spanning Tree inconsistent state information
Defaults	N/A	
Command Modes	User EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree interface ethernet 1/2 moxa# show spanning-tree interface ethernet 1/2 inconsistency moxa# show span in eth 1/1 Root State Cost Prio Type ---------- ----- ----- ----- ----- Disabled Disable 200000000 128 SharedLAN moxa# show span in eth 1/1 incon BPDU Inconsist: False Root Inconsist: False Loop Inconsist: False moxa#	
Error Messages	N/A	
Related Commands	N/A	

Show Spanning Tree Details

Commands

show spanning-tree [detail]

show spanning-tree active [detail]

Syntax Description	**show**	Display the configuration/statistics/general information
	spanning-tree	Spanning Tree related information
	detail	Detailed Spanning Tree information
	active	Spanning Tree information of active ports
Defaults	N/A	
Command Modes	User EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show spanning-tree Root ID Priority 0 Address 00:00:00:00:00:00 Cost 0 Port 0 Max Age 20 sec Forward Delay 15 sec Hello Time 2 sec Spanning tree Protocol has been disabled Bridge ID Priority 32768 Address 00:01:02:03:04:05 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Port Enable Role State Cost Prio Type Eth1/1 Disabled Disabled Disabled 200000000 128 SharedLan Eth1/2 Disabled Disabled Disabled 200000000 128 SharedLan Eth1/3 Disabled Disabled Disabled 200000000 128 SharedLan Eth1/4 Disabled Disabled Disabled 200000000 128 SharedLan moxa# show spanning-tree detail Spanning tree Protocol has been disabled Bridge Identifier has priority 32768, Address 00:01:02:03:04:05 Configured Hello time 2 sex, Max Age 20 sec Forward Delay 15 sec Number of Topology Changes 0 Time since topology Change 0 seconds ago Transmit Hold-Count 6 Root Times:Max Age 20 sec Forward Delay 15 sec Hello Time 2 sec Port 1 [Eth1/1] is Disabled, Disabled Port PathCost 200000000, Port Priority 128, Port Identifier 128.1 Designated Root has priority 0, address 00:00:00:00:00:00 Designated Port Id is 0.0, Designated PathCost 0 No of Transition to forwarding State :0 Auto-Edge is disabled PortFast is enabled, Oper-Edge is disabled BPDU Filtering is disabled. BPDU Guard is enabled. Root Guard is disabled. Loop Guard is disabled. Admin LinkType is Auto, Oper LinkType is Shared-Lan BPDUs : sent 0 , received 0 Timers: Hello - 0, Forward Delay - 0, Topology Change - 0, Error Disabled Recovery Interval 300 sec	
Error Messages	N/A	
Related Commands	N/A	

Turbo Ring v2

Show Turbo Ring v2 Status

Commands

show turbo-ring-v2 { config | status }

Syntax Description	**show**	Display configuration/statistics/general information
	turbo-ring-v2	Display Turbo Ring v2 information
	config	Ring configuration information
	status	Ring status information
Defaults	N/A	
Command Modes	User EXEC/Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show turbo-ring-v2 config Turbo Ring V2 Module is enabled Ring 1: Enable: enabled Set as master: disabled 1st port: Eth1/1 2nd port: Eth1/2 Ring 2: Enable: disabled Set as master: disabled 1st port: Eth1/3 2nd port: Eth1/4 Coupling: Enable: disabled Mode: Ring coupling(primary) Coupling Port: Eth2/1 moxa# show turbo-ring-v2 status Turbo Ring V2 status: Ring 1: Status: Healthy Master/Slave: Master Master ID: 00:90:e8:00:bb:cc 1st Ring Port Status: Eth1/1 Forwarding 2nd Ring Port Status: Eth1/2 Blocked Ring 2: Status:--- Master/Slave:--- Master ID: 00:00:00:00:00:00 1st Ring Port Status:--- 2nd Ring Port Status:--- Coupling: Mode:--- Coupling Port: ---	
Error Messages	N/A	
Related Commands	turbo-ring-v2	

Configure Redundancy Mode Setting

Commands

turbo-ring-v2 { enable | disable }

Syntax Description	**turbo-ring-v2**	Configure Turbo Ring V2 parameters
	enable	Enable Turbo Ring V2
	disable	Disable Turbo Ring V2
Defaults	Turbo Ring V2 is disabled by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# turbo-ring-v2 enable	
Error Messages	Invalid: A maximum of two redundant protocols can be enabled.	
	Invalid: Turbo Chain and Turbo Ring V2 cannot be enabled at the same time.	
	Invalid: Two redundant protocols cannot use the same port.	
	Invalid: Turbo Ring V2 and STP/RSTP cannot be enabled at the same time.	
Related Commands	show turbo-ring-v2 config	

Configure Ring Settings

Commands

turbo-ring-v2 ring-id **primary interface** { port-channel <integer (1-65535)> | <interface-type> <interface-id> } **secondary interface** { port-channel <integer (1-65535)> | <interface-type> <interface-id> }

no turbo-ring-v2 ring-id

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	turbo-ring-v2	Configure Turbo Ring V2 parameters
	ring-id	Configure the ring ID (1-2)
	primary	The first ring port
	interface	The port interface
	interface-type	Ethernet
	interface-id	The slot number/port number <1-7>/<1-4>
	port-channel	The port channel interface
	secondary	The second ring port
	interface	The port interface
	interface-type	Ethernet
	interface-id	The slot number/port number <1-7>/<1-4>
	port-channel	The port channel interface
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	At least one turbo ring domain or coupling must be enabled. Two turbo ring domains and coupling cannot be enabled at the same time.	
Examples	moxa(config)# turbo-ring-v2 1 primary interface ethernet 2/1 secondary interface ethernet 2/2	
Error Messages	Invalid: The first and second ring ports cannot be on the same port.	
	Invalid: A ring port cannot belong to both rings.	
	Invalid: A port channel must be created first to be able to assign to a ring port.	
Related Commands	show turbo-ring-v2 { config | status }	

Configure the Switch as the Ring Master

Commands

turbo-ring-v2 ring-id **master**

no turbo-ring-v2 ring-id **master**

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	turbo-ring-v2	Configure Turbo Ring V2 parameters
	ring-id	Configure the ring ID (1-2)
	master	Enable ring master
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# turbo-ring-v2 1 master master - Set turbo ring v2 ring id as master	
Error Messages	N/A	
Related Commands	show turbo-ring-v2 { config | status }	

Configure the Primary Port of Ring Coupling

Commands

turbo-ring-v2 coupling primary interface <interface-type> <interface-id>

no turbo-ring-v2 coupling

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	turbo-ring-v2	Configure Turbo Ring V2 parameters
	coupling	Configure ring coupling parameters
	primary	Coupling primary mode
	interface	The port interface
	interface-type	Ethernet
	interface-id	The slot number/port number <1-7>/<1-4>
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	At least one turbo ring domain or coupling must be enabled. Two turbo ring domains and coupling cannot be enabled at the same time.	
Examples	moxa(config)# turbo-ring-v2 coupling primary interface ethernet 2/1	
Error Messages	Invalid: Ring coupling cannot be enabled when both rings are enabled.	
	Invalid: There can be one ring enabled if you want to enable ring coupling.	
	Invalid: A ring coupling port cannot be an active ring port.	
Related Commands	show turbo-ring-v2	

Configure Backup Port of Ring Coupling

Commands

turbo-ring-v2 coupling backup interface <interface-type> <interface-id>

no turbo-ring-v2 coupling

Syntax Description	**turbo-ring-v2**	Configure Turbo Ring V2 parameters
	coupling	Configure ring coupling parameters
	backup	Coupling backup mode
	interface	The port interface
	interface-type	Ethernet
	interface-id	The slot number/port number <1-7>/<1-4>
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	At least one turbo ring domain or coupling must be enabled. Two turbo ring domains and coupling cannot be enabled at the same time.	
Examples	moxa(config)# turbo-ring-v2 coupling backup interface ethernet 2/1	
Error Messages	Invalid: Ring coupling cannot be enabled when both rings are enabled. Invalid: There can be one ring enabled if you want to enable ring coupling. Invalid: A ring coupling port cannot be an active ring port.	
Related Commands	show turbo-ring-v2 { config | status }	

Turbo Chain

Show Turbo Chain Information

Commands

show turbo-chain

Syntax Description	**show**	Display configuration/statistics/general information
	turbo-chain	Display Turbo Chain information
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show turbo-chain Admin Status: Disabled Role: Member Port Role Port Number Port State ------------ ----------- ---------- Member Port Eth1/1 --- Member Port Eth1/2 ---	
Error Messages	N/A	
Related Commands	N/A	

Configure Turbo Chain Setting

Commands

turbo-chain { enable | disable }

turbo-chain role { head | member | tail } **primary interface** { port-channel <port-channel-id (1-65535)> | <interface-type> <interface-id> } **secondary interface** { port-channel <port-channel-id (1-65535)> | <interface-type> <interface-id> }

Syntax Description	**turbo-chain**	Configure Turbo Chain parameters
	enable	Enable Turbo Chain
	disable	Disable Turbo Chain
	role	Configure the role of the switch in the Turbo Chain
	head	Set the switch as the Turbo Chain head
	member	Set the switch as a Turbo Chain member
	tail	Set the switch as the Turbo Chain tail
	primary	Configure the Turbo Chain primary port
	interface	The interface of Turbo Chain
	port-channel	The port channel interface
	port-channel-id	The port channel ID
	interface-type	Ethernet interface
	interface-id	Slot number/port number
	secondary	Configure the Turbo Chain secondary port
	interface	The interface of Turbo Chain
Defaults	Turbo Chain is disabled by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# turbo-chain disable moxa(config)# turbo-chain role member primary interface ethernet 1/1 secondary interface ethernet 1/2	
Error Messages	% Turbo Chain: Invalid: Two Identical Turbo Chain Ports. % Turbo Chain: Invalid: The port-channel does not exist. % Turbo Chain: Invalid: The port-channel does not exist. % L2 Redundancy: Invalid: Two redundant protocols cannot use the same port. % L2 Redundancy: Invalid: Port channel member port cannot be assigned to a redundant protocol. % L2 Redundancy: Invalid: Redundant Protocol and Port Security cannot be enabled on the same port. % L2 Redundancy: Invalid: Redundant Protocol and 802.1x/MAB cannot be enabled on the same port. % L2 Redundancy: Invalid: The port-channel group does not exist. % L2 Redundancy: Invalid: The port-channel group is used by Turbo Ring/Turbo Chain/Dual Homing. It cannot be deleted. % L2 Redundancy: Invalid: A maximum of two redundant protocols can be enabled. % L2 Redundancy: Invalid: Turbo Chain and Turbo Ring V2 cannot be enabled at the same time. % L2 Redundancy: Invalid: Turbo Chain and STP/RSTP cannot be enabled at the same time.	
Related Commands	show turbo-chain	

Dual Homing

Show Dual Homing Information

Commands

show dual-homing

Syntax Description	**show**	Show running system information
	dual-homing	Display dual homing configurations and status
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show dual-homing Status :Enabled Connecting Redundancy Protocol: Turbo Ring v2 ---------- Path Port-Index Link-Status Port-State ---------- ---------- ---------- ---------- Primary Link up Link-up Forwarding Secondary Eth1/1Eth1/2 Link-down Blocking	
Error Messages	N/A	
Related Commands	dual-homing	

Enable/Disable Dual Homing Setting

Commands

dual-homing {enable | disable}

Syntax Description	**dual-homing**	Configure dual homing parameters
	enable	Enable dual homing
	disable	Disable dual homing
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa (config)# dual-homing enable	
Error Messages	N/A	
Related Commands	N/A	

Configure Dual Homing Path Mode

Commands

dual-homing path-mode {primary-first | maintain-current}

Syntax Description	**dual-homing**	Configure dual homing parameters
	path-mode	Configure the dual homing path switching mode
	primary-first	Primary path always first
	maintain-current	Maintain the current path
Defaults	N/A	
Command Modes	redundancy configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# dual-homing path-mode primary-first	
Error Messages	N/A	
Command Modes	N/A	
Related Commands	show dual-homing	

Configure Dual Homing Primary/Secondary Interface

Commands

dual-homing primary interface {port-channel <integer (1-65535) | <interface-type> <interface-id>}
secondary interface {port-channel <integer (1-65535) | <interface-type> <interface-id>}

Syntax Description	**dual-homing**	Configure dual homing
	primary	Configure the dual homing primary port settings
	interface	Configure the dual homing port interface
	secondary	Configure the dual homing secondary port settings
	port-channel	Configure the port channel
	Integer (1-65535)	The port channel group ID ranging from 1 to 65535
	interface-type	The interface type
	interface-id	The interface ID
Defaults	N/A	
Command Modes	redundancy configuration	
Usage Guidelines	N/A	
Examples	moxa (config)# dual-homing primary interface ethernet 1/1 secondary interface port-channel 1	
Error Messages	N/A	
Command Modes	N/A	
Related Commands	show dual-homing	

Management

Network Management

SNMP

Configure SNMP Server Access Mode

Commands

snmp-server access { enable | disable | read-only }

Syntax Description	**snmp-server**	Configure SNMP server parameters
	access	Configure the SNMP server access mode
	enable	Enable SNMP server access
	disable	Disable SNMP server access
	read-only	Set SNMP server access to read-only mode
Defaults	SNMP server access is enabled by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# snmp-server access enable moxa(config)# snmp-server access disable moxa(config)# snmp-server access read-only	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server Read-Only Community Settings

Commands

snmp-server community read-only <community-name(4-32)>

Syntax Description	**snmp-server**	Configure snmp-server related parameters
	community	Configure the SNMP server community
	read-only	Configure the SNMP server community for read-only
	string (32)	The SNMP server read-only community name
Defaults	The default read-only community name is set to public	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# snmp-server community read-only public	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Delete SNMP Server Read-Only Community

Commands

no snmp-server community read-only

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-server	Configure SNMP server parameters
	community	Configure the SNMP server community
	read-only	Configure the SNMP server community for read-only
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-server community read-only	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server Read-Write Community Settings

Commands

snmp-server community read-write <community-name(32)>

Syntax Description	**snmp-server**	Configure SNMP server parameters
	community	Configure the SNMP server community
	read-write	Configure the SNMP server community for read-write
	string (32)	The SNMP server read-write community name
Defaults	The default read-write community name is set to private	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# snmp-server community read-write private	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server Read-Write Community to Default Value

Commands

no snmp-server community read-write

Syntax Description	**no**	Disable the configuration/delete the entry /reset to default value
	snmp-server	Configures SNMP server parameters
	community	Configure the SNMP server community
	read-write	Configure the SNMP server community for read-write
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-server community read-write	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server Version

Commands

snmp-server version { v1-v2c-v3 | v1-v2c | v3 }

Syntax Description	**snmp-server**	Configure SNMP server parameters
	version	Configure the SNMP server version compatibility
	v1-v2c-v3	Set the SNMP server version to v1-v2c-v3
	v1-v2c	Set the SNMP server version to v1-v2c
	v3	Set the SNMP server version to v3-only
Defaults	The default SNMP server version is set to v1-v2c	
Command Modes	Global configuration	
Usage Guidelines	Set up at least one SNMP server user account before enabling v1-v2c-v3 or v3	
Examples	moxa(config)# snmp-server version v1-v2c-v3 moxa(config)# snmp-server version v1-v2c moxa(config)# snmp-server version v3	
Error Messages	% Atleast setup one valid user before enable snmp-server version v1-v2c-v3 or v3	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server Version to Default Value

Commands

no snmp-server version

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-server	Configure SNMP server parameters
	version	Configure the SNMP server version compatibility
Defaults	The default SNMP server version is set to v1-v2c	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-server version	
Error Messages	N/A	
Related Commands	snmp-server show snmp-server	

Configure SNMP Server User Account Settings

Commands

snmp-server user <user-name(32)>

authority { read-only | read-write }

auth-type { none | md5 | sha } [auth-passwd <authentication-password(64)>] **encryption** { disable| des | aes } [encryption-key <encryption-key(64)>]

Syntax Description	**snmp-server**	Configure SNMP server parameters
	user	Configure SNMP server user accounts
	user-name (32)	The user name of the SNMP server user account
	authority	Configure the access right for the user account
	read-only	Give read-only access to the user
	read-write	Give read-write access to the user
	auth-type	Configure the authentication protocol for the SNMP server user account
	none	Do not use any authentication protocol
	md5	Use MD5 authentication
	sha	Use SHA authentication
	auth-passwd	Configure the authentication password for the SNMP server user account
	authentication-password (64)	The authentication password
	encryption	Configure the data encryption protocol for the SNMP server user account
	disable	Disable data encryption
	des	Use DES data encryption
	aes	Use AES data encryption
	encryption-key	Configure the data encryption key for the SNMP server user account
	encryption-key (64)	The data encryption key
Defaults	There is no user account table by default	
Command Modes	Global configuration	
Usage Guidelines	If the authentication type is set to none, data encryption should be disabled. If the authentication type is not none, an authentication password must be set up. If data encryption is not disabled, a data encryption key must be set up.	
Examples	moxa(config)# snmp-server user testNoAuthNoPriv authority read-write auth-type none encryption disable moxa(config)# moxa(config)# moxa(config)# snmp-server user testAuthNoPriv authority read-write auth-type md5 auth-passwd 1111111111 encryption disable moxa(config)# moxa(config)# moxa(config)# snmp-server user testAuthPriv authority read-write auth-type md5 auth-passwd 1111111111 encryption des encryption-key 2222222222 moxa(config)# moxa(config)#	
Error Messages	% If authentication-type is none, data-encryption method should be disabled % must setup authentication password % must setup data encryption key % Can't get snmp-server user-account information % Can't get snmp-server user-account table % Can't get snmp-server user-account table index ('%d') % Can't get user-name from snmp-server user-account table('%d') % Can't create user account % Can't modify user account	
Related Commands	snmp-server show snmp-server	

Delete SNMP Server User Account

Commands

no snmp-server user <user-name (32)>

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-server	Configure SNMP server parameters
	user	Configure SNMP server user accounts
	user-name (32)	The user name of the SNMP server user account
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-server user testNoAuthNoPriv moxa(config)# no snmp-server user testAuthNoPriv moxa(config)# no snmp-server user testAuthPriv	
Error Messages	% Can't get snmp-server user-account information % Can't get snmp-server user-account table % Can't get snmp-server user-account table index ('%d') % Can't get user-name from snmp-server user-account % Can't delete user account	
Related Commands	snmp-server show snmp-server	

Configure SNMP Trap Host Settings

Commands

snmp-trap host <host-address(32)> **mode** { trap-v1 | trap-v2c | inform-v2c | trap-v3 | inform-v3 }

[community <community-name(32)>]

Syntax Description	**snmp-trap**	Configure SNMP trap parameters
	host	Configure the SNMP trap host address
	host-address (32)	The SNMP trap host address
	mode	Configure the SNMP trap mode
	trap-v1	Use trap-v1 mode
	trap-v2c	Use trap-v2c mode
	inform-v2c	Use inform-v2c mode
	trap-v3	Use trap-v3 mode
	inform-v3	Use inform-v3 mode
	community	Configure the community for the SNMP trap host
	community-name (32)	The community name for the SNMP trap host
Defaults	There is no SNMP trap host entry by default	
Command Modes	Global configuration	
Usage Guidelines	A community name must be set when using trap-v1, trap-v2c, or infom-v2c mode. SNMP v3 must be enabled when SNMP trap-v3 mode is enabled. At least one valid user must be set up before setting the SNMP trap host to trap-v3 mode.	
Examples	moxa(config)# snmp-trap host 192.168.127.254 mode trap-v1 community public moxa(config)# snmp-trap host 192.168.127.253 mode inform-v3	
Error Messages	% Can't get snmp-trap host information % Can't get host name from snmp-trap host table % Can't get snmp-trap host table index('%d') % Can't get host-name from snmp-trap host table('%d') % Can't create host entry % Can't modify host entry % must set community name when mode is trap-v1, trap-v2c or infom-v2c % must enable v3 in snmp-server when snmp-trap host <host-address> trap-v3 mode is enable % Atleast setup one valid user before enable snmp-trap host to trap-v3 mode	
Related Commands	snmp-trap show snmp-trap	

Delete SNMP Trap Host Entry

Commands

no snmp-trap host <host-address(32)>

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-trap	Configure SNMP trap parameters
	host	Configure the SNMP trap host address
	host-address (32)	The SNMP trap host address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-trap host 192.168.127.254 moxa(config)# no snmp-trap host 192.168.127.253	
Error Messages	% Can't get snmp-trap host information % Can't get host name from snmp-trap host table % Can't get snmp-trap host table index('%d') % Can't get host-name from snmp-trap host table('%d') % Can't delete host entry	
Related Commands	snmp-trap show snmp-trap	

Configure SNMP Trap Inform Retry Setting

Commands

snmp-trap inform-retries <inform-retries-number(1-99)>

Syntax Description	snmp-trap	Configure SNMP trap parameters
	inform-retries	Configure SNMP trap inform retries
	inform-retries-number (1-99)	The amount of SNMP trap inform retries
Defaults	The default number of SNMP trap inform retries is set to 3	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# snmp-trap inform-retries 3	
Error Messages	N/A	
Related Commands	snmp-trap show snmp-trap	

Reset SNMP Trap Inform Retry to Default Value

Commands

no snmp-trap inform-retries

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-trap	Configure SNMP trap parameters
	inform-retries	Configure SNMP trap inform retries
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-trap inform-retries	
Error Messages	N/A	
Related Commands	snmp-trap show snmp-trap	

Configure SNMP Trap Inform Timeout Setting

Commands

snmp-trap inform-timeout <inform-timeout-number(1-300)>

Syntax Description	**snmp-trap**	Configure SNMP trap parameters
	inform-timeout	Configure the SNMP trap inform timeout
	inform-timeout-number (1-300)	The SNMP trap inform timeout in seconds
Defaults	The default SNMP trap inform timeout is set to 10 seconds	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# snmp-trap inform-timeout 10	
Error Messages	N/A	
Related Commands	snmp-trap show snmp-trap	

Reset SNMP Trap Inform Timeout to Default Value

Commands

no snmp-trap inform-timeout

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-trap	Configure SNMP trap parameters
	inform-timeout	Configure the SNMP trap inform timeout
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-trap inform-timeout	
Error Messages	N/A	
Related Commands	snmp-trap show snmp-trap	

Configure SNMP Trap User Account Settings

Commands

snmp-trap user <user-name(32)> **auth-type** { none | md5 | sha } [auth-passwd <authentication-password(64)>] **encryption** { disable| des | aes } [encryption-key <encryption-key(64)>]

Syntax Description	**snmp-trap**	Configures SNMP trap parameters
	user	Configure SNMP trap user accounts
	user-name(32)	The user name of the SNMP trap user account
	auth-type	Configure the authentication protocol for the SNMP trap user account
	none	Do not use any authentication protocol
	md5	Use MD5 authentication
	sha	Use SHA authentication
	auth-passwd	Configure the authentication password for the SNMP trap user account
	authentication-password (64)	The authentication password
	encryption	Configure the data encryption protocol for the SNMP trap user account
	disable	Disable data encryption
	des	Use DES data encryption
	aes	Use AES data encryption
	encryption-key	Configure the data encryption key for the SNMP trap user account
	encryption-key (64)	The data encryption key
Defaults	There is no user account table by default	
Command Modes	Global configuration	
Usage Guidelines	If the authentication type is set to none, data encryption should be disabled. If the authentication type is not none, an authentication password must be set up. If data encryption is not disabled, a data encryption key must be set up.	
Examples	moxa# con t moxa(config)# snmp-trap user test auth-type none encryption disable moxa(config)# snmp-trap user test auth-type md5 auth-passwd 1111111111 encryption disable moxa(config)# snmp-trap user test auth-type md5 auth-passwd 1111111111 encryption des encryption-key 2222222222	
Error Messages	% If authentication-type is none, data-encryption method should be disabled % must setup authentication password % must setup data encryption key % Can't get snmp-trap user-account information % Can't get snmp-trap user-account table % Can't get snmp-trap user-account table index ('%d') % Can't get user-name from snmp-trap user-account table('%d') % Can't create user account % Can't modify user account	
Related Commands	snmp-trap show snmp-trap	

Delete SNMP Trap User Account

Commands

no snmp-trap user <user-name (32)>

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	snmp-trap	Configures SNMP trap parameters
	user	Configure SNMP trap user accounts
	user-name (32)	The user name of the SNMP trap user account
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no snmp-trap user test	
Error Messages	% Can't get snmp-trap user-account information % Can't get snmp-trap user-account table % Can't get snmp-trap user-account table index ('%d') % Can't get user-name from snmp-trap user-account % Can't delete user account	
Related Commands	snmp-trap show snmp-trap	

Show SNMP Server Information

Commands

show snmp-server information

Syntax Description	**show**	Display the configuration/statistics/general information
	snmp-server	Display SNMP server information
	information	Display general SNMP server information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-server information --- snmp-server : enable --- version : v1-v2c community read-only : public community read-write : private	
Error Messages	% Can't get snmp-server information % Can't get snmp-server community information	
Related Commands	snmp-server	

Show SNMP Server User Account Information

Commands

show snmp-server user

Syntax Description	**show**	Displays the configuration/statistics/general information
	snmp-server	Displays SNMP server information
	user	Displays SNMP server user accounts
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-server user ---------- snmp-server user-account : 3 ---------- user-name : testNoAuthNoPriv authority : read_write authenticate-type : none encryption-method : disable user-name : testAuthNoPriv authority : read_write authenticate-type : md5 encryption-method : disable user-name : testAuthPriv authority : read_write authenticate-type : md5 encryption-method : des	
Error Messages	% Can't get snmp-server user-account information % Can't get snmp-server user-account table	
Related Commands	snmp-server	

Show SNMP Server Engine ID Information

Commands

show snmp-server engine-id

Syntax Description	**show**	Display the configuration/statistics/general information
	snmp-server	Display SNMP server information
	engine-id	Display the engine ID of the SNMP server
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-server engine-id snmp-server engineID : 800021f303000111234567	
Error Messages	% Can't get snmp-server status information % Can't get snmp-server status information jason object	
Related Commands	snmp-server	

SNMP Trap/Inform

Show SNMP Trap Information

Commands

show snmp-trap information

Syntax Description	**show**	Display the configuration/statistics/general information
	snmp-trap	Display SNMP trap information
	information	Display general SNMP trap information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-trap information ---------- snmp-trap : ---------- inform-retry : 3 inform-timeout : 10	
Error Messages	% Can't get snmp-trap information % Can't get snmp-trap jason object	
Related Commands	snmp-trap	

Show SNMP Trap User Account Information

Commands

show snmp-trap user

Syntax Description	**show**	Display the configuration/statistics/general information
	snmp-trap	Display SNMP trap information
	user	Display SNMP trap user accounts
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-trap user ---------- snmp-trap user-account : 1 ---------- user-name : testNoAuthNoPriv authenticate-type : none encryption-method : disable	
Error Messages	% Can't get snmp-trap user-account information % Can't get snmp-trap user-account table % Can't get snmp-trap user-account table index ('%d')	
Related Commands	snmp-trap	

Show SNMP Trap Host Information

Commands

show snmp-trap host

Syntax Description	**show**	Display the configuration/statistics/general information
	snmp-trap	Display SNMP trap information
	host	Display SNMP trap host information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show snmp-trap host ---------- snmp-trap host-table : 2 ---------- hostName : 192.168.137.254 mode : trap-v1 community : public hostName : 192.168.127.253 mode : inform-v3 community :	
Error Messages	% Can't get snmp-trap host information % Can't get snmp-trap host table % Can't get snmp-trap host table index('%d')	
Related Commands	snmp-trap	

Security

Device Security

Management Interface

Enable Network Server

Commands

ip { http | https | telnet | ssh | moxa-command } **server enable**

Syntax Description	**ip**	Configure IP parameters
	http	Configure HTTP management UI service parameters
	https	Configure HTTPS management UI service parameters
	telnet	Configure Telnet management UI service parameters
	ssh	Configure SSH management UI service parameters
	moxa-command	Configure Moxa Command management UI service parameters
	server	Configure management UI service server parameters
	enable	Enable the management UI service
Defaults	http: enabled https: enabled telnet: enabled ssh: enabled moxa-command: enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip https server enable	
Error Messages	N/A	
Related Commands	N/A	

Disable Network Server

Commands

ip { http | https | telnet | ssh | moxa-command } **server disable**

Syntax Description	**ip**	Configure IP parameters
	http	Configure HTTP management UI service parameters
	https	Configure HTTPS management UI service parameters
	telnet	Configure Telnet management UI service parameters
	ssh	Configure SSH management UI service parameters
	moxa-command	Configure Moxa Command management UI service parameters
	server	Configure management UI service server parameters
	disable	Disable the management UI service
Defaults	http: enabled https: enabled telnet: enabled ssh: enabled moxa-command: enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip telnet server disable	
Error Messages	N/A	
Related Commands	N/A	

Configure Network Port Numbers

Commands

ip { http | https | telnet | ssh } **port** <port-number>

Syntax Description	**ip**	Configure IP parameters
	http	Configure HTTP management UI service parameters
	https	Configure HTTPS management UI service parameters
	telnet	Configure Telnet management UI service parameters
	ssh	Configure SSH management UI service parameters
	port	Configure the service port of the management UI service
	port-number	The service port number
Defaults	http server port: 80 https server port: 443 telnet server port: 23 ssh server port: 22	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip http port 8080	
Error Messages	Invalid: UI service management port port-number is duplicated.	
Related Commands	N/A	

Configure SNMP Server Port Number

Commands

snmp-server port <port-number>

Syntax Description	**snmp-server**	Configure SNMP server parameters
	port	Configure the service port of the SNMP server
	port-number	The service port number
Defaults	The default SNMP server port is set to 161	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# snmp-server port 1661	
Error Messages	N/A	
Related Commands	N/A	

Configure Network Maximum Session Numbers

Commands

ip http max-session <session-number>

Syntax Description	**ip**	Configure IP parameters
	http	Configure HTTP/HTTPS management UI service parameters
	max-session	Configure the maximum number of concurrent login sessions through HTTP and HTTPS
	session-number	The maximum number of login sessions
Defaults	The maximum number of concurrent HTTP sessions is set to 5 by default	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip http max-session 3	
Error Messages	N/A	
Related Commands	N/A	

Configure Network Terminal Maximum Session Numbers

Commands

ip terminal max-session <session-number>

Syntax Description	ip	Configure IP parameters
	terminal	Configure Telnet and SSH terminal parameters
	max-session	Configure the maximum number of concurrent login sessions through Telnet and SSH terminal
	session-number	Maximum number of login sessions
Defaults	max terminal session: 1	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip terminal max-session 3	
Error Messages	N/A	
Related Commands	N/A	

Show Network Service Information

Commands

show ip service information

Syntax Description	**show**	Display configuration/status information
	ip	Display IP information
	service	Display management UI service information
	information	Display the information for management UI services
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ip service information HTTP service: Enabled HTTP port: 80 HTTPS service: Enabled HTTPS port: 443 Telnet service: Enabled Telnet port: 23 SSH service: Enabled SSH port: 22 SNMP service: Enabled SNMP port: 161 MOXA service: Enabled HTTP/HTTPS Maximum Login Sessions: 5 Telnet/SSH Maximum Login Sessions: 1	
Error Messages	N/A	
Related Commands	N/A	

Login Policy

Configure Login Lockout Settings

Commands

login lockout <enable|disable>

login lockout <minute(1-10)> **attempts** <tries(1-10)>

Syntax Description	**login**	Configure login parameters
	lockout	Configure the maximum number of failed login attempts and the lockout time to block the user from logging in
	enable	Enable login lockout
	disable	Disable login lockout
	minute	Configure the lockout time ranging from 1 to 10 minutes
	attempts	Configure the maximum number of login attempts
	tries	The number of tries ranging from 1 to 10
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# login lockout 10 attempts 5 (config)# login lockout enable (config)# login lockout disable	
Error messages	N/A	
Related commands	N/A	

Configure Login Banner

Commands

login banner <string (500)>

no login banner

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	login	Configure login parameters
	banner	Configure a login banner
	string	The login banner content up to 500 characters
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# login banner “this is a banner” (config)# no login banner	
Error messages	N/A	
Related commands	N/A	

Configure Login Failure Message

Commands

login fail-message <string (500)>

no login fail-message

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	login	Configure login parameters
	fail-message	Configure a login failure message
	string	The login failure message up to 500 characters
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# login fail-message "this is a failure message" (config)# no login fail-message	
Error messages	N/A	
Related commands	N/A	

Configure Timeout Value for a Session End

Commands

session timeout <integer (1-1440)>

Syntax Description	**session**	Configure session parameters
	timeout	Configure the session timeout value
	integer	The timeout value ranging from 1 to 1440 seconds
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# session timeout 100	
Error messages	N/A	
Related commands	N/A	

Show Session Timeout Information

Commands

show session timeout

Syntax Description	**show**	Display running information
	session	Display session information
	timeout	Display session timeout information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show session timeout Session TimeOut: 5 (Min)	
Error messages	N/A	
Related commands	N/A	

Show Login Failure Message

Commands

show login fail-message

Syntax Description	**show**	Display running information
	login	Display login information
	fail-message	Display the login failure message
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show log fail-message Login Fail Message: This is a failed message!	
Error messages	N/A	
Related commands	N/A	

Show Login Banner

Commands

show login banner

Syntax Description	**show**	Display running information
	login	Display login information
	banner	Display the login banner
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show log banner Login Banner Message: this is a banner	
Error messages	N/A	
Related commands	N/A	

Show Login Authentication

Commands

show login authentication

Syntax Description	**show**	Display running information
	login	Display login information
	authentication	Display authentication information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show login authentication Login Authentication Method: Local	
Error messages	N/A	
Related commands	N/A	

Trusted Access

Configure Trusted Access Settings

Commands

trusted-access ip-source <ucast_addr> [{ <ip_mask> | "/" <short(0-32)> }]

no trusted-access <ucast_addr> [{ <ip_mask> | "/" <short(0-32)> }]

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	trusted-access	Configure IP trusted access parameters
	ip-source	Configure the IP source
	ucast_addr	Configure the network or host IP address
	ip_mask	Configure the subnet mask of the IP address
	"/"	Configure the CIDR notation
	short (0-32)	Configure the prefix length
Defaults	Trusted access is disabled by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Trusted access will take effect when the "trusted-access enable" command is executed.	
Examples	(config)# trusted-access ip-source 10.10.10.10 255.255.255.0 (config)# trusted-access ip-source 20.10.10.10 / 24 (config)# trusted-access ip-source 30.10.10.10 (config)# no trusted-access ip-source 10.10.10.10 255.255.255.0 (config)# no trusted-access ip-source 20.10.10.10 / 24 (config)# no trusted-access ip-source 30.10.10.10	
Error Messages	N/A	
Related Commands	show trusted-access trusted-access enable	

Enable/Disable IP Trusted Access List

Commands

trusted-access <enable>

trusted-access <disable>

Syntax Description	**trusted-access**	Configure IP trusted access parameters
	enable	Enable the IP trusted access list
	disable	Disable the IP trusted access list
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	(config)# trusted-access enable (config)# trusted-access disable	
Error messages	N/A	
Related commands	trusted-access disable	

Show Trusted Access IP List

Commands

show trusted-access

Syntax Description	**show**	Display configuration/status information
	trusted-access	Display IP trusted access information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show trusted-access Trusted Access Table : Disabled --------------------------- IP Address : 210.222.222.225 Subnet Mask : 255.255.255.0 moxa#	
Error Messages	% No such manager found % Manager is not configured	
Related Commands	trusted-access	

SSH & SSL

Re-generate New Web SSL Certificate

Commands

web certificate generate

Syntax Description	**web**	Configure web parameters
	certificate	Configure the web server certificate
	generate	Generate a self-signed certificate
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# web certificate generate	
Error messages	N/A	
Related commands	N/A	

Import New Web SSL Certificate via TFTP or SFTP

Commands

web certificate import {<tftp_url> | <sftp_url>}

Syntax Description	**web**	Configure web parameters
	certificate	Configure the web server certificate
	import	Import the certificate from a remote server
	tftp_url	The file on the remote TFTP server to be copied
	sftp_url	The file on the remote SFTP server to be copied
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# web certificate import tftp://192.168.1.1/server.crt	
Error messages	Format or Password Error Server not Connected	
Related commands	N/A	

Export Web SSL Certificate Signing Request via TFTP/SFTP

Commands

web signing-request export {<tftp_url> | <sftp_url>}

Syntax Description	**web**	Configure Web related parameters
	signing-request	Configure the web server certificate signing request
	export	Export the certificate
	tftp_url	The file on the remote TFTP server to be copied
	sftp_url	The file on the remote SFTP server to be copied
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# web signing-request export tftp://192.168.1.1/server.csr	
Error Messages	Server not Connected	
Related Commands	N/A	

Re-generate New SSH Key

Commands

ssh key generate

Syntax Description	**ssh**	Configure SSH parameters
	key	Configure the SSH server key
	generate	Generate the SSH key
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# ssh key generate	
Error messages	N/A	
Related commands	N/A	

Network Security

IEEE802.1X

Configure Local Authentication Mode

Commands

dot1x aaa auth { radius | local }

Syntax Description	**dot1x**	Configure IEEE 802.1X port-based network access control
	aaa	Configure authentication, authorization, and accounting
	auth	Configure authentication
	radius	Configure a RADIUS authentication server
	local	Configure a local authentication database
Defaults	The default authentication mode is set to local	
Command Modes	Global configuration mode	
Usage Guidelines	This command enables dot1x local authentication or RADIUS server-based remote authentication method for all ports. The actual authentication of the supplicant happens at the authentication server.	
Examples	moxa(config)# dot1x aaa auth radius	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable IEEE802.1X Function

Commands

dot1x { enable | disable }

Syntax Description	**dot1x**	Configure IEEE 802.1X port-based network access control
	enable	Enable dot1x authentication
	disable	Disable dot1x authentication
Defaults	Dot1x authentication is disabled by default	
Command Modes	Global configuration mode	
Usage Guidelines	This command enables dot1x on the switch. Dot1x is an authentication mechanism that acts as mediator between the authentication server and the supplicant (client). If the client accesses the protected resources, it contacts the authenticator with EAPOL frames.	
Examples	moxa (config)# dot1x enable	
Error Messages	{{!s}} and 802.1x/MAB cannot be enabled at the same port. Invalid: If 802.1x port is enabled, the port security port cannot be enabled. Invalid: If the port is in port-channel, it cannot enable dot1x.	
Related Commands	N/A	

Configure IEEE802.1X on the Port

Commands

dot1x

no dot1x

Syntax Description	**dot1x**	Enable dot1x on the port.
	no dot1x	Disable dot1x on the port.
Defaults	Dot1x is disabled by default	
Command Modes	Interface Configuration Mode	
Usage Guidelines	This command enables dot1x on the specified port.	
Examples	moxa (config-if)# dot1x moxa (config-if-range)# dot1x	
Error Messages	{{!s}} and 802.1x/MAB cannot be enabled at the same port. Invalid: If 802.1x port is enabled, the port security port cannot be enabled. Invalid: If the port is in port-channel, it cannot enable dot1x.	
Related Commands	N/A	

Authorize IEEE802.1X

Commands

dot1x port-control { auto | force-authorized | force-unauthorized }

no dot1x port-control

Syntax Description	**dotx1**	Configure IEEE 802.1X port-based network access control
	port-control	Configure authenticator port control parameters
	auto	Enable 802.1X authentication on the interface
	force-authorized	Allow all traffic without any restrictions
	force-unauthorized	Block all traffic over the interface
	no	Set the authenticator port control state to force-authorized.
Defaults	The default port-control mode is set to force-authorized	
Command Modes	Interface Configuration Mode	
Usage Guidelines	This command configures the authenticator port control parameter. The dot1x standard exercises port-based authentication to increase the security of the network. The different modes employed on the ports offer varied access levels.	
Examples	moxa (config-if)# dot1x port-control auto moxa (config-if-range)# dot1x port-control auto	
Error Messages	N/A	
Related Commands	N/A	

Configure Maximum Number of EAP

Commands

dot1x max-req < count (1-10) >

no dot1x max-req

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	dot1x max-req	Configure the dot1X maximum request count
	count	The count value ranging from 1 to 10.
	no	Set the maximum number of EAP retries to the client to the default value
Defaults	The default request count is set to 2	
Command Modes	Interface Configuration Mode	
Usage Guidelines	This command sets the maximum number of EAP (Extensible Authentication Protocol) retries to the client by the authenticator before restarting the authentication process.	
Examples	moxa (config-if)# dot1x max-req 2 moxa (config-if-range)# dot1x max-req 2	
Error Messages	Invalid input detected at '^' marker	
Related Commands	N/A	

Configure IEEE802.1X Reauthentication

Commands

dot1x reauthentication

no dot1x reauthentication

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	dot1x	Configure IEEE 802.1X port-based network access control
	reauthentication	Perform periodic reauthentication
Defaults	Dot1x reauthentication is disabled by default	
Command Modes	Interface Configuration Mode.	
Usage Guidelines	This command enables periodic re-authentication from authenticator to client. The periodic re-authentication is requested to ensure that the same supplicant is accessing the protected resources.	
Examples	moxa (config-if)# dot1x reauthentication moxa (config-if-range)# dot1x reauthentication	
Error Messages	Invalid: If port Control mode is not Auto, Reauthentication cannot be enabled.	
Related Commands	dot1x timeout – Sets the dot1x timers dot1x port-control – Configures the authenticator port control parameter	

Reauthenticate IEEE802.1X on the Port

Commands

dot1x re-authenticate

Syntax Description	**dotx1**	Configure IEEE 802.1X port-based network access control
	re-authenticate	Perform re-authentication of the specified dot1x-enabled port
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	Re-authentication is requested by the authentication server to the supplicant to furnish the identity without waiting for the configured number of seconds. (re-authperiod).	
Examples	moxa (config-if) # dot1x re-authenticate moxa (config-if-range) # dot1x re-authenticate	
Error Messages	N/A	
Related Commands	N/A	

Configure IEEE802.1X Settings

Commands

dot1x timeout { quiet-period < value (0-65535) > | { reauth-period | server-timeout | supp-timeout | tx-period } < value (1-65535) > }

no dot1x timeout { quiet-period | reauth-period | server-timeout | supp-timeout | tx-period }

Syntax Description	**dot1x**	Configure IEEE 802.1X port-based network access control
	timeout	Configure the dot1x timeout parameter
	quiet-period	The number of seconds that the switch remains in the quiet state following a failed authentication exchange with the client
	reauth-period	The number of seconds between re-authentication attempts
	server-timeout	The number of seconds that the switch waits for the retransmission of packets by the switch to the authentication server
	supp-timeout	The number of seconds that the switch waits for the retransmission of packets by the switch to the client
	tx-period	The number of seconds that the switch waits for a response to an EAP-request/identity frame from the client before retransmitting the request
	no	Set the dot1x timers to their default values
Defaults	quiet-period: 60 seconds reauth-period: 3600 seconds server-timeout: 30 seconds supp-timeout: 30 seconds tx-period: 30 seconds	
Command Modes	Interface configuration mode	
Usage Guidelines	This command sets the dot1x timers.	
Examples	moxa (config-if)# dot1x timeout quiet-period 30 moxa (config-if-range)# dot1x timeout quiet-period 30	
Error Messages	Invalid input detected at '^' marker	
Related Commands	dot1x max-req – Sets the maximum number of EAP retries to the client before restarting authentication process. dot1x reauthentication – Enables periodic re-authentication of the client.	

Show IEEE802.1X Information

Commands

show dot1x [{ interface < interface-type > < interface-id > | local-database | all }]

Syntax Description	**show**	Display configuration/statistics/general information
	dot1x	Configure IEEE 802.1X port-based network access control
	interface-type	The interface type
	interface-id	The slot number/port number
	local-database	Display the dot1x authentication server database with user names
	all	Display the dot1x status for all interfaces
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays dot1x information.	
Examples	moxa # show dot1x iss# show dot1x Sysauthcontrol = Enabled Dot1x Authentication Method = Local moxa # show dot1x interface gigabitethernet 1/2 Dot1x Info for Eth1/2 ---------- AuthPaeStatus = ENABLED PortStatus = UNAUTHORIZED MaxReq = 2 Port Control = Auto QuietPeriod = 60 Seconds Re-authentication = Disabled ReAuthPeriod = 3600 Seconds ServerTimeout = 30 Seconds SuppTimeout = 30 Seconds Tx Period = 30 Seconds moxa # show dot1x local-database Pnac Authentication Users Database ---------- User name : user1 Ports : Eth1/1, Eth1/2, Eth1/3, Eth1/4, Eth2/1, Eth2/2 Eth2/3, Eth2/4, Eth3/1, Eth3/2, Eth3/3, Eth3/4 Eth4/1, Eth4/2, Eth4/3, Eth4/4, Eth5/1, Eth5/2 Eth5/3, Eth5/4, Eth6/1, Eth6/2, Eth6/3, Eth6/4 Eth7/1, Eth7/2, Eth7/3, Eth7/4 ---------- User name : user2 Ports : Eth1/1, Eth1/2, Eth1/3, Eth1/4, Eth2/1, Eth2/2 Eth2/3, Eth2/4, Eth3/1, Eth3/2, Eth3/3, Eth3/4 Eth4/1, Eth4/2, Eth4/3, Eth4/4, Eth5/1, Eth5/2 Eth5/3, Eth5/4, Eth6/1, Eth6/2, Eth6/3, Eth6/4 Eth7/1, Eth7/2, Eth7/3, Eth7/4 ----------	
Error Messages	N/A	
Related Commands	dot1x local-database - Configures dot1x local database with values dot1x system-auth-control – Enables dot1x in the switch dot1x max-req - Configures the maximum number of EAP retries to the client dot1x reauthentication - Configures the periodic reauthentication for the client dot1x timeout – Sets the dot1x timers	

Configure IEEE802.1X Server Host

Commands

dot1x auth radius-server host { ipv4-address } [auth-port < integer(1-65535) >] [timeout <1-120>] [retransmit <1-254>] [key < secret-key-string >] [primary]

no dot1x auth radius-server host { < ipv4-address > } [primary]

Syntax Description	**dot1**	Configure IEEE 802.1X port-based network access control
	auth radius-server host	Configure the RADIUS server host
	ipv4-address	Configure the IPv4 address.
	auth-port	Configure a specific UDP destination port on this RADIUS server to be used exclusively for authentication requests.
	timeout	Configure the time period in seconds for which a client waits for a response from the server before re-transmitting the request.
	retransmit	Configure the maximum number of attempts to be tried by a client to get a response from the server for a request.
	key	Configure the per-server encryption key.
	primary	Set the RADIUS server as the primary server.
	no	Delete the RADIUS server configuration
Defaults	N/A	
Command Modes	Global configuration mode	
Usage Guidelines	This command configures the RADIUS client with the host, timeout, key, retransmit parameters.	
Examples	moxa (config)# dot1x auth radius-server host 6.7.8.9 auth-port 1812 timeout 3 retransmit 1 key 123456 primary	
Error Messages	Invalid: All of the retry times {{!s}} cannot exceeds Dot1x server timeout values {{!s}}. Note: All of the retry times = Timeout * (Retransmit + 1). Invalid: Primary IP Address should be the same as the Server IP Address. Invalid: Server IP Address cannot be a reserved IP Address.	
Related Commands	N/A	

Configure IEEE802.1X Username and Password

Commands

dot1x local-database < username > password < password >

no dot1x local-database < username >

Syntax Description	**dot1x**	Configure IEEE 802.1X port-based network access control
	local-database	Configure the local database table
	username	Configure the username for the new entry
	password	Configure the password for the new entry
	no	Delete the entry from the dot1x authentication server database
Defaults	N/A	
Command Modes	Global configuration mode	
Usage Guidelines	This command configures dot1x authentication server local database username and password entries.	
Examples	moxa (config)# dot1x local-database user password 123456	
Error Messages	Invalid: This 'Username' is already in the 'Local Database'.	
Related Commands	N/A	

Show IEEE802.1X Authentication RADIUS Server

Commands

show dot1x auth radius server

Syntax Description	**show**	Display configuration/statistics/general information
	dot1x	Display dot1x configuration information
	auth	Display authentication type information.
	radius	Display RADIUS server information.
	server	Display server information.
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays radius server information.	
Examples	moxa# show dot1x auth radius server Primary Server : 6.7.8.9 Radius Server Host Information ---------- Index : 1 Server address : 6.7.8.9 Shared secret : Radius Server Status : Enabled Response Time : 5 Maximum Retransmission : 1 Authentication Port : 1812 ----------	
Error Messages	N/A	
Related Commands	N/A	

Port Security

Configure Port Security Mode

Commands

port-security mode { static-port-lock | mac-sticky }

Syntax Description	**port-security**	Configure port security parameters
	mode	Configure the security mode (port security port/address table will be reset when the mode changes)
	static-port-lock	Use Static Port Lock mode
	mac-sticky	Use MAC Sticky mode
Defaults	The default port security mode is set to static-port-lock	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Changing modes resets all port configurations.	
Examples	moxa(config)# port-security mode mac-sticky moxa(config)# port-security mode static-port-lock	
Error Messages	"error:If 'portLimit' is changed, 'mode' must be Mac Sticky" "error:If 'portSecurityAction' is changed," + " 'mode' must be Mac sticky" 'Invalid: Address Table cannot have duplicated addresses (VLAN ID, MAC Address).' 'Invalid: The mac address has exceeded the setting port limit.' 'Sum of port limit value on all ports ' + 'MUST under ' + str(_MAX_SUN_OF_PORT_LIMIT) + ' in Mac-Sticky mode' 'Invalid: Port Security MAC only support unicast address.' 'Invalid: Port Security address table VLAN ID must exist in the VLAN configuration.' 'Invalid: Port Security address table port should be added in the VLAN member.' 'Invalid: Port Security address table conflicts with VLAN configuration.' 'Invalid: If this port enables Port Security, this port cannot be a member port of Static Unicast Port Table.' 'Invalid: If this port enables Port Security, this port cannot be a member port of port-channel.' 'Invalid: If Port Security is enabled on this port, it cannot be a destination port of port mirror.' 'Invalid: If Port Security action is changed, this port could not in violation state.' 'Invalid: Port Security and redundant protocol cannot be enabled on the same port.'	
Related Commands	N/A	

Enable/Disable Port Security

Commands

port-security { enable | disable }

Syntax Description	**port-security**	Configure port security parameters
	enable	Enable port security
	disable	Disable port security
Defaults	Port security is enabled by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# port-security enable moxa(config)# port-security disable	
Error Messages	"error:If 'portLimit' is changed, 'mode' must be Mac Sticky" "error:If 'portSecurityAction' is changed," + " 'mode' must be Mac sticky" 'Invalid: Address Table cannot have duplicated addresses (VLAN ID, MAC Address).' 'Invalid: The mac address has exceeded the setting port limit.' 'Sum of port limit value on all ports ' + 'MUST under ' + str(_MAX_SUN_OF_PORT_LIMIT) + ' in Mac-Sticky mode' 'Invalid: Port Security MAC only support unicast address.' 'Invalid: Port Security address table VLAN ID must exist in the VLAN configuration.' 'Invalid: Port Security address table port should be added in the VLAN member.' 'Invalid: Port Security address table conflicts with VLAN configuration.' 'Invalid: If this port enables Port Security, this port cannot be a member port of Static Unicast Port Table.' 'Invalid: If this port enables Port Security, this port cannot be a member port of port-channel.' 'Invalid: If Port Security is enabled on this port, it cannot be a destination port of port mirror.' 'Invalid: If Port Security action is changed, this port could not in violation state.' 'Invalid: Port Security and redundant protocol cannot be enabled on the same port.'	
Related Commands	N/A	

Configure Port Security Setting

Commands

port-security [{ limit <integer(1-1024)> | violation { packet-drop | port-shutdown } | mac-address <ucast_mac> vlan <vlan_vfi_id> }]

Syntax Description	**port-security**	Configure port security parameters
	limit	The maximum number of addresses on the port
	integer (1-1024)	The limit value (MAC address will be removed on the configured port when the limit value changes)
	violation	Configure the violation action on the port
	packet-drop	Drop the packet when a violation occurs
	port-shutdown	Shut down the port when a violation occurs
	mac-address	The new MAC address
	ucast_mac	The unicast MAC address
	vlan	The new VLAN ID
	vlan_vfi_id	The VLAN ID ranging from 1 to 4094
Defaults	no port-security: disable on ports limit: 1 violation: secure action is packet-drop	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	If the limit value changes on a port, all entries on the port are deleted.	
Examples	moxa(config-if)# port-security moxa(config-if)# port-security limit 10 moxa(config-if)# port-security violation port-shutdown moxa(config-if)# port-security mac-address 02:03:04:01:01:01 vlan 1	
Error Messages	"error:If 'portLimit' is changed, 'mode' must be Mac Sticky" "error:If 'portSecurityAction' is changed," + " 'mode' must be Mac sticky" 'Invalid: Address Table cannot have duplicated addresses (VLAN ID, MAC Address).' 'Invalid: The mac address has exceeded the setting port limit.' 'Sum of port limit value on all ports ' + 'MUST under ' + str(_MAX_SUN_OF_PORT_LIMIT) + ' in Mac-Sticky mode' 'Invalid: Port Security MAC only support unicast address.' 'Invalid: Port Security address table VLAN ID must exist in the VLAN configuration.' 'Invalid: Port Security address table port should be added in the VLAN member.' 'Invalid: Port Security address table conflicts with VLAN configuration.' 'Invalid: If this port enables Port Security, this port cannot be a member port of Static Unicast Port Table.' 'Invalid: If this port enables Port Security, this port cannot be a member port of port-channel.' 'Invalid: If Port Security is enabled on this port, it cannot be a destination port of port mirror.' 'Invalid: If Port Security action is changed, this port could not in violation state.' 'Invalid: Port Security and {} '.format(red_protocol_def[red_protocol]) + 'cannot be enabled on the same port.'	
Related Commands	N/A	

Remove Port Security Setting

Commands

no port-security [{ limit | mac-address { <mac_addr> vlan <integer(1-4094)> | all } }]

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	port-security	Configure port security parameters
	limit	The maximum number of addresses on the port
	mac-address	The new MAC address
	mac_addr	The MAC address
	vlan	The new VLAN ID
	integer (1-4094)	The VLAN ID ranging from 1 to 4094
	all	All entries in the address table
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	If the limit value changes on a port, all entries on the port are deleted.	
Examples	moxa(config-if)# no port-security moxa(config-if)# no port-security limit moxa(config-if)# no port-security mac-address 02:03:04:01:01:01 vlan 1	
Error Messages	"error:If 'portLimit' is changed, 'mode' must be Mac Sticky" "error:If 'portSecurityAction' is changed," + " 'mode' must be Mac sticky" 'Invalid: Address Table cannot have duplicated addresses (VLAN ID, MAC Address).' 'Invalid: The mac address has exceeded the setting port limit.' 'Sum of port limit value on all ports ' + 'MUST under ' + str(_MAX_SUN_OF_PORT_LIMIT) + ' in Mac-Sticky mode' 'Invalid: Port Security MAC only support unicast address.' 'Invalid: Port Security address table VLAN ID must exist in the VLAN configuration.' 'Invalid: Port Security address table port should be added in the VLAN member.' 'Invalid: Port Security address table conflicts with VLAN configuration.' 'Invalid: If this port enables Port Security, this port cannot be a member port of Static Unicast Port Table.' 'Invalid: If this port enables Port Security, this port cannot be a member port of port-channel.' 'Invalid: If Port Security is enabled on this port, it cannot be a destination port of port mirror.' 'Invalid: If Port Security action is changed, this port could not in violation state.' 'Invalid: Port Security and redundant protocol cannot be enabled on the same port.'	
Related Commands	set port-security mode [static-port-lock | mac-sticky]	

Show Port Security Setting

Commands

show port-security [address]

Syntax Description	**show**	Display configuration/statistics/general information
	port-security	Display port security information
	address	Display port security address information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show port-security moxa# show port-security address	
Error Messages	N/A	
Related Commands	N/A	

Traffic Storm Control

Enable/Disable Storm Control

Commands

storm-control { bc | mc | dlf | bc_mc | bc_dlf | mc_dlf | bc_mc_dlf } level <rate-value(1-1488100)>

no storm-control {bc | mc | dlf | bc_mc | bc_dlf | mc_dlf | bc_mc_dlf}

Syntax Description	**no**	Remove configuration delete entry/reset to default value
	storm-control	Configure storm control parameters
	bc	Configure broadcast packet storm control parameters
	mc	Configure multicast packet storm control parameters
	dlf	Configure unicast packet storm control parameters
	bc_mc	Configure broadcast and multicast packet storm control parameters
	bc_dlf	Configure broadcast and unicast packet storm control parameters
	mc_dlf	Configure multicast and unicast packet storm control parameters
	bc_mc_dlf	Configure broadcast multicast and unicast packet storm control parameters
	level	Configure the control suppression level
	rate-value (625-1488100)	The storm control rate value
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# storm-control bc level 635 moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# storm-control bc_mc level 1270 moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# storm-control bc_mc_dlf level 1905 moxa# configure moxa(config)# interface ethernet 1/1 moxa(config-if)# no storm-control bc	
Error Messages	'Invalid: The value of traffic storm control should be less than ingress rate limit threshold.' 'Invalid: Your configure value {}'.format(cfg_val) + ' exists too large bias because of limitation of hardware.' + ' We suggest configure the value {} again.'.format(suggest_cfg_val)	
Related Commands	moxa(config-if)# no storm-control {bc | mc | dlf | bc_mc | bc_dlf | mc_dlf | bc_mc_dlf} moxa# show [<ifXtype> <ifnum>] storm-control	

Show Storm Control Status

Commands

show interfaces [<ifXtype> <ifnum>] storm-control

Syntax Description	**show**	Display configuration/status information
	interface	Display interface information
	ifXtype	The interface type
	ifnum	The interface number
	storm-control	Display the broadcast, multicast, and unicast storm control suppression levels of the interface
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# show interface ethernet 1/1 storm-control Eth1/1 DLF Storm Control : Disabled Broadcast Storm Control : Disabled Multicast Storm Control : Disabled moxa# show interface ethernet 1/1 storm-control Eth1/1 DLF Storm Control : Disabled Broadcast Storm Control : Enabled Broadcast Storm Control Level : 635 Multicast Storm Control : Disabled	
Error Messages	N/A	
Related Commands	moxa (config-if)# storm-control {bc | mc | dlf | bc_mc | bc_dlf | mc_dlf | bc_mc_dlf} level <rate-value(625-1488100)> moxa (config-if)# no storm-control {bc | mc | dlf | bc_mc | bc_dlf | mc_dlf | bc_mc_dlf}	

Access Control List

Define IPv4 Access-list and Enter IPv4 Access-list Configuration Mode

Commands

ip access-list <short(1-16)>

Syntax Description	**ip**	Configure IP related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	An access list is created when the access list's name or rule is configured	
Examples	moxa# configure terminal moxa(config)# ip access-list 1 moxa(config-ip-acl)#	
Error Messages	N/A	
Related Commands	no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure IPv4 Access-list Name

Commands

name <string(32)>

Syntax Description	**name**	Configure IPv4 access-list name
	<string(32)>	IPv4 access-list name
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa(config-ip-acl)# name IP-ACL1	
Error Messages	N/A	
Related Commands	show ip access-list <short(1-16)>	

Configure Permitted IPv4 ACL Rules

Commands

Permit

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dscp	Configure the DSCP related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit src 192.168.127.253 dst 192.168.127.100 moxa(config-ip-acl)# deny 192.168.127.0 255.255.255.0 192.168.127.0 255.255.255.0 moxa(config-ip-acl)# permit any any dscp 32 moxa(config-ip-acl)# permit any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted TCP ACL Rules

Commands

permit tcp

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**src-port** <short(0-65535)>]

[**dst-port** <short(0-65535)>] [**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	tcp	Configure the tcp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	src-port	Configure the source-port related ACL parameters
	(0-65535)	Source port value to filter
	dst-port	Configure the destination-port related ACL parameters
	(0-65535)	Destination port value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit tcp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 src-port 23 dst-port 22 moxa(config-ip-acl)# permit tcp any any dscp 32 moxa(config-ip-acl)# permit tcp any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit tcp any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted UDP ACL Rules

Commands

permit udp

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**src-port** <short(0-65535)>]

[**dst-port** <short(0-65535)>]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	udp	Configure the udp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	src-port	Configure the source-port related ACL parameters
	(0-65535)	Source port value to filter
	dst-port	Configure the destination-port related ACL parameters
	(0-65535)	Destination port value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit udp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 src-port 23 dst-port 22 moxa(config-ip-acl)# permit udp any any dscp 32 moxa(config-ip-acl)# permit udp any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit udp any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted ICMP ACL Rules

Commands

permit icmp

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**type** <short(0-255)>]

[**code** <short(0-15)>]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	icmp	Configure the ICMP related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	src-port	Configure the source-port related ACL parameters
	(0-65535)	Source port value to filter
	type	Configure the ICMP type related ACL parameters
	(0-255)	ICMP type value to filter
	code	Configure the ICMP code related ACL parameters
	(0-15)	ICMP code value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit icmp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 type 3 code 10 moxa(config-ip-acl)# permit icmp any any dscp 32 moxa(config-ip-acl)# permit icmp any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit icmp any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted IGMP ACL Rules

Commands

permit igmp

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**type** <short(0-255)>]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	igmp	Configure the IGMP related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	src-port	Configure the source-port related ACL parameters
	(0-65535)	Source port value to filter
	type	Configure the IGMP type related ACL parameters
	(0-15)	IGMP type value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit icmp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 type 5 moxa(config-ip-acl)# permit igmp any any dscp 32 moxa(config-ip-acl)# permit igmp any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit igmp any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted OSPF ACL Rules

Commands

permit ospf

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	ospf	Configure the OSPF related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit ospf 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# permit ospf any any dscp 32 moxa(config-ip-acl)# permit ospf any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit ospf any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted Protocol ACL Rules

Commands

permit protocol <short(0-255)>

{**any** | **src** <ip-address> | <ip-address> <ip-mask>}

[{ **any** | **dst** <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

[**redirect interface** <interface-type> <interface-id>]

[**dscp-remark** <short(0-63)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	protocol	Configure the protocol related ACL parameters
	(0-255)	Protocol value to filter
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-ip-acl)# permit protocol 136 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# permit protocol 136 any any dscp 32 moxa(config-ip-acl)# permit protocol 136 any any redirect interface ethernet 1/1 moxa(config-ip-acl)# permit protocol 136 any any dscp-remark 10	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable ACL Rules

Commands

deny

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# deny any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable TCP ACL Rules

Commands

deny tcp

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**src-port** <short(0-65535)>]

[**dst-port** <short(0-65535)>]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	tcp	Configure the tcp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dst-port	Configure the destination-port related ACL parameters
	(0-65535)	Destination port value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny tcp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# deny tcp any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable UDP ACL Rules

Commands

deny udp

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**src-port** <short(0-65535)>]

[**dst-port** <short(0-65535)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	udp	Configure the udp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	dst-port	Configure the destination-port related ACL parameters
	(0-65535)	Destination port value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny udp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# deny udp any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable ICMP ACL Rules

Commands

deny icmp

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**type** <short(0-255)>]

[**code** <short(0-15)>]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	icmp	Configure the icmp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	type	Configure the ICMP type related ACL parameters
	(0-255)	ICMP type value to filter
	code	Configure the ICMP code related ACL parameters
	(0-15)	ICMP code value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny icmp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 type 3 code 10 moxa(config-ip-acl)# deny icmp any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable IGMP ACL Rules

Commands

deny igmp

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**type** <short(0-255)>]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	igmp	Configure the igmp related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	type	Configure the ICMP type related ACL parameters
	(0-255)	ICMP type value to filter
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny igmp 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 type 5 moxa(config-ip-acl)# deny igmp any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable OSPF ACL Rules

Commands

deny ospf

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	ospf	Configure the ospf related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny ospf 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# deny ospf any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable Protocol ACL Rules

Commands

deny protocol <short(0-255)>

{**any** | src <ip-address> | <ip-address> <ip-mask>}

[{ **any** | dst <ip-address> | <ip-address> <ip-mask> }]

[**dscp** <short(0-63)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	protocol	Configure the protocol related ACL parameters
	(0-255)	Protocol value to filter
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(ip-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
	(0-63)	DSCP value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# deny protocol 136 192.168.127.253 255.255.255.0 192.168.127.100 255.255.255.0 moxa(config-ip-acl)# deny protocol 136 any any dscp 32	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Enable/Disable an IP ACL rule

Commands

rule <short(1-10)> {**enable** | **disable**}

Syntax Description	**rule**	Configure the rule related ACL parameters
	(1-10)	Rule index
	enable	Enable the rule
	disable	Disable the rule
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# rule 9 enable moxa(config-ip-acl)# rule 9 disable	
Error Messages	N/A	
Related Commands	show ip access-list <short(1-16)>	

Remove an IPv4 Access-list

Commands

no ip access-list <short(1-16)>

Syntax Description	**no**	Remove configuration / delete entry / reset to default value
	ip	Configure IP related parameters
	access-list	Configure ACL related parameters
	(1-16)	Access control list index
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# no ip accessl-list 10	
Error Messages	N/A	
Related Commands	show ip access-list <short(1-16)>	

Configure a MAC Access-list and Enter MAC Access-list Configuration Mode

Commands

mac access-list <short(1-16)>

Syntax Description	**mac**	Configure MAC related parameters
	access-list	Configure ACL related parameters
	(1-16)	Access control list index
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa# configure terminal moxa(config)# mac access-list 1 moxa(config-mac-acl)#	
Error Messages	N/A	
Related Commands	No mac access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted MAC ACL Rules

Commands

permit

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

[**redirect interface** <interface-type> <interface-id>]

[**cos-remark** <short(0-7)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	cos-remark	Configure the cos-remark related ACL parameters
	(0-7)	Cos value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# permit 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# permit any any vlan 2 cos 1 moxa(config-mac-acl)# permit any any redirect interface ethernet 1/1 moxa(config-mac-acl)# permit any any cos-remark 7	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted Goose ACL Rules

Commands

permit goose

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

[**redirect interface** <interface-type> <interface-id>]

[**cos-remark** <short(0-7)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	goose	Configure the goose related parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	cos-remark	Configure the cos-remark related ACL parameters
	(0-7)	Cos value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# permit goose 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# permit goose any any vlan 2 cos 1 moxa(config-mac-acl)# permit goose any any redirect interface ethernet 1/1 moxa(config-mac-acl)# permit goose any any cos-remark 7	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted SMV ACL Rules

Commands

permit smv

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

[**redirect interface** <interface-type> <interface-id>]

[**cos-remark** <short(0-7)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	smv	Configure the smv related parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	cos-remark	Configure the cos-remark related ACL parameters
	(0-7)	Cos value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# permit smv 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# permit smv any any vlan 2 cos 1 moxa(config-mac-acl)# permit smv any any redirect interface ethernet 1/1 moxa(config-mac-acl)# permit smv any any cos-remark 7	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Permitted Ethertype ACL Rules

Commands

permit ethertype <short(0-65535)>

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

[**redirect interface** <interface-type> <interface-id>]

[**cos-remark** <short(0-7)>]

Syntax Description	**permit**	Configure the permitted ACL rule
	ethertype	Configure the ethertype related parameters
	(0-65535)	Ethertype value to filter
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
	redirect	Configure the redirect related ACL parameters
	interface	Configure the interface related ACL parameters
	(interface-type /interface-id)	Interface to redirect packets that hits ACL rules
	cos-remark	Configure the cos-remark related ACL parameters
	(0-7)	Cos value to remark
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# permit ethertype 10 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# permit ethertype 10 any any vlan 2 cos 1 moxa(config-mac-acl)# permit ethertype 10 any any redirect interface ethernet 1/1 moxa(config-mac-acl)# permit ethertype 10 any any cos-remark 7	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable MAC ACL Rules

Commands

deny

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# deny 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# deny any any vlan 2 cos 1	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable Goose ACL Rules

Commands

deny goose

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	goose	Configure the goose related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# deny goose 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# deny goose any any vlan 2 cos 1	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable SMV ACL Rules

Commands

deny smv

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	smv	Configure the smv related ACL parameters
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# deny smv 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# deny smv any any vlan 2 cos 1	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Configure Unacceptable Ethertype ACL Rules

Commands

deny ethertype <short(0-65535)>

{**any** | src < mac -address> | < mac -address> < mac -mask>}

[{ **any** | dst < mac -address> | < mac -address> < mac -mask> }]

[**vlan** <short(1-4094)>]

[**cos** <short(0-7)>]

Syntax Description	**deny**	Configure the unacceptable ACL rule
	ethertype	Configure the Ethertype related ACL parameters
	(0-65535)	Ethertype value to filter
	any	Configure the filtering of a rule to any address
	src	Configure the source related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	any	Configure the filtering of a rule to any address
	dst	Configure the destination related ACL parameters
	(mac-addr/mask)	Configure the filtering of a rule to a specific address/mask
	vlan	Configure the vlan related ACL parameters
	(1-4094)	VLAN index value to filter
	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines	Only support redirect in inbound traffic Only support DSCP remarking in outbound traffic	
Examples	moxa(config-mac-acl)# deny ethertype 00:90:e8:00:00:12 ff:ff:ff:ff:ff:00 00:90:e8:00:00:33 ff:ff:ff:ff:ff:00 moxa(config-mac-acl)# deny ethertype 10 any any vlan 2 cos 1	
Error Messages	N/A	
Related Commands	no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-list <short(1-16)>	

Enable/Disable a MAC ACL Rule

Commands

rule <short(1-10)> {**enable** | **disable**}

Syntax Description	**rule**	Configure the rule related ACL parameters
	(1-10)	Rule index
	enable	Enable the rule
	disable	Disable the rule
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-mac-acl)# rule 9 enable moxa(config-mac-acl)# rule 9 disable	
Error Messages	N/A	
Related Commands	show ip access-list <short(1-16)>	

Remove MAC ACL Rules

Commands

no rule <short(1-10)>

Syntax Description	**no**	Remove configure/delete entry/reset to default value
	rule	Configure the rule related ACL parameters
	(1-10)	Rule index
Defaults	N/A	
Command Modes	IP Access-list Configuration Mode	
Usage Guidelines		
Examples	moxa(config-ip-acl)# no rule 9	
Error Messages	N/A	
Related Commands	show ip access-list <short(1-16)>	

Remove a MAC Access-list

Commands

no mac access-list <short(1-16)>

Syntax Description	**no**	Remove configuration / delete entry / reset to default value
	mac	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines		
Examples	moxa(config)# no mac access-list 10	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)>	

Apply an IPv4 Access-list to a Port Interface

Commands

ip access-list <short(1-16)> { in | out }

Syntax Description	**ip**	Configure IP related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-if)# ip access-list 10 in moxa(config-if)# ip access-list 10 out	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> no ip access-list <short(1-16)> { in | out }	

Apply an IPv4 Access-list to a VLAN Interface

Commands

ip access-list <short(1-16)> { in | out }

Syntax Description	**ip**	Configure IP related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	VLAN interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-vlan)# ip access-list 10 in moxa(config-vlan)# ip access-list 10 out	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> no ip access-list <short(1-16)> { in | out }	

Remove an IPv4 Access-list to a Port Interface

Commands

no mac access-list <short(1-16)> { **in** | **out** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mac	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	Port Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-if)# no ip access-list 10 in moxa(config-if)# no ip access-list 10 out	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> no ip access-list <short(1-16)> { in | out }	

Remove an IPv4 Access-list to a VLAN Interface

Commands

no ip access-list <short(1-16)> { **in** | **out** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	ip	Configure IP related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	VLAN Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-vlan)# no ip access-list 10 in moxa(config-vlan)# no ip access-list 10 out	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> no ip access-list <short(1-16)> { in | out }	

Apply a MAC Access-list to a Port Interface

Commands

mac access-list <short(1-16)> { **in** | **out** }

Syntax Description	**mac**	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	Port Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-if)# mac access-list 10 in moxa(config-if)# mac access-list 10 out	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)> no mac access-list <short(1-16)> { in | out }	

Apply a MAC Access-list to a VLAN Interface

Commands

mac access-list <short(1-16)> { **in** | **out** }

Syntax Description	**mac**	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	VLAN Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-vlan)# mac access-list 10 in moxa(config-vlan)# mac access-list 10 out	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)> no mac access-list <short(1-16)> { in | out }	

Remove a MAC Access-list to a Port Interface

Commands

no mac access-list <short(1-16)> { **in** | **out** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mac	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	Port Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-if)# no mac access-list 10 in moxa(config-if)# no mac access-list 10 out	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)> no mac access-list <short(1-16)> { in | out }	

Remove a MAC Access-list to a VLAN Interface

Commands

no mac access-list <short(1-16)> { **in** | **out** }

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	mac	Configure MAC related parameters
	access-list	Configure ACL related parameters
	1-16	Access control list index
	in	Apply IP access-list to inbound traffic
	out	Apply IP access-list to outbound traffic
Defaults	N/A	
Command Modes	VLAN Interface Configuration Mode	
Usage Guidelines	The maximum activated ACL groups are 16 (IP-based + MAC-based combined)	
Examples	moxa(config-vlan)# no mac access-list 10 in moxa(config-vlan)# no mac access-list 10 out	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)> no mac access-list <short(1-16)> { in | out }	

Show All Access-lists

Commands

show access-list

Syntax Description	**show**	Display configuration/status information
	access-list	Configure ACL related parameters
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command shows both IP and MAC address lists	
Examples	moxa# show access-list Mac Access List 1 Name : MyACL1 Out VLAN List : 1 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : 00:00:01:00:02:03/FF:FF:FF:FF:FF:00 Destination MAC Address : 00:00:01:00:02:04/FF:FF:FF:FF:FF:00 Cos : 7 Action : Remark cos to 3 --- Mac Access List 10 Name : In VLAN List : Out VLAN List : 3 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : any	

	Destination MAC Address : any Cos : any Action : None --- Ip Access List 1 Name : IP-ACL-1 In Port List : Eth1/1, Eth1/2, Eth1/3, Eth3/4, Eth4/1 Eth6/2, Eth6/3, Eth7/2, Eth7/3 Out Port List : Eth1/1, Eth1/2, Eth3/3, Eth3/4, Eth6/1 Eth6/2, Eth7/1, Eth7/2, Eth7/4 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Redirect to Eth 6/2 --- Source Port : 333 Destination Port : 22 Dscp : any Action : None
Error Messages	N/A
Related Commands	ip access-list <short(1-16)> mac access-list <short(1-16)>

Show All IPv4 Access-lists

Commands

show ip access-list

Syntax Description	**show**	Display configuration/status information
	ip	Display IP related information
	access-list	Configure ACL related parameters
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show ip access-lists Ip Access List 1 Name : IP-ACL-1 In Port List : Eth1/1, Eth1/2, Eth1/3, Eth3/4, Eth4/1 Eth6/2, Eth6/3, Eth7/2, Eth7/3 Out Port List : Eth1/1, Eth1/2, Eth3/3, Eth3/4, Eth6/1 Eth6/2, Eth7/1, Eth7/2, Eth7/4 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Redirect to Eth 6/2 --- Destination IP Address : any	

	ICMP Type : 3 ICMP Code : 15 Dscp : any Action : None ---------- Ip Access List 2 Name : 123 In VLAN List : 1, 300, 2536, 4094 Out VLAN List : 2, 40, 336, 594
Error Messages	N/A
Related Commands	ip access-list <short(1-16)>

Show Specific IPv4 Access-list

Commands

show ip access-list <short(1-16)>

Syntax Description	**show**	Display configuration/status information
	ip	Display IP related information
	access-list	Configure ACL related parameters
	(1-16)	ACL index to display
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show ip access-list 3 Ip Access List 3 Name: ---------- Rule Index : 1 Rule Status : enabled Rule Type : permit Protocol : UDP Source IP Address : any Destination IP Address : any Source Port : 333 Destination Port : 22 Dscp : any Action : Remark dscp to 12 ---------- Rule Index : 2 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Redirect to Eth 2/2 Remark dscp to 36 ---------- Rule Index : 3 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Mirror to Session 5	

	Remark dscp to 36 --- Rule Index : 4 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Mirror to Session 5 --- Rule Index : 5 Rule Status : enabled Rule Type : permit Protocol : any Source IP Address : any Destination IP Address : any Dscp : any Action : Redirect to Eth 2/2
Error Messages	N/A
Related Commands	ip access-list <short(1-16)>

Show All MAC Access-lists

Commands

show mac access-list

Syntax Description	**show**	Display configuration/status information
	mac	Display MAC related information
	access-list	Configure ACL related parameters
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show mac access-list Mac Access List 1 Name : MyACL1 Out VLAN List : 1 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : 00:00:01:00:02:03/FF:FF:FF:FF:FF:00 Destination MAC Address : 00:00:01:00:02:04/FF:FF:FF:FF:FF:00 Cos : 7 Action : Remark cos to 3 --- Rule Index : 2 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : 00:00:01:00:02:03/FF:FF:FF:FF:FF:00 Destination MAC Address : 00:00:01:00:02:04/FF:FF:FF:FF:00:00 Cos : 7 Action : Remark cos to 3 --- Mac Access List 10	

	Name : In VLAN List : Out VLAN List : 3 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : any Destination MAC Address : any Cos : any Action : None ---
Error Messages	N/A
Related Commands	mac access-list <short(1-16)>

Show Specific MAC Access-list

Commands

show mac access-list <short(1-16)>

Syntax Description	**show**	Display configuration/status information
	mac	Display MAC related information
	access-list	Configure ACL related parameters
	(1-16)	ACL index to display
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show mac access-lists 1 Mac Access List 1 Name : MyACL1 Out VLAN List : 1 --- Rule Index : 1 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : 00:00:01:00:02:03/FF:FF:FF:FF:FF:00 Destination MAC Address : 00:00:01:00:02:04/FF:FF:FF:FF:FF:00 Cos : 7 Action : Remark cos to 3 --- Rule Index : 2 Rule Status : enabled Rule Type : permit Ethertype : any Source MAC Address : 00:00:01:00:02:03/FF:FF:FF:FF:FF:00 Destination MAC Address : 00:00:01:00:02:04/FF:FF:FF:FF:00:00 Cos : 7 Action : Remark cos to 3 ---	
Error Messages	N/A	
Related Commands	mac access-list <short(1-16)>	

Show Port Access-list Configuration

Commands

show interface <interface-type> <interface-id> **access-list**

Syntax Description	**show**	Display configuration/status information
	interface	Display interface related information
	<interface-type/interface id>	Port index to display
	access-list	Configure ACL related parameters
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show interface ethernet 1/1 access-list	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> { in | out } mac access-list <short(1-16)> { in | out	

Show VLAN Access-list Configuration

Commands

show vlan id <short(1-4094)> **access-list**

Syntax Description	**show**	Display configuration/status information
	vlan	Display VLAN related information
	id	Display VLAN index related information
	<1-4094>	VLAN index to display
	access-list	Configure ACL related parameters
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show vlan id 1 access-list	
Error Messages	N/A	
Related Commands	ip access-list <short(1-16)> { in | out } mac access-list <short(1-16)> { in | out	

Authentication

Login Authentication

Configure Login Authentication Settings

Commands

login authentication [{ radius | tacacs }] [local]

Syntax Description	**login**	Configure login parameters
	authentication	Configure authentication parameters
	radius	Configure RADIUS authentication servers
	tacacs	Configure a TACACS authentication system
	local	Configure a local authentication database
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# login authentication radius (config)# login authentication tacacs (config)# login authentication local (config)# login authentication radius local (config)# login authentication tacacs local	
Error messages	N/A	
Related commands	N/A	

RADIUS

Configure RADIUS Server Host Settings

Commands

radius-server host { <ucast_addr> } [auth-port {<integer(1-65535)>}] [timeout {<short(5-180)>}] [retransmit {<short(0-5)>}] key {<string(60)>} authtype { pap | chap | mschap } { primary | secondary }

no radius-server { primary | secondary }

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	radius-server	Configure RADIUS server parameters
	host	Configure the RADIUS host
	auth-port	Configures the UDP destination port for authentication requests
	timeout	Configure time period (in seconds) until which a client waits for a response from the server before re-transmitting the request
	retransmit	Configure the maximum number of attempts the client undertakes to contact the server
	key	Configure the RADIUS server encryption key
	authtype	Configure the authentication type of the RADIUS server
	primary	Set as the primary server
	secondary	Set as the secondary server
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# radius-server host 1.1.1.1 auth-port 2222 timeout 5 retransmit 5 key test authtype pap primary (config)# no radius-server primary	
Error Messages	N/A	
Related Commands	N/A	

Show RADIUS Server Information

Commands

show radius-server

Syntax Description	**show**	Display running information
	radius-server	Display the RADIUS server parameters
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show radius-server	
Error messages	N/A	
Related commands	N/A	

TACACS+

Configure TACACS+ Server Host Settings

Commands

tacacs-server host { <ucast_addr> } [auth-port {<integer(1-65535)>}] [timeout {<short(5-180)>}] [retransmit {<short(0-5)>}] key {<string(60)>} authtype { pap | chap | mschap } { primary | secondary }

no tacacs-server { primary | secondary }

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	tacacs-server	Configure TACACS server parameters
	host	Configure TACACS host parameters
	auth-port	Configure authentication port parameters
	timeout	Configure timeout parameters
	retransmit	Configure the maximum number of attempts the client undertakes to contact the server
	key	Configure the per-server encryption key
	authtype	Configure the authentication type of the TACACS server
	primary	Set as the primary server
	secondary	Set as the secondary server
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# tacacs-server host 1.1.1.1 auth-port 2222 timeout 5 retransmit 5 key test authtype pap primary (config)# no tacacs-server primary	
Error Messages	N/A	
Related Commands	N/A	

Show TACACS+ Server Information

Commands

show tacacs server

Syntax Description	**show**	Displays running information
	tacacs-server	Displays the TACACS server parameters
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show tacacs-server	
Error messages	N/A	
Related commands	N/A	

Customer Key Management

Show Customer Key Information

Commands

show customer-key info

Syntax Description	**show**	Display the related information
	customer-key	Display customer key information
	info	Information
Defaults	N/A	
Command Modes	User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show customer-key info Customer key info --- Private/Certificate Enable: Yes Label: 111 Algorithm: RSA Length: 2048 Moxa# show customer-key info Customer key info ---	
Error Messages	N/A	
Related Commands	copy customer-key {<tftp_url> | <sftp_url>} private {<tftp_url> | <sftp_url>} certificate label name clear customer-key signed-config {enable | disable}	

Clear Customer Key

Commands

clear customer-key

Syntax Description	**clear**	Clear the key pair
	customer-key	Key pair generated and imported from customer
Defaults	N/A	
Command Modes	User EXEC	
Usage Guidelines	N/A	
Examples	moxa# clear customer-key	
Error Messages	N/A	
Related Commands	show customer-key info copy customer-key {<tftp_url> | <sftp_url>} private {<tftp_url> | <sftp_url>} certificate label name	

Enable/Disable Digital Signature

Commands

signed-config {enable | disable}

Syntax Description	**signed-config**	Digital signature when administrator back up or restore the configuration
	enable	Enable signed-configuration
	disable	Disable signed-configuration
Defaults	Disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# signed-config enable moxa(config)# signed-config disable	
Error Messages	N/A	
Related Commands	N/A	

Diagnostics

System Status

Utilization

Show Device Current Information

Commands

show env {all | power | RAM | CPU }

Syntax Description	**show**	Display the statistics information
	env	Display switch information
	all	Show the current information for all resources such as CPU, RAM, and power
	power	Show the current power input information
	RAM	Show the current RAM information
	CPU	Show the current CPU information
Defaults	N/A	
Command Modes	Global configuration / User EXEC	
Usage Guidelines	N/A	
Examples	# show env all # show env power # show env RAM # show env CPU	
Error Messages	N/A	
Related Commands	N/A	

Statistics

Show Traffic Statistics

Commands

show statistics [interface <interface-type> <interface-id>]

Syntax Description	**show**	Display configuration/status information
	statistics	Display the interface statistics table
	interface-type	Display interface information
	interface-id	Display the specific interface information
Defaults	N/A	
Command Modes	Privileged EXEC Mode.	
Usage Guidelines	N/A	
Examples	moxa# show statistics interface ethernet 1/1	
Error Messages	N/A	
Related Commands	clear statistics	

Clear Traffic Statistics

Commands

clear statistics [interface < interface-type> <interface-id>]

Syntax Description	**clear**	Clear input
	statistics	Clear statistics
	interface-type	The interface type
	interface-id	The interface ID
Defaults	N/A	
Command Modes	Privileged EXEC Mode.	
Usage Guidelines	N/A	
Examples	moxa# clear statistics Ethernet 1/1	
Error messages	N/A	
Related commands	show statistics	

Module Information

Show Module information

Commands

show product information

Syntax Description	**show**	Display configuration/status information
	product	Display product information
	information	Display product information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show product information Product Information Model : MDS-G4028 Serial Number : 123456789ABC MAC : 00:01:03:05:07:09 Firmware Version : v0.3 Build 2019_0502_2111 Hardware Version : V0.0.0 Module Information Type Module Name Serial Number Hardware Version Module [1] MDS-G4028 123456789ABC V0.0.0 Module [2] -- -- -- Module [3] -- -- -- Module [4] -- -- -- Module [5] -- -- -- Module [6] -- -- -- Module [7] -- -- -- Power Unit [1] -- -- -- Power Unit [2] -- -- --	
Error Messages	N/A	
Related Commands	N/A	

Event Notification

Event Notification

Show Event Notification

Commands

show event-notification {general-event | poe-event | port-event | switching-event}

Syntax Description	**show**	Displays running information for the feature
	event-notification	Display event-notification configuration
	general-event	general event config
	poe-event	poe event config
	port-event	port event config
	switching-event	switching event config
Defaults	N/A	
Command Modes	Privileged EXEC /User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show event-notification poe-event PD Power On Event Enable :Enabled Registered Action :Trap, Email, PD Power Off Event Enable :Enabled Registered Action :Trap, Email, Low Input Voltage Event Enable :Enabled Registered Action :Trap, Email, PD Over Current Event Enable :Enabled Registered Action :Trap, Email, PD No Response Event Enable :Enabled Registered Action :Trap, Email, Over Power Budget Limit Event Enable :Enabled Registered Action :Trap, Email, Power Detection Failure Event Enable :Enabled Registered Action :Trap, Email, moxa# show event-notification port-event Port link up Event Enable :Enabled Registered Action :Trap, Email, Registered Port :1/1, 1/2, 1/3, 1/4, 2/1, 2/2, 2/3, 2/4, 3/1, 3/2, 3/3, 3/4 , 4/1, 4/2, 4/3, 4/4, 5/1, 5/2, 5/3, 5/4, 6/1, 6/2, 6/3, 6/4, 7/1, 7/2, 7/3, 7/4 , Port link down Event Enable :Enabled Registered Action :Trap, Email, Registered Port :1/1, 1/2, 1/3, 1/4, 2/1, 2/2, 2/3, 2/4, 3/1, 3/2, 3/3, 3/4 , 4/1, 4/2, 4/3, 4/4, 5/1, 5/2, 5/3, 5/4, 6/1, 6/2, 6/3, 6/4, 7/1, 7/2, 7/3, 7/4 , Port shutdown by Rate Limit Event Enable :Enabled Registered Action :Trap, Email, Registered Port :1/1, 1/2, 1/3, 1/4, 2/1, 2/2, 2/3, 2/4, 3/1, 3/2, 3/3, 3/4 , 4/1, 4/2, 4/3, 4/4, 5/1, 5/2, 5/3, 5/4, 6/1, 6/2, 6/3, 6/4, 7/1, 7/2, 7/3, 7/4 ,	

	Port recovery by Rate Limit Event Enable :Enabled Registered Action :Trap, Email, Registered Port :1/1, 1/2, 1/3, 1/4, 2/1, 2/2, 2/3, 2/4, 3/1, 3/2, 3/3, 3/4 , 4/1, 4/2, 4/3, 4/4, 5/1, 5/2, 5/3, 5/4, 6/1, 6/2, 6/3, 6/4, 7/1, 7/2, 7/3, 7/4 , Port shutdown by Port Security Event Enable :Enabled Registered Action :Trap, Email, Registered Port :1/1, 1/2, 1/3, 1/4, 2/1, 2/2, 2/3, 2/4, 3/1, 3/2, 3/3, 3/4 , 4/1, 4/2, 4/3, 4/4, 5/1, 5/2, 5/3, 5/4, 6/1, 6/2, 6/3, 6/4, 7/1, 7/2, 7/3, 7/4
Error Messages	N/A
Related Commands	event-notification general-event event-notification poe-event event-notification port-event event-notification switching-event

Configure Event Notification Settings

Commands

event-notification general-event all

event-notification general-event cold-start

event-notification general-event all action trap mgmt-relay

event-notification general-event cold-start action email pwr1-relay

no event-notification general-event all

no event-notification general-event cold-start action email pwr2-relay

Syntax Description	**no**	Disable the configuration/deletes the entry/reset to default value
	event-notification	Configure event notifications
	general-event	Configure notifications for general events
	all	Notify for all general events
	cold-start	Notify when the system performs a cold start
	warm-start	Notify when the system performs a warm start
	config-change	Notify when the system configuration changes
	login-success	Notify when a user successfully logs in
	login-fail	Notify when a user failed to log in
	login-lockout	Notify when a user is locked out due to the login policy
	account-setting-changed	Notify when the user account information changes, including create account, remove account, and change of username, permission
	password-changed	Notify when the user account password changes
	config-import	Notify when the system configuration is imported
	ssl-certificated-changed	Notify when system certification changes
	log-capacity	Notify when the system log reaches the capacity threshold
	power-on	Notify when the power supply is on
	power-off	Notify when the power supply is on
	di-on	Notify when the digital input is on
	di-off	Notify when the digital input is off
	action	Set action for event notification
	trap	Set trap action for notification
	email	Set email action for notification
	mgmt-relay	Set MGMT relay action for notification
	pwr1-relay	Set PWR1 relay action for notification
	pwr2-relay	Set PWR2 relay action for notification
Defaults	All configuration, trap, email event notifications are enabled by default	
Command Modes	Global configuration	

Usage Guidelines	N/A
Examples	moxa# config moxa(config)# event-notification general-event all action trap moxa(config)# no event-notification general-event all action trap email
Error Messages	N/A
Related Commands	show event-notification event-notification poe-event event-notification port-event event-notification switching-event

Configure Notification for PoE Event

Commands

event-notification poe-event all

event-notification poe-event pd-power-on

event-notification poe-event all action trap mgmt-relay

event-notification poe-event pd-power-on action email pwr1-relay

no event-notification poe-event all

no event-notification poe-event cold-start action email pwr2-relay

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	event-notification	Configure event notification
	poe-event	Configure notifications for PoE events
	all	Notify for all PoE events
	pd-power-on	Notify when a powered device powers on
	pd-power-off	Notify when a powered device powers off
	low-input-voltage	Notify when the input voltage from the power sourcing equipment is low
	pd-over-current	Notify when the current exceeds the threshold
	pd-no-response	Notify when the device does not receive a response from the powered device
	over-power-budget-limit	Notify when the PoE power consumption exceeds the budget
	power-detection-failure	Notify when a power failure is detected
	action	Set action for event notification
	trap	Set trap action for notification
	email	Set email action for notification
	mgmt-relay	Set MGMT relay action for notification
	pwr1-relay	Set PWR1 relay action for notification
	pwr2-relay	Set PWR2 relay action for notification
Defaults	All configuration, trap, email event notifications are enabled by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# event-notification poe-event all action trap moxa(config)# no event-notification poe-event all action trap email	
Error Messages	N/A	
Related Commands	show event-notification event-notification general-event event-notification port-event event-notification switching-event	

Configure Notification for Port Event

Commands

event-notification port-event all

event-notification port -event cold-start

event-notification port -event all action trap mgmt-relay

event-notification port -event cold-start action email pwr1-relay

no event-notification port -event all

no event-notification port -event cold-start action email pwr2-relay

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	event-notification	Configure event notifications
	port-event	Configure notifications for port events
	all	Notify for all port events
	port-link-up	Notify when a port link goes up
	port-link-down	Notify when a port link goes down
	port-shutdown-by-rate-limit	Notify when a port shuts down by rate limit
	port-recovery-by-rate-limit	Notify when a port recovers by rate limit
	port-shutdown-by-port-security	Notify when a port shuts down by port security
	action	Set action for event notification
	trap	Set trap action for notification
	email	Set email action for notification
	mgmt-relay	Set MGMT relay action for notification
	pwr1-relay	Set PWR1 relay action for notification
	pwr2-relay	Set PWR2 relay action for notification
Defaults	All configuration, trap, email event notifications are enabled by default Port event notifications for all ports are enabled by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# event-notification port-event all action trap moxa(config)# no event-notification port-event all action trap email moxa (config-if)# event-notification port-event all	
Error Messages	N/A	
Related Commands	show event-notification event-notification general-event event-notification poe-event event-notification switching-event	

Configure Notification for Switching Event Settings

Commands

event-notification switching-event all

event-notification switching -event pd-power-on

event-notification switching -event all action trap mgmt-relay

event-notification switching -event pd-power-on action email pwr1-relay

no event-notification switching -event all

no event-notification switching -event cold-start action email pwr2-relay

Syntax Description	**no**	Disable the configuration/deletes the entry/resets to default value
	event-notification	Configure event notifications
	switching-event	Configure notifications for switching events
	all	Notify for all switching events
	topology-changed	Notify when the network topology changes
	Turbo-ring-topology changed	Notify when the Turbo Ring v2 topology changes
	Turbo-chain-topology changed	Notify when the Turbo Chain topology changes
	Dual-homing-topology changed	Notify when the dual-homing topology changes
	coupling-changed	Notify when the Turbo Ring v2 coupling changes
	master-changed	Notify when the Turbo Ring v2 master changes
	master-mismatched	Notify when the Turbo Ring v2 master mismatches
	rstp-topology-changed	Notify when the RSTP network topology changes
	rstp-root-changed	Notify when the RSTP root device changes
	rstp-migration	Notify for RSTP migration
	rstp-invalid-bpdu	Notify when the RSTP device receives an invalid BPDU
	rstp-new-port-role	Notify when the RSTP port role changes
	redundant-port-health-check-fail	Notify when the redundant port health check fails
	dual-homing-path-changed	Notify when the dual homing path changes
	dot1x-auth-fail	Notify when 802.1x authentication fails
	lldp-table-changed	Notify when the LLDP remote table changes
	rmon-raising-alarm	Notify when RMON alarm variables values reach or exceed the raising threshold
	rmon-falling-alarm	Notify when RMON alarm variables values reach or fall below the falling threshold
	action	Set action for event notification
	trap	Set trap action for notification
	email	Set email action for notification
	mgmt-relay	Set MGMT relay action for notification
	pwr1-relay	Set PWR1 relay action for notification
	pwr2-relay	Set PWR2 relay action for notification
Defaults	All configuration, trap, email event notifications are enabled by default	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# config moxa(config)# event-notification switching-event all action trap moxa(config)# no event-notification switching -event all action trap email	
Error Messages	N/A	
Related Commands	show event-notification event-notification general-event event-notification poe-event event-notification port-event	

Relay Alarm Cut-off

Configure Relay Alarm Cut-off Settings

Commands

relay alarm cut-off mgmt-relay

relay alarm cut-off pwr1-relay

relay alarm cut-off pwr2-relay

Syntax Description	**relay**	Configure relay parameters
	alarm	Configure the relay alarm
	cut-off	Configure the relay alarm cut-off
	mgmt-relay	Cut off the mgmt-relay alarm
	pwr1-relay	Cut off the pwr1-relay alarm
	pwr2-relay	Cut off the pwr2-relay alarm
Defaults	N/A	
Command Modes	Global	
Usage Guidelines	N/A	
Examples	moxa# relay alarm cut-off mgmt-relay	
Error Messages	N/A	
Related Commands	N/A	

Email Notification

Configure Email Notification Server

Command

email-notification server server-address <ucast_addr> [server-port <integer(1-65535)>] **username** <string(60)> **password** <string(60)>

Syntax Description	**email-notification**	Configure email notification parameters
	server	Configure server parameters
	server-address	Configure the email notification server IP address
	server-port	Configure the email-notification server port
	username	Configure the email notification server username
	password	Configure the email notification server password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# email-notification server-address 1.2.3.4 username aaa password bbb	
Error messages	N/A	
Related commands	N/A	

Configure Email Notification Sender

Commands

email-notification sender <string (60)>

Syntax Description	**email-notification**	Configure email notification parameters
	sender	Configure the email notification sender's email address
	string (60)	The sender's email address up to 60 characters
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# email-notification sender testuser@test.com	
Error messages	Invalid Email Format	
Related commands	N/A	

Configure Email Notification Server TLS Mode Setting

Commands

email-notification server tls {enable | disable}

Syntax Description	**email-notification**	Configure email notification parameters
	server	Configure server parameters
	tls	Configure the email notification server TLS mode
	enable	Enable the TLS mode
	disable	Disable the TLS mode
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# mail-server server tls enable (config)# mail-server server tls disable	
Error messages	N/A	
Related commands	N/A	

Configure Email Notification Receiver

Commands

email-notification receiver <string (60)> **index** <integer (1-5)>

no email-notification receiver index <integer (1-5)>

Syntax Description	**no**	Disable the configuration/delete the entry/reset to default value
	email-notification	Configure email notification parameters
	receiver	Configure the email notification receiver
	index	Configure the index of the receiver
	string (60)	The receiver's name up to 60 characters
	integer (1-5)	The number index of the receiver ranging from 1 to 5
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# email-notification receiver testuser@test.com index 1 (config)# no email-notification receiver index 1	
Error Messages	Invalid Email Format	
Related Commands	N/A	

Show Email Notification Server

Commands

show email-notification server

Syntax Description	**show**	Display the configuration/statistics/general information
	email-notification	Display email notification parameters
	server	Display server parameters
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	# show email-notification server	
Error Messages	N/A	
Related Commands	N/A	

Syslog

Configure Logging Server

Commands

logging-server <short(1-3)> { ipv4 <ucast_addr> | <dns_host_name> } [port <integer(1-65535)>]

Syntax Description	**logging-server**	Configure logging server parameters
	short (1-3)	The index of the syslog server
	ipv4	Configure IPv4 parameters
	ucast_addr	The IP address
	dns_host_name	The host domain name
	port	Configure port parameters
	integer (1-65535)	The port number
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# logging-server 1 ipv4 10.128.1.8 port 514	
Error Messages	'Invalid: The server addresses are duplicated.' 'Invalid: The syslog server address cannot be empty if it is enabled.'	
Related Commands	no logging-server <short(1-3)> show logging server	

Delete Logging Server

Commands

no logging-server <short(1-3)> [enable]

Syntax Description	**no**	Remove configuration / delete entry / reset to default value
	logging-server	Configure logging server parameters
	short (1-3)	The index of the syslog server
	enable	Disable this server entry
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no logging-server 1	
Error Messages	N/A	
Related Commands	logging-server <short(1-3)> {ipv4 <ucast_addr> | <dns_host_name>} [port <integer(1-65535)>] show logging syslog-server	

Enable/Disable Logging Syslog Server

Commands

logging syslog-server { enable | disable }

Syntax Description	**logging**	Configure logging parameters
	syslog-server	Configure the syslog server
	enable	Enable the syslog server
	disable	Disable the syslog server
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# logging syslog-server { enable | disable }	
Error Messages	'Invalid: The server addresses are duplicated.' 'Invalid: The syslog server address cannot be empty if it is enabled.'	
Related Commands	show logging server	

Show Syslog Server Configuration

Commands

show logging syslog-server

Syntax Description	**show**	Display configuration/status information
	logging	Display logging information
	syslog-server	Display syslog server information
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Examples	moxa# show logging syslog-server Syslog Server Configuration Syslog Enable: disable Index Server Address Port Status Auth Enable ----- ---------- -------- ---------- ---------- 1 111.2.21.1 514 enable TLS 2 200.2.2.2 2540 enable disable 3 disable disable Authentication Common name(CN) Start Time End Time ---------- ---------- ---------- PKI-123 2020-01-01 2020-12-31	
Help Message	Display the Syslog logging server table	
Error Messages	N/A	
Related Commands	logging server enable logging-server <short(1-3)> {ipv4 <ucast_addr> | <dns_host_name>} [port <integer(1-65535)>]	

Copy Syslog Server Client Certificate and Key

Commands

copy syslog-server client-certificate {<tftp_url> | <sftp_url>} **client-key** {<tftp_url> | <sftp_url>} **ca-key** {<tftp_url> | <sftp_url>}

Syntax Description	**copy**	Perform copy operation
	syslog-server	Syslog-server configuration
	client-certificate	Syslog client certificate file
	client-key	Syslog client key file
	ca-key	Syslog on CA key file
	tftp_url	File in remote location to be copied
	sftp_url	File in remote location to be copied
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Examples	moxa# copy syslog-server client-certificate tftp://192.168.127.200/filename1 client-key tftp://192.168.127.200/filename2 ca-key tftp://192.168.127.200/filename3 moxa# copy syslog-server client-certificate sftp://username:password@192.168.127.200/filename1 client-key sftp://username:password@192.168.127.200/filename2 ca-key sftp://username:password@192.168.127.200/filename3	
Error Messages	The certificate and key are not in the same set.	
Related Commands	show logging syslog-server clear syslog-server certificate-and-key	

Clear Syslog Server Client Certificate and Key

Commands

clear syslog-server certificate-and-key

Syntax Description	**clear**	Perform clear operation
	syslog-server	Syslog-server configuration
	certificate-and-key	Syslog authentication file and key file
Defaults	N/A	
Command Modes	Privileged EXEC	
Examples	moxa# clear syslog-server certificate-and-key	
Error Messages	N/A	
Related Commands	show logging syslog-server copy syslog-server client-certificate {<tftp_url> | <sftp_url>} client-key {<tftp_url> | <sftp_url>} ca-key {<tftp_url> | <sftp_url>}	

Disable Syslog Server TLS Authentication

Commands

logging-server <short(1-3)> **authentication** {disable | tls}

Syntax Description	**logging-server**	Configure logging server parameters
	short(1-3)	Index of syslog server
	authentication	Authentication method
	disable	Disable authentication
	tls	TLS authentication
Defaults	Disabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# logging-server 1 authentication tls moxa(config)# logging-server 2 authentication disable	
Error Messages	The authentication certificate and key do not exist.	
Related Commands	no logging-server <short(1-3)> show logging server	

Diagnosis

LLDP

Show LLDP Information

Commands

show lldp

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Display global LLDP information
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display the global LLDP settings	
Examples	moxa# show lldp LLDP is disabled Transmit Interval : 30 Holdtime Multiplier : 4 Reinitialization Delay : 2 Tx Delay : 2 Notification Interval : 5 Chassis Id SubType : Mac Address Chassis Id : 00:01:02:03:04:05	
Error Messages	N/A	
Related Commands	config lldp {enable | disable} config lldp chassis-id-subtype { chassis-comp <string(255)> | if-alias | port-comp <string(255)> | mac-addr | nw-addr | if-name | local <string(255)> } config lldp holdtime-multiplier <2-10> config lldp notification-interval <seconds(5-3600)> config lldp reinitialization-delay <seconds(1-10)> config lldp transmit-interval <seconds(5-32768)> config lldp tx-delay (1-8192)	

Show LLDP Interface

Commands

show lldp interface

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Display the LLDP interface status
	interface	Show the LLDP interface information
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display LLDP port interface information	
Examples	moxa#show lldp interface Eth1/3: Tx State : Enabled Rx State : Enabled Tx SEM State : INITIALIZE Rx SEM State : WAIT PORT OPERATIONAL Notification Status : Enabled Notification Type : Remote Table Chang DestinationMacAddr : 01:80:c2:00:00:0e	
Error Messages	N/A	
Related Commands	show lldp config-if > lldp {transmit | receive} config-if > lldp dest-mac <mac_addr>	

Show LLDP Neighbors

Commands

show lldp neighbors

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Display the LLDP interface status
	neighbors	Display the LLDP remote interface database
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display LLDP neighbor interface information	
Examples	moxa# show lldp neighbors Capability Codes : (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device, (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other Chassis Id SubType : Mac Address Chassis Id : 00:90:e8:10:20:30 Port Id SubType : Local Port Id : 1 Port Description : 1000TX,RJ45. System Name : -- System Desc : EDS-G512E Local Intf : Eth1/3 Time Remaining : 19 Seconds System Capabilities Supported : B System Capabilities Enabled : B Management Addresses : IfId SubType Address OID	
Error Messages	N/A	

Show LLDP Statistics

Commands

show lldp statistics

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Display the LLDP interface LLDP status
	statistics	Display LLDP remote table statistics information
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display LLDP statistics for the local counter	
Examples	moxa# show lldp statistics Remote Table Last Change Time : 182700 Remote Table Inserts : 2 Remote Table Deletes : 0 Remote Table Drops : 0 Remote Table Ageouts : 0 Remote Table Updates : 0	
Error Messages	N/A	
Related Commands	show lldp	

Show LLDP Error

Commands

show lldp error

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Configure LLDP parameters
	error	Display LLDP error information such as memory allocation failures, queue overflows, and table overflows
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display the LLDP error counter	
Examples	moxa# show lldp errors Total Memory Allocation Failures : 0 Total Input Queue Overflows : 0 Total Table Overflows : 0	
Error Messages	N/A	
Related Commands	show lldp config lldp enable config-if lldp tlv-select basic-tlv config-if lldp tlv-select dot1t1v config-if lldp tlv-select dot3tlv	

Show LLDP Traffic

Commands

show lldp traffic

Syntax Description	**show**	Display configuration/statistics/general information
	lldp	Display the LLDP interface status
	traffic	Display the LLDP local traffic
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display LLDP traffic for the local counter	
Examples	moxa# show lldp traffic Total Frames Out : 82 Total Entries Aged : 0 Total Frames In : 81 Total Frames Received In Error : 81 Total Frames Discarded : 0 Total TLVS Unrecognized : 324 Total TLVs Discarded : 0 Total PDU length error Drops : 0	
Error Messages	N/A	
Related Commands	show lldp config-if > lldp {transmit | receive} config-if > lldp dest-mac <mac_addr>	

Enable/Disable LLDP Function

Commands

lldp enable

lldp disable

Syntax Description	**lldp**	Configure LLDP parameters
	enable	Enable LLDP
	disable	Disable LLDP
Defaults	Enable	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Enable or disable global LLDP	
Examples	moxa (config)# lldp enable moxa (config)# lldp disable	
Error Messages	N/A	
Related Commands	show lldp show lldp interface show lldp neighbors show lldp traffic show lldp errors show lldp statistics	

Configure Global LLDP Timer Interval

Commands

lldp transmit-interval <seconds (5-32768)>

no lldp transmit-interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	transmit-interval	Configure the transmit interval
	seconds	The interval time ranging from 5 to 32768 seconds
Defaults	The interval between successive transmit cycles is set to 30 seconds by default	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the global LLDP transmit interval time	
Examples	moxa(config)# lldp transmit-interval 30 moxa(config)# no lldp transmit-interval	
Error Messages	N/A	
Related Commands	show lldp config lldp enable	

Configure LLDP Holdtime Multiplier

Commands

lldp holdtime-multiplier <value (2-10)>

no lldp holdtime-multiplier

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	holdtime-multiplier	A multiplier on the transmit-interval used to compute the TTL value of txTTL.
	value	The multiplier value ranging from 2 to 10
Defaults	The default holdtime multiplier is set to 4	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# lldp holdtime-multiplier 4 moxa(config)# no lldp holdtime-multiplier	
Error Messages	N/A	
Related Commands	show lldp config lldp enable config lldp tx-delay	

Configure LLDP Transmission Delay Time

Commands

lldp tx-delay <seconds (1-8192) // tx_delay <= (0.25 x transmit-interval)

no lldp tx-delay

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	tx-delay	Configure the minimum delay between successive LLDP frame transmissions
	seconds	The transmission delay time in seconds ranging from 1 to 8192
Defaults	The default LLDP transmission delay time is set to 2 seconds	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP tx-delay parameter	
Examples	moxa(config)# lldp tx-delay 4 moxa(config)# no lldp tx-delay	
Error Messages	"Invalid: Tx Delay should be less than or equal to the value = 0.25 * Transmit Interval."	
Related Commands	show lldp config lldp enable config lldp transmit-interval	

Configure LLDP Reinitialization Delay Time

Commands

lldp reinitialization-delay <seconds (1-10)>

no lldp reinitialization-delay

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	reinitialization-delay	Configure the delay after admin status becomes 'disabled' before re-initialization is attempted
	seconds	The reinitialization delay ranging from 1 to 10 seconds
Defaults	The default reinitialization delay time is set to 2 seconds	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP re-initialization delay time	
Examples	moxa(config)# lldp reinitialization-delay 4 moxa(config)# no lldp reinitialization-delay	
Error Messages	N/A	
Related Commands	show lldp config lldp enable	

Configure LLDP Notification Interval Time

Commands

lldp notification-interval <seconds(5-3600)>

no lldp notification-interval

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	notification-interval	Configure lldpRemTableChange event notifications
	seconds	The notification interval ranging from 5 to 3600 seconds
Defaults	The default notification interval time is set to 5 seconds	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP notification interval time	
Examples	moxa(config)# lldp notification-interval 5 moxa(config)# no lldp notification-interval	
Error Messages	N/A	
Related Commands	show lldp config lldp enable	

Configure LLDP Global Setting

Commands

lldp chassis-id-subtype { chassis-comp <string(255)> | if-alias | port-comp <string(255)> | mac-addr | nw-addr | if-name | local <string(255)> }

Syntax Description	**lldp**	Configure LLDP parameters
	chassis-id-subtype	Configure chassis-component and local system sybtypes
	chassis-comp	Represents a chassis identifier based on the value of entPhysicalAlias object for a chassis component
	if-alias	Represents a chassis identifier based on the value of ifAlias for an interface on the containing chassis
	port-comp	Represents a chassis identifier based on the value of entPhysicalAlias object for a port or backplane within the chassis
	mac-addr	Represents a chassis identifier based on the value of a unicast source address of a port on the chassis
	nw-addr	Represents a chassis identifier based on a network address associated with a particular chassis. The encoded address is actually composed of two fields. The first field is a single octet, representing the IANA AddressFamilyNumbers value for the specific address type, and the second field is the network address value.
	if-name	Represents a chassis identifier based on the value of a ifName pbject for an interface on the containing chassis
	local	Represents a chassis identifier based on a locally defined value.
Defaults	mac-addr use sys_mac, others are none.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP chassis ID subtype parameters	
Examples	moxa (config)# lldp chassis-id-subtype chassis-comp moxa	
Error Messages	N/A	
Related Commands	show lldp show lldp local config lldp enable	

Configure LLDP Port Setting

Commands

lldp {transmit | receive}

no lldp {transmit | receive}

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	lldp	Configure LLDP parameters
	transmit	Enable the transmission of LLDPDU from one of the ports of the server to the LLDP module
	receive	Enable the reception of LLDPDU from one of the ports of the server to the LLDP module
Defaults	mac-addr use sys_mac LLPDU transmitting and receiving are both enabled by default	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure the LLDP TX or RX for the port interface	
Examples	moxa(config-if)# lldp transmit moxa(config-if)# no lldp transmit	
Error Messages	N/A	
Related Commands	show lldp show lldp interface	

Configure LLDP Port ID Subtype

Commands

lldp port-id-subtype { if-alias | port-comp <string(255)> | mac-addr | if-name | local <string(255)> }

Syntax Description	**lldp**	Configure LLDP parameters
	port-id-subtype	Configure LLDP port subtype
	if-alias	Represents a chassis identifier based on the value of ifAlias for an interface on the containing chassis
	port-comp	Represents a chassis identifier based on the value of entPhysicalAlias object for a port or backplane within the chassis
	mac-addr	Represents a chassis identifier based on the value of a unicast source address, of a port on the chassis
	if-name	Represent a chassis identifier based on the value of a ifName object for an interface on the containing chassis
	local	Represent a chassis identifier based on a locally defined value.
Defaults	mac-addr use sys_mac, others are none.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP notification interval time	
Examples	moxa(config)# lldp notification-interval 5 moxa(config)# no lldp notification-interval	
Error Messages	N/A	
Related Commands	show lldp config lldp enable	

Configure LLDP TLV Setting

Commands

lldp tlv-select basic-tlv { port-descr | sys-name | sys-descr | sys-capab |}

Syntax Description	**lldp**	Configure LLDP parameters
	tlv-select	Configure the transmission basic LLDP TLVs
	basic-tlv	Configure basic TLVs
	port-descr	Enable basic TVLs transmission for the administratively assigned description for the port
	sys-name	Enable basic TLV transmission for the administratively assigned system name
	sys-descr	Enable basic TLV transmission for the administratively assigned system description
	sys-capab	Enable the system capabilities of the basic TLV transmission
Defaults	mac-addr use sys_mac, others are none	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure the LLDP basic TLV	
Examples	moxa (config-if)# lldp tlv-select basic-tlv port-descr moxa (config-if)# no lldp tlv-select basic-tlv port-descr	
Error Messages	"Invalid: The format of Basic Transmit TLVs are Port Description, Device Name, Device Description, and Device Capability."	
Related Commands	show lldp local	

Configure LLDP TLV DOT1 Setting

Commands

lldp tlv-select dot1tlv { port-vlan-id | {all |<vlan-id>} | vlan-name {all |} | }

Syntax Description	**lldp**	Configure LLDP parameters
	tlv-select	Configure the transmission basic LLDP TLVs
	dot1tlv	Configure specific 802.1 TLVs
	port-vlan-id	Specify the VLAN ID of the port that uniquely identifies a specific VLAN. The VLAN ID is associated with a specific group of protocols for the specific port.
	protocol-vlan-id	Specify the Protocol ID that represents a specific group of protocols that are associated together when assigning a VID to a frame. This group ID is associated with the specific port. All : Set the protocol ID as all vlan-id : Set the protocol ID as the mentioned vlan ID Only work for the 2009 version.
	vlan-name	Specify the administratively assigned VLAN string.
Defaults	N/A.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure LLDP DOT1 TLV	
Examples	moxa (config-if)# lldp tlv-select dot1tlv port-vlan-id moxa (config-if)# no lldp tlv-select dot1tlv port-vlan-id	
Error Messages	N/A	
Related Commands	show lldp local show lldp neighbors show lldp errors	

Configure LLDP TLV DOT3 Setting

Commands

lldp tlv-select dot3tlv { link-aggregation | max-framesize }

Syntax Description	**lldp**	Configure LLDP parameters
	tlv-select	Configure the transmission basic LLDP TLVs
	dot3tlv	Configure specific 802.3 TLVs
	link-aggregation	Configure the link aggregation protocol statistics for each port on the device
	Max-framesize	The maximum frame size of the TLV
Defaults	N/A.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure the LLDP DOT3 TLV	
Examples	moxa (config-if)# lldp tlv-select dot3tlv macphy-config moxa (config-if)# no lldp tlv-select dot3tlv macphy-config	
Error Messages	"Invalid: The value of 802.3 Trasmit TLVs capability are Link Aggregation Stastictis and Maximum Frame Size."	
Related Commands	show lldp local show lldp neighbors show lldp errors	

Port Mirror

Enable/Disable Mirroring

Commands

port-mirror {enable | disable}

Syntax Description	**port-mirror**	Configure port mirror parameters
	enable	Enable mirroring in the system
	disable	Disable mirroring in the system
Defaults	Port mirroring is enabled by default	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# port-mirror enable moxa# configure moxa(config)# port-mirror disable	
Error Messages	N/A	
Related Commands	moxa# show monitor { session <session-id (1-5)> | range <session-list> }	

Show Mirroring Information

Commands

show monitor { session <session-id (1-5)> | range <session-list> }

Syntax Description	**show**	Display configuration/status information
	monitor	Display port mirror information
	session	The mirroring information related to a specific session
	session-id	The index of the mirroring session
	range	The mirroring information for the specified list of mirroring sessions
	session-list	The session list
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show monitor session 1 Mirroring is globally Enabled. Session : 1 ------- Source Ports Rx : None Tx : None Both : Eth1/1 Destination Ports : Eth1/2 Session Status : Active moxa# show monitor range 1-5 Mirroring is globally Enabled. Session : 1 ------- Source Ports Rx : None Tx : None Both : Eth1/1 Destination Ports : Eth1/2 Session Status : Active Session : 2 ------- Source Ports Rx : None Tx : None Both : Eth1/3 Destination Ports : Eth1/4 Session Status : Active % Session 3 does not exist % Session 4 does not exist % Session 5 does not exist	
Error Messages	% Invalid: Monitor session range must be in between (1-5) Example: Key "range 1-6" % Invalid: Invalid Session List Example: Key "range 0-5"	
Related Commands	N/A	

Configure the Source for a Mirroring Session

Commands

monitor session <session-id (1-5)> { source { interface <interface-type> <interface-id> [{ rx | tx | both }]}}

Syntax Description	**monitor**	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	source	Configure the mirroring source port
	interface	Configure the interface
	interface-type	The interface type
	interface-id	The interface number
	rx, tx, both	Mirror received, transmitted, or both types of traffic
Defaults	The traffic type to mirror is set to both by default	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# monitor session 1 source interface ethernet 1/1 moxa# configure moxat(config)# monitor session 1 source interface ethernet 1/1 rx moxa# configure moxa(config)# monitor session 1 source interface ethernet 1/1 tx	
Error Messages	% Invalid: Duplicate Rx Source Port. % Invalid: Duplicate Tx Source Port. % Invalid: Destination Port conflicts with Tx Source Port or Rx Source Port. % Invalid: Exceed Max Mirror Port. % Invalid: If the port is a Port-Channel member, it cannot be set to the destination port, RX source port, or TX source port.	
Related Commands	moxa(config)# no monitor session <session-id (1-5)> { source { interface <interface-type> <interface-id> }}	

Remove Source Port Configurations for a Mirroring Session

Commands

no monitor session <session-id (1-5)> { source { interface <interface-type> <interface-id> }}

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	monitor	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	source	Configure the mirroring source port
	interface	Configure the interface
	interface-type	The interface type
	interface-id	The interface number
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no monitor session 1 source interface ethernet 1/1	
Error Messages	N/A	
Related Commands	moxa(config)# monitor session <session-id (1-5)> { source { interface <interface-type> <interface-id> [{ rx | tx | both }]}}	

Configure the Destination for a Mirroring Session

Commands

monitor session <session-id (1-5)> destination { interface <interface-type> <interface-id>}

Syntax Description	**monitor**	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	destination	Configure the mirroring destination port
	interface	Configure the interface
	interface-type	The interface type
	interface-id	The interface number
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# monitor session 1 destination interface ethernet 1/1	
Error Messages	% Invalid: Duplicate Destination Port. % Invalid: Destination Port conflicts with Tx Source Port or Rx Source Port. % Invalid: If the port is a Port-Channel member, it cannot be set to the destination port, RX source port, or TX source port. % Invalid: If the port is set as the ring port of Turbo Ring v2, it cannot be set to the destination port. % Invalid: If the port is set as the coupling port of Turbo Ring v2, it cannot be set to the destination port. % Invalid: If the port is set as the Turbo Chain head/tail/member port, it cannot be set to the destination port. % Invalid: If the port is set as the RSTP port, it cannot be set to the destination port. % Invalid: If the port is set as the Dual Homing redundant port, it cannot be set to the destination port.	
Related Commands	moxa(config)# no monitor session <session-id (1-5)> destination { interface <interface-type> <interface-id>}	

Delete the Destination Configuration for a Mirroring Session

Commands

no monitor session <session-id (1-5)> destination { interface <interface-type> <interface-id>}

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	monitor	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	destination	Configure the mirroring destination port
	interface	Configure the interface
	interface-type	The interface type
	interface-id	The interface number
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no monitor session 1 destination interface ethernet 1/1	
Error Messages	N/A	
Related Commands	moxa(config)# monitor session <session-id (1-5)> destination { interface <interface-type> <interface-id>}	

Delete Mirroring Configurations

Commands

no monitor session { range <session-list> | session-id (1-5)}

Syntax Description	**no**	Remove configuration/delete entry/reset to default value
	monitor	Configure port mirroring parameters
	session	Configure the mirroring session
	range	The list of sessions for which the mirroring configuration should be removed
	session-list	The session list
	session-id	The index of the mirroring session
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no monitor session 1 moxa# configure moxa(config)# no monitor session range 1-5	
Error Messages	% Invalid: Monitor session range must be in between (1-5) Example: Key "range 1-6" % Invalid: Invalid Session List Example: Key "range 0-5"	
Related Commands	N/A	

Ping

Ping the Host

Commands

ping host [repeat repeat-count] [size payload-size] [timeout request-timeout]

Syntax Description	**ping**	Ping a target to check its status
	host	The IP address or domain name of the node to be pinged
	repeat	The number of ping packets that are sent to the destination address
	repeat-count	The repeat value
	size	The ize of the ping packet
	payload-size	The length of the ping packet value
	timeout	The time in seconds after which the entity waiting for the ping response times out
	request-timeout	The timeout value
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# ping 192.168.127.254 repeat 5 PING 192.168.127.254 (192.168.127.254) 56(84) bytes of data. 64 bytes from 192.168.127.254: icmp_seq=1 ttl=64 time=1.52 ms 64 bytes from 192.168.127.254: icmp_seq=2 ttl=64 time=0.803 ms 64 bytes from 192.168.127.254: icmp_seq=3 ttl=64 time=0.879 ms 64 bytes from 192.168.127.254: icmp_seq=4 ttl=64 time=0.791 ms 64 bytes from 192.168.127.254: icmp_seq=5 ttl=64 time=0.845 ms --- 192.168.127.254 ping statistics --- 5 packets transmitted, 5 received, 0% packet loss, time 4002ms rtt min/avg/max/mdev = 0.791/0.968/1.523/0.279 ms	
Error Messages	N/A	
Related Commands	N/A	

ARP Table

Show IP ARP Table

Commands

show ip arp

Syntax Description	**show**	Display configuration/status information
	ip	Display IP information
	arp	Display the ARP table
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ip arp IP Address MAC Address Interface --- --- --- 192.168.127.95 00:19:cb:d6:db:b4 vlan1 Total ARP Entries displayed: 1	
Error Messages	N/A	
Related Commands	N/A	

Clear ARP Cache

Commands

clear ip arp

Syntax Description	**clear**	Clear/flush the dynamically learnt ARP entries
	ip	IP related information
	arp	ARP cache entries
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# clear ip arp	
Error Messages	N/A	
Related Commands	N/A	

Event Log

Show Logging Event Log

Commands

show logging event-log

Syntax Description	**show**	Display configuration/status information
	logging	Display logging information
	event-log	Display event log entries
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Examples	moxa# show logging event-log Total number of log entries = 7 Boot SEV Timestamp Message ----- ---- ------------------- ---------- 19 5 2018-02-05 12:00:51 [Account:admin] successfully logged in via local. 19 5 2018-02-05 12:00:14 Port 7/4 link up. 19 5 2018-02-05 12:00:12 Port 7/1 link up. 19 5 2018-02-05 12:00:11 Port 7/2 link up. 19 5 2018-02-05 12:00:11 System has performed a warm start. 19 5 2018-02-05 12:00:09 Port 4/3 link up. 19 5 2018-02-05 12:00:08 Port 4/4 link up.	
Help Message	Display the log entries information	
Error Messages	N/A	
Related Commands	clear logging event-log	

Show Logging Log Capacity

Commands

show logging log-capacity

Syntax Description	**show**	Display configuration/status information
	logging	Display logging information
	log-capacity	Display log capacity information
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show logging log-capacity	
Error Messages	N/A	
Related Commands	N/A	

Clear Logging Event Log

Commands

clear logging event-log

Syntax Description	**clear**	Clear the event
	logging	Display logging information
	event-log	The local event log entries to be cleared
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# clear logging event-log	
Error Messages	N/A	
Related Commands	show logging event-log	

Export Event Log File

Commands

copy event-log {tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename}

Syntax Description	**copy**	Copy the target file or input
	event-log	The system event log
	tftp://server/filename	The address of the remote TFTP server in the format "tftp://server/filename"
	sftp://<username>:<password>@server/filename	The address of the remote SFTP server in the format "sftp://username:password@server/filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# copy event-log tftp://192.168.127.11/test1.log	
Help Message	Copy the system logs to a remote site	
Error Messages	N/A	
Related Commands	show logging event-log	

Configure Event Log Capacity Settings

Commands

logging log-capacity threshold <short (50-100)>

Syntax Description	**logging**	Configure logging parameters
	log-capacity	Configure the log capacity
	threshold	Configure the log capacity threshold
	short (50-100)	The log capacity threshold in percentage
Defaults	The default log threshold is set to 80 entries	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# logging log-capacity threshold <short(50-100)>	
Error Messages	N/A	
Related Commands	N/A	

Delete Logging Log Capacity Threshold

Commands

no logging log-capacity threshold

Syntax Description	**no**	Remove configuration / delete entry / reset to default value
	logging	Configure logging parameters
	log-capacity	Configure the log capacity
	threshold	Configure the log capacity threshold
Defaults	The default log threshold is set to 80 entries	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no logging log-capacity threshold	
Error Messages	N/A	
Related Commands	logging log-capacity threshold	

Configure Oversized Log Action Setting

Commands

logging oversize-action { overwrite-oldest | stop-recording }

Syntax Description	**logging**	Configure logging parameters
	oversize-action	Configure the action when exceeding the log threshold
	overwrite-oldest	Overwrite the oldest entry
	stop-recording	Stop recording events
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# logging oversize-action { overwrite-oldest | stop-recording }	
Error Messages	N/A	
Related Commands	N/A	

Copy Event Log

Commands

copy event-log { <tftp_url> | <sftp_url> }

Syntax Description	**copy**	Copy the target file or input
	event-log	The system event log
	tftp_url	The address of the remote TFTP server in the format "tftp://server/filename"
	sftp_url	The address of the remote SFTP server in the format "sftp://username:password@server/filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# copy event-log tftp://www.test.com	
Error messages	N/A	
Related commands	N/A	

Manufacturing Message Specification (MMS)

Enable/Disable MMS

Commands

mms { enable | disable }

Syntax Description	**mms**	Configure MMS parameters
	enable	Enable MMS
	disable	Disable MMS
Defaults	Enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mms enable moxa(config)# mms disable	
Error Messages	N/A	
Related Commands	N/A	

Configure MMS IED Name

Commands

mms ied < iedname >

Syntax Description	**mms**	Configure MMS parameters
	ied	Configure IED name
	<iedname>	IED name
Defaults	RKS4000	
Command Modes	Global Configuration	
Usage Guidelines	This command is to configure MMS IED name.	
Examples	moxa (config)# mms ied test	
Error Messages	N/A	
Related Commands	N/A	

Configure MMS RCB Settings

Commands

mms rcb < rcb name > { dchg < **enable** | **disable** > | qchg < **enable** | **disable** > | dupd < **enable** | **disable** > | integrity < **enable** | **disable** > | bufTime <1-4294967295> | intgPd <1-4294967295> }

Syntax Description	**mms**	Configure MMS parameters
	rcb	Configure RCB parameters
	enable	Enable the specific RCB parameters
	disable	Disable the specific RCB parameters
	rcb name	Enable MMS in switch
	dchg	Configure the dchg for the specific RCB
	qchg	Configure the qchg for the specific RCB
	dupd	Configure the dupd for the specific RCB
	integrity	Configure the integrity for the specific RCB
	bufTime	Configure the buffer time for the specific RCB
	intgPd	Configure the integrity period for the specific RCB
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to configure RCB attributes	
Examples	moxa (config)# mms rcb rcbname1 dchg disable	
Error Messages	N/A	
Related Commands	N/A	

Export MMS CID File

Commands

mms cid export { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

Syntax Description	**mms**	Configure MMS parameters
	cid	Configure CID file
	export	Export CID file
	tftp://server/filename	TFTP path for server and filename
	sftp://<user-name>:<pass-word>@server/filename	SFTP path for username, password, server and filename
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to export the CID file of the switch	
Examples	moxa (config)# mms cid export tftp://192.168.127.50/export_cid	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable MMS T-profile Security

Commands

mms t-profile security { enable | disable }

Syntax Description	**mms**	Configure MMS parameters
	t-profile	Configure T-profile selection
	security	Configure security setting
	enable	Enable T-profile security
	disable	Disable T-profile security
Defaults	Enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mms t-profile security enable	
Error Messages	N/A	
Related Commands	N/A	

Import/Export MMS T-Profile CA File

Commands

mms t-profile ca import { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

mms t-profile ca export { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

Syntax Description	**mms**	Configure MMS parameters
	t-profile	Configure T-profile setting
	ca	Configure CA file
	import	Import CA file
	export	Export CA file
	tftp://server/filename	TFTP path for server and filename
	sftp://<user-name>:<pass-word>@server/filename	SFTP path for username, password, server and filename
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import and export the T-profile CA file of the switch	
Examples	moxa(config)# mms t-profile ca import tftp://192.168.127.50/tprofile_ca moxa(config)# mms t-profile ca export tftp://192.168.127.50/tprofile_ca	
Error Messages	N/A	
Related Commands	N/A	

Import/Export T-profile Certificate File

Commands

mms t-profile certificate import { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

mms t-profile certificate export { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

Syntax Description	**mms**	Configure MMS parameters
	t-profile	Configure T-profile setting
	certificate	Configure certificate setting
	import	Import certificate file
	export	Export certificate
	tftp://server/filename	TFTP path for server and filename
	sftp://<user-name>:<pass-word>@server/filename	SFTP path for username, password, server and filename
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import and export the T-profile certificate file of the switch	
Examples	moxa(config)# mms t-profile certificate import tftp://192.168.127.50/tprofile_pfx moxa(config)# mms t-profile certificate export tftp://192.168.127.50/tprofile_pfx	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable MMS A-profile Security

Commands

mms a-profile security { enable | disable }

Syntax Description	**mms**	Configure MMS parameters
	a-profile	Configure A-profile selection
	security	Configure security setting
	enable	Enable A-profile security
	disable	Disable A-profile security
Defaults	Enabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mms a-profile security enable	
Error Messages	N/A	
Related Commands	N/A	

Import/Export A-profile Certificate File

Commands

mms a-profile certificate import { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

mms a-profile certificate export { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename }

Syntax Description	**mms**	Configure MMS parameters
	a-profile	Configure a-profile setting
	certificate	Configure certificate setting
	import	Import certificate file
	export	Export certificate
	tftp://server/filename	TFTP path for server and filename
	sftp://<user-name>:<pass-word>@server/filename	SFTP path for username, password, server and filename
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import and export the A-profile certificate file of the switch	
Examples	moxa(config)# mms a-profile certificate import tftp://192.168.127.50/tprofile_pfx moxa(config)# mms a-profile certificate export tftp://192.168.127.50/tprofile_pfx	
Error Messages	N/A	
Related Commands	N/A	

Show MMS Status

Commands

show mms enable

Syntax Description	**show**	Display the configuration
	mms	Configure MMS parameters
	enable	Display the enabled status of the MMS
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays MMS enabled information.	
Examples	moxa# show mms enable mms enable	
Error Messages	N/A	
Related Commands	N/A	

Show MMS IED Name

Commands

show mms iedname

Syntax Description	**show**	Display the configuration
	mms	Configure MMS parameters
	iedname	Display the IED name
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays MMS enabled information.	
Examples	moxa# show mms iedname IED name: RKS4000	
Error Messages	N/A	
Related Commands	N/A	

Show MMS RCB Information

Commands

show mms rcb

Syntax Description	**show**	Display the configuration
	mms	Configure MMS parameters
	rcb	Display RCB information
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays MMS enabled information.	
Examples	moxa# show mms rcb Report Control Block Table ---------- urcbLnkSt DataChange = ENABLED QualityChange = DISABLED DataUpdate = DISABLED Integrity = ENABLED BufferTime = 1000 IntegrityPeriod = 5000 ---------- brcbLnkSt DataChange = ENABLED QualityChange = DISABLED DataUpdate = DISABLED Integrity = ENABLED BufferTime = 1000 IntegrityPeriod = 5000 ---------- urcbSysSt DataChange = ENABLED QualityChange = DISABLED DataUpdate = DISABLED Integrity = ENABLED BufferTime = 1000 IntegrityPeriod = 5000 ---------- brcbSysSt DataChange = ENABLED QualityChange = DISABLED DataUpdate = DISABLED Integrity = ENABLED BufferTime = 1000 IntegrityPeriod = 5000	
Error Messages	N/A	
Related Commands	N/A	

Show MMS T-profile Status

Commands

show mms t-profile enable

Syntax Description	**show**	Display the configuration
	mms	Configure MMS parameters
	t-profile	Configure T-profile setting
	enable	Display the enabled status of the T-profile
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command is used to check if MMS T-profile is enabled.	
Examples	moxa# show mms t-profile enable mms t-profile enable	
Error Messages	N/A	
Related Commands	N/A	

Show MMS A-profile Status

Commands

show mms a-profile enable

Syntax Description	**show**	Display the configuration
	mms	Configure MMS parameters
	a-profile	Configure A-profile setting
	enable	Display the enabled status of the T-profile
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command is used to check if MMS A-profile is enabled.	
Examples	moxa# show mms a-profile enable mms a-profile enable	
Error Messages	N/A	
Related Commands	N/A	

Maintenance and Tool

Locator

Show the Locator

Commands

locator [duration]

Syntax Description	**locator**	Activate the device locator so that the LED on the device blinks
	duration	The duration of locator activation in seconds
Defaults	The locator duration is set to 60 seconds by default	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# locator 100	
Error Messages	N/A	
Related Commands	N/A	

Reboot

Reboot the Switch

Commands

reload

Syntax Description	**reload**	Perform a warm restart
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# reload Are you sure you want to restart the device? [y/N] y Restarting device...	
Error Messages	N/A	
Related Commands	N/A	

Reset to Default

Reset to Default

Commands

reload factory default

Syntax Description	**reload**	Perform a warm restart
	factory-default	Perform a warm restart and restore the factory default settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# reload factory-default Would you like to reset system configuration to factory default? [y/N] y Resetting device into factory default and restarting...	
Error Messages	N/A	
Related Commands	N/A	

Logout

Commands

exit

Syntax Description	**exit**	Log out from the device
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# exit	
Error messages	N/A	
Related commands	N/A	

tech-support system [enable | disable]

Syntax Description	**tech-support**	Troubleshooting purpose
	system	Switch system
Defaults	Disable	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# tech-support system enable Warning! The Telnet/HTTP service will be disabled. Account Name: moxasupport Account Password: nZParGhefA	
Error messages	"% Error! tech-support system hasn't yet been enabled." "% Account: Invalid: Max user account amount reached."	
Warning messages	"Warning! The Telnet/HTTP service will be disabled." "Please save config to eliminate the account, moxasupport, from the system."	
Related commands	tech-support system login	

tech-support system login

Syntax Description	**tech-support**	Troubleshooting purpose
	system	Switch system internal
	login	Enter into linux shell
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# tech-support system login CLI console locked Enter Password to unlock the console: #	
Error messages	"% Error! tech-support system hasn't yet been enabled."	
Warning messages	N/A	
Related commands	tech-support system enable	