

MX-NOS Rail Version V2

Command Line Interface Manual

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www.moxa.com/products

Models covered by this user manual:

TN-4500B Series



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MX-NOS Rail Version V2 Command Line Interface Manual

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Table of Contents

1. About This Manual	4
2. Understanding the Command Line Interface	5
Accessing the Switch.....	5
Logging in using the RS-232 Console	5
Logging in using Telnet	8
Command Modes	11
Basic Configuration.....	11
Understanding All Command Modes	11
Help Messages	12
Special Usage and Limitations	13
Abbreviated Commands.....	13
No and Default Forms of Commands	14
CLI Error Messages	15
Command History	15
Command Notations.....	15
3. Commands.....	16
System.....	16
System Management	16
Account Management.....	30
Management Interface	35
Network	39
Time	70
Provisioning	77
Auto Configuration	77
Port	79
Port Interface	79
Link Aggregation	89
PoE	94
Layer 2 Switching	106
VLAN	106
MAC	124
QoS.....	126
Multicast	143
Network Redundancy	155
Layer 2 Redundancy	155
Management	191
Network Management	191
Security.....	203
Device Security	203
Network Security.....	212
Authentication	275
Customer Key Management	277
Diagnostics	279
System Status	279
Event Notification	281
Diagnosis	293
Manufacturing Message Specification (MMS)	320
Maintenance and Tools.....	326
4. Supplementary Information	330

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 idea 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.

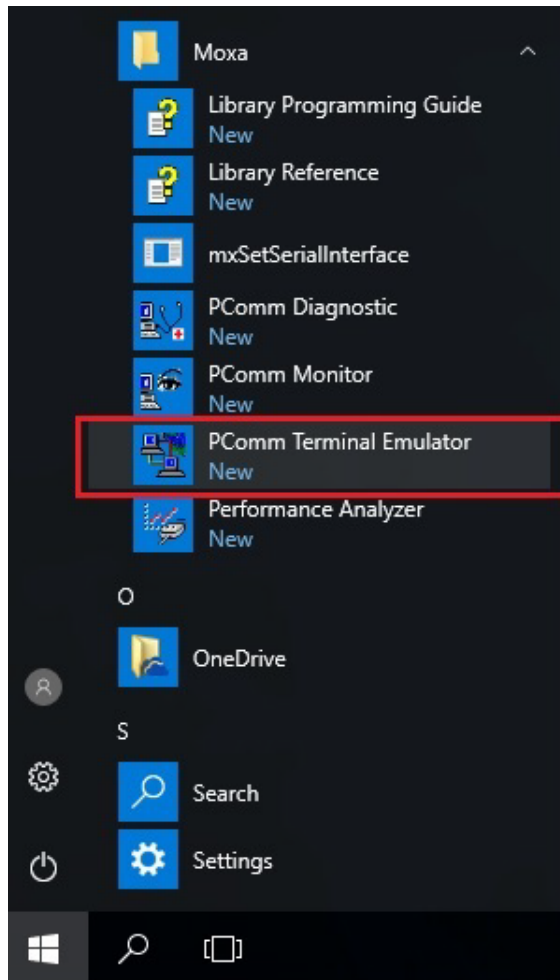


NOTE

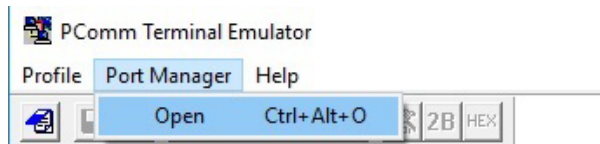
Moxa recommends using PComm Terminal Emulator for serial communication. This software is available for free on the Moxa website. You can use other serial communication software, but the following instructions may be different.

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.



- 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**.

Property

Communication Parameter | Terminal | File Transfer | Capturing

Protocol: Serial

Serial Parameters

COM1
COM2
COM4

Baud rate: 115200
☐ User defined

Data bits: 8

Parity: None

Stop bits: 1

Flow control: ☐ RTS/CTS ☐ DTR/DSR ☐ XON/XOFF

RTS state: ☒ ON ☐ OFF

DTR state: ☒ ON ☐ OFF

Default OK Cancel

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

Property

Communication Parameter | Terminal | File Transfer | Capturing

Terminal type: VT100

Window Size

Size: 80 X 25 (col x row)

History depth: 25 (unit: row)

Transmit

☐ Local echo

Send 'Enter' key as: CR-LF

Receive

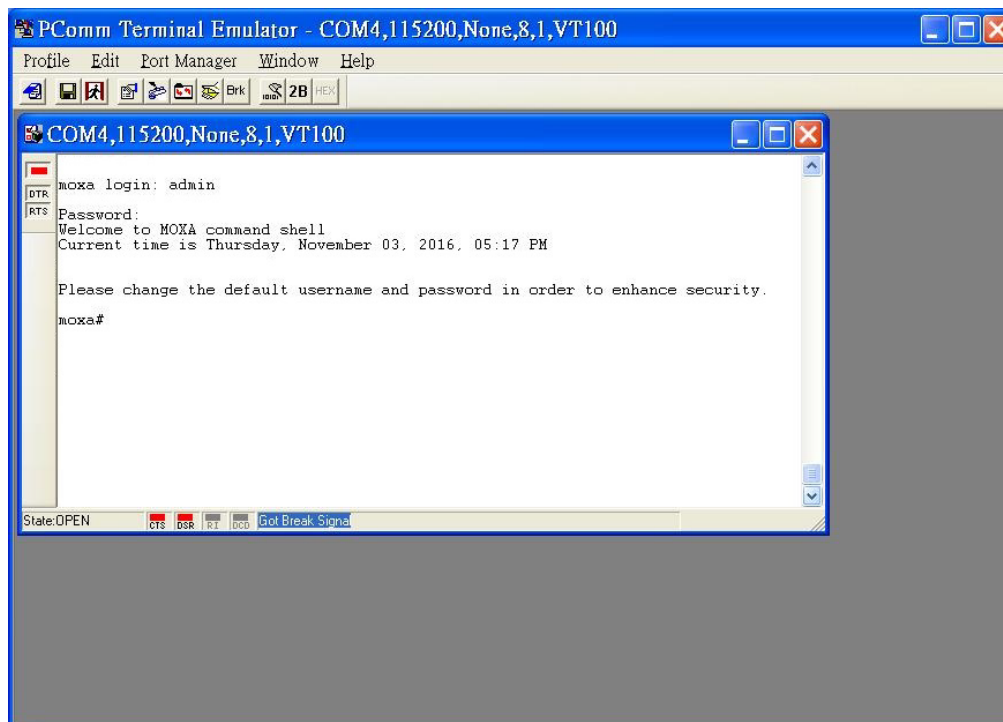
CR translation: No Changed

LF translation: No Changed

☒ Enable auto line wrap

Default OK Cancel

- 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).



- 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.

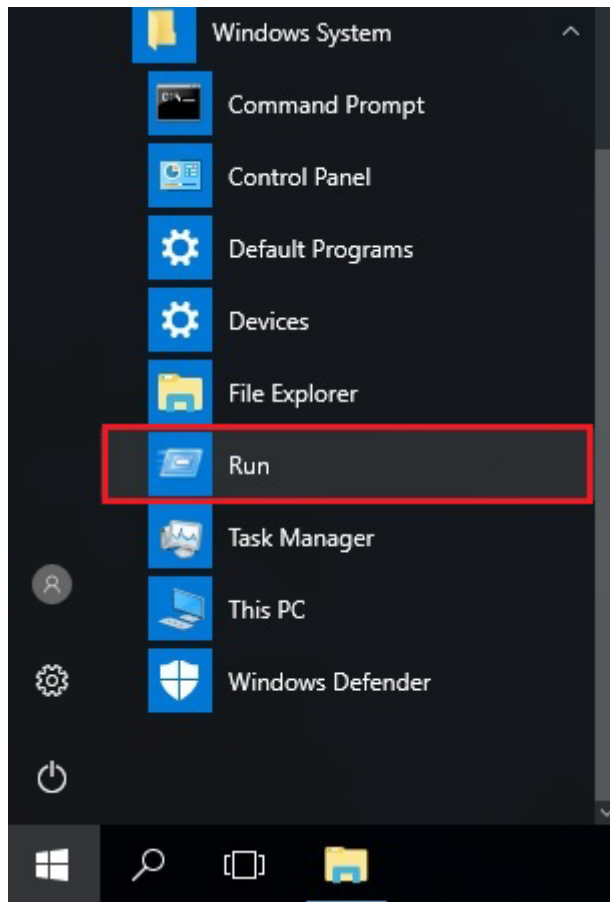


NOTE

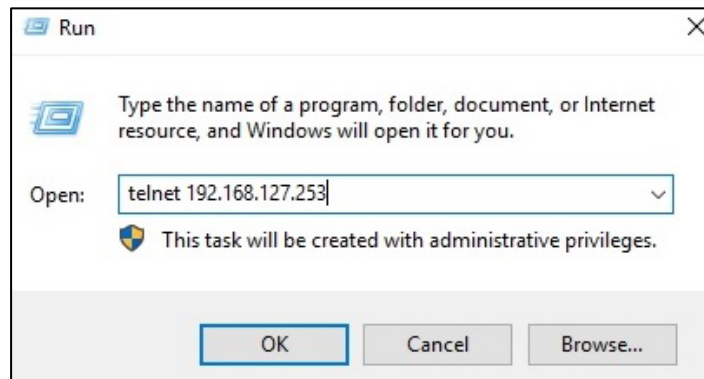
The Moxa switch's default IP address is 192.168.127.253 with subnet mask of 255.255.255.0.

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:

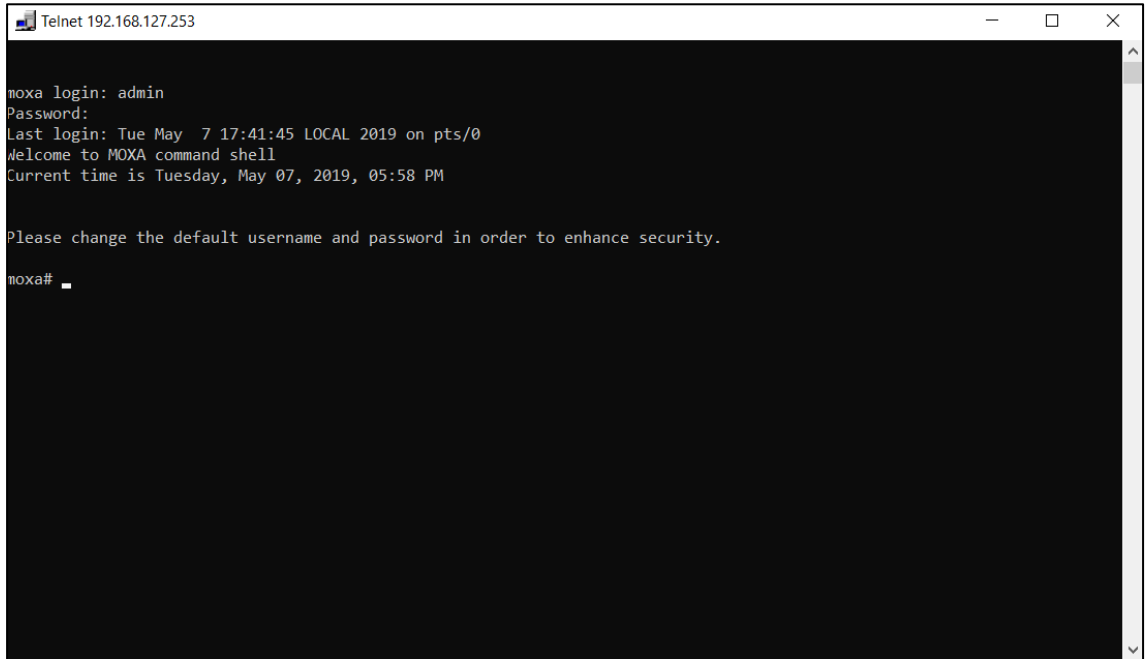
10. In Windows, click **Start > Run**.



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).



```
Telnet 192.168.127.253

moxa login: admin
Password:
Last login: Tue May  7 17:41:45 LOCAL 2019 on pts/0
Welcome to MOXA command shell
Current time is Tuesday, May 07, 2019, 05:58 PM

Please change the default username and password in order to enhance security.

moxa#
```

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.

```
moxa# ?
clear          Clear the specified parameters
cli           Configure the CLI display parameters
configure      Enter configuration mode
copy          Perform copy operation
end           Exit to the privileged Exec (#) mode
exit          Exit the session
help          Display help for the command
locator       Activate device locator so that the LED on the
              device blinks
logout        Terminate the session
ping          Ping a target to check its status
relay         Relay related command
reload        Halt and perform a warm restart
show          Display configuration / statistics / general
              information
moxa#
```

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 command interface <interface-type> <interface-id> command.	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.

```
moxa(config)# contact "test#"
moxa(config)# exit
moxa# show run
Building user configuration ...

! -----
! Time: 2019-08-30 18:37:01
! Model name: MDS-G4028
! Firmware version: v0.4 Build 2019_0703_1227
! Product revision: V255.255.255
! IP address: 192.168.127.253
! MAC address: 00:01:02:03:04:05
! Serial number: MOXA00000000
! Module M2 product revision: None
! Module M3 product revision: None
! Module M4 product revision: None
! Module M5 product revision: None
! Module M6 product revision: None
! Module M7 product revision: None
! -----
configure terminal
contact "test#"
interface ethernet 1/1
!
interface ethernet 1/2
--More--
```

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

```
moxa(config)# hostname test;contact test2
moxa(config)#
test(config)#
```

Abbreviated Commands

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

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

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.

```
moxa# c?
clear
cli
configure
copy
```

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> <interface-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>@server/filename} [included-default] [password <string(60)>]
copy startup-config {tftp://server/filename | sftp://<user-name>:<pass-word>@server/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.

Command Notations

The following table describes the notation used to indicate command-line syntax in this document.

Notation	Description
Bold text without brackets	Required values that must be typed as provided.
[Text inside square brackets]	Optional values.
{Text inside braces}	Multiple applicable required values. You must choose one.
<Text inside angle brackets>	Placeholder variable that requires the user to specify a valid value.
Vertical bar	Also known as a pipe, a separator for mutually exclusive values. You must choose one.

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	Reset to default value
	hostname	Configure the device hostname parameters
	device-name	Device name which only a-z, A-Z, 0-9 or - are allowed. Max length is 64 characters.
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	% Info Setting: Invalid: "Device Name": xxx is invalid input characters	
Related Commands	show system information	

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. Max length is 255 characters.
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> | **usb**: <filename> | **micro-sd**: <filename> } **device-firmware**

Syntax Description	copy	Perform copy operation
	device-firmware	Copy a device firmware file
	tftp_url	Specify the remote TFTP server address in the format "tftp://server/filename"
	sftp_url	Specify the remote SFTP server address in the format "sftp://username:password@server/filename"
	usb	Copy from an ABC-02 USB device under the /Moxa folder.
	micro-sd	Copy from a microSD device under the /Moxa folder.
	filename	Specify the filename
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	(config)# copy tftp://server/"filename" device-firmware (config)# copy sftp://username:password@server/"filename" device-firmware (config)# copy usb:"filename" device-firmware (config)# copy micro-sd:"filename" device-firmware	
Error messages	Invalid: Firmware verify failed Invalid: Invalid Request Data Invalid: File expects [0-9], [a-z], [A-Z], and -._() Invalid: Not support USB. Invalid: Not support microSD. Invalid: USB function is disable Invalid: MicroSD function is disable	
Related commands	N/A	

Configuration Backup and Restore

Copy Running Configuration

Commands

Use below privileged command on the device to copy the current running config into a remote server through specific a protocol, an external storage, or into the non-volatile memory (e.g. flash).

copy running-config { <tftp_url> | <sftp_url> | **usb:** <filename>| **micro-sd:** <filename> } [**included-default**]

copy running-config startup-config

Use below privileged command on the device to copy a configuration file from a remote server through specific protocol or an external storage and save it as a running config on the device.

copy { <tftp_url> | <sftp_url> | **usb:** <filename> | **micro-sd:** <filename> } **running-config**

Syntax Description	copy	Copies the configuration or system logs
	running-config	running-config to be copied
	tftp_url	File in remote location to be copied
	sftp_url	File in remote location to be copied
	usb	File in ABC-02 under /Moxa/config to be copied
	micro-sd	File in micro-SD under /Moxa/config to be copied
	filename	File name
	included-default	Export the running configuration from the volatile memory
	startup-config	Copy the running configuration to the flash memory as the startup config
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	Make sure the network settings are correct before connecting to TFTP or SFTP server. Make sure the hardware interface (USB or Micro SD) is enabled before accessing the external storage.	
Examples	(moxa)# copy running-config tftp://server/"filename" (moxa)# copy running-config sftp://username:password@server/"filename" (moxa)# copy running-config usb: "filename" (moxa)# copy running-config micro-sd: "filename" (moxa)# copy tftp://server/"filename" running-config (moxa)# copy sftp://username:password@server/"filename" running-config (moxa)# copy usb: "filename" running-config (moxa)# copy micro-sd: "filename" running-config (config)# copy running-config startup-config	
Error messages	Invalid: File expects [0-9], [a-z], [A-Z], and -._() Invalid: Not support USB. Invalid: Not support microSD. Invalid: USB function is disable Invalid: MicroSD function is disable Invalid: USB configuration import failed Invalid: MicroSD configuration import failed	
Related commands	copy startup-config { <tftp_url> <sftp_url> usb: <filename> micro-sd: <filename> } [included-default] config-file encryption password <password> show config-file encryption show customer-key info copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> clear customer-key signed-config {enable disable}	

Copy Startup Configuration

Use the **copy startup-config** privileged command to copy the system startup config into a remote server through specific protocol or an external storage, or into the flash ROM as the custom default settings.

Commands

copy startup-config { <tftp_url> | <sftp_url> | **usb:** <filename> | **micro-sd:** <filename> } [**included-default**]

copy startup-config custom-default

Syntax Description	copy	Perform copy operation
	startup-config	Copy the startup configuration
	tftp_url	Specify the remote TFTP server address in the format "tftp://server/filename"
	sftp_url	Specify the remote SFTP server address in the format "sftp://username:password@server/filename"
	usb	Copy from an ABC-02 USB device under the /Moxa folder.
	micro-sd	Copy from a microSD device under the /Moxa folder.
	filename	Specify the filename
	included-default	Export the startup configuration from the flash memory including the default settings
	custom-default	Save configuration from the flash memory as the custom default configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	Make sure the network settings are correct before connecting to TFTP or SFTP server. Make sure the hardware interface (USB or Micro SD) is enabled before accessing the external storage.	
Examples	(moxa)# copy startup-config tftp://server/"filename" (moxa)# copy startup-config sftp://username:password@server/"filename" (moxa)# copy startup-config usb: "filename" (moxa)# copy startup-config micro-sd: "filename" (moxa)# copy startup-config custom-default	
Error messages	Invalid: File expects [0-9], [a-z], [A-Z], and -._() Invalid: Not support USB. Invalid: Not support microSD. Invalid: USB function is disable Invalid: MicroSD function is disable Invalid: USB configuration import failed Invalid: MicroSD configuration import failed	
Related commands	copy running-config { <tftp_url> <sftp_url> usb: <filename> micro-sd: <filename> } config-file encryption password <password> show config-file encryption show customer-key info copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> clear customer-key signed-config {enable disable}	

Configure the Configuration Name

Use the **config-name** command to configure the name of the current configuration.

Commands

config-name <string (32)>

Syntax Description	config-name	Configure the configuration name
	string (32)	Enter the configuration name (32 characters max.)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# config-name 123	
Error messages	N/A	
Related commands	show config-name	

Reset the Configuration Name

Use the **no config-name** command to reset the current configuration name to its default value.

Commands

no config-name

Syntax Description	no	Remove configuration / delete entry / reset to default value
	config-name	Reset the configuration name
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# no config-name	
Error messages	N/A	
Related commands	show config-name	

Configure Auto Backup Settings

Commands

auto-backup config { enable | disable }

Syntax Description	auto-backup	Configure auto backup settings to back up files to an external storage
	config	Configure auto back up for configuration files
	enable	Enable auto backup
	disable	Disable auto backup
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Use the auto-backup config privileged command to set up automatic configuration backups to an external storage such as an ABC-02 or micro-SD whenever the configuration changes.	
Examples	(config)# auto-backup config enable (config)# auto-backup config disable	
Error messages	N/A	
Related commands	show external-storage info auto-backup log	

Configure Auto Restore Settings

Commands

auto-restore config { enable | disable }

Syntax Description	auto-restore	Configure auto restore settings to restore files from an external storage
	config	Configure auto restore for configuration files
	enable	Enable auto restore
	disable	Disable auto restore
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Use the auto-restore config privileged command to set auto-restore configuration from the external storages, ABC-02 and micro-SD when boot-up. Use the auto-restore config privileged command to set up automatic configuration restorations from an external storage such as an ABC-02 or microSD when the device boots up.	
Examples	(config)# auto-restore config enable (config)# auto-restore config disable	
Error messages	N/A	
Related commands	show external-storage info	

Show Configure Name Information

Commands

show config-name

Syntax Description	show	Display running information for the function
	config-name	Show the configuration name
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	(config)# show config-name	
Error messages	N/A	
Related commands	config-name	

Show Auto Backup/Restore Information

Commands

show external-storage info

Syntax Description	show	Display running information for the function
	external-storage	Show information about external storage including USB and microSD
	info	Show the auto-backup configuration, auto-restore configuration, and auto-backup event log settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>(moxa)# show external-storage info External Storage info ----- Auto-backup event log Enable : YES Auto-backup configuration Enable : YES Auto-restore configuration Enable : YES</pre>	
Error messages	N/A	
Related commands	<pre>auto-backup log auto-backup config auto-restore config hardware-interface usb enable</pre>	

File Encryption

Configure File Encryption

Use the **config-file encryption** privileged command to encrypt all data or sensitive information only when exporting a configuration file to an external or remote storage.

Commands

config-file encryption entire-file key < string(60)>

config-file encryption sensitive-info-only [**key** <string(60)>]

no config-file encryption

Syntax Description	config-file	Configure configuration file-related settings
	encryption	Configure configuration file encryption
	entire-file	Encrypt the entire file including sensitive information
	sensitive-info-only	Encrypt sensitive information only
	key	Configure the encryption key string
	string(60)	Specify the encryption key string (60 characters max.)
Defaults	encryption: sensitive-info-only key string: "" (empty string)	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	(config)# config-file encryption sensitive-info-only (config)# config-file encryption sensitive-info-only key 1234 (config)# config-file encryption entire-file key 1234	
Error messages	% Configure File: Invalid: "password": is too long % Configure File: Invalid: Invalid Password Format.	
Related commands	copy running-config { <tftp_url> <sftp_url> usb: <filename> micro-sd: <filename>} [included-default] copy startup-config {<tftp_url> <sftp_url> usb: <filename> micro-sd: <filename>} [included-default] show config-file encryption show customer-key info copy customer-key <tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> clear customer-key signed-config {enable disable}	

Show Configuration File Encryption Information

Commands

show config-file encryption

Commands	show	Display running information for the function
	config-file	Display configuration file-related information
	encryption	Display the configuration file encryption information
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	# show config-file encryption	
Error messages	N/A	
Related commands	copy running-config { <tftp_url> <sftp_url> usb: <filename> micro-sd: <filename> } copy startup-config { <tftp_url> <sftp_url> usb: <filename> micro-sd: <filename> } config-file encryption password <password> show customer-key info copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> clear customer-key signed-config {enable disable}	

File Signature

Import Custom Certificate and Key Files

Commands

copy customer-key {<tftp_url> | <sftp_url>} **private** {<tftp_url> | <sftp_url>} **certificate label** <name>

Syntax Description	copy	Copies the certificate and key files from remote file servers
	customer-key	The key pair generated and imported from the customer
	tftp_url	Specify the file on the remote TFTP server location to be copied. Syntax: tftp:// server/filename
	sftp_url	File in remote location to be copied. Syntax: sftp:// <user-name>:<pass-word>@ server/filename
	private	The private key
	certificate	The certificate
	label	The key label
	name	Specify the name of imported certificate
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	Since only one custom certificate is supported, if you want to replace the existing certificate, use the command clear customer-key to remove the certificate first. copy running-config or copy startup-config will not export the custom certificate.	
Examples	Moxa# copy customer-key tftp://192.168.127.200/custom.crt private tftp://192.168.127.200/customer.key certificate label abckey Moxa# copy customer-key sftp://username:password@192.168.127.200/custom.crt private sftp://username:password@192.168.127.200/customer.key certificate label abckey	
Error messages	The length of the key is not correct. The key algorithm is not correct. The key pair are not in the same set	
Related commands	show customer-key info clear customer-key signed-config {enable disable}	

Clear Custom Certificate and Key Files

Commands

clear customer-key

Syntax Description	clear	Clear the key pair
	customer-key	The key pair generated and imported from the customer
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	A custom certificate must exist before using this command.	
Examples	Moxa# clear customer-key	
Error messages	N/A	
Related commands	copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> show customer-key info signed-config {enable disable}	

Enable/Disable File Signature

Commands

signed-config {enable | disable}

Syntax Description	signed-config	Configure the digital signature when the administrator backs up or restores the configuration
	enable	Enable configuration file signatures
	disable	Disable configuration file signatures
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	A custom certificate must exist before using this command.	
Examples	Moxa(config)# signed-config enable Moxa(config)# signed-config disable	
Error messages	The private and certificate are empty and therefore cannot be enabled.	
Related commands	copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label <name> show customer-key info clear customer-key	

Show Custom Certificate Information

Commands

show customer-key info

Syntax Description	show	Display custom certificate information
	customer-key	The key pair generated and imported from the customer
	info	Show relevant information
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	A custom certificate must exist before using this command.	
Examples	Moxa# show customer-key info Customer key info ----- Private/Certificate Enable: Yes Label: 111 Algorithm: RSA Length: 2048 Moxa# Moxa# show customer-key info Customer key info ----- Moxa#	
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}	

Event Log Backup

Commands

copy event-log { <tftp_url> | <sftp_url> | **usb:** <filename> | **micro-sd:** <filename> }

Syntax Description	copy	Perform copy operation
	event-log	Copy the system event log
	tftp_url	Specify the remote TFTP server address in the format "tftp://server/filename"
	sftp_url	Specify the remote SFTP server address in the format "sftp://username:password@server/filename"
	usb	Copy from an ABC-02 USB device under the /Moxa folder.
	micro-sd	Copy from a microSD device under the /Moxa folder.
	filename	Specify the filename
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	(config)# copy event-log tftp://server/moxa.log (config)# copy event-log sftp://username:password@server/moxa.log (config)# copy event-log usb: Moxa/log/moxa.log (config)# copy event-log micro-sd: Moxa/log/moxa.log	
Error messages	Invalid: File expects [0-9], [a-z], [A-Z], and -._() Invalid: Not support USB. Invalid: Not support microSD. Invalid: USB function is disable Invalid: MicroSD function is disable Invalid: Invalid Request Data	
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
	passwd	The password to be entered by the user
	group	Configures the user privilege level
	{ admin user supervisor }	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	MOXA(config)# username testuser password test123 group admin status enable email test@test.com MOXA(config)# username testuser password test567 MOXA(config)# username testuser group supervisor MOXA(config)# username testuser status disable MOXA(config)# username testuser email test@test.com.tw MOXA(config)# no username testuser	
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 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 Maximum Lifetime

Commands

show password max-life-time

Syntax Description	show	Display running information for the function
	password	Display password parameters
	max-life-time	Displays the maximum life time of the password before it expires
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show password max-life-time	
Error Messages	N/A	
Related Commands	password max-life-time	

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	
	<pre>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</pre>	
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	

Management Interface

Hardware Interfaces

Configure Hardware Interface Settings

Commands

hardware-interface usb {enable | disable}

Syntax Description	hardware-interface	Configure hardware interfaces
	usb	Configure USB interface settings
	enable	Enable the USB interface
	disable	Disable the USB interface
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	(config)# hardware-interface usb enable (config)# hardware-interface usb disable	
Error Messages	N/A	
Related Commands	show hardware-interface	

Show Hardware Interface Settings

Commands

show hardware-interface

Syntax Description	show	Display configuration information
	hardware-interface	Display information about the hardware interfaces of the device
Defaults	N/A.	
Command Modes	Privileged EXEC , User EXEC	
Usage Guidelines	N/A	
Examples	Moxa# show hardware-interface DIP Switch: Enabled microSD: Enabled USB: Enabled	
Error Messages	N/A	
Related Commands	hardware-interface usb	

Remote Network Monitoring (RMON)

Remote Monitoring is a standard monitoring specification that enables various network monitors and console systems to exchange network-monitoring data. RMON provides network administrators with more freedom in selecting network-monitoring probes and consoles with features that meet their particular networking needs. An RMON implementation typically operates in a client/server model. Monitoring devices contain RMON software agents that collect information and analyze packets. These monitoring devices act as servers and the Network Management applications that communicate with them act as clients.

The switch supports these RMON groups (defined in RFC 2819):

1. **Statistics** (RMON v1 group 1): Collect the real-time ethernet statistics on the interface.
2. **History** (RMON v1 group 2): Collect the history ethernet statistics on the interface for the specified polling interval.
3. **Alarm** (RMON v1 group 3): Monitor the specific management information base (MIB) object for a specified interval, trigger an alarm when the ethernet statistics exceed defined thresholds. The alarm triggers an event, which can generate a log entry or an SNMP trap.

4. **Event** (RMON v1 group 9): Generate a log or a SNMP trap for Alarm group, when an event is triggered by an alarm.

Enable/Disable RMON

Commands

rmon { enable | disable }

Syntax Description	rmon	Configure RMON parameters
	enable	Enable RMON
	disable	Disable RMON
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# rmon enable MOXA(config)# rmon disable	
Error Messages	N/A	
Related Commands	rmon alarm rmon event show rmon	

Configure RMON Alarm Settings

Commands

rmon alarm <alarm-id> < mib-object-id > < sample-interval-time > { **absolute** | **delta** } **rising-threshold** < rising-threshold-value > [< rising-event-number >] **falling-threshold** < falling-threshold-value > [< falling-event-number >] [**owner** < ownername >]

no rmon alarm <alarm-id>

Syntax Description	rmon	Configure RMON parameters
	alarm	Configure alarm parameters on a MIB object
	alarm-id	Specify the alarm ID
	mib-object-id	Specify the MIB object ID
	sample-interval-time	Specify the sample interval time
	absolute	Configure the MIB variable is directly tested
	delta	Configure the change between samples of a variable is tested
	rising-threshold	Configure the threshold when the alarm is triggered
	rising-threshold-value	Specify the rising threshold value
	rising-event-number	Specify the rising event number
	falling-threshold	Configure the threshold when the alarm is reset
	falling-threshold-value	Specify the falling threshold value
	falling-event-number	Specify the falling event number
	owner	Configure alarm owner parameters
	ownername	Specify the alarm owner name
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# rmon event 1 description moxanet owner aricent MOXA(config)# rmon alarm 1 1.3.6.1.2.1.2.2.1.8.1 1 delta rising-threshold 1 falling-threshold 1	
Error Messages	Invalid: The item can not be null, when the entry is valid. Invalid: Alarm variable is not valid. Invalid: Falling-threshold should be less than Rising-threshold. Invalid: The event index should exist in the Event Table.	
Related Commands	rmon event rmon show rmon	

Configure RMON Event Settings

Commands

rmon event < event-id > **description** < event-description > [**owner** < ownername >]

no rmon event < event-id >

Syntax Description	rmon	Configure RMON parameters
	event	Configure RMON event parameters
	event-id	Specify the event ID
	description	Configure event description parameters
	event-description	Enter an event description
	owner	Configure event owner parameters
	ownername	Specify the event owner name
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# rmon event 1 description moxanet owner aricent	
Error Messages	Invalid: The item can not be null, when the entry is valid.	
Related Commands	rmon alarm rmon show rmon	

Configure RMON History Settings

Commands

rmon collection history <history-ID> [**buckets** <bucket-Num>] [**interval** <Interval-Time>] [**owner** <ownername>]

no rmon collection history <history-ID>

Syntax Description	rmon	Configure RMON parameters
	collection	Configure collection parameters
	history	Configure port-based history collection parameters
	history-ID	Specify the history table index
	buckets	Configure the maximum number of buckets for the RMON collection history group
	bucket-Num	Specify the total number of buckets
	interval	Configure polling cycle interval
	Interval-Time	Specify the polling cycle interval (in sec)
	owner	Configure RMON group owner parameters
	ownername	Specify the RMON group owner name
Defaults	N/A	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 0/1 MOXA(config-if)# rmon collection history 1 bucket 2 interval 20	
Error Messages	Invalid: The item can not be null, when the entry is valid. Invalid: Interface OID is not valid. Invalid: All paramters of the entry is duplicate with the other entry. Invalid: The item can not be set to null, if the interface OID is already exist.	
Related Commands	rmon alarm rmon event rmon show rmon	

Configure RMON Collection Statistics

Commands

rmon collection stats <stats-ID> [**owner** <ownername>]

no rmon collection stats <stats-ID>

Syntax Description	rmon	Configure RMON parameters
	collection	Configure collection parameters
	stats	Configure port-based statistic collection settings
	stats-ID	Specify the statistics table index
	owner	Configure RMON group owner parameters
	ownername	Specify the RMON group owner name
Defaults	N/A	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 0/1 MOXA(config-if)# rmon collection stats 1	
Error Messages	Invalid: The item can not be null, when the entry is valid. Invalid: The interface OID is not valid. Invalid: The interface OID can not be duplicated. Invalid: The item can not be set to null, if the interface OID is already exist.	
Related Commands	rmon alarm rmon event rmon show rmon	

Show RMON Settings

Commands

show rmon [**statistics** [<statistics_id>]] [**alarms**] [**events**] [**history** [<history_id>]] [**overview**]]

Syntax Description	show	Display configuration information
	rmon	Display RMON information
	statistics	Display statistics information
	statistics_id	Specify the statistics index to show information for
	alarms	Display alarm information
	events	Display event information
	history	Display history information
	history_id	Specify the history index to show information for
	overview	Display overview of RMON history entries
Defaults	N/A.	
Command Modes	User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show rmon MOXA# show rmon statistics MOXA# show rmon alarms MOXA# show rmon events MOXA# show rmon history MOXA# show rmon history overview	
Error Messages	N/A	
Related Commands	rmon rmon alarm rmon event rmon collection history	

Network

IP Configuration

Configure IPv4 Management Address

Commands

ip management address { **dhcp** [**bootfile**] [**client-identifier user-defined** <string (64)>] | <ipv4-address> <ipv4-netmask> [<ipv4-gateway>] }

no ip management address dhcp bootfile

no ip management address dhcp client-identifier

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 via DHCP
	bootfile	Configure DHCP bootfile parameter
	client-identifier	Configure DHCP client identifier parameters
	user-defined	Manually specify a client ID value
	string (64)	Specify the user-defined client ID (maximum 64 characters)
	ipv4-address	Specify the IPv4 address
	ipv4-netmask	Specify the IPv4 subnet mask
	ipv4-gateway	Specify the IPv4 gateway address
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 client-identifier user-defined Moxa123 moxa(config)# ip management address dhcp	
Error Messages	Invalid: Invalid IPv4 Management Address ipv4-address/ipv4-netmask. Invalid: Gateway ipv4-gateway is not reachable.	
Related Commands	N/A	

Configure IPv4 Management Name Server Settings

Commands

ip management name-server <server-index> <server-address>

no ip management name-server <server-index>

Syntax Description	no	Remove configuration / delete entry / reset to default value
	ip	Configure IP parameters
	management	Configure IPv4 management address parameters
	name-server	Configure the IPv4 DNS address of the device
	server-index	Specify the DNS server index, ranges from 1 to 2
	server-address	Specify the DNS server IPv4 address
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ip management name-server 1 1.1.1.1 moxa(config)# no ip management name-server 1	
Error Messages	Invalid: DNS Server server-address is not reachable.	
Related Commands	N/A	

Configure IPv6 Management Address

Commands

ipv6 management address <global-unicast-prefix>

Syntax Description	ipv6	Configure IPv6 parameters
	management	Configure IPv6 management address parameters
	address	Configure the IPv6 management address of the device
	global-unicast-prefix	Specify the IPv6 global unicast prefix of device, last 64 bits must be zero
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal	
	moxa(config)# ipv6 management address 2003:1:1:1::	
Error Messages	Invalid: global-unicast-prefix/64 is not globally reachable.	
Related Commands	N/A	

Configure IPv6 Management Name Server Setting

Commands

ipv6 management name-server <server-index> <server-address>

no ipv6 management name-server <server-index>

Syntax Description	no	Remove configuration / delete entry / reset to default value
	ipv6	Configure IPv6 parameters
	management	Configure IPv6 management address parameters
	name-server	Configure the IPv6 DNS address of the device
	server-index	Index of DNS, ranges from 1 to 2
	server-address	IPv6 address of DNS
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal	
	moxa(config)# ipv6 management name-server 1 2FFF::1	
	moxa(config)# no ipv6 management name-server 1	
Error Messages	N/A	
Related Commands	N/A	

Show IP Management Address

Commands

show ip management

Syntax Description	show	Display configuration/status information
	ip	Display IP-related information
	management	Display management IP address information
Defaults	N/A	
Command Modes	User EXEC	
	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show ip management	
	IPv4	
	Mode	: Manual
	Address	: 192.168.127.253
	Netmask	: 255.255.255.0

	Gateway : DNS Server IPv6 Global Unicast Address Prefix : Global Unicast Address : Link-Local Address : fe80::201:3ff:fe05:709 DNS Server
Error Messages	N/A
Related Commands	N/A

Configure global configuration of DHCP bootfile

Commands

ip management address { **profinet-dcp** | **dhcp** [**bootfile**[{**tftp**|**sftp** **username** <username> **password** <password>}]] | ipv4-address ipv4-netmask [ipv4-gateway] }

no ip management address dhcp bootfile

Syntax Description	no Remove configuration / delete entry / reset to default value ip Configure IP parameters management Configure IPv4 management address parameters address Configure the IPv4 management address of the device profinet-dcp Assign IPv4 by DCP dhcp Assign IPv4 by DHCP bootfile Configure DHCP bootfile parameter tftp Configure file server mode as TFTP sftp Configure file server mode as SFTP username Configure username parameters username User ID to be used for SFTP password Configure password related parameters password Password to be used for SFTP ipv4-address IPv4 address ipv4-netmask IPv4 netmask ipv4-gateway 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 <i>ipv4-address/ipv4-netmask</i> . Invalid: Gateway <i>ipv4-gateway</i> is not reachable. Invalid: Invalid Username Format. Invalid: Invalid Password Format.
Related Commands	N/A

Display global configuration of DHCP bootfile

Commands

ip management address { **profinet-dcp** | **dhcp** [**bootfile**[{**tftp**|**sftp** **username** <username> **password** <password>}]] | ipv4-address ipv4-netmask [ipv4-gateway] }

no ip management address dhcp bootfile

Syntax Description	no	Remove configuration / delete entry / reset to default value
	ip	Configure IP parameters
	management	Configure IPv4 management address parameters
	address	Configure the IPv4 management address of the device
	profinet-dcp	Assign IPv4 by DCP
	dhcp	Assign IPv4 by DHCP
	bootfile	Configure DHCP bootfile parameter
	tftp	Configure file server mode as TFTP
	sftp	Configure file server mode as SFTP
	username	Configure username parameters
	username	User ID to be used for SFTP
	password	Configure password related parameters
	password	Password to be used for SFTP
	ipv4-address	IPv4 address
	ipv4-netmask	IPv4 netmask
	ipv4-gateway	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	<pre> 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 </pre>	
Error Messages	Invalid: Invalid IPv4 Management Address <i>ipv4-address/ipv4-netmask</i> . Invalid: Gateway <i>ipv4-gateway</i> is not reachable. Invalid: Invalid Username Format. Invalid: Invalid Password Format.	
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	<pre> 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 </pre>	

	<pre> 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) </pre>
Error Messages	N/A
Related Commands	N/A

Show IP DHCP Classless Static Route Table

Commands

show ip dhcp classless-static-route

Syntax Description	show	Display configuration/status information
	ip	Display IP-related information
	dhcp	Display DHCP server information
	classless-static-route	Display classless static route information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>moxa# show ip dhcp classless-static-route</pre> DHCP Server Mode: Port-based IP Assignment Classless Static Route Mode: Port-based IP Assignment Default Gateway: Enable	

	Classless Static Route Table			

	IP Address	Subnet Mask	Gateway	Member Port
	192.168.127.1	255.255.255.0	192.168.127.254	Eth1/1, Eth1/2, po1
	192.168.127.2	255.255.255.0	192.168.127.254	Eth1/3, Eth1/4, po2
	Total displayed: 2			
Error Messages	N/A			
Related Commands	ip dhcp classless-static-route destination ip dhcp classless-static-route mode ip dhcp classless-static-route default-gateway dhcp-server mode			

Enable DHCP server DHCP and MAC-based IP assignment

Commands

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

Syntax Description	dhcp-server	Configure DHCP server parameters
	Mode	Configure DHCP server mode parameters
	dhcp-and-mac-based-ip-assignment	Enable DHCP and MAC-based IP assignment mode
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# dhcp-server mode dhcp-and-mac-based-ip-assignment	
Error Messages	N/A	
Related Commands	N/A	

Enable DHCP server port-based IP assignment

Commands

dhcp-server mode port-based-ip-assignment

Syntax Description	dhcp-server	Configure DHCP server parameters
	mode	Configure DHCP server mode parameters
	port-based-ip-assignment	Enable port-based IP assignment mode
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# dhcp-server mode port-based-ip-assignment	
Error Messages	N/A	
Related Commands	N/A	

Disable DHCP server

Commands

dhcp-server mode disable

Syntax Description	dhcp-server	Configure DHCP server parameters
	mode	Configure DHCP server mode parameters
	disable	Disable DHCP server
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# dhcp-server mode disable	
Error Messages	N/A	
Related Commands	N/A	

Enable DHCP Port-based IP Assignment Mode for Classless Static Route

Commands

ip dhcp classless-static-route mode port-based-ip-assignment

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP-related parameters
	classless-static-route	Configure classless static route parameters
	mode	Configure classless static route mode parameters
	port-based-ip-assignment	Enable port-based IP assignment mode
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ip dhcp classless-static-route mode port-based-ip-assignment	
Error Messages	N/A	
Related Commands	ip dhcp classless-static-route destination ip dhcp classless-static-route default-gateway dhcp-server mode show ip dhcp classless-static-route	

Disable DHCP Port-based IP Assignment Mode for Classless Static Route

Commands

ip dhcp classless-static-route mode disable

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP-related parameters
	classless-static-route	Configure classless static route parameters
	mode	Configure classless static route mode parameters
	disable	Disable classless static route
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# ip dhcp classless-static-route mode disable	
Error Messages	N/A	
Related Commands	ip dhcp classless-static-route destination ip dhcp classless-static-route default-gateway dhcp-server mode show ip dhcp classless-static-route	

Enable/Disable DHCP Classless Static Route (Option 121) Settings

Commands

ip dhcp classless-static-route default-gateway { enable | disable }

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP-related parameters
	classless-static-route	Configure classless static route parameters
	default-gateway	Configure default gateway parameters
	enable	Enable the default gateway
	disable	Disable the default gateway
Defaults	disable	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	The default gateway for classless static routes uses the default gateway address configured in the Port-based IP Assignment configuration section when this feature is enabled. Make sure the default gateway is configured in Port-based IP assignment and also set the Classless Static Route mode to port-based-ip-assignment in advance.	
Examples	moxa(config)# ip dhcp classless-static-route default-gateway enable moxa(config)# ip dhcp classless-static-route default-gateway disable	
Error Messages	N/A	
Related Commands	ip dhcp classless-static-route destination ip dhcp classless-static-route mode dhcp-server mode show ip dhcp classless-static-route	

Configure DHCP Classless Static Route Destination Settings

Commands

ip dhcp classless-static-route destination <ip-address> <subnet-mask> **gateway** <ip-address> **add member** ([<iftype> <iface_list>][**port-channel** <integer>])

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP-related parameters
	classless-static-route	Configure classless static route parameters
	destination	Configure destination parameters
	ip-address	Specify the unicast IP address
	subnet-mask	Specify the subnet mask
	gateway	Configure gateway parameters
	ip-address	Specify the unicast IP address
	add	Add ports to the classless static route
	member	Configure the interface type and ID of member ports
	iftype	Specify the interface type
	iface_list	Specify the interface list (slot number/port ID or slot number/port ID-port ID)
	port-channel	Configure port channel interface parameters
	integer	Specify the port channel integer
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Make sure port-based-ip-assignment mode is configured for Classless Static Route in advance.	
Examples	<pre>moxa(config)# ip dhcp classless-static-route destination 192.168.127.1 255.255.255.0 gateway 192.168.127.254 add member ethernet 1/1-12,1/13-16 port-channel 1</pre> <pre>moxa(config)# ip dhcp classless-static-route destination 192.168.127.2 255.255.255.0 gateway 192.168.127.254 add member ethernet 1/1-12,1/13-16 port-channel 1</pre>	
Error Messages	% DHCP Server: Invalid: The given IP Address does not represent a valid IPv4 address. % DHCP Server: Invalid: The given subnet mask does not represent a valid IPv4 classless subnet mask. % DHCP Server: Invalid: This port cannot be configured because it is a member of a port channel. % DHCP Server: Invalid: A port channel must be created first. % All 10 entries are used.	
Related Commands	<pre>ip dhcp classless-static-route default-gateway ip dhcp classless-static-route mode dhcp-server mode show ip dhcp classless-static-route</pre>	

Remove DHCP Classless Static Route Destination Setting

Commands

no ip dhcp classless-static-route destination <ip-address> <subnet-mask> [**member** ([<iftype> <iface_list>])][**port-channel** <integer>]]

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP-related parameters
	classless-static-route	Configure classless static route parameters
	destination	Configure destination parameters
	ip-address	Specify the unicast IP address
	subnet-mask	Specify the subnet mask
	member	Configure the interface type and ID of member ports
	iftype	Specify the interface type
	iface_list	Specify the interface list (slot number/port ID or slot number/port ID-port ID)
	port-channel	Configure port channel interface parameters
	integer	Specify the port channel integer
Defaults	N/A	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# no ip dhcp classless-static-route destination 192.168.127.1 255.255.255.0 moxa(config)# no ip dhcp classless-static-route destination 192.168.127.2 255.255.255.0 moxa(config)# no ip dhcp classless-static-route destination 192.168.127.1 255.255.255.0 member Ethernet 1/1-2 port-channel 1	
Error Messages	% Destination 192.168.127.1 255.255.255.0 does not exist!	
Related Commands	ip dhcp classless-static-route default-gateway ip dhcp classless-static-route mode dhcp-server mode show ip dhcp classless-static-route	

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>	Specify the DHCP pool index
	enable	Enable the DHCP address pool
	disable	Disable the DHCP 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>	Specify the DHCP pool index to remove
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 (1-31622340)> } | { default-router
<uicast_addr> } | { dns-server <uicast_addr_p> [ <uicast_addr_s> ] } | { ntp-server <uicast_addr> } |
{ host-name <host-name (63)> } | { domain-name <domain-name (63)> } | { log-server
<uicast_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 (1-31622340)	Number of seconds
	default-router	Configure the default router
	uicast_addr	The unicast IP address
	dns-server	Configure the DNS server
	uicast_addr_p	The primary DNS server IP address
	uicast_addr_s	The secondary DNS server IP address
	ntp-server	Configure the NTP server
	uicast_addr	The unicast IP address
	host-name	Configure client hostname
	host-name (63)	Client hostname
	domain-name	Configure client domain name
	domain-name (63)	Client domain name
	log-server	Configure log server
	uicast_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 moxa(config-if)# ip dhcp port-based-ip-assignment host-name moxa moxa(config-if)# ip dhcp port-based-ip-assignment domain-name moxa.com moxa(config-if)# ip dhcp port-based-ip-assignment log-server 192.168.127.250	
Error Messages	Gateway [uicast_addr] is not reachable DNS Server 1 [uicast_addr] is not reachable DNS Server 2 [uicast_addr] is not reachable	
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 | host-name | domain-name | log-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
	host-name	Configure client hostname
	domain-name	Configure client domain name
	log-server	Configure log 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 moxa(config-if)# no ip dhcp port-based-ip-assignment host-name moxa(config-if)# no ip dhcp port-based-ip-assignment domain-name moxa(config-if)# no ip dhcp port-based-ip-assignment log-server	
Error Messages	N/A	
Related Commands	N/A	

DHCP Server Option 66/67

DHCP Server Option 66/67

Commands

ip dhcp port-based-ip-assignment { { **lease** <integer (1-31622340)> } | { **default-router** <uicast_addr> } | { **dns-server** <uicast_addr> [<uicast_addr>] } | { **ntp-server** <uicast_addr> } | { **host-name** <host-name (63)> } | { **domain-name** <domain-name (63)> } | { **log-server** <uicast_addr> } | { **file-server** <uicast_addr> } | { **bootfile-name** <bootfile (63)> } }

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 (1-31622340)>	Number of seconds
	default-router	Configure default router
	<uicast_addr>	Unicast IP address
	dns-server	Configure DNS server
	<uicast_addr>	Unicast IP address
	<uicast_addr>	Unicast IP address
	ntp-server	Configure NTP server
	<uicast_addr>	Unicast IP address
	host-name	Configure client hostname
	<host-name (63)>	Client hostname
	domain-name	Configure client domain name
	<domain-name (63)>	Client domain name
	log-server	Configure log server
	<uicast_addr>	Unicast IP address
	file-server	Configure file server
	<uicast_addr>	Unicast IP address
	bootfile-name	Configure bootfile name
	<bootfile (63)>	Bootfile name
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	<pre>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 moxa(config-if)# ip dhcp port-based-ip-assignment host-name moxa moxa(config-if)# ip dhcp port-based-ip-assignment domain-name moxa.com moxa(config-if)# ip dhcp port-based-ip-assignment log-server 192.168.127.250 moxa(config-if)# ip dhcp port-based-ip-assignment file-server 192.168.127.250 moxa(config-if)# ip dhcp port-based-ip-assignment bootfile-name moxa</pre>	
Error Messages	Gateway [uicast_addr] is not reachable DNS Server 1 [uicast_addr] is not reachable DNS Server 2 [uicast_addr] is not reachable The host name must start and end with an alphanumeric character and may contain single dots or hyphens, or consecutive hyphens between characters. Consecutive dots and dot-hyphen combinations are not allowed.	
Related Commands	N/A	

Disabling DHCP Server Option 66/67

Commands

no ip dhcp port-based-ip-assignment { lease | default-router | dns-server | ntp-server | host-name | domain-name | log-server | file-server | bootfile-name }

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 duration of lease
	default-router	Configure default router
	dns-server	Configure DNS server
	ntp-server	Configure NTP server
	host-name	Configure client hostname
	domain-name	Configure client domain name
	log-server	Configure log server
	file-server	Configure file server
	bootfile-name	Configure bootfile name
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 moxa(config-if)# no ip dhcp port-based-ip-assignment host-name moxa(config-if)# no ip dhcp port-based-ip-assignment domain-name moxa(config-if)# no ip dhcp port-based-ip-assignment log-server moxa(config-if)# no ip dhcp port-based-ip-assignment file-server moxa(config-if)# no ip dhcp port-based-ip-assignment bootfile-name	
Error Messages	N/A	
Related Commands	N/A	

Configure DHCP Port-based IP Assignment

Commands

ip dhcp port-based-ip-assignment option-mode { file-server {issued-by-dhcp-server | user-defined} | bootfile-name {ip-addr | user-defined} }

Syntax Description	ip	Configure IP parameters
	dhcp	Configure DHCP server parameters
	port-based-ip-assignment	Configure port-based IP assignment parameters
	option-mode	Configure option mode parameters
	file-server	Configure file server
	issued-by-dhcp-server	use issued by DHCP server
	user-defined	use user defined value
	bootfile-name	Configure bootfile name
	user-defined	use user defined value
	ip-addr	use IP address
Defaults	N/A	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	N/A	
Examples	<pre>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 moxa(config-if)# no ip dhcp port-based-ip-assignment host-name moxa(config-if)# no ip dhcp port-based-ip-assignment domain-name moxa(config-if)# no ip dhcp port-based-ip-assignment log-server</pre>	
Error Messages	N/A	
Related Commands	N/A	

DHCP Relay Agent

Display IP DHCP Relay Configurations

Commands

show ip dhcp relay

Syntax Description	show	Display configuration/statistics information
	ip	Display the IP-related configuration
	dhcp	Display the DHCP-related configuration
	relay	Display the DHCP Relay configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Use this command to show the DHCP relay configuration details.	
Examples	<pre>moxa# show ip dhcp relay Dhcp Relay : Enabled DHCP server 1 : 192.168.127.100 DHCP server 2 : 192.168.127.200 DHCP server 3 : DHCP server 4 : DHCP Relay Option 82 : Remote ID type : IP Remote ID value : 192.168.127.200 Remote ID display : C0A87FC8 The number of packets that Option 82 has been inserted in : 0 The number of packets that have been dropped : 0 The number of packets that Option 82 could not be inserted in : 0 Interface Relay Trusted Option 82 ----- Eth1/1 Disabled Untrusted Disabled Eth1/2 Disabled Untrusted Disabled Eth1/3 Disabled Untrusted Disabled Eth1/4 Enabled Trusted Enabled Eth1/5 Disabled Untrusted Disabled</pre>	
Error messages	N/A	
Related commands	N/A	

Clear IP DHCP Relay Statistics

Commands

clear ip dhcp relay statistics

Syntax Description	clear	Clear statistics information
	ip	Clear IP-related information
	dhcp	Clear DHCP-related information
	relay	Clear DHCP relay-related information
	statistic	Clear the DHCP relay statistics
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Use this command to clear the DHCP relay statistics counters	
Examples	moxa# clear ip dhcp relay statistics	
Error messages	N/A	
Related commands	N/A	

Enable/Disable DHCP Relay Global Status

Commands

ip dhcp relay {enable | disable}

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay parameters
	enable	Enable the global DHCP relay
	disable	Disable the global DHCP relay
Defaults	Disable	
Command Modes	Global Configuration	
Usage Guidelines	Use this command to enable or disable the global DHCP relay	
Examples	moxa(config)# ip dhcp relay enable	
Error messages	N/A	
Related commands	N/A	

Configure the DHCP Relay Server

Commands

ip dhcp relay server <server-index> <ucast_addr>

no ip dhcp relay server <server-index>

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay parameters
	server	Configure DHCP relay server parameters
	<server-index>	Specify the DHCP server address index (1-4)
	<ucast_addr>	Specify the IP address of the DHCP server to which the packets are to be forwarded
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	Use this command to specify the IP address of the DHCP server to which the packets are to be forwarded. To remove the DHCP relay server address, use the no form of this command.	
Examples	moxa(config)# ip dhcp relay server 1 192.168.127.100	
Error messages	N/A	
Related commands	N/A	

Configure the DHCP Relay Interface Status

Commands

ip dhcp relay

no ip dhcp relay

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay interface parameters
Defaults	Disable	
Command Modes	Interface Configuration	
Usage Guidelines	Use this command to enable the DHCP relay interface. To disable the DHCP relay interface, use the no form of this command.	
Examples	moxa(config-if)# ip dhcp relay	
Error messages	N/A	
Related commands	N/A	

Configure the DHCP Relay Trust Mode

Commands

ip dhcp relay trust

no ip dhcp relay trust

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay parameters
	trust	Configure the DHCP relay trust mode
Defaults	Untrust	
Command Modes	Interface Configuration	
Usage Guidelines	If the interface is in untrusted mode, it will drop any DHCP packets with Option 82 information or DHCP packets with a non-zero GIAddr received from untrust sources. In trusted mode, the interface will accept all DHCP packets.	
Examples	moxa(config-if)# ip dhcp relay trust	
Error messages	N/A	
Related commands	N/A	

DHCP Relay Agent Option82

Display IP DHCP Relay Configurations

Commands

show ip dhcp relay

Syntax Description	show	Display configuration/statistics information
	ip	Display the IP-related configuration
	dhcp	Display the DHCP-related configuration
	relay	Display the DHCP Relay configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Use this command to display the DHCP relay configuration details.	
Examples	<pre>moxa# show ip dhcp relay Dhcp Relay : Enabled DHCP server 1 : 192.168.127.100 DHCP server 2 : 192.168.127.200 DHCP server 3 : DHCP server 4 : DHCP Relay Option 82 : Remote ID type : IP Remote ID value : 192.168.127.200 Remote ID display : C0A87FC8 The number of packets that Option 82 has been inserted in : 0 The number of packets that have been dropped : 0 The number of packets that Option 82 could not be inserted in : 0 Interface Relay Trusted Option 82 ----- Eth1/1 Disabled Untrusted Disabled Eth1/2 Disabled Untrusted Disabled Eth1/3 Disabled Untrusted Disabled Eth1/4 Enabled Trusted Enabled Eth1/5 Disabled Untrusted Disabled</pre>	
Error messages	N/A	
Related commands	N/A	

Configure the DHCP Relay Option 82 Remote ID

Commands

ip dhcp relay option82 remote-id {**ip** | **mac** | **client-id** | **other** <string(15)>}

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay parameters
	option82	Configure DHCP Option 82 parameters
	remote-id	Configure the Option 82 remote ID
	ip	Specify the IP address of the switch
	mac	Specify the MAC address of the switch
	client-id	Specify the hostname of the switch
	other	Use a user-defined remote ID
	<string>	Specify the remote ID string (max 15 characters)
Defaults	The IP address of switch	
Command Modes	Global Configuration	
Usage Guidelines	Use this command to specify the Option 82 remote ID of the switch.	
Examples	moxa(config)# ip dhcp relay option82 remote-id mac moxa(config)# ip dhcp relay option82 remote-id other abcdef	
Error messages	N/A	
Related commands	N/A	

Enable the DHCP Relay Option 82 Interface

Commands

ip dhcp relay option82

no ip dhcp relay option82

Syntax Description	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	relay	Configure DHCP relay parameters
	option82	Configure the DHCP Option 82 interface status
Defaults	Disable	
Command Modes	Interface Configuration	
Usage Guidelines	Use this command to enable the DHCP relay to add Option 82 through the interface. To disable it, use the no form of this command.	
Examples	moxa(config-if)# ip dhcp relay option 82	
Error messages	N/A	
Related commands	N/A	

DNS Server

Enable/Disable DNS Server

Commands

dns-server [{ **enable** | **disable** }]

Syntax Description	dns-server	Configure DNS server parameters
	enable	Enable DNS server functionality
	disable	Disable DNS server functionality
Defaults	Disabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa (config)# dns-server enable moxa (config)# dns-server disable	
Error Messages	N/A	
Related Commands	N/A	

Enable/Disable DNS Reverse Lookup

Commands

ip dns-server reverse-lookup

no ip dns-server reverse-lookup

Syntax Description	ip	Configure IP parameters
	dns-server	Configure DNS server parameters
	reverse-lookup	Enable DNS Reverse Lookup
Defaults	Disabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa (config)# ip dns-server reverse-lookup moxa (config)# no ip dns-server reverse-lookup	
Error Messages	N/A	
Related Commands	N/A	

Configure DNS Server Zone Settings

Commands

ip dns-server zone <zone-index (1-16)> [**domain-name** <string(63)>]

no ip dns-server zone { <zone-index(1-16)> | **all** }

Syntax Description	ip	Configure IP parameters
	dns-server	Configure DNS server parameters
	zone	Configure zone parameters
	zone-index (1-16)	Specify the zone index number
	domain-name	Configure the domain name for the zone
	string(63)	Specify the domain name (maximum 63 characters)
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	<pre> moxa(config)# ip dns-server zone 3 % this zone is not created, domain name of this zone should be set first moxa(config)# ip dns-server zone 3 domain-name xxx moxa(config)# ip dns-server zone 3 moxa(config-dns-server-zone)# moxa(config-dns-server-zone)# end moxa# show ip dns-server zone 3 ZONE-3 ----- Domain name: xxx DNS table: ----- Total entries: 0 </pre>	
Error Messages	% this zone is not created, domain name of this zone should be set first	
Related Commands	N/A	

Show DNS Server Settings

Commands

show ip dns-server [**zone** [<zone-index>]]

Syntax Description	show	Display configuration/status information
	ip	Display the IP-related configuration
	dns-server	Show the DNS server configuration
	zone	Display zone information
	zone-index	Specify the zone index to show information for, ranges from 1 to 16
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>moxa# show ip dns-server DNS Server: Enable DNS Reverse Lookup: Enable moxa# show ip dns-server zone Zone Table: ----- Index Domain Name ZONE-1 a ZONE-2 b ZONE-10 k ----- Total zones: 3 moxa# show ip dns-server zone 1 ZONE-1 Domain name: a DNS table: ----- FQDN IP Address 1.door.ext.a 10.1.2.1 2.door.ext.a 10.1.2.2 ----- Total entries: 2</pre>	
Error messages	N/A	
Related commands	N/A	

mDNS Responder

mDNS Responder Global Setting

Commands

mdns-sd responder {enable|disable}

Syntax Description	mdns-sd	Configure mDNS parameters
	responder	Configure mDNS responder parameters
	enable	Enable setting
	disable	Disable setting
Defaults	The feature is enabled by default.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mdns-sd responder enable	
Error Messages	mDNS Responder cannot be disabled if ITxPT service is enabled.	
Warning Messages	If the device hostname contains multiple labels separated by a dot (e.g. [label1].[label2].[...]), only the first label will be used to generate the local domain name (e.g. [label1].local).	
Related Commands	show mdns-sd responder	

mDNS Responder ITxPT setting

Commands

mdns-sd responder itxpt {enable|disable}

Syntax Description	mdns-sd	Configure mDNS parameters
	responder	Configure mDNS responder parameters
	itxpt	Configure ITxPT service parameters
	enable	Enable setting
	disable	Disable setting
Defaults	The feature is disabled by default.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mdns-sd responder itxpt enable	
Error Messages	ITxPT service cannot be enabled if mDNS Responder is disabled..	
Warning Messages	N/A	
Related Commands	show mdns-sd responder	

Show mDNS Responder

Commands

show mdns-sd responder

Syntax Description	show	Display configuration/status information
	mdns-sd	Display mDNS information
	responder	Display mDNS responder information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>moxa# show mdns-sd responder mDNS Responder : Enabled Local Domain name : moxa.local System Service Type : _moxa._tcp System Service Instance Name : TN-4520B-12P-4G-4GP- T_B12B01._moxa._tcp.local ITxPT Service : Enabled ITxPT Service Type : _itxpt_socket._tcp ITxPT Service Instance Name : MOXA00000000_inventory._itxpt_socket._tcp.local</pre>	
Error Messages	N/A	
Warning 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
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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 (2000 to 2037)
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	Invalid: Cannot modify clock time as the clock source is not Local	
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 Date

Commands

clock summer-time date <started-month> <started-week> <started-day> <started-hour:started-minute> <ended-month> <ended-week> <ended-day> <ended-hour:ended-minute> [<offset>]

Syntax Description	clock	Configure system clock parameters
	summer-time	Configure Daylight Savings Time parameters
	date	Configure the date of Daylight Savings Time
	started-month	Specify the Daylight Saving Time starting month <integer (1-12)> (Jan (1) to Dec (12))
	started-week	Specify the Daylight Saving Time starting week {1st 2nd 3rd 4th last}
	started-day	Specify the Daylight Saving Time starting day <integer (1-7)> (Mon (1) to Sun (7))
	<started-hour:started-minute>	Specify the Daylight Saving Time starting day (Hour <00-24>, Minute <00-59>)
	ended-month	Specify the Daylight Saving Time ending month <integer (1-12)> (Jan (1) to Dec (12))
	ended-week	Specify the Daylight Saving Time ending week (1st-last)
	ended-day	Specify the Daylight Saving Time ending day <integer (1-7)> (Mon (1) to Sun (7))
	<ended-hour:ended-minute>	Specify the Daylight Saving Time ending day (Hour <00-24>, Minute <00-59>)
	offset	Specify the offset time (HH:mm <00:00-23:59>)
	Defaults	daylight saving time date: Mar last Sun 01:00 Oct last Sun 01:00 01:00
	Command Modes	Global Configuration
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# clock summer-time date Mar 2nd 02:00 Nov 1st Sun 02:00 01:00	
Error Messages	N/A	
Related Commands	N/A	

Configure NTP Authentication Key

Commands

ntp auth-key key-id {md5 | aes128cmac} key-string

no ntp auth-key key-id

Syntax Description	no	Remove configuration / delete entry / reset to default value
	ntp	Configure NTP/SNTP parameters
	auth-key	Configure the authenticate key of NTP
	key-id	Key number, range from 1 to 65535
	md5	Use MD5 authentication
	aes128cmac	Use AES128CMAC authentication
	key-string	Authentication key, maximum key length is 20 bytes (20 chars in ASCII) or 32 bytes (hex string).
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# ntp auth-key 1 md5 1a2b3c4d moxa(config)# ntp auth-key 1 aes128cmac 1a2b3c4d moxa(config)# no ntp auth-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. Ranges from 1 to 65535.
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>

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	

Configure SNTP Query Interval

Commands

sntp query-interval <integer(4-13)>

Syntax Description	sntp	Configure SNTP parameters
	query-interval	Configure SNTP query interval parameters
	Integer(4-13)	Specify the SNTP query interval value: 4 (16 sec), 5 (32 sec), 6 (64 sec), 7 (128 sec), 8 (256 sec), 9 (512 sec), 10 (1024 sec), 11 (2048 sec), 12 (4096 sec), 13 (8192 sec)
Defaults	SNTP query interval: 9(512 sec.)	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# sntp query-interval 8	
Error Messages	N/A	
Related Commands	N/A	

Configure SNTP Query Interval to Default Value

Commands

no sntp query-interval

Syntax Description	no	Reset SNTP query interval to its default value
	sntp	Configure SNTP parameters
	query-interval	Reset the SNTP query interval parameters
Defaults	SNTP query interval: 9(512 sec.)	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# no sntp query-interval	
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	

Provisioning

Auto Configuration

Auto Configuration

Configure Auto Configuration Settings

Commands

auto-configuration {**mode** {**disable** | **import** | **propagate**} | **timeout** <seconds> | **control-unit-port** <interface-type> <interface-id>}

no auto-configuration

Syntax Description	no	Remove configuration / delete entry / reset to default value
	auto-configuration	Configure Auto Configuration parameters
	mode	Configure the Auto Configuration mode
	disable	Disable Auto Configuration
	import	Set Auto Configuration to Import Mode
	propagate	Set Auto Configuration to Propagate Mode
	timeout	Configure the timeout value
	seconds	Specify the timeout value (in seconds)
	control-unit-port	Configure control unit port parameters
	interface-type	Specify the interface type (Ethernet)
	interface-id	Specify the interface ID in the format <1-X>/<1-Y> (Slot Number/Port Number)
Defaults	This feature is disabled by default.	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# auto-configuration mode import moxa(config)# auto-configuration timeout 360 moxa(config)# auto-configuration control-unit-port ethernet 1/6	
Error Messages	N/A	
Related Commands	show auto-configuration	

Show Auto Configuration Settings

Commands

show auto-configuration

Syntax Description	show	Show configuration/status information
	auto-configuration	Display Auto Configuration information
Defaults	N/A	
Command Modes	User EXEC	
	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show auto-configuration Mode: Import Timeout(seconds): 360 Control Unit Port: 4 Status: Auto Configuration will be triggered after the reboot DHCP Server: File Server: File Name:	
Error Messages	N/A	
Related Commands	auto-configuration	

Port

Port Interface

Port Settings

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>] [{ **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	<pre> 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 </pre>	
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> | <interface-type> <interface-id> }]]

Syntax Description	show	Display configuration/statistics/general information
	flow-control	Display flow-control information
	interface	Protocol-specific configuration of the interface
	port-channel	Display the port-channel interface
	port-channel-id	Display channel group information
	interface-type	ethernet
	interface-id	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# show flow-control	
	<pre> 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 </pre>	
Error Messages	N/A	
Related Commands	N/A	

Show Linkup Delay Status

Commands

show linkup-delay [**interface** <interface-type> <interface-id>]

Syntax Description	show	Display configuration/statistics/general
	linkup-delay	Display linkup-delay information
	interface	Interface-related configuration
	interface-type	ethernet
	interface-id	The interface ID: slot number/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)>

no linkup-delay timer

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 Linkup Delay Settings

Commands

linkup-delay

no linkup-delay

Syntax Description	linkup-delay	Enable linkup delay on this interface
	no linkup-delay	Disable linkup delay on this interface
Defaults	Linkup delay is disabled by default	
Command Modes	Interface Configuration	
Usage Guidelines	N/A	
Examples	moxa(config-if)# linkup-delay moxa(config-if)# no linkup-delay	
Error Messages	N/A	
Related Commands	linkup-delay [enable disable] linkup-delay timer	

Configure Auto-Negotiation Settings

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. This is an integer value and it is recommended to configure it incrementally.
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	A port-channel should be created before specifying it in the command.	
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 by 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 [<channel-group-number>] [{ **detail** | **load-balance** | **port** | **port-channel** | **summary** | **protocol** }]

Syntax Description	show	Display configuration / status information
	port-channel	Display port-channel information
	channel-group-number	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	poe	Configure PoE parameters
	auto-power-cutting	Enable auto power cutting to automatically cut power to specific PDs when the consumed PoE power exceeds the system power budget
Defaults	This feature is disabled by default.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Enables auto power-cutting to lower priority PDs to ensure the PoE power supply of higher priority PDs. Use the no version of this command to disable the feature.	
Examples	moxa(config)# poe auto-power-cutting Are you sure you want to enable the auto-power-cutting? If so, the power-management-mode will become consumed-power mode. [y/N] y moxa(config)# no poe auto-power-cutting Are you sure you want to disable the auto-power-cutting? If so, the power-management-mode will become allocated-power mode. [y/N] y	
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** <uicast_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
	uicast_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(0-23)> <start-time-min: integer(0-59)> <end-time-hour: integer(0-23)> <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 (0-23)	The scheduling rule starting hour
	start-time-min: integer (0-59)	The scheduling rule starting minute
	end-time-hour: integer (0-23)	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)>]	

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 Settings

Commands

poe output-mode { auto | force power-allocation <watt: integer(Minimum - Maximum power output limit value of product)> }

Syntax Description	poe	Configure PoE parameters
	output-mode	Configure the PoE power output mode
	auto	Set the PoE output mode to Standard
	force	Set the PoE output mode to Force, for non-standard or legacy PDs
	power-allocation	Configure the PoE power output limit for Force mode
	<watt: integer (Minimum - Maximum power output limit value of product)>	Specify the PoE power output limit (in Watts), available output range depends on the product specifications
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. Power allocation value is 0. Force mode suitable for non-standard and legacy PDs. Power output range: The minimum and maximum power output limit of the product depends on the product specifications	
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 μ F or less than 10 μ F
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 μ F 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 Settings, Status, and Diagnosis

Commands

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

Syntax Description	show	Display configuration/status information				
	poe	Display PoE information				
	interface	Display interface information				
	<iftype>	Specify the interface type				
	<ifnum>	Specify the interface number				
	config	Display the PoE configuration				
	status	Display PoE status				
	diagnosis	Display the PoE diagnosis				
Defaults	N/A					
Command Modes	User EXEC					
	Privileged EXEC					
Usage Guidelines	For bt PoE (RKS/EDS Series):					
	1. If the PoE Power Management Mode” is “Allocated Power”, the Remaining Available Power is the “Power Budget Limit” minus “Allocated Power”. 2. If the PoE Power Management Mode is “Consumed Power”, the Remaining Available Power is the “Power Budget Limit” minus “Consumed Power”.					
	For PoE (MDS Series):					
	1. If the PoE Power Management Mode is “Allocated Power”, the “Remaining Available Power” is the “Maximum Input Power” minus “Allocated Power”. 2. If the PoE Power Management Mode is “Consumed Power”, the Remaining Available Power is the “Maximum Input Power” minus “Consumed Power”.					
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					
	Power Budget Limit: 180					
	Allocated Power: 46					
	Consumed Power: 1					
	Remaining Available Power: 134					
	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-Maximum value of actual power budget*)>					

	poe auto-power-cutting no poe auto-power-cutting poe no poe poe output-mode { auto force power-allocation <watt: integer(0-90)> } poe legacy-pd-detection no poe legacy-pd-detection poe priority { critical high low } no poe priority
--	--

* The system power budget value depends on the product specifications.

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 <uicast_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)>	

Configure Power Management Mode Settings

Commands

poe power-management-mode { allocated-power | consumed-power }

Syntax Description	poe	Configure PoE parameters
	power-management-mode	Power management mode depends on power usage of all ports
	allocated-power	Calculate power budget of all ports
	consumed-power	Calculate real-time power consumption of all ports
Defaults	The default value of power-management-mode depends on Product Spec	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	In allocated-power mode, the PoE system will calculate power budget of all ports. In consumed-power mode, the PoE system will calculate real-time power consumption of all ports. Hint: Are you sure you want to select the allocated-power mode? If so, the auto-power-cutting will be disabled. [y/N] Are you sure you want to select the consumed-power mode? If so, the auto-power-cutting will be enabled. [y/N]	
Examples	moxa(config)# poe power-management-mode allocated-power Are you sure you want to select the allocated-power mode? If so, the auto-power-cutting will be disabled. [y/N] y moxa(config)# poe power-management-mode consumed-power Are you sure you want to select the consumed-power mode? If so, the auto-power-cutting will be enabled. [y/N] y	
Error Messages	N/A	

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	
Error Messages	Hybrid Default Learning Mode : IVL	
	Version number : 1	
Related Commands	Max vlan id : 4094	
	Max supported vlans : 256	
	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	<pre> 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 ----- </pre>	
Error Messages	N/A	
Related Commands	<pre> 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 </pre>	

Show VLAN Port Configuration

Commands

show vlan port config 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	The port channel
	integer	Integer value, should be valid port-channel ID
	interface-type	ethernet
	interface-id	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre> 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 </pre>	
Error Messages	N/A	
Related Commands	<pre> Switchport pvid Switchport acceptable-frame-type Switchport ingress-filter Switchport mode gvrp gmrp vlan restricted group restricted switchport filtering-utility-criteria </pre>	

Show MAC Address Table Information

Commands

show mac-address-table [**vlan** <vlan-range>] [**address** <aa:aa:aa:aa:aa:aa>] [**interface** {**port-channel** <integer> | <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.
	vlan-id	Integer value ranges from 1 to 4094.
	interface	Configure the interface
	interface-type	ethernet
	interface-id	The interface ID: slot number/port number
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show mac-address-table	
	<pre> vlan Mac Address Type ConnectionId Ports ---- - 1 00:00:5e:00:01:02 Learnt 1 00:21:cc:62:f7:0b Learnt 1 00:21:cc:72:a8:d7 Learnt Total Mac Addresses displayed: 3 </pre>	
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 addresses
	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 interface-id	The Ethernet type The port-channel 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	
	<pre> 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 </pre>	
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 interface-id	The Ethernet type The port-channel The slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre> 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 </pre>	
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
	port	Display port information
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
	interface-type	ethernet
	interface-id	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre> 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 </pre>	
Error Messages	N/A	
Related Commands	vlan active	

Show GMRP Statistics

Commands

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

Syntax Description	show	Display configuration/statistics/general information
	gmrp statistics	Display GMRP statistics
	port	Display port information
	port-channel	Configure port channel parameters
	integer	Specify the integer value, must be valid port-channel ID
	interface-type	Specify the interface type (Ethernet)
	interface-id	Specify the interface ID in the format <1-X>/<1-Y> (Slot Number/Port Number)
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show gmrp statistics port ethernet 1/5	
	GMRP Statistics for Port Eth1/5	

	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:0	
	Join Emptys	0
	Join In	0
Leave In	0	
Leave All	0	
Leave Empty	0	
Empty	0	
Error Messages	N/A	
Related Commands	N/A	

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	

Show VLAN Unaware Mode

The command displays the current configuration of VLAN Unaware mode.

Commands

show vlan-unaware

Syntax Description	show	Display configuration/statistics/general information
	vlan-unaware	Display VLAN Unaware mode information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show vlan-unaware Vlan Unaware: Disabled	
Error Messages	N/A	
Related Commands	N/A	

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 <code>vlan <vlan-id></code> 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	

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	Interface 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	

Globally Enable/Disable VLAN Unaware Mode

This command enables or disables VLAN Unaware mode. When enabled, the device operates in a VLAN-segmented LAN by processing packets according to inbound rules. It forwards data packets transparently without modification, effectively acting as a bridge. Enabling this mode deactivates standard VLAN settings, and the device prioritizes packets based solely on the data packet's information. Tagged packets are transmitted as tagged, and untagged packets as untagged.

Commands

vlan-unaware { enable | disable }

Syntax Description	vlan-unaware	Configure the VLAN Unaware mode parameters
	enable	Enable VLAN Unaware mode
	disable	Disable VLAN Unaware mode
Defaults	VLAN unaware mode is disabled by default	
Command Modes	Configuration	
Usage Guidelines	To enable VLAN Unaware mode, the following switch configuration is required: • No other VLANs except VLAN 1 • All ports configured as access ports. • All ports must have a Port VLAN ID (PVID) of VLAN 1. • The management VLAN must be set to VLAN 1. VLAN Unaware mode is incompatible with and disables the following settings: • GVRP • RSPAN • MSTP • MRP These features require the creation or use of multiple VLANs.	
Examples	moxa(config)# vlan-unaware enable	
Error Messages	N/A	
Related Commands	N/A	

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	Interface 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 }

no switchport acceptable-frame-type

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-filter

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}

no switchport mode

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

no 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>

no switchport access vlan

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	Disarding 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

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 (1-4096)
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

Configure GARP Timer

Commands

garp timer {join | leave | leaveall} <time in milli seconds>

Syntax Description	garp timer	Configure GARP timer parameters
	join	Configure the time (ms) a GARP participant should wait for its join message to be acknowledged before re-sending the join message. The join message is retransmitted only once if the initial message is not acknowledged. The time is counted from the moment the initial join message is sent. The join message is sent by a GARP participant to another GARP participant for registering purposes.
	leave	Configure the time (ms) a GARP participant should wait for any join message before removing attribute details.
	leaveall	Configure the time (ms) the details of the registered attributes are maintained.
	time in milli seconds	Integer value: join – ranges from 10 to 1073741810 leave – ranges from 30 to 2147483630 leaveall – ranges from 40 to 2147483640
Defaults	join - 200ms leave - 600ms leaveall - 10000ms	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	This command configures GARP timers for a port. GARP uses these timer values to control the transmission of GARP PDUs used in synchronizing attribute information between the switches, and in registering and de-registering of attribute values. The configured GARP timer values are applicable for both GVRP and GMRP application of the GARP module.	
Examples	moxa(config-if)# garp timer join 250	
Error Messages	N/A	
Related Commands	show garp timer	

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		
	port	Display port information		
	port-channel	The port channel		
	integer	Integer value, should be valid port-channel ID		
	interface-type	ethernet		
	interface-id	The interface ID: 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

mac-address-table static unicast <aa:aa:aa:aa:aa:aa> **vlan** <vlan-id> **set interface** {<interface-type> <slot/port-port,slot/port,...> | **port-channel** <integer>} [**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
	slot/port-port	The slot number/port number
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
	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	

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	<pre>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</pre>	
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	<pre>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</pre>	
Error Messages	N/A	
Related Commands	<pre>moxa (config)# qos cos-mapping cos-priority <cos-priority(0-7)> queue-id <queue-id(1-8)></pre>	

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	<pre>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</pre>	
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	<pre>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</pre>	
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-max_rate)> [**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-max_rate)	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	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-max_rate)> [**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-max_rate)	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-max_rate)> [**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-max_rate)> [**cbs** <cbs(1-10240)>] [**ebs** <ebs(1-10240)>]
conform-action do-nothing 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-max_rate)	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
	do-nothing	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 do-nothing 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-max_rate)> [**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
	cir (1-max_rate)	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-max_rate)> [**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-max_rate)	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>]	

Enable/Disable Port Shutdown

Commands

rate-limit port-shutdown { enable | disable }

Syntax Description	rate-limit	Configure rate limit parameters
	port-shutdown	Configure rate limit port shutdown parameters
	enable	Enable rate limit port shutdown
	disable	Disable rate limit port shutdown
Defaults	Disabled.	
Command Modes	Global configuration mode	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# rate-limit port-shutdown enable	
Error Messages	N/A	
Related Commands	show rate-limit port-shutdown	

Configure Port Shutdown Release Interval

Commands

rate-limit port-shutdown release interval < release_interval >

Syntax Description	rate-limit	Configure rate limit parameters
	port-shutdown	Configure rate limit port shutdown parameters
	release interval	Configure the rate limit port shutdown release interval
	release_interval	Configure 特 release time (in min). The integer value ranges from 0 to 10080.
Defaults	Default release interval is 60.	
Command Modes	Global configuration mode	
Usage Guidelines	Release interval 0 means the port will be shut down until manually re-enabled.	
Examples	MOXA# configure terminal MOXA(config)# rate-limit port-shutdown release interval 120	
Error Messages	N/A	
Related Commands	show rate-limit port-shutdown	

Configure Port Shutdown Settings

Commands

rate-limit port-shutdown

no rate-limit port-shutdown

Syntax Description	rate-limit	Configure rate limit parameters
	port-shutdown	Enable or disable rate limit port shutdown
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)# rate-limit port-shutdown MOXA(config-if)# no rate-limit port-shutdown	
Error Messages	Invalid: Rate Limit function can not be enabled on Turbo Ring / Turbo Chain ports. Invalid: The port cannot join the Port-Channel and enable rate limit at the same time.	
Related Commands	show rate-limit port-shutdown	

Configure Port Shutdown Threshold

Commands

rate-limit port-shutdown port threshold <threshold value>

Syntax Description	rate-limit	Configure rate limit parameters
	port-shutdown	Configure rate limit port shutdown parameters
	port	Configure the port-based rate limit port shutdown parameters
	threshold	Configure the rate limit port shutdown port threshold parameters
	threshold_value	Specify the port shutdown threshold value (in Mbps). The valid range depends on the maximum transmission rate of the port.
Defaults	The default threshold is the port's maximum transmission rate.	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# interface ethernet 1/1 MOXA(config-if)# rate-limit port-shutdown port threshold 100	
Error Messages	Invalid: The value of the traffic rate limit threshold should be less than the module port speed.	
Related Commands	show rate-limit port-shutdown	

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	<pre> 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 </pre>	
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)>}]
-------------------------	--

Show Port Shutdown Settings

Commands

show rate-limit port-shutdown

Syntax Description	show	Display configuration/status information
	rate-limit	Display QoS rate limit information
	port-shutdown	Display rate limit port shutdown information
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	MOXA# show rate-limit port-shutdown	
Error Messages	N/A	
Related Commands	rate-limit port-shutdown	

Scheduler

Configure Qos Scheduler Type Setting

Commands

qos scheduler-type {strict-priority | wrr | one-sp-seven-wrr | two-sp-six-wrr}

Syntax Description	qos	Configure QoS parameters
	scheduler-type	Configure the QoS scheduling type.
	strict-priority	Use strict priority queuing.
	wrr	Use weighted round robin.
	one-sp-seven-wrr	Use a combination of 1 strict priority queue and 7 weighted round robin queues.
	two-sp-six-wrr	Use a combination of 2 strict priority queues and 6 weighted round robin queues.
Defaults	scheduler-type = strict-priority	
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>]	

Configure queue setting

Commands

qos queue <queue(1-8)> weight <weight(1-100)>

Syntax Description	qos	Configure QoS parameters
	queue	Configure QoS queue parameters.
	<queue(1-8)>	Configure a QoS queue by index (1-8).
	weight	Configure the queue weight.
	<weight(1-100)>	Specify the queue weight (1-100).
Defaults	From highest priority queue to lowest priority queue is 8, 8, 4, 4, 2, 2, 1 and 1	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	moxa (config-if)# qos queue 1 weight 1	
Error Messages	Invalid: The weight assigned to higher index queues must be greater than or equal to the weight assigned to the preceding lower index queue.	
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								
	interface	Interface information								
	iftype	Interface type								
	ifnum	Interface index								
Defaults	N/A									
Command Modes	Privileged EXEC mode									
Usage Guidelines	N/A									
Examples	moxa# show qos scheduler int eth 1/1									
	Queue weight									
	Port	Type	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
	----	----	----	----	----	----	----	----	----	----
	Eth1/1	WRR	93	94	95	96	97	98	99	100
	moxa# show qos scheduler									
	Queue weight									
	Port	Type	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
	----	----	----	----	----	----	----	----	----	----
	Eth1/1	WRR	93	94	95	96	97	98	99	100
	Eth1/2	1SP7WRR	43	44	45	46	47	48	49	SP
	Eth1/3	2SP6WRR	23	24	25	26	27	28	SP	SP
	Eth1/4	SP	--	--	--	--	--	--	--	--
	Eth2/1	SP	--	--	--	--	--	--	--	--
	Eth2/2	SP	--	--	--	--	--	--	--	--
	Eth2/3	SP	--	--	--	--	--	--	--	--
	Eth2/4	SP	--	--	--	--	--	--	--	--
	Eth3/1	SP	--	--	--	--	--	--	--	--
	Eth3/2	SP	--	--	--	--	--	--	--	--
	Eth3/3	SP	--	--	--	--	--	--	--	--
	Eth3/4	SP	--	--	--	--	--	--	--	--
	Error Messages	N/A								
	Related Commands	moxa (config-if)# qos scheduler-type {strict-priority wrr one-sp-seven-wrr two-sp-six-wrr}								
moxa(config-if)# qos queue <queue(1-8)> weight <weight(1-100)>										

Egress Shaper

Configure Shaper Setting

Commands

qos shaper cir <cir(1-max_rate)> [**cbs** <cbs(10-10240)>]

Syntax Description	qos	Configure QoS parameters
	shaper	Configure QoS shaper parameters
	cir	Committed Information Rate
	cir (1-max_rate)	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	<pre>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</pre>	
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-snooping {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.'	
Related Commands	'Invalid: this port is not a member port of VLAN.'	
	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.'				
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	<pre>moxa# show igmp-snooping router-port VLAN Static Router Port List ----- 1 Eth 1/1 VLAN Dynamic Router Port List ----- 1 Eth 1/3</pre>	
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	<pre>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</pre>		
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	<pre>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</pre>	
Error Messages	N/A	
Related Commands	<pre>moxa(config)# set port gmrp enable moxa(config-if)# group restrict enable</pre>	

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

no group restricted

Syntax Description	group restricted	Configure the restricted group registration on a specified 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	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-channel** <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.
	interface-type	The Ethernet type
	slot/port-port	The slot number/port number.
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
	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 01:00:5e: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 RSTP

Commands

rstp { enable | disable }

Syntax Description	rstp	Configure RSTP
	enable	Enable RSTP
	disable	Disable RSTP
Defaults	Disabled	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# configure terminal moxa(config)# rstp enable moxa(config)# rstp disable	
Error Messages	Invalid: Two redundant protocols can not use the same port. Invalid: Port channel member port can not be assigned to a redundant protocol. Invalid: Redundant Protocol and Port Security can not be enabled on the same port. Invalid: Redundant Protocol and 802.1x/MAB can not be enabled on the same port. Invalid: A maximum of two redundant protocols can be enabled. Invalid: Turbo Chain and STP/RSTP can not be enabled at the same time. Invalid: Turbo Ring V2 and STP/RSTP can not be enabled at the same time.	
Related Commands	show spanning-tree	

Enable/Disable Spanning Tree BPDU Guard

Commands

spanning-tree bpduguard

no spanning-tree bpduguard

Syntax Description	no	Disables the configuration / deletes the entry / resets to default value
	spanning-tree	Configures spanning tree related protocol
	bpduguard	Put an interface in the error-disabled state when it receives BPDU
Defaults	spanning-tree bpduguard is disabled by default.	
Command Modes	Interface Configuration	
Usage Guidelines		
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	

Enable/Disable Spanning Tree BPDU Filter

Commands

spanning-tree bpdufilter

no spanning-tree bpdufilter

Syntax Description	no	Disables the configuration / deletes the entry / resets to default value
	spanning-tree	Configures spanning tree related protocol
	bpdufilter	BPDU filtering configuration
Defaults	spanning-tree bpdufilter is default disabled	
Command Modes	Interface Configuration	
Usage Guidelines		
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	

Enable/Disable Spanning Tree Root Guard

Commands

spanning-tree rootguard

no spanning-tree rootguard

Syntax Description	no	Disables the configuration / deletes the entry / resets to default value
	spanning-tree	Configures spanning tree related protocol
	rootguard	Restricted forwarding on an interface
Defaults	spanning-tree rootguard is default disabled	
Command Modes	Interface Configuration	
Usage Guidelines	Root guard function cannot be enabled on a port enabling loop guard	
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	

Enable/Disable Spanning Tree Loop Guard

Commands

spanning-tree loopguard

no spanning-tree loopguard

Syntax Description	no	Disables the configuration / deletes the entry / resets to default value
	spanning-tree	Configures spanning tree related protocol
	loopguard	Restricted forwarding on an interface
Defaults	spanning-tree loopguard is default disabled	
Command Modes	Interface Configuration	
Usage Guidelines	Loop guard function cannot be enabled on a port enabling portfast Loop guard function cannot be enabled on a port enabling root guard	
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	

Enable/Disable Spanning Tree Error Disable Timer

Commands

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

no spanning-tree errordisable recovery-interval

Syntax Description	no	Disables the configuration / deletes the entry / resets to default value
	spanning-tree	Configures spanning tree related protocol
	errordisable	Configures error disable timer
	recovery-interval	Interval (in seconds) Port recovery from error disabled state
Defaults	300	
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 Detected Spanning Tree Protocols

Commands

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

Syntax Description	clear	Clears the configurations
	spanning-tree	Configures spanning tree related protocol
	detected	Spanning-tree detected protocols
	protocols	Spanning-tree detected protocols
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	Displays the Configuration /statistics/General Information				
	spanning-tree	Spanning-Tree related information				
	bridge	Spanning-tree configuration of the bridge				
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						

Show Spanning Tree Root Information

Commands

show spanning-tree root

Syntax Description	show	Displays 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	<pre>moxa# show spanning-tree root Root ID RootCost MaxAge DwdDly RootPort ----- - 00:00:00:00:00:00 0 20 sec 15sec 0</pre>	
Error Messages	N/A	
Related Commands		

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	Displays the Configuration /statistics/General Information
	spanning-tree	Spanning-Tree related information
	interface	spanning-tree interface information
	detail	Detail information about the port and bridge
	inconsistency	Spanning tree inconsistent state for spanning tree
Defaults	N/A	
Command Modes	User EXEC Mode	
Usage Guidelines	N/A	
Examples	<pre>moxa# show spanning-tree interface ethernet 1/2 Role State Cost Prio Type ---- - Disabled Disabled 200000000 128 SharedLan moxa# show spanning-tree interface ethernet 1/2 inconsistency BPDU Inconsist: False Root Inconsist: False Loop Inconsist: False</pre>	
Error Messages	N/A	
Related Commands	N/A	

Show Spanning Tree Detail

Commands

show spanning-tree [detail]

show spanning-tree active [detail]

Syntax Description	show	Displays 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	<pre>moxa# show spanning-tree Root Id Priority 0 Address 00:00:00:00:00:00 Cost [7] Port 7 Max Age 20 sec Forward Delay 15 sec</pre>	

```

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
Eth2/1 Disabled Disabled Disabled 200000000 128 SharedLan
Eth2/2 Disabled Disabled Disabled 200000000 128 SharedLan
Eth2/3 Disabled Disabled Disabled 200000000 128 SharedLan
Eth2/4 Disabled Disabled Disabled 200000000 128 SharedLan
Eth3/1 Disabled Disabled Disabled 200000000 128 SharedLan
Eth3/2 Disabled Disabled Disabled 200000000 128 SharedLan
Eth3/3 Disabled Disabled Disabled 200000000 128 SharedLan
Eth3/4 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 sec, 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 9, address 00:00:00:00:00:00
Designated Bridge has priority @, address 00:00:00:00:00:00
Designated Port Id is 0.0, Designated PathCost 0
No of Transitions 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.
Amin LinkType is Auto, Oper LinkType is Shared-Lan
BPDUs : sent 0 , received 0
Timers: Hello - 0, Forward Delay - 0, Topology Change - 0,
Error Disable Recovery Interval 300 sec

Port 2 [Eth1/2] is Disabled , Disabled
Port PathCost 200000000, Port Priority 128, Port Identifier 128.2
Designated Root has priority 9, address 00:00:00:00:00:00
Designated Bridge has priority 0, address 00:00:00:00:00:00
Designated Port Id is 0.0, Designated PathCost 0
No of Transitions to forwarding State :0
Auto-Edge is enabled PortFast is disabled, Oper-Edge is disabled
BPDU Filtering is disabled.
BPDU Guard is disabled.

```

Error Messages	N/A
Related Commands	N/A

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 $2 * (\text{ForwardDelay} - 1) \geq \text{MaxAge} \geq 2 * (\text{Hello Time} + 1)$	
Examples	moxa# configure terminal moxa(config)# spanning-tree forward-time 16 moxa(config)# no spanning-tree forward-time	
Error Messages	% RSTP: $2 * (\text{Forward time} - 1) \geq \text{Max age time} \geq 2 * (\text{Hello time} + 1)$	
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 $2 * (\text{ForwardDelay} - 1) \geq \text{MaxAge} \geq 2 * (\text{Hello Time} + 1)$	
Examples	moxa# configure terminal moxa(config)# spanning-tree hello-time 1 moxa(config)# no spanning-tree hello-time	
Error Messages	% RSTP: $2 * (\text{Forward time} - 1) \geq \text{Max age time} \geq 2 * (\text{Hello time} + 1)$	
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 $2 * (\text{ForwardDelay} - 1) \geq \text{MaxAge} \geq 2 * (\text{Hello Time} + 1)$	
Examples	moxa# configure terminal moxa(config)# spanning-tree max-age 21 moxa(config)# no spanning-tree max-age	
Error Messages	% RSTP: $2 * (\text{Forward time} - 1) \geq \text{Max age time} \geq 2 * (\text{Hello time} + 1)$	
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
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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	

Configure the Maximum Number of Hops Permitted in MST to the Default Value

Commands

no spanning-tree mst max-hops

Syntax Description	no	Reset spanning tree parameters to the default value
	spanning-tree	Configure the related spanning tree parameters
	mst	Multiple Spanning Tree
	max-hops	Maximum number of hops allowed
Defaults	20	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no spanning-tree mst max-hops	
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 (0-61440)	Switch priority configuration for spanning tree instance 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
	cost: 0, port-priority: 128	
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 Errordisable 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 errordisable 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-type> <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-type	ethernet
	interface-id	The interface ID: slot number/port number
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
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	% Invalid Interface	
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
Error Messages	moxa#	
	N/A	
	N/A	
Related Commands		

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
Error Messages	moxa#	
	N/A	
	N/A	
Related Commands		

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	<pre> 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 sec, 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 </pre>	
Error Messages	N/A	
Related Commands	N/A	

Turbo Ring v2

Show Turbo Ring v2 Status

This command displays the current configuration or status of Turbo Ring V2 and Ring Coupling.

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	<pre>moxa# show turbo-ring-v2 config Turbo Ring V2 Module is enabled Ring Coupling Mode: Static Ring 1: Enable: enabled Set as master: disabled 1st Ring Port: Eth1/15 2nd Ring Port: Eth1/16 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: Eth1/5 moxa# show turbo-ring-v2 config Turbo Ring V2 Module is enabled Ring Coupling Mode: Dynamic Ring 1: Enable: enabled Set as master: disabled 1st Ring Port: Eth1/15 2nd Ring Port: Eth1/16 Coupling Group 1: Enable: enabled Port ID: Eth1/1 Port Coupling Mode: Auto Coupling Group 2: Enable: disabled Port ID: Eth1/2 Port Coupling Mode: Primary moxa# show turbo-ring-v2 status Turbo Ring V2 status: Global Enable: Enabled Ring Coupling Mode: Static Ring 1: Status: Healthy Master/Slave: Master Master ID: 00:09:E8:02:02:02 1st Ring Port Status: Eth1/15 Forwarding 2nd Ring Port Status: Eth1/16 Blocking Ring 2:</pre>	

```

Status:---
Master/Slave:---
Master ID: 00:00:00:00:00:00
1st Ring Port Status:---
2nd Ring Port Status:---
Coupling:
Mode: Ring Coupling(primary)
Coupling Port: Eth1/2 Link down

moxa# show turbo-ring-v2 status

Turbo Ring V2 status:
Global Enable: Enabled
Ring Coupling Mode: Dynamic
Ring Index: 1
Total Ring Number: 2
Ring 1:
Status: Healthy
Master/Slave: Slave
Master ID: 00:09:E8:02:02:02
1st Ring Port Status: Eth1/15 Forwarding
2nd Ring Port Status: Eth1/16 Blocking
Coupling Group 1:
Group Status: Active
Port ID: Eth1/1
Status: Forwarding
Coupling Group 2:
Group Status: Inactive
Port ID: --
Status: --

moxa# show turbo-ring-v2 status

Turbo Ring V2 status:
Global Enable: Enabled
Ring Coupling Mode: Dynamic
Ring Index: 1
Total Ring Number: 2
Ring 1:
Status: Healthy
Master/Slave: Master
Master ID: 00:09:E8:02:02:02
1st Ring Port Status: Eth1/15 Forwarding
2nd Ring Port Status: Eth1/16 Blocking
Coupling Group 1:
Group Status: Active
Primary Port
Switch MAC: 00:09:E8:02:02:02
Port ID: Eth1/1
Status: Forwarding
Backup Port
Switch MAC: 00:09:E8:03:03:03
Port ID: Eth1/2
Status: Link Up
Coupling Group 2:
Group Status: Inactive
Primary Port
Switch MAC: 00:09:E8:04:04:04
Port ID: Eth1/3
Status: Link Down
Backup Port
Switch MAC: 00:09:E8:05:05:05

```

	Port ID: Eth1/4 Status: Link Down
Error Messages	N/A
Related Commands	turbo-ring-v2

Configure Redundancy Mode Settings

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 Coupling Mode Settings

This command configures ring coupling mode. To enable Dynamic Ring Coupling, select 'dynamic' mode to set rings to be dynamically coupled. Select 'static' mode to set rings to be statically coupled.

Commands

turbo-ring-v2 ring-coupling-mode { **static** | **dynamic** }

Syntax Description	turbo-ring-v2	Configure Turbo Ring V2 parameters
	ring-coupling-mode	Configure Ring Coupling mode parameters
	static	Configure Static Ring Coupling mode
	dynamic	Configure Dynamic Ring Coupling mode
Defaults	The feature is static by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# turbo-ring-v2 ring-coupling-mode static moxa(config)# turbo-ring-v2 ring-coupling-mode dynamic	
Error Messages	% Turbo Ring V2: Invalid: Dynamic Ring Coupling groups cannot be enabled in Static Ring Coupling mode.	
	% Turbo Ring V2: Invalid: Static Ring Coupling groups cannot be enabled in Dynamic Ring Coupling mode.	
Related Commands		

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)# no turbo-ring-v2 dynamic-ring-coupling coupling-groups 1	
Error Messages	% Turbo Ring V2: Invalid: Dynamic Ring Coupling mode cannot be selected if Ring 2 is enabled.	
	% Turbo Ring V2: Invalid: Dynamic Ring Coupling groups cannot be enabled if Ring 2 is enabled.	
	% Turbo Ring V2: Invalid: Dynamic Ring Coupling groups cannot be enabled if Ring 1 is disabled.	
	% Turbo Ring V2: Invalid: The same port cannot be assigned as the coupling port in different coupling groups.	
Related Commands	show turbo-ring-v2 { config status }	

Configure Dynamic Ring Coupling Settings

This command configures a specific coupling group (1 or 2) and designates the coupling port as either auto, primary, or backup mode.

Commands

turbo-ring-v2 dynamic-ring-coupling coupling-groups <group(1-2)> **interface** <interface-type> <interface-id> { **auto** | **backup** | **primary** }

Syntax Description	turbo-ring-v2	Configure Turbo Ring V2 parameters
	dynamic-ring-coupling	Configure Dynamic Ring Coupling parameters
	coupling-groups	Configure coupling group parameters
	<group(1-2)>	Group ID related configuration
	interface	Port interface
	<interface-type>	Ethernet interface
	<interface-id>	Slot Number/Port Number
	auto	Coupling auto mode
	backup	Coupling backup mode
	primary	Coupling primary mode
Defaults	Coupling mode is set to auto by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
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	N/A	

The no form of this command is group-specific.

Commands

turbo-ring-v2 dynamic-ring-coupling coupling-groups <group(1-2)> **interface** <interface-type> <interface-id> { **auto** | **backup** | **primary** }

Syntax Description	turbo-ring-v2	Configure Turbo Ring V2 parameters
	dynamic-ring-coupling	Configure Dynamic Ring Coupling parameters
	coupling-groups	Configure coupling group parameters
	<group(1-2)>	Group ID related configuration
	interface	Port interface
	<interface-type>	Ethernet interface
	<interface-id>	Slot Number/Port Number
	auto	Coupling auto mode
	backup	Coupling backup mode
	primary	Coupling primary mode
Defaults	Coupling mode is set to auto by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
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	N/A	

MRP

Show MRP Information

Commands

show mrp

Syntax	Description
show	Display configuration/statistics/general information
mrp	Display MRP information
Defaults	N/A
Command Modes	Privileged EXEC/ User EXEC
Usage Guidelines	N/A
Examples	<pre>MOXA# show mrp MRP Ring : Enabled Role : Ring Manager Ring State Machine : Primary Ring Port Link Up React on link Change : Enabled VLAN ID : 1 Domain ID : C3D687FE-789E-03A1-ACDB-E5BFCBBC27B6 ----- Interface Port Number Port Status ----- Primary Port Eth1/3 Forwarding Secondary Port Eth1/4 Link down</pre>
Error messages	N/A
Related commands	N/A

Enable/Disable the MRP Ring

Commands

mrp ring { enable | disable }

Syntax	Description
mrp	Configure MRP settings
ring	Configure MRP ring settings
enable	Enable the MRP ring
disable	Disable the MRP ring
Defaults	The MRP ring is disabled by default.
Command Modes	Global configuration
Usage Guidelines	N/A
Examples	<pre>Product(config)# mrp ring enable</pre>
Error messages	<pre>% L2 Redundancy: Invalid: A maximum of two redundant protocols can be enabled. % L2 Redundancy: Invalid: Turbo Ring V2 and MRP can not be enabled at the same time. % L2 Redundancy: Invalid: Turbo Chain and MRP can not be enabled at the same time. % L2 Redundancy: Invalid: STP/RSTP/MSTP and MRP can not be enabled at the same time.</pre>
Related commands	show mrp

Configure MRP Role Settings

Commands

mrp role { manager | client }

Syntax Description	mrp	Configure MRP settings
	role	Configure MRP role settings
	manager	Set the MRP role to Manager
	client	Set the MRP role to Client
Defaults	The default MRP role is Client.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# mrp role manager	
Error messages	N/A	
Related commands	show mrp	

Configure MRP Ring VLAN ID

Commands

mrp ring vlan-id <integer(1-4094)>

Syntax Description	mrp	Configure MRP settings
	ring	Configure MRP ring settings
	vlan-id	Configure the MRP VLAN ID
	<integer(1-4094)>	Specify the MRP VLAN ID (1-4094)
Defaults	The default MRP VLAN ID is 1.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# mrp ring vlan-id 10	
Error messages	N/A	
Related commands	show mrp	

Configure MRP Ring Domain Settings

Commands

mrp ring domain { default | profinet }

Syntax Description	mrp	Configure MRP settings
	ring	Configure the MRP ring settings
	domain	Configure domain UUID settings
	default	Set the domain UUID to the default UUID
	profinet	Set the domain UUID to the PROFINET UUID
Defaults	The default Domain UUID is the Default UUID.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# mrp ring domain profinet	
Error messages	N/A	
Related commands	show mrp	

Enable/Disable MRP React-on-Link Change

Commands

mrp react-on-lnk-chg { enable | disable }

Syntax Description	mrp	Configure MRP settings
	react-on-lnk-chg	Configure MRP react on MRC link change settings
	enable	Enable MRP react on link change
	disable	Disable MRP react on link change
Defaults	Enabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# mrp react-on-lnk-chg enable	
Error messages	N/A	
Related commands	show mrp	

Configure MRP Primary/Secondary Interface Settings

Commands

mrp ring-port-1 <iftype> <ifnum> ring-port-2 <iftype> <ifnum>

Syntax Description	mrp	Configure MRP settings
	ring-port-1	Configure MRP primary interface settings
	ring-port-2	Configure MRP secondary interface settings
	iftype	The Ethernet type
	ifnum	The slot number/port number
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# mrp ring-port-1 eth 1/1 ring-port-2 eth 1/2	
Error messages	N/A	
Related commands	show mrp	

Configure MRP Interconnection

Commands

mrp interconnection { enable | disable }

Syntax Description	mrp	Configure MRP
	interconnection	MRP interconnection
	enable	Enable MRP interconnection
	disable	Disable MRP interconnection
Defaults	The default MRP interconnection is disabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mrp interconnection enable	
Error Messages	N/A	
Related Commands	show mrp	

Specify MRP Interconnection ID

Commands

mrp interconnection IID <integer(0-65535)>

Syntax Description	mrp	Configure MRP
	interconnection	MRP interconnection
	IID	Interconnection ID
	<integer(0-65535)>	Interconnection ID
Defaults	The default MRP interconnection ID is 0.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mrp interconnection IID 1	
Error Messages	N/A	
Related Commands	show mrp	

Specify MRP Interconnection Role

Commands

mrp interconnection role { manager | client }

Syntax Description	mrp	Configure MRP
	interconnection	MRP interconnection
	role	Interconnection role
	manager	Configure Interconnection role as Manager
	client	Configure Interconnection role as Client
Defaults	The default MRP interconnection role is client.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mrp interconnection role manager	
Error Messages	N/A	
Related Commands	show mrp	

Specify MRP Interconnection Mode

Commands

mrp interconnection mode { lc-mode | rc-mode }

Syntax Description	mrp	Configure MRP
	interconnection	MRP interconnection
	mode	Interconnection mode
	lc-mode	Configure Interconnection mode as LC mode
	rc-mode	Configure Interconnection mode as RC mode
Defaults	The default MRP interconnection mode is LC mode.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mrp interconnection mode rc-mode	
Error Messages	N/A	
Related Commands	show mrp	

Configure MRP Interconnection Interface

Commands

mrp interconnection interface <iftype> <ifnum>

Syntax Description	mrp	Configure MRP
	interconnection	MRP interconnection
	interface	Interconnection port interface
	<iftype> <ifnum>	Ex. ethernet 2/1
Defaults		
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mrp interconnection interface ethernet 2/1	
Error Messages	% MRP: Invalid: Port Channel port couldn't be set as MRP interconnection port simultaneously !!! % MRP: Invalid: Dual Homing port couldn't be set as MRP interconnection port simultaneously !!! % MRP: Invalid: The MRP interconnection port couldn't be set as MRP ring ports simultaneously !!!	
Related Commands	show mrp	

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
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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** | **sha-256** | **sha-512** } [**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
	sha-256	Use SHA-256 authentication
	sha-512	Use SHA-512 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	<pre> 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)# </pre>	
Error Messages	<pre> % 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 </pre>	
Related Commands	<pre> snmp-server show snmp-server </pre>	

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 inform-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 inform-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 | sha-256 | sha-512 } [**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
	sha-256	Use SHA-256 authentication
	sha-512	Use SHA-512 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	<pre>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</pre>	
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	<pre>moxa# show snmp-server engine-id snmp-server engineID : 800021f303000111234567</pre>	
Error Messages	% Can't get snmp-server status information % Can't get snmp-server status information json 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 :	

Error Messages	inform-retry : 3	
	inform-timeout : 10	
Related Commands	% Can't get snmp-trap information	
	% Can't get snmp-trap jason object	

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	

Error Messages	user-name : testNoAuthNoPriv	
	authenticate-type : none	
	encryption-method : disable	
Related Commands	% 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')	

Show SNMP Trap Host Information

Commands

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	<pre>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 :</pre>	
Error Messages	<pre>% Can't get snmp-trap host information % Can't get snmp-trap host table % Can't get snmp-trap host table index('%d')</pre>	
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	

Show Login Lockout

Commands

show login lockout

Syntax Description	show	Display running information
	login	Display login information
	lockout	Displays the maximum number of fail login attempts and the lockout time to block the user
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa# show login lockout Enable: False Lockout: 10 Attempts: 3	
Error messages	N/A	
Related commands	N/A	

Trusted Access

Configure Trusted Access Settings

Commands

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

no trusted-access ip-source <uicast_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
	uicast_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 | 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
Error Messages	Subnet Mask	: 255.255.255.0
	moxa#	
Related Commands	% No such manager found	
	% Manager is not configured	

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

IEEE 802.1X

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 IEEE 802.1X 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 IEEE 802.1X 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 IEEE 802.1X

Commands

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

no dot1x port-control

Syntax Description	dot1x	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 IEEE 802.1X 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 IEEE 802.1X 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 IEEE 802.1X 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 IEEE 802.1X 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	
	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	<pre> 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 ----- </pre>	
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 IEEE 802.1X 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	dot1x	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 IEEE 802.1X 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 IEEE 802.1X 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	<pre>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 -----</pre>	
Error Messages	N/A	
Related Commands	N/A	

MAB

Enable/Disable MAC Authentication Bypass

Commands

mab {enable | disable}

Syntax Description	mab	Configure MAB parameters
	enable	Enable MAB on the switch
	disable	Disable MAB on the switch
Defaults	Disable	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mab enable moxa(config)# mab disable	
Error messages	N/A	
Warning messages	N/A	
Related commands	show mab	

Configure MAB Authentication Settings

Commands

mab aaa auth {radius | local}

Syntax Description	mab	Configure MAB parameters
	aaa	Configure AAA services related parameters
	auth	Authentication related configuration
	radius	Configure RADIUS as the authentication mode
	local	Configure local database as the authentication mode
Defaults	Local-database	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mab aaa auth radius moxa(config)# mab aaa auth local	
Error messages	N/A	
Warning messages	N/A	
Related commands	show mab	

Enable/Disable MAB on a Port

Commands

mab

no mab

Syntax Description	no	Remove configuration / delete entry / reset to default value
	mab	Enable/Disable MAB on an interface
Defaults	Disable	
Command Modes	Interface Configuration	
Usage Guidelines	'no mab' will invalid HW operation but keep the configuration on a port.	
Examples	moxa(config-if)# mab moxa(config-if)# no mab	
Error messages	moxa(config-if)# mab	
	Cannot enable MAB while < Link Aggregation, RSTP, MSTP, Dual-Homing, Turbo Ring v2, Turbo Chain, 802.1X, Port Security> be enabled. moxa(config)# mac-address-table static unicast 00:00:00:00:00:03 vlan 1 set interface ethernet 1/1 moxa(config)# interface ethernet 1/1 moxa(config-if)# mab Cannot enable MAB on an interface while it's configured as forwarding port in static unicast table.	
Warning messages	N/A	
Related commands	show mab	

Enable/Disable MAB Reauthentication

Commands

mab reauthentication

no mab reauthentication

Syntax Description	no	Remove configuration / delete entry / reset to default value
	mab	Configure MAB parameters
	reauthentication	Periodic re-authentication from authenticator to server
Defaults	Disable	
Command Modes	Interface Configuration	
Usage Guidelines	'no' command will reset parameters to default value.	
Examples	moxa(config-if)# mab reauthentication moxa(config-if)# no mab reauthentication	
Error messages	N/A	
Warning messages	N/A	
Related commands	show mab	

Configure MAB Timeout and Reauthentication Period

Commands

```
mab timeout { quiet-period <(5 - 300)> | mab timeout <(60 - 65535)> }
```

no mab timeout {quiet-period | reauth-period}

Syntax Description	no	Remove configuration / delete entry / reset to default value
	mab	Configure MAB parameters
	timeout	Configure timeout
	quiet-period	Number of seconds that the switch remains in the quiet state following a failed authentication exchange with the client.
	reauth-period	number of seconds between re-authentication attempts
Defaults	quiet-period: 60 reauth-period: 3600	
Command Modes	Interface Configuration	
Usage Guidelines	'no' command will reset parameters to default value.	
Examples	<pre>moxa(config-if)# mab timeout quiet-period 300 moxa(config-if)# mab timeout reauth-period 65535</pre>	
Error messages	<pre>moxa(config-if)# mab timeout quiet-period 1 ^ % Invalid input detected at '^' marker.</pre>	
	<pre>moxa(config-if)# mab timeout reauth-period 10 mab timeout reauth-period 10 ^ % Invalid input detected at '^' marker.</pre>	

Warning messages	N/A
Related commands	show mab

Configure MAB Local Database MAC Address

Commands

mab local-database mac-address <ucast_mac>

no mab local-database {**mac-address** <ucast_mac> | **all** }

Syntax Description	no	Remove configuration / delete entry / reset to default value
	mab	Configure MAB parameters
	local-database	Configure local database authentication
	mac-address	Unicast MAC address
	all	Delete for all entries
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# mab local-database mac-address 02:03:04:01:01:01 moxa(config)# no mab local-database mac-address 02:03:04:01:01:01 moxa(config)# no mab local-database all	
Error messages	moxa(config)# mab local-database mac-address 00:00:00:00:00:01 The MAC address has exceeded the maximum limit. moxa(config)# mab local-database mac-address 00:00:00:00:00:02 MAC address is already in the local database. moxa(config)# mac-address-table static unicast 00:00:00:00:00:03 vlan 1 set interface ethernet 1/1 moxa(config)# mab local-database mac-address 00:00:00:00:00:03 Cannot add a MAC address into MAB local database while it's in static unicast table. [Web Only] MAB only support unicast MAC address.	
Warning messages	N/A	
Related commands	show mab auth local-database	

Show MAB Information

Commands

show mab

Syntax Description	show	Display configuration / statistics / general information
	Mab	Display MAB information
Defaults	N/A	

Command Modes	User EXEC Privileged EXEC																																																																																										
Usage Guidelines	N/A																																																																																										
Examples	moxa# show mab MAB Status: Enabled MAB Authentication Method: Local																																																																																										
	<table><tr><td>Port</td><td>Enable</td><td>Quiet Period</td><td>Reauthentication</td><td>Reauth Period</td></tr><tr><td>-----</td><td>-----</td><td>-----</td><td>-----</td><td>-----</td></tr><tr><td>Eth1/1</td><td>Disabled</td><td>60</td><td>Enabled</td><td>3600</td></tr><tr><td>Eth1/2</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth1/3</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth1/4</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth2/1</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth2/2</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth2/3</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth2/4</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth3/1</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth3/2</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth3/3</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth3/4</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth4/1</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth4/2</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth4/3</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr><tr><td>Eth4/4</td><td>Disabled</td><td>60</td><td>Disabled</td><td>3600</td></tr></table>	Port	Enable	Quiet Period	Reauthentication	Reauth Period	-----	-----	-----	-----	-----	Eth1/1	Disabled	60	Enabled	3600	Eth1/2	Disabled	60	Disabled	3600	Eth1/3	Disabled	60	Disabled	3600	Eth1/4	Disabled	60	Disabled	3600	Eth2/1	Disabled	60	Disabled	3600	Eth2/2	Disabled	60	Disabled	3600	Eth2/3	Disabled	60	Disabled	3600	Eth2/4	Disabled	60	Disabled	3600	Eth3/1	Disabled	60	Disabled	3600	Eth3/2	Disabled	60	Disabled	3600	Eth3/3	Disabled	60	Disabled	3600	Eth3/4	Disabled	60	Disabled	3600	Eth4/1	Disabled	60	Disabled	3600	Eth4/2	Disabled	60	Disabled	3600	Eth4/3	Disabled	60	Disabled	3600	Eth4/4	Disabled	60	Disabled	3600
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Error messages	N/A																																																																																										
Warning messages	N/A																																																																																										
Related commands	N/A																																																																																										

Show MAB Authentication Local Database MAC Address

Commands

show mab auth local-database

Syntax Description	show	Display configuration / statistics / general information
	mab	Display MAB configuration
	auth	Auth type information
	local-database	Display local-database information
Defaults	N/A	
Command Modes	User EXEC Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>moxa# show mab auth local-database MAB Authentication Users Database ----- MAC Address ----- 02:03:04:01:01:01 02:03:04:01:01:02</pre>	

	Total MAC entries : 2 System Max. Addresses : 1024
Error messages	N/A
Warning 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 mode	Configure port security parameters
		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_SUM_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
Defaults	vlan_vfi_id	The VLAN ID ranging from 1 to 4094
	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	

MAC Security (MACsec)

Enabling MAC Security Globally

Commands

macsec { enable | disable }

Syntax Description	macsec enable	Globally enable MACsec
	macsec disable	Globally disable MACsec
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	moxa(config)# macsec enable	
Error Messages	Invalid: Dot1x must be enabled before activating the MACsec feature.	
Related Commands	N/A	

MAC Security on a Port Interface

Commands

macsec

no macsec

Syntax Description	macsec	Configure mka participant to enable.
	no macsec	Configure mka participant to disable.
Defaults	Disable	
Command Modes	Interface configuration mode	
Usage Guidelines	This command configures MKA participants.	
Examples	moxa(config-if)# macsec	
Error Messages	Invalid: MACsec cannot be enabled on member ports of a port channel.	
Related Commands	N/A	

Deleting a CKN

Commands

no mka participant ckn <string (16)>

Syntax Description	no mka participant ckn	Delete the connectivity association key name (CKN).
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	This command deletes the connectivity association key name (CKN).	
Examples	moxa(config-if)# no mka participant ckn	
Error Messages	N/A	
Related Commands	N/A	

Creating a Pre-shared Key

Commands

mka participant ckn <string (16)> **cak** <string (66)> key-server {enable | disable}

Syntax Description	mka participant ckn <string (1-16)> cak <string (1-16)>	Create the pre-shared key by configuring the connectivity association key name (CKN) and connectivity association key (CAK).
	key-server enable	Configure key-server enable.
	key-server disable	Configure key-server disable.
Defaults	N/A	
Command Modes	Interface configuration mode	
Usage Guidelines	This command creates the pre-shared key by configuring the connectivity association key name (CKN) and connectivity association key (CAK).	
Examples	moxa(config-if)# mka participant ckn moxackn cak moxacak key-server enable	
Error Messages	Invalid: Both the CKN and CAK values must be entered.	
	Invalid: The CKN and CAK values cannot be empty on a MACsec-enabled port.	
	Invalid: CKN entries cannot be the same.	
Related Commands	N/A	

Show MAC Security Status

Commands

show macsec [{interface <iftype> <ifnum> | mka {participant | peer ckn <string (16)>}} interface <iftype> <ifnum>}]

Syntax Description	show macsec	To Display MACsec status and configuration in the system level.
	interface	To view Kay MKA port related information.
	participant	To view Kay MKA participant related information.
	peer	To display MKA peer List information.
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays macsec information.	
Examples	<pre> moxa# show macsec MACsec : Enabled Periodic Hello-Time : 2 moxa# show macsec interface ethernet 1/2 Mka Pae Kay Info for Eth1/2 ----- MACsec Port : Enabled Priority : 112 (supported since NOS 6.0) moxa# show macsec mka participant interface eth 4/8 Mka Participant Info Eth4/8 ----- Participant CKN : moxackn KeyServer = Disabled (deprecated since NOS 6.0) KeyServer : Yes (supported since NOS 6.0) Product# show macsec mka peer ckn moxackn interface ethernet 4/8 Mka Peer List Info Eth4/8 ----- MkaParticipant CKN : moxackn MkaPeerList MI : d7034342ddb9221c41f725da MkaPeerList MN : 2099 MkaPeerList Type : LivePeerList MkaPeerList SCI : 00010203040a0021 </pre>	
Error Messages	If CKN not exists and interface is valid: Product# show macsec mka peer ckn moxackn interface ethernet 4/6 No corresponding CKN exists. If CKN exists, interface is valid, and no peer exists: Product# show macsec mka peer ckn moxackn interface ethernet 4/6 No corresponding peer exists in the Peer List.	
Related Commands	N/A	

Configure MKA PDU Key Priority

Commands

mka key-server priority <integer (0-255)>

no mka key-server priority

Syntax Description	mka key-server priority	Configure priority value
	no key-server priority	Configure priority value to the default
Defaults	112 (0x70)	
Command Modes	Global configuration	
Usage Guidelines	This command configures priority value in MKA PDUs.	
Examples	moxa (config-if)# mka key-server priority 200 Re-enabling MACsec is required after a completed handshake. moxa (config-if)# no mka key-server priority	
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(625-1488100)>

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 {}'.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 [<interface-type> <interface-id>] **storm-control**

Syntax Description	show	Display configuration/status information
	interface	Display interface information
	interface-type	The Ethernet type
	interface-id	The slot number/port 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	<pre>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</pre>	
Error Messages	N/A	
Related Commands	<pre>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}</pre>	

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-lists <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-lists <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 interface	Configure the redirect 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-lists <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-lists <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-lists <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-lists <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
Defaults	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
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-lists <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
Defaults	dscp-remark	Configure the dscp-remark related ACL parameters
	(0-63)	DSCP value to remark
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-lists <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-lists <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-lists <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-lists <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-lists <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-lists <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-lists <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-lists <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
Defaults	any	Configure the filtering of a rule to any address
	dscp	Configure the dscp related ACL parameters
Command Modes	(0-63)	DSCP value to filter
	N/A	
Usage Guidelines	IP Access-list Configuration Mode	
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-lists <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-lists <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-lists <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-lists <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	<pre>moxa(config-mac-acl)# permit 00:90:e8:00:00:12 ff:ff:ff:ff:00 00:90:e8:00:00:33 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</pre>	
Error Messages	N/A	
Related Commands	<pre>no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-lists <short(1-16)></pre>	

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	<pre>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</pre>	
Error Messages	N/A	
Related Commands	<pre>no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-lists <short(1-16)></pre>	

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	<pre>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</pre>	
Error Messages	N/A	
Related Commands	<pre>no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-lists <short(1-16)></pre>	

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	<pre>moxa(config-mac-acl)# permit ethertype 10 00:90:e8:00:00:12 ff:ff:ff:ff:00 00:90:e8:00:00:33 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</pre>	
Error Messages	N/A	
Related Commands	<pre>no rule <short(1-10)> no ip access-list <short(1-16)> show ip access-lists <short(1-16)></pre>	

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-lists <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
Defaults	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
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-lists <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
Defaults	cos	Configure the cos related ACL parameters
	(0-7)	Cos value to filter
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-lists <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:00 00:90:e8:00:00:33 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-lists <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-lists <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-lists <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	Interface 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-lists

Syntax Description	show	Display configuration/status information
	access-lists	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-lists	
	<pre>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</pre>	

	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-lists

Syntax Description	show	Display configuration/status information
	ip	Display IP related information
	access-lists	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-lists <access-list-number>

Syntax Description	show	Display configuration/status information
	ip	Display IP related information
	access-lists	Configure ACL related parameters
	access-list-number	ACL index to display. Ranges from 1 to 16.
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	moxa# show ip access-lists 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-lists <access-list-index>

Syntax Description	show	Display configuration/status information
	mac	Display MAC related information
	access-lists	Configure ACL related parameters
	access-list-index	ACL index to display. Ranges from 1 to 16.
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	<pre>moxa# show mac access-lists 1</pre> 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: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 -----
Error Messages	N/A
Related Commands	mac access-list <short(1-16)>

Show Specific MAC Access-list

Commands

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

Syntax Description	show	Display configuration/status information
	mac	Display MAC related information
	access-lists	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:FF: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 }	

Network Loop Protection

Enable/Disable Network Loop Protection

Commands

loop-protect { enable | disable }

Syntax Descriptions	loop-protect	Configure Loop Protection parameters
	enable	Enable Loop Protection
	disable	Disable Loop Protection
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# loop-protect enable	
Error messages	N/A	
Related commands	show loop-protect	

Configure the Network Loop Protection Detection Interval

Commands

loop-protect detect-interval <integer(1-30)>

Syntax Descriptions	loop-protect	Configure Loop Protection parameters
	detect-interval	Configures loop detection frame interval
	<integer(1-30)>	Specify the interval (in seconds) at which the system will send loop detection frames
Defaults	10	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# loop-protect detect-interval 5	
Error messages	N/A	
Related commands	show loop-protect	

Show Network Loop Protection Information

Commands

show loop-protect

Syntax Descriptions	Show	Display configuration/status information
	loop-protect	Display Loop Protection information
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	<pre>moxa# show loop-protect Loop Protection Status : Enabled Detection interval: : 1 sec Ports Loop Status Port Status Peer Port ----- - Eth1/1 Normal -- Eth1/2 Normal -- Eth1/3 Normal -- Eth1/4 Normal -- Eth1/5 Normal -- Eth1/6 Normal -- Eth1/7 Normal -- Eth1/8 Normal -- Eth1/9 Normal -- Eth1/10 Normal -- Eth1/11 Looping Disabled Eth1/12 Eth1/12 Looping Disabled Eth1/11</pre>	
Error messages	N/A	
Related commands	N/A	

DHCP Snooping

Enable/Disable DHCP Snooping

Commands

ip dhcp snooping { enable | disable }

Syntax Descriptions	ip	Configure IP-related parameters
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	dhcp	Configure DHCP-related parameters
	snooping	Configure DHCP Snooping parameters
	enable	Globally enable DHCP snooping
	disable	Globally disable DHCP snooping
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# ip dhcp snooping enable	
Error messages	N/A	
Related commands	N/A	

Enable/Disable DHCP Snooping on a Specific VLAN

Commands

ip dhcp snooping vlan <vlan-id>

no ip dhcp snooping vlan <vlan-id>

Syntax Descriptions	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	snooping	Configure DHCP Snooping parameters
	vlan	Configure VLAN parameters
	<vlan-id>	Specify the VLAN ID
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	Product(config)# ip dhcp snooping vlan 2	
Error messages	If user enables DHCP Snooping on same VLAN: Product(config)# ip dhcp snooping vlan 2 Not valid: There should not be two entries with the same VLAN ID.	
Related commands	N/A	

Set the DHCP Snooping Port Status to Trusted/Untrusted

Commands

ip dhcp snooping { trust | untrust }

Syntax Descriptions	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	snooping	Configure DHCP Snooping parameters
	trust	Set the DHCP snooping port status to trusted
	untrust	Set the DHCP snooping port status to untrusted
Defaults	Untrusted	
Command Modes	Interface configuration mode	
Usage Guidelines	This command configures the DHCP snooping port status	
Examples	Product(config-if)# ip dhcp snooping trust	
Error messages	If port is enabled IP source guard, and user change port status to trusted: Product(config-if)# ip dhcp snooping trust This port is enabled for IP Source Guard. IP Source Guard can only be enabled on an untrusted port. If port is enabled Dynamic ARP Inspection, and user change port status to trusted: Product(config-if)# ip dhcp snooping trust This port is enabled for Dynamic ARP Inspection. Dynamic ARP Inspection can only be enabled on an untrusted port.	

	Change port status on member port: Product(config-if)# ip dhcp snooping trust This port is a member of Port-Channel. DHCP Snooping cannot be enabled on a member port.
Related commands	N/A

Add/Delete a DHCP Snooping Binding Entry

Commands

ip dhcp snooping binding <src_mac> **vlan** <vlan-id> <src_ip> **interface** { **port-channel** <integer> | <interface-type> <interface-id> }

no ip dhcp snooping binding <src_mac> **vlan** <vlan-id>

Syntax Descriptions	ip	Configure IP-related parameters
	dhcp	Configure DHCP-related parameters
	snooping	Configure DHCP Snooping parameters
	binding	Configure DHCP snooping binding entries
	<src mac>	Specify the source MAC address
	vlan	Configure VLAN parameters
	<vlan id>	Specify the VLAN ID
	<src ip>	Specify the source IP address
	interface	Configure interface parameters
	port-channel	Configure port channel parameters
	integer	Specify the integer value, must be valid port-channel ID
	interface-type	Specify the interface type (Ethernet)
	interface-id	Specify the interface ID in the format <1-X>/<1-Y> (Slot Number/Port Number)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	This command adds a DHCP snooping binding entry. Use the no version of this command to delete an entry.	
Examples	Product(config)# ip dhcp snooping binding 01:23:45:56:78:86 vlan 1 192.168.127.253 interface ethernet 1/1	
Error messages	If user sets two entry with same VLAN and MAC address: Product(config)# ip dhcp snooping binding 01:23:45:56:78:86 vlan 1 192.168.127.252 interface ethernet 1/2 Not valid: There should not be two entries with the same VLAN ID and Mac Address.	
	If user sets a port channel that does not exist : Product(config)# ip dhcp snooping binding 01:23:45:56:78:86 vlan 1 192.168.127.252 interface port-channel 2 Not valid: The Port-Channel does not exist.	
	If user sets a member port: Product(config)# ip dhcp snooping binding 01:23:45:56:78:86 vlan 1 192.168.127.252 interface ethernet 1/3 Not valid: The port is a member of Port-Channel.	
Related commands	N/A	

Show DHCP Snooping Information.

Commands

show ip dhcp snooping [{ **interface** | **vlan** <vlan-id> | **binding**}]

Syntax Description	show	Display configuration/status information
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	ip	Show IP-related configuration information
	dhcp	Show DHCP-related configuration information
	snooping	Show DHCP Snooping information
	interface	Display DHCP snooping interface information
	vlan	Display the configuration and statistics of DHCP snooping on a specific VLAN
	<vlan id>	Specify the VLAN ID
	binding	Display the DHCP snooping binding database
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays DHCP snooping information.	
Examples	<pre> moxa# show ip dhcp snooping Layer 2 DHCP Snooping is globally disabled moxa# show ip dhcp snooping Layer 2 DHCP Snooping is globally enabled MAC Address verification is enabled moxa# show ip dhcp snooping interface Interface DHCP Snooping Port Status ----- - Eth1/1 Untrusted Eth1/2 Untrusted Eth1/3 Untrusted Eth1/4 Untrusted moxa# show ip dhcp snooping vlan 1 DHCP Snooping Vlan information ----- VLAN : 1 Snooping status : Enabled Number of Incoming Discovers : 0 Number of Incoming Requests : 0 Number of Incoming Releases : 0 Number of Incoming Declines : 0 Number of Incoming Inform : 0 Number of Transmitted Offers : 0 Number of Transmitted Acks : 0 Number of Transmitted Naks : 0 Total Number Of Discards : 0 Number of MAC Discards : 0 Number of Server Discards : 0 moxa# show ip dhcp snooping vlan 2 DHCP Snooping Vlan information ----- VLAN : 2 Snooping status : Disabled moxa# show ip dhcp snopping binding DHCP Snooping Binding Information ----- VLAN MacAddress IpAddress Interface Type Lease ----- 1 00:10:12:13:13:15 12.0.0.1 Eth1/1 static infinite 1 68:05:ca:2e:37:39 12.0.0.2 Eth2/4 dhcp 113 </pre>	
Error messages	N/A	
Related commands	N/A	

IP Source Guard

Enable/Disable IP Source Guard

Commands

ip source guard

no ip source guard

Syntax Descriptions	ip source guard	Enable IP source guard.
	no ip source guard	Disable IP source guard.
Defaults	Disable	
Command Modes	Interface configuration mode	
Usage Guidelines	N/A	
Examples	Enable on untrusted interface: Product(config-if)# ip source guard	
Error messages	Enable on DHCP Snooping trusted interface: Product(config-if)# ip source guard IP Source Guard must be enabled on a DHCP Snooping untrusted interface.	
	Enable on member port: Product(config-if)# ip source guard This port is a member of Port-Channel. IP Source Guard cannot be enabled on a member port.	

Show IP Source Guard Interface Status

Commands

show ip source guard

Syntax Descriptions	show ip source guard	Display the IP source guard interface status
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays IP source guard information.	
Examples	moxa# show ip source guard Interface IP Source Guard Status ----- Eth1/1 Disabled Eth1/2 Disabled Eth1/3 Disabled Eth1/4 Disabled Eth2/1 Disabled	
Error messages	N/A	

Dynamic ARP Inspection

Enable/Disable Dynamic ARP Inspection

Commands

ip arp inspection

no ip arp inspection

Syntax Descriptions	ip arp inspection	Enable dynamic ARP inspection
	no ip arp inspection	Disable dynamic ARP inspection
Defaults	disable	
Command Modes	interface configuration mode	
Usage Guidelines	N/A	
Examples	Enable on DHCP Snooping untrusted interface: Product(config-if)# ip arp inspection	
Error messages	Enable on DHCP Snooping trusted interface: Product(config-if)# ip arp inspection Dynamic ARP Inspection must be enabled on a DHCP Snooping untrusted interface.	
	Enable on member port: Product(config-if)# ip arp inspection This port is a member of Port-Channel. Dynamic ARP Inspection cannot be enabled on a member port.	
Related commands	N/A	

Show Dynamic ARP Inspection

Commands

show ip arp inspection

Syntax Descriptions	show ip arp inspection	Display dynamic ARP inspection interface status
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command displays Dynamic ARP Inspection information.	
Examples	Product# show ip arp inspection interfaces Interface Dynamic ARP Inspection Status ----- -----	
	Eth1/1 Disabled Eth1/2 Enabled Eth1/3 Disabled Eth1/4 Disabled Eth2/1 Disabled	
Error messages	N/A	
Related commands	N/A	

Authentication

Login Authentication

Configure Login Authentication Settings

Commands

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

no login authentication

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	Default is local.	
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** | **mschapv2** } { **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** | **ascii** } { **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	<pre>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 -----</pre>	
Error Messages	N/A	
Related Commands	<pre>copy customer-key {<tftp_url> <sftp_url>} private {<tftp_url> <sftp_url>} certificate label name clear customer-key signed-config {enable disable}</pre>	

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 [statistics] | CPU [statistics]}

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
	statistics	Show the statistics
	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	

Export a Resource Log File

Commands

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

Syntax Description	copy	Copy the target file or input
	resource-log	Export the system resource log
	tftp_url	Specify the address of the remote TFTP server and target filename in the format "tftp://server/filename"
	sftp_url	Specify the address of the remote SFTP server and target filename in the format "sftp://username:password@server/filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# copy resource-log tftp://192.168.127.100/resource-log.zip Export success	
Error Messages	% Permission Denied % File not Found % Server not Connected	
Related Commands	N/A	

Statistics

Show Traffic Statistics

Commands

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

Syntax Description	show	Display configuration/status information
	statistics	Display the interface statistics table
	interface	Configure the interface
	port-channel	The port channel
	integer	Integer value, should be valid port-channel ID
	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 [**interfaces** {**port-channel** <integer> | <interface-type> <interface-id>}]

Syntax Description	clear	Clear input
	statistics	Clear statistics
	interfaces	Specify which interface will be applied to this command
	port-channel	The port channel interface
	integer	The port channel ID
	interface-type	The Ethernet interface type
	interface-id	The interface ID: slot number/port number
Defaults	N/A	
Command Modes	Privileged EXEC Mode.	
Usage Guidelines	N/A	
Examples	moxa# clear statistics interfaces Ethernet 1/1	
Error messages	N/A	
Related commands	show statistics	

Event Notification

Event Notification

Show Event Notification Settings

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 settings
	general-event	Show general event notification settings
	poe-event	Show PoE event notification settings
	port-event	Show port event notification settings
	switching-event	Show switching event notification settings
Defaults	N/A	
Command Modes	Privileged EXEC /User EXEC	
Usage Guidelines	N/A	
Examples	<pre>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 ,</pre>	

	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 General Event Notifications

Commands

event-notification general-event event_type [action [trap] [email]]

no event-notification general-event event_type [action [trap] [email]]

Syntax Description	no		Disables the configuration / deletes the entry / resets to default value
	event-notification		Event notification related configuration
	general-event		Set notification for general event
	event_type	account-setting-changed	User account changed, including create account, remove account, and change of username, permission.
		all	Set all general event
		cold-start	System cold started
		config-change	System config changed
		config-import	System config imported
		log-capacity	System log meets capacity threshold
		login-fail	User login failed
		login-lockout	User login lockout due to login policy
		login-success	User login succeeded
		password-changed	User account password changed.
		power-off	Power supply off
		power-on	Power supply on
		ssl-certificated-changed	System certification changed
		warm-start	System warm started
	action		Set action for event notification
	trap		Set trap action for notification
	email		Set email action for notification
Defaults	All configuration about trap, email, event, and all events are enabled		
Command Modes	Global configuration		
Usage Guidelines	N/A		
Examples	<pre> moxa# config moxa(config)# event-notification general-event all action trap moxa(config)# no event-notification general-event all action trap email </pre>		
Error Messages			
Related Commands	<pre> show event-notification event-notification poe-event event-notification port-event event-notification switching-event </pre>		

Configure PoE Event Notifications

Commands

event-notification poe-event event_type [action [trap] [email]]

no event-notification poe-event event_type [action [trap] [email]]

Syntax Description	no		Disables the configuration / deletes the entry / resets to default value
	event-notification		Event notification related configuration
	poe-event		Set notification for poe event
	event_type	all	Set all poe event
		pd-power-on	Power device power on
		pd-power-off	Power device power off
		low-input-voltage	Low input voltage from power sourcing equipment
		pd-over-current	The current exceeds the limit
		pd-no-response	Device does not receive the response from power device
		over-power-budget-limit	Power device power consumption exceeds the budget
		power-detection-failure	Power device detection failure
		over-module-budget-limit	Device power consumption exceeds module budget limit
	action		Set action for event notification
	trap		Set trap action for notification
	email		Set email action for notification
Defaults	All configuration about trap, email, event, and all events are enabled		
Command Modes	Global configuration		
Usage Guidelines	N/A		
Examples	<pre> moxa# config moxa(config)# event-notification poe-event all action trap moxa(config)# no event-notification poe-event all action trap email </pre>		
Error Messages			
Related Commands	<pre> show event-notification event-notification general-event event-notification port-event event-notification switching-event </pre>		

Configure Port Event Notifications

Commands

event-notification port-event event_type [action [trap] [email]]

no event-notification port-event event_type [action [trap] [email]]

Syntax Description	No		Disables the configuration / deletes the entry / resets to default value
	event-notification		Event notification related configuration
	port-event		Set notification for port event
	event_type	all	Set all port event
		port-link-up	Port link up
		port-link-down	Port link down
		port-shutdown-by-rate-limit	Port shutdown by rate limit
		port-recovery-by-rate-limit	Port recovery by rate limit
		port-shutdown-by-port-security	Port shutdown by port security
		port-shutdown-by-loop-protect	Port shutdown by loop protection
	action		Set action for event notification
	trap		Set trap action for notification
	email		Set email action for notification
Defaults	All configuration about trap, email, event, and all events are enabled. Port events of all ports are enabled.		
Command Modes	Global configuration		
Usage Guidelines	N/A		
Examples	<pre> 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 </pre>		
Error Messages			
Related Commands	<pre> show event-notification event-notification general-event event-notification poe-event event-notification switching-event </pre>		

Configure Switching Event Notifications

Commands

event-notification switching-event event_type [action [trap] [email]]

no event-notification switching-event event_type [action [trap] [email]]

Syntax	Description	No
		Disables the configuration / deletes the entry / resets to default value
	event-notification	Event notification related configuration
	switching-event	Set notification for switching event
	event_type	all Set all switching event
		topology-changed Network topology changed (MRP/turbo chain/Turbo Ring)
		coupling-changed Turbo Ring v2 coupling changed
		master-changed Turbo Ring v2 master changed
		master-mismatched Turbo Ring v2 master mismatched
		rstp-topology-changed RSTP network topology changed
		rstp-root-changed RSTP root device changed
		rstp-migration RSTP migration
		rstp-invalid-bpdu RSTP device receive invalid bpdu
		rstp-new-port-role RSTP port role changed
		rdnt-port-health-check-fail Redundant port health check failed
		dot1x-auth-fail 802.1x authentication fail
		lldp-table-changed LLDP remote table changed
		rmon-raising-alarm Rmon alarm variables values reach or exceed the rising threshold
		rmon-falling-alarm Rmon alarm variables values reach or fall below the falling threshold
		mstp-new-port-role MSTP port role changed
		mstp-root-changed MSTP root device changed
		mstp-topology-changed MSTP network topology changed
		dhcpsnp-client-discarded DHCP client ingress discards packets due to the DHCP Snooping rule
		dhcpsnp-entry-set-fail Binding Status dynamic entry set failed
		dhcpsnp-server-discarded DHCP server discards packets due to the DHCP Snooping rule
		macsec-mka-fail MACsec mka peer expired
		MRP multi managers MRP multiple managers
		MRP Ring-Open MRP ring open
	action	Set action for event notification
	trap	Set trap action for notification
	email	Set email action for notification
Defaults	All configuration about trap, email, event enable of all events are enabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre> moxa# config moxa(config)# event-notification switching-event all action trap moxa(config)# no event-notification switching-event all action trap email </pre>	
Error Messages		
Related Commands	<pre> show event-notification event-notification general-event event-notification poe-event event-notification port-event </pre>	

Email Notification

Configure Email Notification Server Settings

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 email server parameters
	server-address	Configure the email notification server IP address
	ucast_addr	The email notification server IP address
	server-port	The email notification server IP port
	username	Configure the email notification server username
	string (60)	The email server username
	password	Configure the email notification server password
	string (60)	The email 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 the 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 the 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 TLS mode
	disable	Disable 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 the Email Notification Recipient

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
	string (60)	The receiver's name (up to 60 characters)
	index	Configure the index of the receiver
	integer (1-5)	The number index of the recipient (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 Settings

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 Settings

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 syslog server IP address
	dns_host_name	The syslog server host domain name
	port	Configure port parameters
	integer (1-65535)	The syslog server 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 a Logging Server Entry

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 logging server
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 the Syslog Server

Commands

logging syslog-server { enable | disable }

Syntax Description	logging	Configure logging server 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 the Syslog Server Configuration

Commands

show logging syslog-server

Syntax Description	show	Display configuration/status information
	logging	Display logging server 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 the Syslog Server Client Certificate and Key

Commands

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

Syntax Description	copy	Perform the copy operation
	syslog-server	Copy syslog server configurations
	client-certificate	Copy the syslog server client certificate file
	client-key	Copy the syslog server client key file
	ca-key	Copy the syslog server CA key file
	tftp_url	The address of the file on the TFTP server
	sftp_url	The address of the file on the SFTP server
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Examples	moxa# copy syslog-server tftp://192.168.127.200/filename1 client-certificate tftp://192.168.127.200/filename2 client-key tftp://192.168.127.200/filename3 ca-key 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 the Syslog Server Client Certificate and Key

Commands

clear syslog-server certificate-and-key

Syntax Description	clear	Perform the clear operation
	syslog-server	Clear the syslog server configuration
	certificate-and-key	Clear the syslog authentication certificate 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)	The index of the syslog server
	authentication	Configure the authentication method
	disable	Disable authentication
	tls	Use 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	

Specify Syslog Format

Commands

logging-format rfc5424

Syntax Description	logging-format	Syslog format
	rfc5424	Syslog format with RFC5424
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# logging-format rfc5424	
Error Messages	N/A	
Related Commands	show logging server	

Clear Syslog Format

Commands

no logging-format

Syntax Description	no	Remove configuration / delete entry / reset to default value
	logging-format	Set to default syslog format
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# no logging-format	
Error Messages	N/A	
Related Commands	show logging server	

Set Syslog Message Format

Commands

logging-format message CEF

Syntax Description	logging-format	Syslog format
	message	Set syslog message format
	CEF	Set syslog message format with CEF
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# logging-format message CEF	
Error Messages	N/A	
Related Commands	show logging server	

Clear Syslog Message Format

Commands

no logging-format message

Syntax Description	no	Remove configuration / delete entry / reset to default value
	logging-format	Set to default syslog format
	message	Set to default syslog message format
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	N/A	
Examples	moxa# no logging-format message	
Error Messages	N/A	
Related Commands	show logging server	

Diagnosis

LLDP

Show LLDP Information

Commands

show lldp

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display 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 the LLDP Interface

Commands

show lldp interface

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display LLDP information
	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 [detail]

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display LLDP information
	neighbors	Display LLDP neighbor information
	detail	Display all detailed information
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 Local Information

Commands

show lldp local

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display LLDP information
	local	Display local LLDP information
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display LLDP local device related information.	
Examples	moxb# show lldp local 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 : 00:01:02:03:04:05 System Name : moxb System Description : EDS-G4012-8P-4QGS Product Revision: V0.0.0 FW Version: V4.0 System Capabilities Supported : B System Capabilities Enabled : B	

	Management Address : Interface Management Address -----		
	129	192.168.127.253	
	Eth1/1 :		
	Port Id SubType	: Interface Alias	
	Port Id	: Eth1/1	
	Port Description	: Ethernet Interface Port 01	
	Enabled Tx TLvs	: Port Description, System Name, System Capability, Management Address, CIP Identification	
	Extended 802.3 TLV Info		
	-MAC PHY Configuration & Status		
	Auto-Neg Support & Status	: Not Supported, Disabled	
	Advertised Capability Bits	: 0000	
	Operational MAU Type	: 0	
	-Link Aggregation		
	Capability & Status	: Not Capable, Not In Aggregation	
	Aggregated Port Id	: 0	
	-Maximum Frame Size	: 9216	
	Extended 802.1 TLV Info		
	-Port VLAN Id : 1		
	-Vlan Name		
	Vlan Id	Vlan Name	TxStatus
	-----	-----	-----
	1		Disabled
	Extended EtherNet/IP TLV Info		
	- CIP Identification TLV		
	Vendor ID	: 0x03DF	
	Device Type	: 0x002C	
	Product Code	: 0x1110	
	Major Revision	: 1	
	Minor Revision	: 1	
	Serial Number	: 1027030	
Error Messages	N/A		

Show LLDP Statistics

Commands

show lldp statistics

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display LLDP information
	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 Information

Commands

show lldp errors

Syntax Description	show	Display configuration/statistics/general information
	lldp	Configure LLDP information
	errors	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 Information

Commands

show lldp traffic

Syntax Description	show	Display configuration/statistics/general information
	lldp	Display LLDP information
	traffic	Display the LLDP local traffic
Defaults	N/A	
Command Modes	Privileged EXEC User EXEC	
Usage Guidelines	Display the local LLDP traffic 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
Error Messages	Total PDU length error Drops : 0	
	N/A	
Related Commands	show lldp config-if > lldp {transmit receive} config-if > lldp dest-mac <mac_addr>	

Enable/Disable LLDP

Commands

lldp {enable | 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 the 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 (5 to 32768 seconds)
Defaults	The default interval between successive transmit cycles is 30 seconds.	
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 the LLDP Hold Time 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	Configure the hold time multiplier applied to the transmit interval used to calculate the TTL value txTTL
	value	The multiplier value (2 to 10)
Defaults	The default hold time multiplier is 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 the LLDP Transmission Delay

Commands

lldp tx-delay <seconds (1-8192)>

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 (1 to 8192 seconds)
Defaults	The default LLDP transmission delay time is 2 seconds.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP tx-delay parameter. tx_delay <= (0.25 x transmit-interval)	
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 the LLDP Reinitialization Delay

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 the admin status becomes 'disabled' before reinitialization is attempted
	seconds	The reinitialization delay (1 to 10 seconds)
Defaults	The default reinitialization delay time is 2 seconds.	
Command Modes	Privileged EXEC Global Configuration	
Usage Guidelines	Configure the LLDP reinitialization 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 the LLDP Notification Interval

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 LLDP event notifications
	seconds	The notification interval (5 to 3600 seconds)
Defaults	The default notification interval time is 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 Settings

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 the chassis-component and local system sybtypes
	chassis-comp	Specify the value of the entPhysicalAlias object of a chassis component as the chassis identifier
	if-alias	Specify the value of ifAlias of an interface on the containing chassis as the chassis identifier
	port-comp	Specify the value of the entPhysicalAlias object of a port or backplane within the chassis as the chassis identifier
	mac-addr	Specify the unicast source MAC address of a port on the chassis as the chassis identifier
	nw-addr	Specify a network address associated with a particular chassis as the chassis identifier. 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	Specify the value of an ifName pbject of an interface on the containing chassis as the chassis identifier
	local	Specify a locally defined value as the chassis identifier
Defaults	The default chassis ID subtype is mac-addr, representing the system's MAC address.	
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 Settings

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	LLPDU transmission and reception 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 the 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	Specify the value of ifAlias of an interface on the containing chassis as the port identifier
	port-comp	Specify the value of the entPhysicalAlias object of a port or backplane within the chassis as the port identifier
	mac-addr	Specify the unicast source MAC address of a port on the chassis as the port identifier
	if-name	Specify the value of an ifName pbject of an interface on the containing chassis as the port identifier
	local	Specify a locally defined value as the port identifier
Defaults	mac-addr uses sys_mac, others are none.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure the LLDP notification interval time	
Examples	moxa(config-if)# lldp port-id-subtype mac-addr moxa(config-if)# no lldp port-id-subtype	
Error Messages	N/A	
Related Commands	show lldp config lldp enable	

Configure LLDP TLV Settings

Commands

lldp tlv-select basic-tlv { port-descr | sys-name | sys-descr }

no lldp tlv-select basic-tlv { port-descr | sys-name | sys-descr }

Syntax Description	lldp	Configure LLDP parameters
	tlv-select	Configure basic LLDP TLV transmission parameters
	basic-tlv	Configure basic TLV parameters
	port-descr	Use a port description for the TLV.
	sys-name	Use the system name for the TLV.
	sys-descr	Use the system description for the TLV.
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 Settings

Commands

lldp tlv-select dot1tlv { port-vlan-id | {all | <vlan-id>} | vlan-name {all | } | }

Syntax Description	lldp	Configure LLDP parameters
	tlv-select	Configure basic LLDP TLV transmission parameters
	dot1tlv	Configure specific IEEE 802.1 TLV parameters
	port-vlan-id	Use the port PVID for the TLV
	vlan-name	Use a VLAN name for the TLV
Defaults	N/A.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure LLDP DOT1 TLV parameters.	
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 Settings

Commands

lldp tlv-select dot3tlv { link-aggregation | max-framesize }

Syntax Description	lldp	Configure LLDP parameters
	tlv-select	Configure basic LLDP TLV transmission parameters
	dot3tlv	Configure specific IEEE 802.3 TLV parameters
	link-aggregation	Configure the link aggregation protocol statistics for each port on the device
	max-framesize	Specify the maximum frame size of the TLV
Defaults	N/A.	
Command Modes	Privileged EXEC Interface Configuration	
Usage Guidelines	Configure LLDP DOT3 TLV parameters.	
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 Transmit TLVs capability are Link Aggregation Statistics and Maximum Frame Size."	
Related Commands	show lldp local show lldp neighbors show lldp errors	

Port Mirroring

Enable/Disable Mirroring

Commands

port-mirror {enable | disable}

Syntax Description	port-mirror	Configure port mirror parameters
	enable	Enable mirroring
	disable	Disable mirroring
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	N/A	

Show Mirroring Information

Commands

show monitor { **session** <session-id (1-7)> | **range** <session-list> }

Syntax Description	show	Display configuration/status information
	monitor	Display port mirror information
	session	Display the mirroring information of a specific mirroring session
	session-id	Specify the index of the mirroring session
	range	Display the mirroring information for a range of mirroring sessions
	session-list	Specify the mirroring session list
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	N/A	
Examples	<pre> moxa-product# show monitor session 1 Mirroring is globally Enabled. Rspan Intermediate is Enabled. Rspan Intermediate Vlan Id : 5. ----- [SPAN] Session : 1 Reflect Port Mode Enabled Source Ports Rx : None Tx : None Both : Eth1/1 Reflect Port : Eth1/2 Session Status : Active ----- moxa-product# show monitor range 1-7 Mirroring is globally Enabled. Rspan Intermediate Disabled. ----- [SPAN] Session : 1 Reflect Port Mode Enabled Source Ports Rx : None Tx : None Both : Eth1/1 Reflect Port : Eth1/2 Session Status : Active ----- % Session 2 does not exist % Session 3 does not exist % Session 4 does not exist % Session 5 does not exist ----- [RSPAN] Session : 6 Reflect Port Mode Disabled Rspan Type : Source Rspan Vlan Id : 3 Source Ports Rx : None Tx : None Both : Eth1/3,po1 Designated Port : Eth1/4 </pre>	

	<pre> Session Status : Active ----- [RSPAN] Session : 7 Reflect Port Mode Disabled Rspan Type : Destination Rspan Vlan Id : 4 Source Ports Rx : None Tx : None Both : None Destination Port(s) : Eth2/1,Eth2/2 Session Status : Active ----- </pre>
Error Messages	<pre> % Invalid: Monitor session range must be in between (1-5) Example: Key "range 1-8" % Invalid: Invalid Session List Example: Key "range 0-7" </pre>
Related Commands	N/A

Configure the Source for a Mirroring Session

Commands

monitor session <session-id (1-7)> { **source** { **interface** { **port-channel** <port-channel-id> | <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
	port-channel	Configure the port channel interface
	port-channel-id	Specify the port channel ID, the range is from 1 to (total ports/2)
	interface-type	Specify the interface type
	interface-id	Specify the interface number
	rx, tx, both	Specify the traffic type to mirror: received, transmitted, or both
Defaults	The traffic type to mirror is set to Both by default.	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	<pre>moxa-product# configure moxa-product(config)# monitor session 1 source interface ethernet 1/1 moxa-product# configure moxa-product(config)# monitor session 1 source interface ethernet 1/1 rx moxa-product# configure moxa-product(config)# monitor session 1 source interface ethernet 1/1 tx moxa-product# configure moxa-product(config)# monitor session 1 source interface port-channel 1</pre>	
Error Messages	<pre>% Invalid: Duplicated Rx source port. % Invalid: Duplicated Tx source port. % Invalid: The destination port conflicts with the 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: The RSPAN session cannot be active when the RSPAN Intermediate Role is enabled. % Invalid: The Port-Channel with no member ports cannot be set to the RX source port. % Invalid: The Port-Channel with no member ports cannot be set to the TX source port. % Invalid: When GVRP is enabled, the Reflect Port Mode cannot be enabled or the RSPAN session cannot be active. % Invalid: The source port of the SPAN session with the Reflect Port Mode enabled must be a VLAN access port. % Invalid: The RSPAN destination session cannot configure the Tx source port or Rx source port.</pre>	
Related Commands	<pre>moxa-product(config)# no monitor session <session-id (1-7)> { source { interface { port-channel <port-channel-id> <interface-type> <interface-id> } } }</pre>	

Remove Source Port Configurations for a Mirroring Session

Commands

no monitor session <session-id (1-7)> { **source { interface {port-channel** <port-channel-id> | <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
	port-channel	Configure the port channel interface
	port-channel-id	Specify the port channel ID, the range is from 1 to (total ports/2)
	interface-type	Specify the interface type
	interface-id	Specify the interface number
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa-product# configure moxa-product(config)# no monitor session 1 source interface ethernet 1/1	
	moxa-product# configure moxa-product(config)# no monitor session 1 source interface port-channel 1	
Error Messages	N/A	
Related Commands	moxa-product(config)# monitor session <session-id (1-7)> { source { interface { port-channel <port-channel-id> <interface-type> <interface-id> } [{ rx tx both }] }	

Configure the Destination for a Mirroring Session

Commands

monitor session <session-id (1-7)> **destination** {**interface** <interface-type> <interface-id>} [**reflect-port-mode**]

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	Specify the interface type
	interface-id	Specify the interface number
	Reflect-port-mode	Enable Reflect Port Mode
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# monitor session 1 destination interface ethernet 1/2 reflect-port-mode	
Error Messages	% Invalid: Duplicated destination port. % Invalid: The destination port conflicts with the 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. % Invalid: If the port is set as the MSTP port, it cannot be set to the destination port. % Invalid: If the port is set as the MRP port, it cannot be set to the destination port. % Invalid: If Dot1x is enabled on this port, it cannot be set to the destination port. % Invalid: The RSPAN destination session cannot be active with the Reflect Port Mode enabled. % Invalid: There is more than one destination port. % Invalid: The source port of the SPAN session with the Reflect Port Mode enabled must be a VLAN access port. % Invalid: The reflect port cannot be configured to the Management VLAN ID. % Invalid: The PVID of the reflect port is in a session that conflicts with the reflect port PVID or the RSPAN VLAN ID of another session, or the RSPAN Intermediate VLAN ID. % Invalid: The RSPAN VLAN ID of an RSPAN session conflicts with the PVID of the reflect port in another session. % Invalid: When GVRP is enabled, the Reflect Port Mode cannot be enabled or the RSPAN session cannot be active. % Invalid: The destination port must be a VLAN access port. % Invalid: The Speed/Duplex settings of the reflect port must be in AUTO mode and enabled. % Invalid: Invalid RSPAN session type	
Related Commands	moxa-product(config)# no monitor session <session-id (1-7)> destination { interface <interface-type> <interface-id> } [reflect-port-mode]	

Delete the Destination Configuration for a Mirroring Session

Commands

no monitor session <session-id (1-7)> **destination** {**interface** <interface-type> <interface-id>} [**reflect-port-mode**]

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	Specify the interface type
	interface-id	Specify the interface number
	reflect-port-mode	Disable Reflect Port Mode
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa# configure moxa(config)# no monitor session 1 destination interface ethernet 1/2 reflect-port-mode	
Error Messages	N/A	
Related Commands	moxa(config)# monitor session <session-id (1-7)> destination { interface <interface-type> <interface-id>} [reflect-port-mode]	

Delete Mirroring Configurations

Commands

no monitor session {**range** <session-list> | session-id (1-7)}

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 mirroring 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 1-7	
Error Messages	% Invalid: Monitor session range must be in between (1-7) Example: Key "range 1-8" % Invalid: Invalid Session List Example: Key "range 0-7"	
Related Commands	N/A	

Configure the Designated Port for a Mirroring Session

Commands

monitor session <session-id (6-7)> **designated** { **interface** <interface-type> <interface-id> } [**reflect-port-mode**]

Syntax Description	monitor	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	designated	Configure the designated port parameters
	interface	Configure interface-related configuration
	interface-type	Specify the interface type
	interface-id	Specify the interface ID
	reflect-port-mode	Enable Reflect Port Mode
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa-product# configure moxa-product(config)# monitor session 6 designated interface ethernet 1/2 reflect-port-mode	
Error messages	% Invalid: Duplicated destination port. % Invalid: The destination port conflicts with the 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. % Invalid: If the port is set as the MSTP port, it cannot be set to the destination port. % Invalid: If the port is set as the MRP port, it cannot be set to the destination port. % Invalid: If Dot1x is enabled on this port, it cannot be set to the destination port. % Invalid: There is more than one destination port. % Invalid: The reflect port cannot be configured to the Management VLAN ID. % Invalid: The PVID of the reflect port must be equal to the RSPAN VLAN ID in an RSPAN source session. % Invalid: The RSPAN VLAN ID of an RSPAN session conflicts with the PVID of the reflect port in another session. % Invalid: When GVRP is enabled, the Reflect Port Mode cannot be enabled or the RSPAN session cannot be active. % Invalid: The destination port must be a VLAN access port. % Invalid: The RSPAN reflect port must be a VLAN trunk port. % Invalid: The Speed/Duplex settings of the reflect port must be in AUTO mode and enabled. % Invalid: Invalid RSPAN session type
Related commands	<pre>moxa-product(config)# no monitor session <session-id (6-7)> designated { interface <interface-type> <interface-id> } [reflect-port-mode]</pre>

Remove the Designated Port Configurations for a Mirroring Session

Commands

no monitor session <session-id (6-7)> **designated** { **interface** <interface-type> <interface-id> } **[reflect-port-mode]**

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
	designated	Configure the designated port parameters
	interface	Configure interface-related configuration
	interface-type	Specify the interface type
	interface-id	Specify the interface ID
	reflect-port-mode	Disable Reflect Port Mode
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	<pre>moxa-product# configure moxa-product(config)# no monitor session 6 designated interface ethernet 1/2 reflect-port-mode</pre>	
Error messages	N/A	
Related commands	<pre>moxa-product(config)# monitor session <session-id (6-7)> designated { interface <interface-type> <interface-id> } [reflect-port-mode]</pre>	

Configure the RSPAN Session Type and VLAN

Commands

monitor session <session-id (6-7)> **rspan-type** {**source** | **destination**} **vlan** <vlan-id (1-4094)>

Syntax Description	monitor	Configure port mirroring parameters
	session	Configure the mirroring session
	session-id	The index of the mirroring session
	rspan-type	Configure RSPAN session type parameters
	source	Enable the RSPAN source session
	destination	Enable the RSPAN destination session
	vlan	Configure RSPAN session VLAN parameters
	vlan-id	Specify the VLAN ID
Defaults	N/A	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa-product# configure moxa-product(config)# monitor session 6 rspan-type source vlan 3 moxa-product# configure moxa-product(config)# monitor session 7 rspan-type destination vlan 2	
Error messages	% Invalid: The RSPAN VLAN ID cannot be configured to the Management VLAN ID. % Invalid: The RSPAN VLAN ID must be configured to an existing VLAN ID. % Invalid: Duplicated RSPAN VLAN ID. % Invalid: The RSPAN session cannot be active when the RSPAN Intermediate Role is enabled. % Invalid: The RSPAN destination session cannot be active with the Reflect Port Mode enabled. % Invalid: There is more than one RSPAN source session. % Invalid: There is more than one RSPAN destination session. % Invalid: The PVID of the reflect port is in a session that conflicts with the reflect port PVID or the RSPAN VLAN ID of another session, or the RSPAN Intermediate VLAN ID. % Invalid: The RSPAN VLAN ID of an RSPAN session conflicts with the PVID of the reflect port in another session. % Invalid: When GVRP is enabled, the Reflect Port Mode cannot be enabled or the RSPAN session cannot be active. % Invalid: When the RSPAN destination session is active, at least one VLAN trunk port must be enabled.	
Related commands	N/A	

Configure the RSPAN Intermediate Role

Commands

monitor rspan-intermediate-role {**enable** | **disable**} [**vlan** <vlan-id (1-4094)>]

Syntax Description	monitor	Configure port mirroring parameters
	rspan-intermediate-role	Configure RSPAN intermediate role parameters
	enable	Enable the RSPAN intermediate role
	disable	Disable the RSPAN intermediate role
	vlan	Configure RSPAN session VLAN parameters
	vlan-id	Specify the VLAN ID
Defaults	disable	
Command Modes	Global Configuration Mode	
Usage Guidelines	N/A	
Examples	moxa-product# configure moxa-product(config)# monitor rspan-intermediate-role enable vlan 2 moxa-product# configure moxa-product(config)# monitor rspan-intermediate-role disable	
Error messages	% Invalid: When GVRP is enabled, the RSPAN Intermediate cannot be enabled. % Invalid: The RSPAN Intermediate VLAN ID cannot be configured to the Management VLAN ID. % Invalid: The RSPAN Intermediate VLAN ID must be configured to an existing VLAN ID. % Invalid: When the RSPAN Intermediate Role is enabled, at least one VLAN trunk port must be active. % Invalid: The PVID of the reflect port is in a session that conflicts with the reflect port PVID or the RSPAN VLAN ID of another session, or the RSPAN Intermediate VLAN ID.	
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. Ranges from 1 to 10.
	size	The size of the ping packet
	payload-size	The length of the ping packet value. Ranges from 36 to 2080.
	timeout	The time in seconds after which the entity waiting for the ping response times out
	request-timeout	The timeout value. Ranges from 1 to 100.
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	

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 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 the Event Log

Commands

clear logging event-log

Syntax Description	clear	Clear the event log
	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 an Event Log File

Commands

copy event-log {tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename}

Syntax	copy	Copy the target file or input
Description	event-log	Export the system event log
	tftp://server/filename	The address of the remote TFTP server and target filename in the format "tftp://server/filename"
	sftp://<username>:<password>@server/filename	The address of the remote SFTP server and target filename 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 log capacity parameters
	threshold	Configure the log capacity threshold
	short (50-100)	The log capacity threshold in percentage after which the oversize action is triggered
Defaults	The default log threshold is set to 80%.	
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	Reset logging parameters
	log-capacity	Reset log capacity parameters
	threshold	Reset 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 Settings

Commands

logging oversized-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 oversized-action { overwrite-oldest stop-recording }	
Error Messages	N/A	
Related Commands	N/A	

Copy the Event Log

Commands

copy event-log { <tftp_url> | <sftp_url> | <usb_file> | <micro-sd_file> }

Syntax Description	copy	Copy the target file or input
	event-log	Copy the system event log
	tftp_url	The address of the remote TFTP server and filename in the format "tftp://server/filename"
	sftp_url	The address of the remote SFTP server and filename in the format "sftp://username:password@server/filename"
	usb_file	Copy event-log to ABC-02. The USB storage and filename in the format: " usb :filename"
	micro-sd_file	Copy event-log to micro-SD. The Micro SD storage and filename in the format: " micro-sd :filename"
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	(config)# copy event-log tftp://server/moxa.log (config)# copy event-log sftp://username:password@server/moxa.log (config)# copy event-log usb:Moxa/log/moxa.log (config)# copy event-log micro-sd:Moxa/log/moxa.log	
Error messages	Invalid: File expects [0-9], [a-z], [A-Z], and -._() Invalid: Not support USB. Invalid: Not support microSD. Invalid: USB function is disable Invalid: MicroSD function is disable Invalid: Invalid Request Data	
Related commands	N/A	

Configure Auto Backup Log Settings

Commands

auto-backup log { enable | disable }

Syntax Description	auto-backup	Configure auto backup of files to external storage
	log	Configure auto backup for log files
	enable	Enable auto backup for log files
	disable	Disable auto backup for log files
Defaults	N/A	

Command Modes	Privileged EXEC
Usage Guidelines	Use the auto-backup log privileged command on the device to automatically back up the oldest 1000 log entries to prevent logs from being overwritten.
Examples	(config)# auto-backup log enable (config)# auto-backup log disable
Error messages	N/A
Related commands	show external-storage info auto-backup config

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 the IED name
	<iedname>	Specify the 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> }

mms rcb {urcbLnkSt | brcbLnkSt | urcbSysSt | brcbSysSt} {{dchg | qchg | dupd | integrity} {**enable** | **disable**} | {bufTime | intgPd} <value (1-4294967295)>}

Syntax Description	mms	Configure MMS parameters
	rcb	Configure RCB parameters
	enable	Enable the specified RCB parameters
	disable	Disable the specified RCB parameters
	urcbLnkSt	Configure the urcbLnkSt table
	brcbLnkSt	Configure the brcbLnkSt table
	urcbSysSt	Configure the urcbSysSt table
	brcbSysSt	Configure the brcbSysSt table
	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 rcbyname1 dchg disable	
Error Messages	N/A	
Related Commands	N/A	

Export the 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 the CID file
	export	Export the CID file
	tftp://server/filename	The address of the remote TFTP server and filename in the format "tftp://server/filename"
	sftp://<user-name>:<pass-word>@server/filename	The address, username, and password of the remote TFTP server and filename in the format "tftp://server/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 the 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 settings
	ca	Configure the CA file
	import	Import the CA file
	export	Export the CA file
	tftp://server/filename	The address of the remote TFTP server and filename in the format "tftp://server/filename"
	sftp://<user-name>:<pass-word>@server/filename	The address, username, and password of the remote TFTP server and filename in the format "tftp://server/filename"
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import or export the T-profile CA file of the switch.	
Examples	moxa(config)# mms t-profile ca import tftp://192.168.127.50/tpprofile_ca moxa(config)# mms t-profile ca export tftp://192.168.127.50/tpprofile_ca	
Error Messages	N/A	
Related Commands	N/A	

Import/Export the T-profile Certificate File

Commands

mms t-profile certificate import { tftp://server/filename | sftp://<user-name>:<password>@server/filename }

mms t-profile certificate export { tftp://server/filename | sftp://<user-name>:<password>@server/filename }

Syntax Description	mms	Configure MMS parameters
	t-profile	Configure T-profile settings
	certificate	Configure certificate settings
	import	Import the certificate file
	export	Export the certificate
	tftp://server/filename	The address of the remote TFTP server and filename in the format "tftp://server/filename"
	sftp://<user-name>:<password>@server/filename	The address, username, and password of the remote TFTP server and filename in the format "tftp://server/filename"
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import or export the T-profile certificate file of the switch.	
Examples	moxa(config)# mms t-profile certificate import tftp://192.168.127.50/tpprofile_pfx moxa(config)# mms t-profile certificate export tftp://192.168.127.50/tpprofile_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 the A-profile selection
	security	Configure security settings
	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 the A-profile Certificate File

Commands

mms a-profile certificate import { tftp://server/filename | sftp://<user-name>:<password>@server/filename }

mms a-profile certificate export { tftp://server/filename | sftp://<user-name>:<password>@server/filename }

Syntax Description	mms	Configure MMS parameters
	a-profile	Configure a-profile settings
	certificate	Configure certificate settings
	import	Import the certificate file
	export	Export the certificate file
	tftp://server/filename	The address of the remote TFTP server and filename in the format "tftp://server/filename"
	sftp://<user-name>:<password>@server/filename	The address, username, and password of the remote TFTP server and filename in the format "tftp://server/filename"
Defaults	N/A	
Command Modes	Global Configuration	
Usage Guidelines	This command is to import or 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 the MMS Status

Commands

show mms enable

Syntax Description	show	Display the configuration
	mms	Display MMS settings
	enable	Display the MMS status
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command shows MMS status information.	
Examples	moxa# show mms enable mms enable	
Error Messages	N/A	
Related Commands	N/A	

Show the MMS IED Name

Commands

show mms iedname

Syntax Description	show	Display the configuration
	mms	Display MMS settings
	iedname	Display the IED name
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command shows MMS IED 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	Display MMS settings
	rcb	Display RCB information
Defaults	N/A	
Command Modes	Privileged EXEC Mode	
Usage Guidelines	This command shows MMS RCB information.	
Examples	<pre> 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 </pre>	
Error Messages	N/A	
Related Commands	N/A	

Show the MMS T-profile Status

Commands

show mms t-profile enable

Syntax Description	show	Display the configuration
	mms	Display MMS settings
	t-profile	Display T-profile settings
	enable	Display the T-profile status
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 the MMS A-profile Status

Commands

show mms a-profile enable

Syntax Description	show	Display the configuration
	mms	Display MMS settings
	a-profile	Display A-profile settings
	enable	Display the A-profile status
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 Tools

Locator

Show the Locator

Commands

locator [duration]

Syntax Description	locator	Activate the device locator to force the device LEDs to blink
	duration	The duration of the locator 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 [all]

Syntax Description	reload	Perform a warm restart
	factory-default	Perform a warm restart and restore the factory default settings
	all	Reset all user data including the startup configuration, log files, certificates, and keys to their factory default value
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... moxa# reload factory-default all Are you sure you want to reset the system configuration and all user data including configuration, log files, and credential keys to the factory default settings? [Y/N] Resetting device into factory default and restarting...	
Error Messages	N/A	
Related Commands	N/A	

Reload the Custom-default Configuration

Use the **reload custom-default** privileged EXEC command to restore the custom default configuration and reboot the device.

Commands

reload custom-default

Syntax Description	reload	Perform a warm restart
	custom-default	Perform a warm restart and reload the custom default settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	moxa# reload custom-default Would you like to reset system configuration to the custom default? [y/N] Resetting device to the custom default and restarting...	
Error Messages	% Invalid: The specified custom default configuration does not exist.	
Related Commands	N/A	

Log Out

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	

Enable or Disable the Tech Support Mechanism

Commands

tech-support system [enable | disable]

Syntax Description	tech-support	Configure tech support troubleshooting settings
	system	Configure tech support for the switch system
	Enable	Enable the tech support function
	Disable	Enable the tech support function
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	

Log In to the Tech Support Mechanism

Commands

tech-support system login

Syntax Description	tech-support	Configure tech support troubleshooting settings
	system	Configure tech support for the switch system
	login	Log in to the 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	

4. Supplementary Information

The table below lists known issues or limitations related to the CLI commands in this version.

Item	CLI	Descriptions
S-1	Moxa# debug debuglog clear Moxa# debug debuglog export usb { all os framework package hw } Moxa# debug terminal Moxa# debug trace media { local usb_storage usb_console } Moxa# debug trace system dump chip-mac-table Moxa# debug trace tc dump information Moxa# debug trace trv2 dump information Moxa# debug trace trv2 severity <value(0-7)> Moxa# debug trace { start stop } Moxa# debug { start stop } Moxa# clear debug destination { ram file } Moxa# show debug destination file Moxa# show debug destination ram Moxa# show debug module config_layer Moxa# show debug module dai Moxa# show debug module dhcprly Moxa# show debug module dhcpsnp Moxa# show debug module file_layer Moxa# show debug module firmware_update Moxa# show debug module global Moxa# show debug module ipsg Moxa# show debug module management_ip Moxa# show debug module mrp Moxa# show debug module port-mirror Moxa# show debug module status_layer Moxa# show vlan device capabilities	While these commands may be visible in the terminal, it's important to note that they are strictly reserved for internal use by Moxa.
S-2	moxa(config)# debug burst moxa(config)# debug burst period <integer(1-10)> moxa(config)# debug burst threshold <integer(1-100)> moxa(config)# debug destination console moxa(config)# debug destination file moxa(config)# debug destination file size <integer(1-10)> moxa(config)# debug destination ram moxa(config)# debug destination ram size <integer(1-10)> moxa(config)# debug level config_layer moxa(config)# debug level dai moxa(config)# debug level dhcprly moxa(config)# debug level dhcpsnp moxa(config)# debug level file_layer moxa(config)# debug level firmware_update moxa(config)# debug level global moxa(config)# debug level ipsg moxa(config)# debug level management_ip moxa(config)# debug level mrp moxa(config)# debug level port-mirror moxa(config)# debug level status_layer moxa(config)# debug module config_layer moxa(config)# debug module dai moxa(config)# debug module dai showRule moxa(config)# debug module dhcprly moxa(config)# debug module dhcprly packet [{relay discard op82}] moxa(config)# debug module dhcpsnp	While these commands may be visible in the terminal, it's important to note that they are strictly reserved for internal use by Moxa.

<pre> moxa(config)# debug module dhcpsnp packet [{forward discard}] moxa(config)# debug module file_layer moxa(config)# debug module file_layer {main operation} moxa(config)# debug module firmware_update moxa(config)# debug module firmware_update main moxa(config)# debug module ipsg moxa(config)# debug module ipsg showRule moxa(config)# debug module management_ip moxa(config)# debug module management_ip main moxa(config)# debug module mrp moxa(config)# debug module mrp statechange moxa(config)# debug module port-mirror moxa(config)# debug module port-mirror mirrSetting moxa(config)# debug module status_layer moxa(config)# debug module status_layer main moxa(config)# debug system startup </pre>	
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