TN Series Command Line Interface

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TN Series Command Line Interface

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CLI (Command Line Interface)

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

Basic Operation

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

```
                          TN-4520A series  V4.0 build 25091215
------------------------------------------------------------------------------
MOXA#
  quit                - Exit command line interface
  exit                - Exit command line interface
  reload              - Halt and perform a cold restart
  terminal            - Configure terminal page length
  copy                - Copy from one file to another
  save                - Save running configuration to flash
  ping                - Send echo messages
  clear               - Clear information
  show                - Show running system information
  configure           - Enter configuration mode
  sslcertgen          - Generate SSL certificate.
  sshkeygen           - Generate SSH host key.
MOXA#
```

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

```
MOXA# configure
MOXA(config)#
```

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

```
MOXA(config)# exit
MOXA#
```

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

```
MOXA(config)# interface ethernet 1/1
MOXA(config-if)#
MOXA#
```

Useful Interactive "Help" Features

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

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

Understanding All Commands

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

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

Legacy Commands

To better align and make commands easier to understand across Moxa switches, the format of some commands has been updated to a new input format, which will be used for future commands. To ensure backwards compatibility, outdated commands will still be maintained and be classified as legacy commands. Command auto-complete and the "help" input to explain the command's use and purpose are not available for legacy commands, meaning users will need to enter the complete command manually.

Refer to the list of all legacy commands below:

- show qos-dscp-to-cos
- show qos-cos-to-queue
- show qos-dscp-to-queue
- show auth mode
- show auth radius
- show auth tacacs+
- auth mode
- auth mode tacacs+
- auth mode radius
- auth tacacs+ server-ip
- auth tacacs+ server-port
- auth tacacs+ shared-key
- auth tacacs+ auth-type
- auth tacacs+ timeout
- auth radius server-ip
- auth radius server-port
- auth radius shared-key
- auth radius timeout
- no auth mode
- no auth tacacs+
- no auth tacacs+ server-ip
- no auth tacacs+ server-port
- no auth tacacs+ shared-key
- no auth tacacs+ auth-type
- no auth tacacs+ timeout
- no auth radius
- no auth radius server-ip
- no auth radius server-port
- no auth radius shared-key
- no auth radius timeout
- snmp-server user
- snmp-server trap-mode inform
- acl id mac-based permit any any
- acl id ip-based permit any any

access-ip

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

Commands

access-ip *[ip-address netmask]*

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

Syntax Description	**access-ip**	Enable the accessible IP list
	ip-address	IP address
	netmask	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	This feature will take effect when the **access-ip** command is executed.	

Examples	`MOXA(config)# interface mgmt`
	`MOXA(config-vlan)# access-ip 10.10.10.10 255.255.255.0`
	`  <IPV4ADDR:ipaddr>  - IP address`
	`  <IPV4ADDR:netmask>  - IP netmask`
	`MOXA (config-vlan)# access-ip`	

Error Messages	IP or netmask invalid	
	Access IP list full	
Related Commands	show interface mgmt access-ip	

acl id

NOTE

The command is supported only in Layer 3 switches.

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

Commands

acl *id* **{ in | out}**

no acl *id*

Syntax Description	**acl**	Configure access control list
	id	The access list ID
	in	Inbound traffic
	out	Outbound traffic
Defaults	N/A	
Command Modes	**Interface configuration**	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# acl 10 in` `MOXA(config-if)# no acl 10`	
Error Messages	Invalid ID!	

acl id ip-based

NOTE

The command is supported only in Layer 3 switches.

Use the **acl id ip-based** global configuration commands on the switch to create an IP-base ACL and add rules. Use the **no** form of this command to remove the rule.

Commands

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

acl id ip-based name name_str

acl id ip-based permit-to-low-q srcip [dstip] [protocol] [port]

acl id ip-based permit-to-normal-q srcip [dstip] [protocol] [port]

acl id ip-based permit-to-medium-q srcip [dstip] [protocol] [port]

acl id ip-based permit-to-high-q srcip [dstip] [protocol] [port]

no acl id

no acl *id* **rule** *ruleindex*

Syntax Description	**acl**	Configure access control list
	id	Set ACL ID
	ip-based	IP-based ACL
	permit	Forward packets
	deny	Drop packets
	srcip	Set source IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	permit-to-low-q	Forward packets with low priority
	permit-to-normal-q	Forward packets with normal priority
	permit-to-medium-q	Forward packets with medium priority
	permit-to-high-q	Forward packets with high priority
	dstip	Set destination IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	protocol	Set protocol number, Ex: ICMP, TCP, UDP, etc.
	port	Set TCP/UDP port number
	name_str	ACL name
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The ACL ID is 1 ~ 16.	
Examples	`MOXA(config)# acl 8 ip-base permit 172.3.1.1/255.255.255.0 201.16.9.7/255.255.0.0 6 23`	
Error Messages	Invalid ID!	
	This ID is used by MAC-base ACL!	
	Invalid IP address format!	
	Invalid subnet mask format!	

acl id mac-based

NOTE

The command is supported only in Layer 3 switches.

Use the **acl *id* mac-based** global configuration commands on the switch to create an MAC-base ACL and add rules. Use the **no** form of this command to remove the rule.

Commands

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

acl id **mac-based name** name_str

acl id mac-based permit-to-low-q srcmac [dstmac] [ethertype] [vid]

acl id mac-based permit-to-normal-q srcmac [dstmac] [ethertype] [vid]

acl id mac-based permit-to-medium-q srcmac [dstmac] [ethertype] [vid]

acl id mac-based permit-to-high-q srcmac [dstmac] [ethertype] [vid]

no acl *id*

no acl *id* **rule** *ruleindex*

Syntax Description	**acl**	Configure access control list
	id	Set ACL ID
	mac-based	MAC-based ACL
	permit	Forward packets
	deny	Drop packets
	srcmac	Set source MAC address and MAC mask. Ex: 00:90:E8:1D:24:23/FF:FF:FF:FF:00:00 or 00:90:E8:1D:24:23
	permit-to-low-q	Forward packets with low priority
	permit-to-normal-q	Forward packets with normal priority
	permit-to-medium-q	Forward packets with medium priority
	permit-to-high-q	Forward packets with high priority
	dstmac	Set destination IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	ethertype	Set ether type
	vid	Set VLAN ID
	name_str	ACL name
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The ACL ID is 1 ~ 100.	
Examples	`MOXA(config)# acl 10 mac-base deny 00:11:22:33:44:55/ff:ff:ff:00:00:00 aa:bb:cc:dd:ee:ff/ff:ff:00:00:00:00 2048 10`	
Error Messages	Invalid ID!	
	This ID is used by IP-base ACL!	
	Invalid MAC address format!	
	Invalid MAC mask format!	

area

Use the **area** command in Router configuration mode as OSPF to add an OSPF area and configure its type. Use the **no** form of this command to remove the area.

Commands

area *area-id* **[{ stub | nssa } metric** *value* **]**

no area *area-id*

Syntax Description	**area**	Configure OSPF Area
	area-id	OSPF Area id, format is ip address
	stub	Configure OSPF area type to stub
	nssa	Configure OSPF area type to NSSA
	metric	Configure OSPF area metric
	value	Metric value (1 to 65535)
Defaults	N/A	
Command Modes	Router configuration mode as OSPF	
Usage Guidelines	Metric value: 1 to 65535	

Examples	`MOXA(config-ospf)# area 2.2.2.2`
	`MOXA(config-ospf)# area 2.2.2.2 stub metric 4`
	`MOXA(config-ospf)# area 2.2.2.2 nssa  metric 4`	

Error Messages	Configuration Error!!	
	Metric value error (1 to 65535)!!	
Related Commands	show ip ospf	

area range

To consolidate and summarize routes at an area boundary, use the **area range** command in router configuration mode. To disable this function, use the **no** form of this command.

Commands

area *area-id* **range** *ip-address netmask*

no area *area-id* **range** *ip-address netmask*

Syntax Description	**area**	Configure OSPF Area
	area-id	OSPF Area id, format is ip address
	range	Specify an address range for route aggregation
	ip-address	E.g., 11.22.33.44
	netmask	E.g., 255.255.255.0
Defaults	N/A	
Command Modes	Router configuration mode as OSPF	
Usage Guidelines	N/A	
Examples	`MOXA(config-ospf)# area 1.1.1.1 range 192.0.0.0 255.0.0.0`	
Error Messages	Configuration Error!!	
	IP Prefix format Error!!	
	Netmask format Error!!	
	IP format Error!!	
Related Commands	show ip ospf	

area virtual-link

Use the **area virtual-link** command in Router configuration mode as OSPF to add an OSPF virtual link. Use the **no** form of this command to remove the specified OSPF virtual link.

Commands

area *area-id* **virtual-link** *router-id*

no area *area-id* **virtual-link** *router-id*

Syntax Description	**area**	Configure OSPF Area
	area-id	OSPF Area id
	virtual-link	Establish a virtual link
	router-id	Neighbor Router ID
Defaults	N/A	
Command Modes	Router configuration mode as OSPF	
Usage Guidelines	N/A	
Examples	`MOXA(config-ospf)# area 1.1.1.1 virtual-link 0.0.0.0`	
Error Messages	Configuration Error!!	
Related Commands	show ip ospf	

auth tacacs+

Use the **auth tacacs+** global configuration command on the switch to enable TACACS+ authentication. Use the **no** form of this command to return to the default setting.

Commands

auth tacacs+

no auth tacacs+

Syntax Description	**auth**	Configure authentication mechanism
	tacacs+	TACACS+ authentication
Defaults	The default setting is disabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# auth tacacs+`	
Error Messages	N/A	
Related Commands	show auth tacacs+	

auth tacacs+ auth-type

Use the **auth tacacs+ auth-type** global configuration command on the switch to specify the type of TACACS+ authentication. Use the **no** form of this command to return to the default setting.

Commands

auth tacacs+ auth-type { ascii | pap | chap | arap | mschap }

no auth tacacs+ auth-type

Syntax Description	**auth**	Configure authentication mechanism
	tacacs+	TACACS+ authentication
	auth-type	Specify the authentication type
	ascii	Normal ASCII code authentication
	pap	Password Authentication Protocol
	chap	Challenge-handshake authentication protocol
	arap	AppleTalk Remote Access Protocol
	mschap	Microsoft Challenge-handshake authentication protocol
Defaults	Default type is ASCII code authentication	
Command Modes	Global configuration	
Usage Guidelines	To enable the TACACS+ authentication, the command "auth tacacs+" must be executed first.	

Examples	`MOXA(config)# auth tacacs+ auth-type`
	`  ascii  - Normal ASCII code authentication`
	`  pap  - Password Authentication Protocol`
	`  chap  - Challenge-handshake authentication protocol`
	`  arap  - AppleTalk Remote Access Protocol`
	`  mschap  - Microsoft Challenge-handshake authentication protocol`	

Error Messages	N/A	
Related Commands	auth tacacs+ show auth tacacs+	

auth tacacs+ server

Use the **auth tacacs+ server** global configuration command on the switch to set the TACACS+ authentication server address and the shared key information. Use the **no** form of this command to remove the settings.

Commands

auth tacacs+ server *server-address* **shared-key** *key* [**timeout** *seconds*]

no auth tacacs+ server

Syntax Description	**auth**	Configure authentication mechanism
	tacacs+	TACACS+ authentication
	server	TACACS+ authentication server
	server-address	Authentication server address
	shared-key	Configure the shared key
	key	Key string, max 15 characters
	timeout	Configure server timeout
	seconds	1 to 255 sec.
Defaults	Default timeout is 30 seconds. Default tacacs+ server port is 49.	
Command Modes	Global configuration	
Usage Guidelines	To enable the TACACS+ authentication, the command "auth tacacs+" must be executed first.	

Examples	`MOXA(config)# auth tacacs+ server`
	`  <STRING:auth_server> - Authentication server address`
	`MOXA(config)# auth tacacs+ server tacacs.server.moxa.com`
	`  shared-key            - Configure the shared key`
	`MOXA(config)# auth tacacs+ server tacacs.server.moxa.com shared-key`
	`  <STRING:key>          - Key string, max 15 characters`
	`MOXA(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234`
	`  <LF>`
	`  timeout               - Configure server timeout`
	`MOXA(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234 timeout`
	`  <UINT:seconds>        - 1 to 255 sec.`
	`MOXA(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234 timeout 200`	

Error Messages	Timeout value must be in the range from 1 to 255 seconds	
	Invalid IP protocol port	
Related Commands	auth tacacs+ show auth tacacs+	

authentication dot1x

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

Commands

authentication dot1x { radius | local }
authentication dot1x radius-local
no authentication dot1x

Syntax Description	**authentication**	Configure the authentication mechanism
	dot1x	Configure dot1x authentication settings
	radius	Use RADIUS for login authentication
	local	Use a local database for login authentication
Defaults	local	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication dot1x radius`
	`MOXA(config)# authentication dot1x local`
	`MOXA(config)# no authentication dot1x`	

Error Messages	N/A	
Related Commands	N/A	

authentication dot1x reauth

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

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

Commands

authentication dot1x reauth
authentication dot1x reauth period second

no authentication dot1x reauth
no authentication dot1x reauth period

Syntax Description	**authentication**	Configure the authentication mechanism
	dot1x	Configure dot1x authentication settings
	reauth	Enable or disable dot1x auth re-authentication
	period	Configure dot1x auth re-authentication timer settings
	second	Specify the dot1x auth re-authentication period timer
Defaults	re-authentication is enabled by default reauth period is 3600 second by default	
Command Modes	Global configuration	
Usage Guidelines	The timer range is from 60 to 65535	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication dot1x reauth`
	`MOXA(config)# authentication dot1x reauth period 600`
	`MOXA(config)# no authentication dot1x reauth period`
	`MOXA(config)# no authentication dot1x reauth`	

Error Messages	Invalid Re-Auth Period!!! Must not be smaller than 60 or greater than 65535	
Related Commands	N/A	

authentication local dot1x

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

Commands

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

no authentication local dot1x all-user

no authentication local dot1x username name

Syntax Description	**authentication**	Configure the authentication mechanism
	local	Configure local db authentication settings
	dot1x	Configure dot1x local db settings
	username	Add a user account to the local db
	name	Specify the authentication username
	password	Add an authentication password to the user account
	pw	Specify the authentication password
	desc	Add a description for the user account
	desc	Specify the user account description
	all user	Remove all users from the dot1x authentication local db
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication local dot1x username aaa password bbb desc tmpuser`
	`MOXA(config)# no authentication local dot1x username aaa`
	`MOXA(config)# no authentication local dot1x all-user`	

Error Messages	Local Database is Full !!! Invalid User Name !!! Invalid User Password !!! Invalid User Description !!!	
Related Commands	N/A	

authentication login

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

Commands

authentication login { radius | tacacs+ | local }

authentication login radius local

authentication login tacacs+ local

no authentication login

Syntax Description	**authentication**	Configure the authentication mechanism
	login	Configure login authentication settings
	radius	Use RADIUS login authentication
	tacacs+	Use TACACS+ login authentication
	local	Use local db login authentication
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	authentication login radius local means using the local database if the RADIUS server is not available authentication login tacacs+ local means using the local database if the TACACS+ server is not available	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication login radius`
	`MOXA(config)# authentication login tacacs+`
	`MOXA(config)# authentication login local`
	`MOXA(config)# authentication login radius local`
	`MOXA(config)# authentication login tacacs+ local`
	`MOXA(config)# no authentication login`	

Error Messages	N/A	
Related Commands	N/A	

authentication radius dot1x 1stServer

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

Commands

authentication radius dot1x 1stServer server-ip ip

authentication radius dot1x 1stServer server-port port

authentication radius dot1x 1stServer shared-key key

no authentication radius dot1x 1stServer

Syntax Description	**authentication**	Configure the authentication mechanism
	radius	Configure RADIUS authentication settings
	dot1x	Configure RADIUS settings for dot1x
	1stServer	Configure the first RADIUS server for dot1x
	server-ip	Configure the first RADIUS server IP
	ip	Specify the first RADIUS server IP
	server-port	Configure the first RADIUS server port
	port	Specify the first RADIUS server port
	shared-key	Configure the first RADIUS server shared key
	key	Specify the first RADIUS server shared key
Defaults	ip default is NULL port default is 1812 key default is NULL	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication radius dot1x 1stServer server-ip 168.95.1.1`
	`MOXA(config)# authentication radius dot1x 1stServer server-port 1813`
	`MOXA(config)# authentication radius dot1x 1stServer share-key moxa`
	`MOXA(config)# no authentication radius dot1x 1stServer`	

Error Messages	Invalid dot1x 1st Radius Server IP!!! To set 1st radius server ip, use-login-server must be disabled first Must be greater than 0 and smaller than 65536 To set 1st radius server port, use-login-server must be disabled first The length of Shared Key must be greater than 0 and smaller than 40. To set 1st radius server shared key, use-login-server must be disabled first	
Related Commands	N/A	

authentication radius dot1x 2ndServer

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

Commands

authentication radius dot1x 2ndServer server-ip ip

authentication radius dot1x 2ndServer server-port port

authentication radius dot1x 2ndServer shared-key key

no authentication radius dot1x 2ndServer

Syntax Description	**authentication**	Configure the authentication mechanism
	radius	Configure RADIUS authentication settings
	dot1x	Configure RADIUS settings for dot1x
	2ndServer	Configure the second RADIUS server for dot1x
	server-ip	Configure the second RADIUS server IP
	ip	Specify the second RADIUS server IP
	server-port	Configure the second RADIUS server port
	port	Specify the second RADIUS server port
	shared-key	Configure the second RADIUS server shared key
	key	Specify the secondt RADIUS server shared key
Defaults	ip default is NULL port default is 1812 key default is NULL	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication radius dot1x 2ndServer server-ip 168.95.1.1`
	`MOXA(config)# authentication radius dot1x 2ndServer server-port 1813`
	`MOXA(config)# authentication radius dot1x 2ndServer share-key moxa`
	`MOXA(config)# no authentication radius dot1x 2ndServer`	

Error Messages	Invalid dot1x 2nd Radius Server IP!!! To set 2nd radius server ip, use-login-server must be disabled first Must be greater than 0 and smaller than 65536 To set 2nd radius server port, use-login-server must be disabled first The length of Shared Key must be greater than 0 and smaller than 40. To set 2nd radius server shared key, use-login-server must be disabled first	
Related Commands	N/A	

authentication radius dot1x use-login-server

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

Commands

authentication radius dot1x use-login-server

no authentication radius use-login-server

Syntax Description	**authentication**	Configure the authentication mechanism
	radius	Configure RADIUS authentication settings
	dot1x	Configure RADIUS settings for dot1x
	use-login-server	Use RADIUS authentication for dot1x
Defaults	disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication radius dot1x use-login-server`
	`MOXA(config)# no authentication radius dot1x use-login-server`	

Error Messages	N/A	
Related Commands	N/A	

authentication radius login

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

Commands

authentication radius login server-ip ip

authentication radius login server-port port

authentication radius login shared-key key

authentication radius login timeout second

authentication radius login auth-type { pap | chap }

no authentication radius login

Syntax Description	**authentication**	Configure the authentication mechanism
	radius	Configure RADIUS authentication settings
	login	Configure RADIUS server settings for login authentication
	server-ip	Configure the RADIUS server IP
	ip	Specify the RADIUS server IP
	server-port	Configure the RADIUS erver port
	port	Specify the RADIUS server port
	shared-key	Configure the RADIUS server shared key
	key	Specify the RADIUS server shared key
	timeout	Configure the RADIUS server time out value
	second	Configure the RADIUS server time out value
	auth-type	Configure the login authentication type
	pap	Use PAP for login authentication
	chap	Use CHAP for login authentication
Defaults	ip default is NULL port default is 1812 key default is NULL timeout default is 5 seconds auth-type default is PAP	
Command Modes	Global configuration	
Usage Guidelines	The second range is from 1 to 255	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication radius login server-ip 168.95.1.1`
	`MOXA(config)# authentication radius login server-port 1813`
	`MOXA(config)# authentication radius login share-key moxa`
	`MOXA(config)# authentication radius login timeout 10`
	`MOXA(config)# authentication radius login auth-type chap`	

Error Messages	Invalid Radius Server Must be greater than 0 and smaller than 65536 The length of Shared Key must be greater than 0 and smaller than 15 The Server timeout must be greater than 0 and smaller than 256!!!	
Related Commands	N/A	

authentication tacacs+ login

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

Commands

authentication tacacs+ login server-ip ip

authentication tacacs+ login server-port port

authentication tacacs+ login shared-key key

authentication tacacs+ login timeout second

no authentication tacacs+ login

Syntax Description	**authentication**	Configure the authentication mechanism
	tacacs+	Configure TACACS+ authentication settings
	login	Configure TACACS+ server settings for login authentication
	server-ip	Configure the TACACS+ server IP
	ip	Specify the TACACS+ server IP
	server-port	Configure the TACACS+server port
	port	Specify the TACACS+ server port
	shared-key	Configure the TACACS+ server shared key
	key	Specify the TACACS+ server shared key
	timeout	Configure the TACACS+ server time out value
	second	Configure the TACACS+ server time out value
Defaults	ip default is NULL port default is 1812 key default is NULL timeout default is 5 seconds	
Command Modes	Global configuration	
Usage Guidelines	The second range is from 1 to 255	

Examples	`MOXA# configure terminal`
	`MOXA(config)# authentication tacacs+ login server-ip 168.95.1.1`
	`MOXA(config)# authentication tacacs+ login server-port 1813`
	`MOXA(config)# authentication tacacs+ login share-key moxa`
	`MOXA(config)# authentication tacacs+ login timeout 10`
	`MOXA(config)# authentication tacacs+ login auth-type chap`	

Error Messages	Invalid Radius Server Must be greater than 0 and smaller than 65536 The length of Shared Key must be greater than 0 and smaller than 15 The Server timeout must be greater than 0 and smaller than 256!!!	
Related Commands	N/A	

auto-backup

Use **auto-backup** to enable Auto load system configurations when the system boots up. To disable it, use the **no** form of this command.

Commands

auto-backup

no auto-backup

Syntax Description	**auto-backup**	Use auto backup configurator to restore configuration
Defaults	Auto-backup configuration is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# auto-backup`
	`MOXA(config)# no au`
	`  auto-backup  - Deactive auto-backup configurator`
	`MOXA(config)# no auto-backup`	

bind vlan

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

Commands

bind vlan *VLAN-ID*

Syntax Description	**bind**	Bind VLAN as management VLAN
	vlan	VLAN parameters
	VLAN-ID	1 to 4094
Defaults	Default management VLAN ID is 1	
Command Modes	VLAN configuration mode as management VLAN	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface mgmt`
	`MOXA(config-vlan)# bind vlan`
	`  <UINT:vlanid>  - 1 to 4094`	

Error Messages	L3 interface cannot be assigned as management interface	
	VLAN id is out of range!	
Related Commands	show interfaces mgmt	

cfg-encrypt

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

Commands

cfg-encrypt *password*

no cfg-encrypt

Syntax Description	**cfg-encrypt**	Configuration File Encryption
	password	Password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA# configure terminal` `MOXA(config)# cfg-encrypt 12345`	
Error Messages	Configuration Encrypt password error !!!	

clear counters

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

Commands

clear counters

Syntax Description	**clear**	Clear information
	counters	Clear statistic counters
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	`MOXA# clear` `  counters  - Clear statistic counters`	
Error Messages	N/A	
Related Commands	show interfaces counters	

clear logging event-log

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

Commands

clear logging event-log

Syntax Description	**clear**	Clear information
	logging	System event logs
	event-log	System event logs
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	

Examples	`MOXA# clear`
	`  logging  - System event logs`
	`MOXA# clear logging`
	`  event-log  - System event logs`	

Error Messages	N/A	
Related Commands	show logging	

clock set

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

Commands

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

Syntax Description	**clock**	Configure time-of-day clock
	set	Adjust the clock
	hh:mm:ss	hh:mm:ss
	month	1 to 12
	day	1 to 31
	year	2000 to 2037
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# clock set 11:11:11 1 1 2010`	
Error Messages	Illegal parameters!	
Related Commands	show clock	

clock summer-time

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

Commands

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

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

clock summer-time offset *offset-hour*

Syntax Description	**clock**	Configure time-of-day clock
	summer-time	Configure Summer time parameter
	start-date	The date when summer time offset start
	end-date	The date when summer time offset end
	month	From 'Jan', 'January' or '1' to 'Dec', 'December', or '12'
	week	From '1st' or '1' to 'Last' or '6'
	day	From 'Sun', 'Sunday' or '1' to 'Sat', 'Saturday' or '7'
	hour	0 to 23
	offset	Summer time offset
	offset-hour	1 to 12
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	When configuring the summer time offset, the start-date and end-date must be configured correctly first.	
Examples	`MOXA(config)# clock timezon gmt -4`	
Error Messages	Invalid parameter	
	Month must be configured as 'Jan', 'January' or a numerical '1'.	
	Week must be configured as '1st', '2nd', '3rd', '4th', '5th' or 'Last'	
	Day must be configured as 'Sun', 'Sunday' or a numerical '1'.	
	Hour must be in the range from 0 to 23.	
	Please input the correct start/end date of the summer time first!	
	Hour offset is out of range.	
Related Commands	show clock	

clock timezone

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

Commands

clock timezone gmt *offset-hour*

Syntax Description	**clock**	Configure time-of-day clock
	timezone	Time zone hour shifting
	gmt	Greenwich Mean Time
	offset-hour	-12 to 12
	half an hour	Only type 30
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# clock timezone gmt 5 30`	
Error Messages	This timezone doesn't support half an hour	
Related Commands	show clock	

config-name

Use the **config-name** command on the device to configure the running configuration name. Use the **no** form of this command to return to the default setting.

Commands

config-name *<name>*

Syntax Description	**config-name**	Configure configuration name
	name	Configuration name, max length of the string is 32.
Defaults	Empty string ""	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	Specify/modify configuration name to moxa-test.
	`MOXA# configure`
	`MOXA(config)# config-name moxa-test`
	`MOXA(config)# exit`
	`MOXA# show config-name`
	`Configuration Name: moxa-test`
	`Custom Default Configuration Name: No configuration found!`
	`----------`
	`MOXA# configure`
	`MOXA(config)# no config-name`
	`MOXA(config)# exit`
	`MOXA# show config-name`
	`Configuration Name:`
	`Custom Default Configuration Name: No configuration found!`	

Error Messages	% Invalid string	
	^Parse error	
	^Incomplete command	
Related Commands	reload factory-default show config-name show running-config copy startup-config custom-default reload custom-default	

copy

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

Commands

copy tftp device-firmware

copy tftp running-config

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

copy scp device-firmware *scp-info*

copy scp running-config *scp-info*

copy running-config scp *scp-info*

copy startup-config scp *scp-info*

copy event-log scp *scp-info*

Syntax Description	**copy**	Copy from one file to another
	tftp	Remote server through TFTP
	device-firmware	System firmware
	running-config	Current running configuration of system
	startup-config	System startup configuration
	event-log	Event log file
	tftp-address	TFTP address. E.g., tftp://192.168.127.1/abc.txt
	scp	Use Secure Copy Protocol
	scp-info	Specify the SCP information in the format: uer_account@SCP_server_ip:filename_path
Defaults	scp-info default is NULL	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# copy tftp`
	`  device-firmware  - System firmware`
	`  running-config  - Current running configuration of system`
	`MOXA# copy tftp running-config`
	`Address or name of remote host [192.168.127.1]? 192.168.127.95`
	`Source file name ? cli.ini`
	`Save import config to flash ? [Y/n]`
	`Saving configuration ...Success`	

Error Messages	Input error Invalid TFTP Server IP/Name !!! TFTP Configuration File Download Failed Invalid Config Files Path and Name !!! Invalid Firmware Files Path and Name !!! TFTP Firmware Download Failed !!! TFTP Configuration File Upload Failed !!! TFTP Log File Upload Failed !!! SCP Firmware Download Fail !!! invalid format of scp_info - Max. Account length 16 characters - Max. Host length 15 characters - Max. src/dest file length 64 characters	

copy startup-config custom-default

Use the **copy startup-config custom-default** privileged command on the device to copy system startup config into flash memory as custom default configuration.

Commands

copy startup-config custom-default

Syntax Description	**copy**	Copies the configurations
	startup-config	Startup-config to be copied
	custom-default	Backup to be custom default config
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	To copy the running config as the custom default configuration, make sure to use the "save config" privileged command to save the running configuration to the startup configuration on flash first.	
Examples	`MOXA# copy startup-config custom-default`	
Error Messages	% Invalid: The specified custom default configuration does not exist.	
	^Parse error	
	^Incomplete command	
Related Commands	reload custom-default save config	

custom-encrypt-key

Use the **custom-encrypt-key** command on the device to configure the encryption key for sensitive data. Use the **no** form of this command to return to the default setting.

Commands

custom-encrypt-key <key>

no custom-encrypt-key

Syntax Description	**custom-encrypt-key**	Configure DES Encryption key
	key	Encryption key value, the length of string must be exactly 8 characters.
Defaults	Empty string ""	
Command Modes	Global configuration	
Usage Guidelines	The length of key string value must be exactly 8 characters. Once you successfully apply the custom encryption key, all sensitive data will be encrypted using it. This action does not change the passwords themselves. However, it's crucial to ensure you use the correct configuration file after setting this key.	
Examples	MOXA# show custom-encrypt-key Custom Encrypt Key: Disable --- MOXA# configure MOXA(config)# custom-encrypt-key abcd1234 MOXA(config)# exit --- MOXA# show custom-encrypt-key Custom Encrypt Key: Enable	
Error Messages	% The Encryption Key contains invalid characters!!!	
	^Parse error	
	^Incomplete command	
	% The Encryption Key must consist of 8 words!!!	
Related Commands	cfg-encrypt show custom-encrypt-key	

dip-switch

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

Commands

dip-switch

Syntax Description	**disable**	Disable HW dip-switch function.
	enable	Enable HW dip-switch function.
	mode turbo-ring-v1	set dip-switch function as turbo-ring-v1.
	mode turbo-ring-v2	set dip-switch function as turbo-ring-v2.
Defaults	Enable dip-switch. Set to turbo-ring-v2.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# dip-switch disable` `MOXA(config-if)# dip-switch mode turbo-ring-v1`	

dot1x auth

Use the **dot1x auth** global configuration command to set dot1x authentication type and relative configurations.

Commands

dot1x auth local

dot1x auth radius server *server* **port** *port* **shared-key** *string*

dot1x auth radius-local server *server* **port** *port* **shared-key** *string*

Syntax Description	**dot1x**	802.1x setting
	auth	802.1x auth type
	local	802.1x authentication uses local database
	radius	802.1x authentication uses radius server
	radius-local	802.1x authentication uses both local and radius server
	server	802.1x radius server name/ip
	server	802.1x radius server name/ip string
	port	802.1x radius server port
	port	802.1x radius server port (default 1812)
	shared-key	802.1x Shared Key
	string	Shared Key string
Defaults	802.1x local authentication	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# dot1x auth local`
	`MOXA(config)# dot1x auth radius server moxanet port 1812 shared-key moxa`
	`MOXA(config)# dot1x auth radius-local server moxanet port 1812 shared-key moxa`	

Error Messages	Local Database is Full !!!	
	Invalid User Name !!!	
	Invalid User Password !!!	
	Invalid User Description !!!	
Related Commands	show dot1x	

dot1x auth

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

Commands

dot1x auth

no dot1x auth

Syntax Description	**dot1x**	802.1x setting
	auth	802.1x port authentication enable/disable
Defaults	802.1x port authentication default disable	
Command Modes	interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# dot1x auth`
	`MOXA(config-if)# no dot1x auth`	

dot1x local-userdb

To add 802.1x local user database, use the **dot1x local-userdb** global configuration command. To remove the user database, use the **no** form of this command.

Commands

dot1x local-userdb username *user* **password** *password [***desc** *description]*

no dot1x local-userdb username *user*

Syntax Description	**dot1x**	802.1x setting
	local-userdb	Local user settings
	username	Local user
	user	Local user name (max. 30 characters)
	password	Local user password
	password	Local user password (max. 16 characters)
	desc	User description
	description	Description string
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# dot1x local-userdb username moxa password moxanet` `MOXA(config)# no dot1x local-userdb username moxa`	
Error Messages	Local Database is Full !!!	
	Invalid User Name !!!	
	Invalid User Password !!!	
	Invalid User Description !!!	
Related Commands	show dot1x local-userdb	

dot1x reauth

Use the **dot1x reauth** global configuration command on the switch to globally enable periodic re-authentication of the client.

Commands

dot1x reauth *[***period** *period]*

Syntax Description	**dot1x**	802.1x setting
	reauth	802.1x reauth enable
	period	802.1x reauth period
	period	60 to 65535 seconds
Defaults	802.1x reauth default enable and period 3600 seconds	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# dot1x reauth period 3600` `MOXA(config)# no dot1x reauth`	
Error Messages	Invalid Re-Auth Period!!! Must not be smaller than 65535 or greater than 60	
Related Commands	show dot1x	

dot1x reauth

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

Commands

dot1x reauth

Syntax Description	**dot1x**	802.1x setting
	reauth	802.1x port re-authenticate immediately
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# interface ethernet 1/1` `MOXA(config-if)# dot1x reauth`	

duplicate-ip-detection

Use the **duplicate-ip-detection** global configuration command on the switch to enable the Duplicate IP Detection feature. Use the **no** form of this command to disable the function.

Commands

duplicate-ip-detection

no duplicate-ip-detection

Syntax Description	**duplicate-ip-detection**	Global Duplicate IP Detection subcommands
Defaults	disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`moxa# configure terminal`
	`moxa(config)# duplicate-ip-detection`
	`moxa(config)# no duplicate-ip-detection`	

Error Messages	^Parse error	
	^Incomplete command	
Related Commands	show duplicate-ip-detection	

duplicate-ip-detection interval

Use the **duplicate-ip-detection interval** global configuration command on the switch to configure the probing interval for Duplicate IP Detection. Use the **no** form of this command to return to the default setting.

Commands

duplicate-ip-detection interval <integer>

no duplicate-ip-detection

Syntax Description	**duplicate-ip-detection**	Global Duplicate IP Detection subcommands
	interval	Probing interval
	integer	Integer value: 0 to disable , set a non-zero value ranges from 30 - 7200 seconds
Defaults	0	
Command Modes	Global configuration	
Usage Guidelines	Configure this value 0 to disable proactively probing.	
Examples	`moxa# configure terminal` `moxa(config)# duplicate-ip-detection interval 100`	
Error Messages	Probing interval should be 0 or between 30 ~ 7200s!	
	^Parse error	
	^Incomplete command	
Related Commands	duplicate-ip-detection	

duplicate-ip-detection probe

Use the **duplicate-ip-detection probe** global configuration command on the switch to execute probing immediately for Duplicate IP Detection.

Commands

duplicate-ip-detection probe

Syntax Description	**duplicate-ip-detection**	Global Duplicate IP Detection subcommands
	probe	To execute probing immediately and clear the current conflict report.
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`moxa# configure terminal` `moxa(config)# duplicate-ip-detection probe`	
Error Messages	^Parse error	
	^Incomplete command	
Related Commands	duplicate-ip-detection	

eip

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

Commands

eip

no eip

Syntax Description	**eip**	Enable Ethernet/IP
Defaults	Default is disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# eip`	
Error Messages	N/A	
Related Commands	show eip	

email-warning account

Use **email-warning account** to configure the account and the password to log in to the remote Mail Server. To clear the setting, use the **no** form of this command.

Commands

email-warning account *name password*

no email-warning account

Syntax Description	**email-warning**	Email warning setting
	account	Email account on server
	name	User name
	password	User password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# email-warning account test1 1234` `MOXA(config)# email-warning account test1`	
Error Messages	Length of SMTP User name is too long !!!	
	Invalid User name	
	Length of password is too long!!!	
Related Commands	show email-warning	

email-warning event

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

Commands

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

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

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

```
MOXA(config)# email-warning event
  all                   - Enable all events
  cold-start            - Switch cold start
  warm-start            - Switch warm start
  power-trans-off       - Power transition (on->off)
  power-trans-on        - Power transition (off->on)
  config-change         - Configuration changed
  auth-fail             - Authentication failed
  topology-change       - Communication redundancy topology changed
MOXA(config)# email-warning event cold-start
MOXA(config)# email-warning event topology-change
MOXA(config)# email-warning event auth-fail
MOXA(config)# exit
MOXA# show email-warning config
Mail Server and Email Setup
  SMTP Server IP/Name : ms1.hinet.net
  SMTP Port           : 25
  Account Name        : test1
  Account Password    : 1234

  1st email address: test2@moxa.com
  2nd email address :
  3rd email address: test3@hinet.net
  4th email address :
System Events
  Cold Start          : Enable
  Warm Start          : Disable
  Conf. Changed       : Disable
  Power On->Off       : Disable
  Power Off->On       : Disable
  Auth. Failure       : Enable
  Topology Changed    : Enable
```

	--More--
Error Messages	N/A
Related Commands	show email-warning

email-warning event link

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

Commands

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

no email-warning event { link-on | link-off }

Syntax Description	**email-warning**	Configure email warning
	event	Port events
	link-on	Link ON
	link-off	Link OFF
Defaults	All port events are disabled by default.	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	MOXA# configure terminal
	MOXA(config)# interface ethernet 3/1
	MOXA(config-if)# email-warning
	  event - Port events
	MOXA(config-if)# email-warning event
	  link-on - Link ON
	  link-off - Link OFF
	  traffic-overload - Traffic overloading
	MOXA(config-if)# email-warning event link-on
	MOXA(config-if)#
	MOXA# show email-warning config
	Mail Server and Email Setup
	  SMTP Server IP/Name : ms1.hinet.net
	  SMTP Port : 25
	  Account Name : test1
	  Account Password : 1234
	
	  1st email address: test2@moxa.com
	  2nd email address :
	  3rd email address: test3@hinet.net
	  4th email address :
	System Events
	  Cold Start : Enable
	  Warm Start : Disable
	  Conf. Changed : Disable
	  Power On->Off : Disable
	  Power Off->On : Disable
	  Auth. Failure : Enable
	  Topology Changed : Enable	

Error Messages	N/A	
Related Commands	show email-warning	

email-warning event cpu-usage-alarm

Use the **email-warning event cpu-usage-alarm** global configuration command on the switch to configure a warning notification for high CPU usage. Use the **no** form of this command to return to the default setting.

Commands

email-warning event cpu-usage-alarm [<threshold> <duration>]

no email-warning event cpu-usage-alarm

Syntax Description	**email-warning**	Email warning setting
	event	System events
	cpu-usage-alarm	Enable CPU usage alarm
	threshold	Percentage. Integer value ranges from 60 to 90.
	duration	Integer value ranges from 10 to 60 seconds.
Defaults	CPU usage alarm is disabled by default.	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# email-warning cpu-usage-alarm`
	`MOXA(config)# email-warning cpu-usage-alarm 60 10`	

Error Messages	Invalid! Threshold should be between 60 and 90 (%).	
	Invalid! Duration should be between 10 and 60 (seconds).	
	^Parse error	
	^Incomplete command	
Related Commands	event cpu-usage-alarm severity show email-warning config	

email-warning event cpu-usage-alarm severity

Use the **event cpu-usage-alarm severity** global configuration command on the switch to configure a severity level of CPU usage alarm.

Commands

event cpu-usage-alarm severity <level>

Syntax Description	**event**	System events
	cpu-usage-alarm	Event type: CPU usage alarm
	severity	Event severity
	level	One integer: Emergency(0), Alert(1), Critical(2), Error(3), Warning(4), Notice(5), Information(6), Debug(7).
Defaults	Warning(4)	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# event cpu-usage-alarm severity 2	
Error Messages	% Invalid severity value	
	^Parse error	
	^Incomplete command	
Related Commands	event cpu-usage-alarm severity show email-warning config	

email-warning mail-address

Use **email-warning mail-address** to configure the email address(es) to which warning messages will be sent. To clear the setting, use **no** form of this command.

Commands

email-warning mail-address *mailIndex mailAddress*

no email-warning mail-address *mailIndex*

Syntax Description	**email-warning**	Email warning setting
	mail-address	Target email address
	mailIndex	1 to 4
	mailAddress	Email address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# email-warning mail-address`
	`  <UINT:mailIdx>  - 1 to 4`
	`MOXA(config)# email-warning mail-address 1 test2@moxa.com`
	`MOXA(config)# email-warning mail-address 3 test3@hinet.net`	

Error Messages	Index should be between 1 and 4	
	Length of email address is too long !!!	
	Invalid Email address format	
Related Commands	show email-warning	

email-warning event traffic-overload

Use the **email-warning event traffic-overload** interface configuration command on the switch to configure warning notification when the traffic overload event is triggered. Use the **no** form of this command to disable the function.

Commands

email-warning event traffic-overload [[rx-threshold <rxThreshold>] [tx-threshold <txThreshold>] [duration <seconds>]]

no email-warning event traffic-overload

Syntax Description	email-warning	Email warning setting
	event	System events
	traffic-overload	Enable traffic-overload
	rx-threshold	Specify a threshold for incoming packets
	rxThreshold	0 to 100 , zero means disable Rx-Threshold
	tx-threshold	Specify a threshold for outgoing packets
	txThreshold	0 to 100 , zero means disable Tx-Threshold
	duration	Specify a Traffic-Duration. The warning will be sent every Traffic-Duration seconds if the average rx-threshold/tx-threshold is surpassed during that time period.
	seconds	1 to 300 seconds
Defaults	Disabled.	
Command Modes	interface configuration terminal	
Usage Guidelines	N/A	

Examples	`// enter configure terminal mode`
	`MOXA# configure terminal`
	`// enter interface ethernet mode (port 1 in below example)`
	`MOXA# interface ethernet 1/1`
	`// enable email-warning traffic-overload event`
	`MOXA(config-if)# email-warning event traffic-overload`
	`// set email-warning traffic-overload event`
	`MOXA(config-if)# email-warning event traffic-overload rx-threshold 10 tx-threshold 10 duration 10`
	`// disable email-warning traffic-overload event`
	`MOXA(config-if)# no email-warning event traffic-overload`	

Error Messages	Invalid! Threshold should be between 0 and 100 (%).	
	Invalid! Duration should be between 1 and 300 (seconds).	
	^Parse error	
	^Incomplete command	
Related Commands	show relay-warning config	

email-warning send test email

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

Commands

switch(config)# email-warning send test email

Syntax Description	**email-warning**	Email warning setting
	send	Send test email
	test	Test email
	email	Test email address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The test email will be sent to the mail address that "email-warning mail-address" command configured.	
Examples	MOXA(config)# email-warning server 192.168.127.95 <LF> <UINT:smtpPort> - SMTP Port MOXA(config)# email-warning server 192.168.127.95 25 MOXA(config)# email-warning account admin 1234 MOXA(config)# email-warning mail-address 1 <STRING:mailAddress> - Email address MOXA(config)# email-warning mail-address 1 alancc.wu@moxa.com MOXA(config)# email-warning send test email Sending test email ... You may check if your dedicated email addresses have received this email! MOXA(config)#	
Error Messages	Warning !!! You must first do Email Setup before sending the test email.	
	Warning !!! You must first configure DNS Server IP Address before sending the test email.	
	Sending test email failed !!!	
Related Commands	email-warning server email-warning account email-warning mail-address	

email-warning server

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

Commands

email-warning server *smtpServerIp [smtpPort]*

no email-warning server

Syntax Description	**email-warning**	Email warning setting
	server	Email Server
	smtpServerIp	Email Server name/address
	smtpPort	SMTP Port, 1 to 65535
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# email-warning server mail.hinet.net 25` `MOXA(config)# email-warning server ms1.hinet.net`	
Error Messages	Length of server address is too long !!!	
	Invalid SMTP server name/address	
	Invalid Mail Server Port, Range(1 to 65535) !!!	
Related Commands	show email-warning	

exit

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

Commands

exit

Syntax Description	**exit**	Exit from configure mode
		Exit from port setting mode
		Exit command line interface
		Exit from management interface setting
Defaults	N/A	
Command Modes	N/A	
Usage Guidelines	N/A	
Examples	`MOXA(config)# exit` `MOXA #`	
Error Messages	N/A	
Related Commands	quit	

fault-led-mode

Use the **fault-led-mode** global configuration command to configure the Fault LED behavior on the device. Use the **no** form of this command to return to the default setting.

Commands

fault-led-mode <mode>
no fault-led-mode

Syntax Description	**fault-led-mode**	Fault LED Mode.
	mode	Fault LED Mode Value. Default Mode: 0 Extended Mode: 1
Defaults	0	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	Default Mode(0): In this mode, the Fault LED only has two statuses (on/off). Extended Mode(1): Besides on/off, the Fault LED will show additional blinking patterns to visually indicate the status of configuration changes. Extended mode Fault LED behavior: Fault LED turn off: Operating normally. Fault LED turn on: System fault detected. Fault LED Blinking every second: Custom Default configuration applied but no new configuration changed, yet. Fault LED Blinking fast for 6 seconds: This indicates that the device is currently in the process of importing a configuration file.	

Examples	`MOXA#`
	`MOXA# configure terminal`
	`MOXA(config)# fault-led-mode 1`	

Error Messages	% Invalid Fault LED mode value!	
	^Parse error	
	^Incomplete command	
Related Commands	show fault-led-mode	

flowcontrol

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

Commands

flowcontrol

no flowcontrol

Syntax Description	**flowcontrol**	Configure flowcontrol
Defaults	The default is disable	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# flowcontrol`
	
	`MOXA(config-if)# no flowcontrol`	

Error Messages	Fiber port can not be set flow control!!	
	Force speed can not be set flow control!!	
	Cannot configure on trunk member port 1/1!	
	This setting cannot be applied on trunk port!	
Related Commands	show interfaces ethernet	

gmrp

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

Commands

gmrp

no gmrp

Syntax Description	**gmrp**	Enable GMRP (GARP Multicast Registration Protocol)
Defaults	gmrp is default disable	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# gmrp`
	
	`MOXA(config-if)# no gmrp`	

Error Messages	GMRP cannot be enabled on static multicast member port!!!	

gvrp

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

Commands

gvrp

no gvrp

Syntax Description	**gvrp**	Enable/Disable GVRP
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# gvrp` `  gvrp  - Enable GVRP`	
Error Messages	N/A	
Related Commands	show gvrp	

hostname

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

Commands

hostname *name*

no hostname

Syntax Description	**hostname**	Set system's network name (maximum 30 characters)
	name	Switch name string
Defaults	name is the default switch name with the serial number	
Command Modes	Global configuration	
Usage Guidelines	Maximum string tokens are 5. Maximum switch name length is 30 characters.	

Examples	`MOXA(config)# hostname MOXA Ethernet Switch PT 7828`
	`MOXA(config)# exit`
	`MOXA# show system`
	`System Information`
	`  System Name  : MOXA Ethernet Switch PT 7828`
	`  System Location  : Switch Location`
	`  System Description  : MOXA MOXA`
	`  Maintainer Information  :`
	`  MAC Address  : 00:90:E8:1D:24:36`
	`  System Uptime  : 0d0h36m57s`	

Error Messages	Length of switch hostname is too long	
Related Commands	show system	

ip igmp-snooping port

Use the **ip igmp-snooping port** global configuration command to configure the IGMP snooping feature to be enabled or disabled on a per-port basis. Use the **no** form of this command to disable it.

Commands

ip igmp-snooping port module/port

Syntax Description	**ip**	Global IP configuration subcommands
	igmp-snooping	IGMP snooping
	port	Port enable
	module/port	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk
Defaults	Enabled	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	

Examples	`MOXA# configure`
	`MOXA(config)# ip igmp-snooping`
	`MOXA(config)# ip igmp-snooping port 1/2`
	`MOXA(config)# no ip igmp-snooping port 1/2`	

Error Messages		
Related Commands	ip igmp-snooping show ip igmp	

interface mgmt

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

Commands

interface mgmt

Syntax Description	**interface**	Select an interface to configure
	mgmt	Configure management VLAN
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface`
	`  mgmt  - Configure management VLAN`
	`MOXA(config)# interface mgmt`
	`MOXA(config-vlan)#`	

Error Messages	N/A	
Related Commands	show interfaces mgmt	

interface vlan

Use the **interface vlan** global configuration command on the switch to create or access a dynamic switch virtual interface (SVI) and to enter interface configuration mode. Use the **no** form of this command to delete an SVI.

Commands

interface vlan *vlan-id*

no interface vlan *vlan-id*

Syntax Description	**interface**	Select an interface to configure
	vlan	Configure L3 interface
	vlan-id	Configure L3 interface vlan id
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Management vlan id cannot be same as interface vlan id.	
Examples	`MOXA(config)# interface vlan 2` `  <UINT:vlanid>  - Configure L3 interface vlan id`	
Error Messages	interface vlan 2 is not exist	
	mgmt vlan id cannot be same as interface vlan id!!	
	vlan interface full	
Related Commands	show interfaces vlan	

ip address

Use the **ip address** VLAN configuration command on the switch to configure the address of a Layer 3 interface.

Commands

ip address *ip-address netmask*

Syntax Description	**ip**	Configure L3 interface ip
	address	Interface ip setting
	ip-address	IP address
	netmask	IP netmask
Defaults	N/A	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-vlan)# ip address 10.10.10.10 255.255.255.0` `  ip  - Configure L3 interface ip`	
Error Messages	IP or netmask invalid	
	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interface full	
	Interface VLAN is not allowed to modify!!	
Related Commands	show interfaces vlan	

ip address

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

Commands

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

no ip address

Syntax Description	**ip**	Configure IP paramters
	address	Congiure IP address
	static	E.g., 11.22.33.44
	ip-address	IP address
	netmask	Subnet mask
	dhcp	Use DHCP to retrieve IP setting automatically
	bootp	Use BOOTP to retrieve IP setting automatically
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	

Examples	`MOXA(config-vlan)# ip address`
	`  static  - Configure static IP`
	`  dhcp  - Use DHCP to retrieve IP setting automatically`
	`  bootp  - Use BOOTP to retrieve IP setting automatically`	

Error Messages	N/A	
Related Commands	show interfaces mgmt	

ip auto-assign

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

Commands

ip auto-assign *ipaddr*

no ip auto-assign

Syntax Description	**ip**	Configure IP paramters
	auto-assign	Automatic port IP assignment through DHCP/BootP/RARP
	ipaddr	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	This specified IP address must be in the same subnet of the system IP address	
Examples (Static Ip)	`MOXA(config-if)# ip auto-assign` `  <IPV4ADDR:ipaddr>  - E.g., 11.22.33.44`	
Error Messages	Cannot configure on trunk member port	
	This IP address must be in the same subnet of the system IP address	
Related Commands	show ip auto-assign	

ip auto-assign dhcp-lease-time

Use the **ip auto-assign dhcp-lease-time** global configuration command to configure DHCP lease time for IP assignment to the connected device. Use the **no** form of this command to return to the default setting.

Commands

ip auto-assign dhcp-lease-time <integer>

no ip auto-assign dhcp-lease-time

Syntax Description	**ip**	Global IP configuration subcommands
	auto-assign	Automatic ip assignment settings
	dhcp-lease-time	Specify DHCP Lease Time option
	integer	DHCP Lease Time ranges from 0 to 31622340 in seconds
Defaults	86400	
Command Modes	Global configuration	
Usage Guidelines	To disable DHCP lease renewal, please set DHCP Lease Time as 0 second.	
Examples	`moxa# configure terminal` `moxa(config)# ip dhcp-lease-time 10`	
Error Messages	Value Invalid! Range of DHCP lease time should be 0 – 31622340 seconds.	
	^Parse error	
	^Incomplete command	
Related Commands	show ip auto-assign	

ip auto-assign log-server

Use the **ip auto-assign log-server** interface configuration command on the switch to assign the Log Server IP address along with the IP assignment to the connected device. Use the **no** form of this command to return to the default setting.

Commands

ip auto-assign log-server <addr>

no ip auto-assign log-server

Syntax Description	**ip**	Global IP configuration subcommands
	auto-assign	Automatic ip assignment settings
	dhcp-lease-time	Specify DHCP Lease Time option
	integer	DHCP Lease Time ranges from 0 to 31622340 in seconds
Defaults	86400	
Command Modes	Global configuration	
Usage Guidelines	To disable DHCP lease renewal, please set DHCP Lease Time as 0 second.	
Examples	`moxa# configure terminal` `moxa(config)# ip dhcp-lease-time 10`	
Error Messages	Value Invalid! Range of DHCP lease time should be 0 – 31622340 seconds.	
	^Parse error	
	^Incomplete command	
Related Commands	show ip auto-assign	

ip default-gateway

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

Commands

ip default-gateway *ip-address*

no default-gateway

Syntax Description	**ip**	Configure IP paramters
	default-gateway	Configure default gateway address
	ip-address	IP address
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	`MOXA(config-vlan)# ip default-gateway 192.168.1.1`	
Error Messages	Warning! IP and gateway are not in the same subnet	
Related Commands	show interfaces mgmt	

ip dhcp client filter

Use the **ip dhcp client filter** port-if configuration command on the switch to enable DHCP client filter on an interface. Use the **no** form of this command to make the given interface DHCP client filter disabled .

Commands

ip dhcp client filter
no ip dhcp client filter

Syntax Description	**ip**	Global IP configuration subcommands
	dhcp	DHCP
	client	DHCP client
	filter	DHCP client filter
Defaults	All interfaces are DHCP client filter disabled	
Command Modes	Port-if configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA# interface ethernet 1/2`
	`MOXA(config-if)# ip dhcp client filter`	

Error Messages	N/A	
Related Commands	show ip dhcp filter	

ip dhcp option61

Use the **ip dhcp option61** interface mgmt configuration command on the switch to enable, disable and configure the dhcp option 61. Use the **no** form of this command to reset default.

Commands

ip dhcp option61 client-id-type user-defined
ip dhcp option61 client-id id

no ip dhcp option61
no ip dhcp option61 client-id

Syntax Description	**ip**	Configure IP parameters
	Dhcp	Configure DHCP parameter
	option61	Enable or configure Option 61 parameters
	client-id	Configure the client ID type
	user-defined	Set the client ID type to user-defined
	client-id	Configure the client ID
	id	Specify the client ID
Defaults	user-defined default is user-defined id default is NULL	
Command Modes	Interface management configuration	
Usage Guidelines	For the client-id-type parameter, only “user-defined” is currently supported.	

Examples	`MOXA# configure`
	`MOXA(config)# interface mgmt`
	`MOXA(config-vlan)# ip dhcp option61 client-id 123`
	`MOXA(config)# no ip dhcp option61 client-id`	

Error Messages	To enable Option61, please configure client-id first!! Invalid Client ID type Invalid Client ID Client ID can't set to default if option61 is enable!!	
Related Commands	N/A	

ip dhcp option66

Use the **ip dhcp server option-66 mode** global configuration command to configure DHCP option 66 mode for IP assignment to the connected device.

Commands

ip dhcp server option-66 mode {issued-by-dhcp | user-defined}

Syntax Description	**ip**	IP information.
	dhcp	DHCP
	server	DHCP server
	option-66	DHCP server option 66
	mode	DHCP server option 66 mode
	issued-by-dhcp	Use the local file server IP address as the option 66 value.
	user-defined	User specifies the file server IP address as the DHCP Option 66 value.
Defaults	User-defined	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	N/A	
Examples	MOXA# MOXA# configure terminal MOXA(config)# ip dhcp server option-66 mode issued-by-dhcp MOXA(config)# MOXA(config)# ip dhcp server option-66 mode user-defined	
Error/Warning Messages	Warning: When using DHCP Option 66 Issued by DHCP mode, DHCP Option 66 will be carried only if Local File Server IP Address has value!	
	^Parse error	
	^Incomplete command	
Related Commands	ip dhcp server option-66 file-server show ip dhcp server	

ip dhcp retry

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

Commands

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

no ip dhcp retry

Syntax Description	**ip**	Global IP configuration subcommands
	dhcp	DHCP related configuration
	retry	Configure DHCP client request retry paramter
	times	0 - 65535 times, 0 means retry forever
	period	Retry period
	seconds	1 - 30 seconds
Defaults	Default retry times = 0, retry period = 1	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	

Examples	`MOXA(config-vlan)# ip dhcp retry 500 period 30`
	`MOXA# show interfaces mgmt`
	
	`IPv4`
	`  Management VLAN id  : 1`
	`  IP configuration    : DHCP`
	`  IP address          : 192.168.127.253`
	`  Subnet mask         : 255.255.255.0`
	`  Default gateway     : 0.0.0.0`
	`  DNS server           :`
	`  Dhcp Retry Periods  : 30 seconds`
	`  Dhcp Retry Times    : 500`	

Error Messages	Illegal parameter!	
Related Commands	show interface mgmt	

ip dhcp server filter

Use the **ip dhcp server filter** port-if configuration command on the switch to enable DHCP server filter on an interface. Use the **no** form of this command to make the given interface DHCP server filter disabled .

Commands

ip dhcp server filter

no ip dhcp server filter

Syntax Description	**ip**	Global IP configuration subcommands
	dhcp	DHCP
	server	DHCP server
	filter	DHCP server filter
Defaults	All interfaces are DHCP server filter disabled.	
Command Modes	Port-if configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA# interface ethernet 1/2`
	`MOXA(config-if)# ip dhcp server filter`	

Error Messages	N/A	
Related Commands	show ip dhcp filter	

ip dhcp server option-66 file-server

Use the **ip dhcp server option-66 file-server** interface configuration command to configure DHCP option 66 value for IP assignment to the connected device. Use the no form of this command to return to the default setting.

Commands

ip dhcp server option-66 file-server <ipaddr>

Syntax Description	**ip**	IP information.
	dhcp	DHCP
	server	DHCP Server
	option-66	DHCP server option 66
	file-server	File server IP address
	ipaddr	User-defined file server IP address
Defaults	Empty String.	
Command Modes	Interface configuration	
Usage Guidelines	The configured User-defined File Server IP Address only takes effect when using DHCP Option 66 User-defined mode.	

Examples	`MOXA#`
	`MOXA# configure terminal`
	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# ip dhcp server option-66 file-server 192.168.127.92`	

Error Messages	% Max length of User-defined File Server Ip Address is 15 !	
	% Invalid IP Address Format !	
	% Warning: The configured User-defined File Server IP Address only takes effect when using DHCP Option 66 User-defined mode!	
	^Parse error	
	^Incomplete command	
Related Commands	ip dhcp server option-66 mode user-defined show ip dhcp server	

ip dhcp server option-67 bootfile

Use the **ip dhcp server option-67 bootfile** interface configuration command to configure DHCP option 67 value for IP assignment to the connected device. Use the no form of this command to return to the default setting.

Commands

ip dhcp server option-67 bootfile <filename>

no ip dhcp server option-67 bootfile

Syntax Description	**ip**	IP information.
	dhcp-server	DHCP
	server	DHCP server
	option-67	DHCP server option 67
	bootfile	Bootfile name
	filename	User-defined bootfile name
Defaults	Empty String	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# ip dhcp server option-67 bootfile abc.ini`
	`MOXA(config-if)#`	

Error Messages	% Max length of User-defined Bootfile Name is %d !	
	% Invalid Bootfile Name! Accepted values include: a-zA-Z0-9._-	
	% Warning: The configured User-defined Bootfile Name only takes effect when using DHCP Option 67 User-defined mode!	
	^Parse error	
	^Incomplete command	
Related Commands	ip dhcp server option-67 mode user-defined show ip dhcp server	

ip dhcp server option-67 mode

Use the **ip dhcp server option-67 mode** global configuration command to configure DHCP option 67 mode for IP assignment to the connected device.

Commands

ip dhcp server option-67 mode { ip-address | user-defined }

Syntax Description	**ip**	IP information.
	dhcp	DHCP
	server	DHCP server
	option-67	DHCP server option 67
	mode	DHCP server option 67 mode
	ip-address	Use the IP address assignment setting for each port as the DHCP Option 67 value.
	user-defined	User specifies the bootfile name as the option 67 value.
Defaults	user-defined	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	N/A	

Examples	`MOXA#`
	`MOXA# configure terminal`
	`MOXA(config)# ip dhcp server option-67 mode ip-address`
	`MOXA(config)#`	

Error Messages	^Parse error	
	^Incomplete command	
Related Commands	show ip dhcp server	

ip dhcp-relay option82

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

Commands

ip dhcp-relay option82

no ip dhcp-relay option82

Syntax Description	**ip**	Configure IP parameters
	dhcp-relay	Configure DHCP relay agent parameter
	option82	Option 82
Defaults	Default is disabled.	
Command Modes	Global configuration / Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# ip dhcp-relay option82 ?`
	`  <LF>`
	`  remote-id-type  - Remote Id type`
	`  man-id  - Manual remote ID`
	`MOXA(config)# ip dhcp-relay option82`	

ip dhcp-relay option82 remote-id-type

Use the **ip dhcp-relay option82 remote-id-type** global configuration command to select the remote ID information of DHCP option82 messages. Use **ip dhcp-relay option82 man-id** to manually set the remote id instead of the predefined ones.

Commands

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

ip dhcp-relay option82 man-id *manualId*

Syntax Description	**ip**	Global IP configuration subcommands
	dhcp-relay	Configure DHCP relay agent parameter
	option82	Option 82
	remote-id-type	Remote Id type
	remoteIdType	ip | mac | client-id | other
	man-id	Manual remote ID
	manualId	Manual remote ID, maximum 15 characters
Defaults	DHCP-relay option82 is disable in factory default. Default remote-id-type is IP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# ip dhcp-relay option82 remote-id-type`
	`  <STRING:remoteIdType> -  ip | mac | client-id | other`
	`MOXA(config)# ip dhcp-relay option82 remote-id-type mac`
	
	`MOXA(config)# ip dhcp-relay option82 remote-id-type other`
	`MOXA(config)# ip dhcp-relay option82 man-id abcdef`	

Error Messages	Invalid remote ID type	
	Manual Id is over 15 characters	

ip dhcp-relay server

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

Commands

ip dhcp-relay server *serverIndex serverAddr*

no ip dhcp-relay server *serverIndex*

Syntax Description	**ip**	Global IP configuration subcommands
	dhcp-relay	Configure DHCP relay agent parameter
	server	DHCP server IP address
	serverIndex	DHCP server address index, 1 to 4
	serverAddr	DHCP server IP address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ip dhcp-relay server 1 192.168.127.100` `MOXA(config)# ip dhcp-relay server 3 192.168.127.200`	
Error Messages	Invalid server index	
	Invalid IPv4 address	
Related Commands	show ip dhcp-relay	

ip dns host

Use the **ip dns host** to configuration DNS server hostname and IP address. To remove the DNS server hostname and IP addresses, use the **no** form of the this command.

Commands

ip dns host <hostname> <ipaddr>

no ip dns host name <hostname>

no ip dns host ip <ipaddr>

Syntax Description	**ip**	Global IP configuration subcommands
	dns host	Enable hostname and IP address
	hostname	Hostname
	ipaddr	Valid IP address.
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config) # ip dns host consist1.car2.device1 192.168.127.100`
	`MOXA(config) # no ip dns host name consist1.car2.device1`
	`MOXA(config) # no ip dns host ip 192.168.127.10`	

Error Messages	N/A	
Related Commands	ip dns server	

ip dns server

Use the **ip dns server** global configuration command to enable DNS server. To Disable, use the **no** form of this command.

Commands

ip dns server

no ip dns server

Syntax Description	**ip**	Global IP configuration subcommands
	dns server	Enable DNS server
Defaults	Disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config) # ip dns server`	
Error Messages	N/A	
Related Commands	ip dns host	

ip filter-ip

Use the **ip filter-ip** interface configuration command on the switch to add the IP filtering address entries. Use the **no** form of this command to delete the filtering entries.

Commands

ip filter-ip allowed *ip-address*

no ip filter-ip allowed *ip-address*

Syntax Description	**ip**	Configure IP paramters
	filter-ip	IP filter
	allowed	Configured traffic allowed from specified IP
	ip-address	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# ip filter-ip allowed 192.168.127.1 <LF>`	
Error Messages	Not a unicast IP	
	Allowed only 8 filters at most	
Related Commands	show interfaces filter-ip	

ip http-server

Use **ip http-server** global configuration commands on the switch to enable HTTP/HTTPs service. Use the **no** form of this command to disable HTTP/HTTPS service.

Commands

ip http-server

ip http-server secure

no ip http-sever

Syntax Description	**ip**	Global IP configuration subcommands
	http-server	Enable HTTP/HTTPS web service
	secure	HTTPS support only
Defaults	HTTP service is enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# ip http-server`
	`  auto-logout  - Web auto-logout timer`
	`  <LF>`
	`  secure  - HTTPS support only`
	`MOXA(config)# ip http-server secure`
	`MOXA(config)# ip http-server`
	`MOXA(config)# no ip http-server`	

Error Messages	N/A	
Related Commands	show ip http-server	

ip http-server auto-logout

Use **ip http-server auto-logout** global configuration commands on the switch to enable the auto-logout for the HTTP/HTTPs connections with specified seconds. Use the **no** form of this command to disable it.

Commands

ip http-server auto-logout *seconds*

Syntax Description	**ip**	Global IP configuration subcommands
	http-server	Enable HTTP/HTTPS web service
	auto-logout	Web auto-logout timer
	seconds	0 for disable, or 60 to 86400 seconds
Defaults	auto-logout is disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ip http-server auto-logout 120`	
Error Messages	Switch Web auto-logout interval should be 0(disable) or 60 to 86400s !!!	
Related Commands	show ip http-server	

ip igmp static-group

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

Commands

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

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

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

ip igmp-snooping

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

Commands

ip igmp-snooping

no ip igmp-snooping

Syntax Description	**ip**	Global IP configuration subcommands
	igmp-snooping	IGMP snooping
Defaults	IGMP snooping is globally disable.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ip igmp-snooping` `MOXA(config)# no ip igmp-snooping`	
Error Messages	IGMP Function is only supported by 802.1Q VLAN mode!	
Related Commands	ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp	

ip igmp-snooping enhanced

Use the **ip igmp-snooping** enhanced global configuration command on the switch to enable the enhanced mode. Use the **no** form of this command to disable the enhanced mode.

Commands

ip igmp-snooping enhanced

no ip igmp-snooping enhanced

Syntax Description	**ip**	Global IP configuration subcommands
	igmp-snooping	IGMP snooping
	enhanced	IGMP snooping enhanced mode
Defaults	Enhanced mode is globally disabled on the switch.	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	`MOXA(config)# ip igmp-snooping enhanced` `MOXA(config)# no ip igmp-snooping enhanced`	
Error Messages	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related Commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping query-interval show ip igmp	

ip igmp-snooping querier vlan

Use the **ip igmp-snooping querier vlan** global configuration command to enable and configure the IGMP querier feature on a VLAN interface. Use the **no** form of this command to disable the IGMP querier feature.

Commands

ip igmp-snooping querier vlan *vlan-id*

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

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

ip igmp-snooping querier vlan vlan-id v3

NOTE

The command is supported only in Layer 3 switches.

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

Commands

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

Syntax Description	**ip**	Global IP configuration subcommands
	igmp-snooping	IGMP snooping
	querier	IGMP snooping qeury enable
	vlan	VLAN parameters
	vlan-id	1 ~ 4094
	v3	IGMPv3 mode
Defaults	The IGMP snooping querier feature is globally disabled on the switch	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	`MOXA(config)# ip igmp-snooping querier vlan 1 v3`	
Error Messages	Vlan entry not found!!!	
	Vlan IGMP Function is Disabled !!!	
	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related Commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping query-interval	

ip igmp-snooping query-interval

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

Commands

ip igmp-snooping query-interval *interval*

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

ip igmp-snooping vlan

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

Commands

ip igmp-snooping vlan *vlan-id [***mrouter** *module/port]*

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

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

ip max-login-users

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

Commands

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

no ip http-server max-login-users

no ip telnet max-login-users

Syntax Description	**ip**	Global IP configuration subcommands
	http-server	Enable Moxa Service
	telnet	Telnet support
	max-login-users	Configure HTTP/HTTPS maximum login users
	Users	1 ~ 10 users
Defaults	Enabled.	
Command Modes	Global configuration	
Usage Guidelines	Users: 1 ~ 10	

Examples	`MOXA# configure terminal`
	`MOXA(config)# ip http-server max-login-users 5`
	`MOXA(config)# ip telnet max-login-users 5`	

Error Messages	N/A	
Related Commands	ip http-server port port-number ip http-server secure port port-number ip telnet port port-number	

ip moxa-encrypted-service

Use the **ip moxa-encrypted-service** global configuration command to enable Moxa Service (Encrypted). To Disable, use the **no** form of this command.

Commands

ip moxa-encryted-service

no ip moxa-encrypted-service

Syntax Description	**ip**	Global IP configuration subcommands
	moxa-encrypted-service	Enable Moxa Service (Encrypted)
Defaults	Enable.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA# configuration terminal` `ip moxa-encrypted-service`	

ip moxa-service

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

Commands

ip moxa-service

no ip moxa-service

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

ip name-server

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

Commands

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

no name-server

Syntax Description	**ip**	Configure IP paramters
	name-server	Configure DNS server address
	dns-ip-address	IP address
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	`MOXA(config-vlan)# ip name-server 192.168.1.1`	
Error Messages	Warning! IP and gateway are not in the same subnet	
Related Commands	show interfaces mgmt	

ip ospf area

Use the **ip ospf area** command in VLAN configuration mode to bind the interfaces with an OSPF area. Use **no ip ospf** to unbind the OSPF area.

Commands

ip ospf area *area-id*

no ip ospf

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	area	OSPF Area binding
	area-id	OSPF Area id
Defaults	This command is disabled by default.	
Command Modes	VLAN configuration	
Usage Guidelines	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Examples	`MOXA(config-vlan)# ip ospf auth md5 5 auth-key abcdabcd`	
Error Messages	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Related Commands	show ip ospf interface	

ip ospf auth

Use the **ip ospf auth** command in VLAN configuration mode to specify the authentication type for an interface. Use the **no** form of this command to remove the authentication type for an interface.

Commands

ip ospf auth simple auth-key *key*

ip ospf auth md5 *key-id* **auth-key** *key*

no ip ospf auth

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	auth	Configure OSPF authentication type
	simple	Configure OSPF authentication type to SIMPLE
	md5	Configure OSPF authentication type to MD5
	key-id	MD5 key id
	auth-key	Configure authentication key
	key	Key string
Defaults	This command is disabled by default.	
Command Modes	VLAN configuration	
Usage Guidelines	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Examples	`MOXA(config-vlan)# ip ospf auth md5 5 auth-key abcdabcd`	
Error Messages	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Related Commands	show ip ospf interface	

ip ospf cost

Use the **ip ospf cost** command in VLAN configuration mode to explicitly specify the cost of sending a packet on a VLAN interface. Use the **no** form of this command to return to the default.

Commands

ip ospf cost *cost*

no ip ospf cost

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	cost	Configure OSPF Metric
	cost	Metric value (1 to 65535)
Defaults	Default cost is 1	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-vlan)# ip ospf cost 10`	
Error Messages	Metric Range 1 to 65535	
Related Commands	show ip ospf interface	

ip ospf dead-interval

Use the **ip ospf dead-interval** command in interface configuration mode to set the interval at which hello packets must not be seen before neighbors declare the router down. Use the **no** form of this command to return to the default time.

Commands

ip ospf dead-interval *seconds*

no ip ospf dead-interval

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	dead-interval	Configure OSPF dead interval
	seconds	Dead Interval Range 1 to 65535
Defaults	Default dead interval is 40 seconds	
Command Modes	VLAN configuration	
Usage Guidelines	Dead interval Range 1 to 65535	
Examples	`MOXA(config-vlan)# ip ospf dead-interval 100`	
Error Messages	Dead Interval Range 1 to 65535	
Related Commands	show ip ospf interface	

ip ospf hello-interval

Use the **ip ospf hello-interval** command in VLAN configuration mode to specify the interval between hello packets sent on the interface. Use the **no** form of this command to return to the default.

Commands

ip ospf hello-interval *seconds*

no ip ospf hello-interval

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	hello-interval	Configure OSPF hello interval
	seconds	Hello Interval Range 1 to 65535
Defaults	Default interval is 10 seconds	
Command Modes	VLAN configuration	
Usage Guidelines	Hello Interval Range 1 to 65535	
Examples	`MOXA(config-vlan)# ip ospf hello-interval 100`	
Error Messages	Hello Interval Range 1 to 65535	
Related Commands	show ip ospf interface	

ip ospf priority

Use the **ip ospf priority** command in VLAN configuration mode to set the router priority for the determination of the designated router. Use the **no** form of this command to return to the default.

Commands

ip ospf priority *priority*

no ip ospf priority

Syntax Description	**ip**	Configure L3 interface ip
	ospf	Configure OSPF
	priority	Configure OSPF router priority
	priority	priority range (0 to 255)
Defaults	Default priority is 1	
Command Modes	VLAN configuration	
Usage Guidelines	priority range 0 to 255	
Examples	`MOXA(config-vlan)# ip ospf priority 10`	
Error Messages	Priority Range 0 to 255	
Related Commands	show ip ospf interface	

ip proxy-arp

Use the **ip proxy-arp** VLAN configuration command on the switch to enable Proxy ARP. Use the **no** form of this command to disable Proxy ARP.

Commands

ip proxy-arp

no ip proxy-arp

Syntax Description	**ip**	Configure L3 interface ip
	proxy-arp	Enable L3 interface proxy arp
Defaults	N/A	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-vlan)# ip proxy-arp` `  proxy-arp  - Enable L3 interface proxy arp`	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	Interface not exist! Please create interface and set ip and netmask first	
Related Commands	show interfaces vlan	

ip route

Use the **ip route** command in global configuration mode to establish static routes. Use the **no** form of this command to remove the specified static routes.

Commands

ip route *prefix mask next-hop [distance]*

no ip route *prefix mask next-hop*

Syntax Description	**ip**	Global IP configuration subcommands
	route	Static routing entry
	prefix	Address prefix
	mask	Subnet mask
	next-hop	Next hop address
	distance	Distance metric
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ip route 2.2.0.0 255.0.0.0 2.2.3.1 10`	
Error Messages	Route Entry Full!!!	
Related Commands	show ip route show ip route static	

ip snmp-agent

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

Commands

ip snmp-agent

no ip snmp-agent

Syntax Description	**ip**	Global IP configuration subcommands
	snmp-agent	Enable SNMP Agent
Defaults	Enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA# configure terminal` `MOXA(config)# ip snmp-agent`	

ipv6 address

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

Commands

ipv6 address *ipv6_prefix*

no ipv6 address

Syntax Description	**ipv6**	Configure IPv6
	address	IPv6 address setting
	ipv6_prefix	IPv6 address prefix
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	

Examples	`MOXA(config-vlan)# ipv6 address 1::1`
	`MOXA# show interfaces mgmt`
	
	`IPv4`
	`  Management VLAN id  : 1`
	`  IP configuration    : Static`
	`  IP address          : 192.168.127.253`
	`  Subnet mask         : 255.255.255.0`
	`  Default gateway     : 0.0.0.0`
	`  DNS server           :`
	
	`IPv6`
	`  Global Unicast Address Prefix : 1:0:0:1:201:2ff:fe03`
	`  Global Unicast Address        : 1::1:201:2ff:fe03:405`
	`  Link-Local Address            : fe80::201:2ff:fe03:405`	

Error Messages	Invalid prefix!	
Related Commands	show interface mgmt	

itxpt-inventory

Use the **itxpt-inventory** global configuration command on the switch to enable the ITxPT Inventory Service feature. Use the **no** form of this command to disable the function.

Commands

itxpt-inventory

no itxpt-inventory

Syntax Description	**itxpt-inventory**	Enable ITxPT Inventory Service feature. When enabled, the device will respond to DNS-SD and Module Inventory Service queries.
Defaults	disabled	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	System hostname should be configured in advance.	

Examples	`moxa# configure terminal`
	`moxa(config)# itxpt-inventory hostname name`
	`moxa(config)# itxpt-inventory`	

Error Messages	% System Domain Name can't be empty!	
	^Parse error	
	^Incomplete command	
Related Commands	itxpt-inventory hostname show itxpt-inventory	

itxpt-inventory hostname

Use the **itxpt-inventory hostname** global configuration command on the switch to configure the System Hostname for the ITxPT feature. Use the **no** form of this command to return to the default setting.

Commands

itxpt-inventory hostname <name>

no itxpt-inventory hostname

Syntax Description	**itxpt-inventory**	Global ITxPT subcommands
	hostname	system host name
	name	User-defined system host name. The host-name supports characters 'a-z', 'A-Z', '0-9', '-' and cannot start or end with '-'. The maximum length is 63 characters.
Defaults	empty string	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	The System Hostname should be configured before enabling ITxPT Inventory Service.	
Examples	`moxa# configure terminal` `moxa(config)# itxpt-inventory hostname name`	
Error Messages	% Max length of Hostname is 63!	
	% Invalid Hostname	
	^Parse error	
	^Incomplete command	
Related Commands	itxpt-inventory show itxpt-inventory	

line-swap-fast-recovery

Use the **line-swap-fast-recovery** global configuration command on the switch to enable the fast recovery feature of the MAC address table when line swapping. Use the **no** form of this command to disable it.

Commands

line-swap-fast-recovery

no line-swap-fast-recovery

Syntax Description	**line-swap-fast-recovery**	Enable Line Swap Fast Recoverty feature
Defaults	This feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# line-swap-fast-recovery` `  <LF>`	
Error Messages	N/A	
Related Commands	show mac-address-table	

lldp enable

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

Commands

lldp run

no lldp run

Syntax Description	lldp	Configure LLDP parameters
	run	Start up
Defaults	LLDP is enable in factory default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# lldp enable` `MOXA(config)# no lldp enable`	
Error Messages	N/A	
Related Commands	show lldp	

lldp timer

Use the **lldp timer** global configuration command to configure the transmission frequency of LLDP messages. To reset the timer to default, use the **no** form of this command.

Commands

lldp timer *transFreq*

no lldp timer

Syntax Description	**lldp**	Configure LLDP parameters
	timer	Transmission frequency of LLDP updates
	transFreq	5 to 32768 seconds
Defaults	Transmission frequency of LLDP updates is 30 seconds.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# lldp timer`
	`  <UINT:transFreq>     - 5 to 32768 seconds`
	`MOXA(config)# lldp timer 4`
	`% LLDP transmit frequency should be between 5 to 32768`
	`MOXA(config)# lldp timer 50`	

Error Messages	LLDP transmit frequency should be between 5 to 32768	
Related Commands	show lldp	

logging

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

Commands

logging *ip-address*

no logging *ip-address*

Syntax Description	**logging**	Syslog server setting
	ip-address	IP or DNS name w/wo. port, Ex:1.2.3.4 or 1.2.3.4:5678
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# logging 192.168.1.1` `  <LF>`	
Error Messages	Logging server configurations are full!	
Related Commands	show logging	

logging-bootup-delay-time

Use the **logging-bootup-delay-time** global configuration command on the switch to configure a bootup delay time to send logs to a Syslog Server. Use the **no** form of this command to return to the default setting.

Commands

logging-bootup-delay-time <seconds>

no logging-bootup-delay-time

Syntax Description	**logging-bootup-delay-time**	Configure syslog bootup delay time
	seconds	User-defined bootup delay time in seconds. This ranges from 0 to 300 seconds.
Defaults	The default value of the syslog bootup delay time is 0.	
Command Modes	Global configuration, sub-level configuration	
Usage Guidelines	N/A	

Examples	`moxa# configure terminal`
	`moxa(config)# logging-bootup-delay-time 60`
	`moxa(config)# no logging-bootup-delay-time`	

Error Messages	Value Invalid! Bootup delay time should be between 0 and 300 (seconds).	
	^Parse error	
	^Incomplete command	
Related Commands	show logging	

logging-capacity

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

Commands

logging-capacity *threshold*

no logging-capacity

Syntax Description	**logging-capacity**	Enable and configure log capacity warning threshold.
	threshold	50 ~ 100%
Defaults	Disnable logging capacity and the threshold is 0%.	
Command Modes	Global configuration	
Usage Guidelines	Threshold: 50 ~ 100%	
Examples	`MOXA# configure terminal` `MOXA(config)# logging-capacity 90`	
Error Messages	Event log capacity threshold should between 50~100	
Related Commands	show logging-capacity	

Logging-capacity email-warning

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

Commands

Logging-capacity email-warning

no logging-capacity email-warning

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

logging-capacity over-size-action

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

Commands

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

Syntax Description	**logging-capacity**	Enable and configure log capacity warning threshold.
	over-size-action	Set event log over-size action.
	overwrite-oldest	Overwrite oldest log when evet log is over-size.
	stop-recording	Stop recording when evet log is over-size.
Defaults	overwrite-oldest	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# logging-capacity over-size-action overwrite-oldest`
	`MOXA(config)# logging-capacity over-size-action stop-recording`	

Error Messages	N/A	
Related Commands	show logging-capacity	

logging-capacity snmp-trap-warning

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

Commands

logging-capacity snmp-trap-warning

no logging-capacity snmp-trap-warning

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

loopprotection

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

Commands

loopprotection

no loopprotection

Syntax Description	**loopprotection**	Enable loop protection
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# loopprotection`
	`MOXA(config)# no loopprotection`	

Error Messages	N/A	
Related Commands	Show loopprotection	

mac-address-table aging-time

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

Commands

mac-address-table aging-time *seconds*

no mac-address-table aging-time

Syntax Description	**mac-address-table**	Configure MAC address table
	aging-time	Aging time
	seconds	15 to 3825 seconds
Defaults	Default aging time is 300 sec	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# mac-address-table aging-time` `  <UINT:seconds>  - 15 to 3825 seconds`	
Error Messages	N/A	
Related Commands	show mac-address-table aging-time	

management-interface

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

Commands

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

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

Syntax Description	**http-server**	Enable HTTP-server service
	secure	Enable SSL service
	telnet	Enable Telnet service
	ssh	Enable SSH service
	port	Port
	port-number	Listening port number
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# ip http-server port 80`
	`MOXA(config)# ip http-server secure port 443`
	`MOXA(config)# ip telnet 23`
	`MOXA(config)# ip ssh port 22`
	`MOXA(config)# no ip http-server secure`	

Error Messages	Assigning duplicate port numbers is not allowed	
	HTTP/SSH/Telnet/SSL port number is invalid, the interval is from 1 to 65535.	

mcast-filter

Use the **mcast-filter** interface configuration command on the switch to activate the multicast filter. Use the **no** form of this command to stop this function.

Commands

mcast-filter [forward-unknown | filter-unknown]

no mcast-filter

Syntax Description	**mcast-filter**	Multicast filter
	forward-unknown	Forward unknown
	filter-unknown	Filter unknown
Defaults	Default forward unknown	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# mcast-filter forward-unknown`
	`MOXA(config-if)# mcast-filter filter-unknown`
	`MOXA(config-if)# no mcast-filter`	

Error Messages	N/A	
Related Commands	show mcast-filter	

media cable-mode

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

Commands

media cable-mode [mdi | mdix | auto]

no media cable-mode

Syntax Description	**media**	Select a media
	cable-mode	Select cable mode
	mdi	MDI
	mdix	MDIX
	auto	Auto select MDI/MDIX
Defaults	The default is auto	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# media cable-mode auto`
	
	`MOXA(config-if)# no media cable-mode`	

Error Messages	Fiber port can not be set MDI/MDIX!!	
	This setting cannot be applied on trunk port!	
	Cannot configure on trunk member port 1/1!	
Related Commands	show interface ethernet	

modbus

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

Commands

modbus

no modbus

Syntax Description	**modbus**	Enable Modbus
Defaults	Default is enable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	MOXA# configure terminal MOXA(config)# modbus MOXA(config)# no modbus	
Error Messages	N/A	
Related Commands	show modbus	

monitor

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

Commands

monitor source interface *mod_port [direction]*

no monitor source interface

monitor destination interface *mod_port*

no monitor destination interface

Syntax Description	**monitor**	Configure Port mirror
	source	Monitored port
	interface	Port
	destination	Mirror port
	mod_port	Port ID. E.g., 1/3, Trk2,...
	direction	tx | rx | both
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Traffic send/receive by a source port (Monitored port) will be mirrored to the destination port (Mirror port.	

Examples	`MOXA(config)# monitor source interface 3/1 both`
	`Warning !!! Mirror Port don't set !`
	`MOXA(config)# monitor destination interface`
	`  <STRING:mirrorPort>  - Port ID. E.g., 1/3, 2/1,...`
	`MOXA(config)# monitor destination interface 3/1,2`
	`% Invalid format`
	`MOXA(config)# monitor destination interface 3/1`
	`% Monitored Port is the same with Mirror Port !!!`
	
	`MOXA(config)# monitor destination interface 3/2`
	`MOXA(config)# monitor source interface 1/1-2`	

Error Messages	Monitored Port is the same with Mirror Port !!!	
	Invalid parameter	
	Warning !!! Mirror Port don't set !	
	Warning !!! Monitored Port don't set !	
Related Commands	show port monitor	

name

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

Commands

name

no name

Syntax Description	**name**	Port name
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 1/1`
	`MOXA(config-if)# name interface1_port1`
	
	`MOXA(config-if)# no name`	

Error Messages	The length of port name must between 1 and 63!	
	Cannot configure on trunk member port 1/1	
Related Commands	show interfaces ethernet show interfaces trunk	

network

Use the **network** command in router configuration mode to enable the routing process on the specified interface. Use the **no** form of this command to disable it.

Commands

network *if-name*

no network *if-name*

Syntax Description	**network**	Enable dynamic routing on an IP network
	if-name	Interface name
Defaults	N/A	
Command Modes	Router configuration of RIP, OSPF, and Static routes	
Usage Guidelines	N/A	

Examples (For Rip Settings)	MOXA(config)# vlan create 2
	% create vlan id:2
	MOXA(config)# interface vlan 2
	MOXA(config-vlan)# ip address 192.168.102.1 255.255.255.0
	MOXA(config-vlan)# name vlan2if
	MOXA(config-vlan)# exit
	MOXA(config)# router rip
	MOXA(config-rip)# network
	  <STRING:ifname> - Interface name
	MOXA(config-rip)# network vlan2if
	MOXA(config-rip)#
	MOXA# show ip rip
	RIP Protocol : Enable
	RIP version : V1
	Distribution
	  Connected : Enable
	  Static : Disable
	  OSPF : Disable
	
	RIP Enable Table
	Interface Name IP VID Enable
	---------- ---------- ---------- ----------
	vlan2if 192.168.102.1 2 Enable
	MOXA#	

Error Messages	No such interface existed	
Related Commands	show ip rip	

ntp refresh-time

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

Commands

ntp refresh-time *seconds*

no ntp refresh-time

Syntax Description	**ntp**	Configure Network Time Protocol
	refresh-time	Configure NTP query intervals
	seconds	1-9999 seconds
Defaults	Default query interval is 600 sec	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ntp refresh-time 600` `<LF>`	
Error Messages	Time is out of range	
Related Commands	show clock	

ntp remote-server

Use the **ntp remote-server** global configuration command on the switch to configure the remote NTP server. Use the **no** form of this command to return to the default.

Commands

ntp remote-server *server-addr-1* [*server-addr-2*]

no ntp remote-server

Syntax Description	**ntp**	Configure Network Time Protocol
	remote-server	Configure NTP server for time query
	simple	Configure Simple Network Time Protocol instead of Network Time Protocol
	server-addr-1	IP address or DNS name
	server-addr-2	IP address or DNS name
Defaults	The default configuration contains one time server “time.nist.gov”.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ntp remote-server 192.168.127.1 time.stdtime.gov.tw`	
Error Messages	N/A	
Related Commands	show clock	

ntp server

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

Commands

ntp server

no ntp server

Syntax Description	**ntp**	Configure Network Time Protocol
	server	Enable NTP server
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ntp server`	
Error Messages	N/A	
Related Commands	show clock	

password-policy complexity-check

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

Commands

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

no password-policy complexity-check

no password-policy complexity-check digit

no password-policy complexity-check alphabet

no password-policy complexity-check special-characters

Syntax Description	**password-policy**	Configure password policy
	complexity-check	Enable password complexity check.
	digit	Add password complexity check with digit.
	alphabet	Add password complexity check with alphabet.
	special-characters	Add password complexity check with special-characters.
Defaults	Disable complexity-check	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# password-policy complexity-check`
	`MOXA(config)# password-policy complexity-check digit`
	`MOXA(config)# password-policy complexity-check alphabet`
	`MOXA(config)# password-policy complexity-check special-characters`	

password-policy minimum-length

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

Commands

password-policy minimum-length *length*

no password-policy minimum-length

Syntax Description	**password-policy**	Configure password policy
	minimum-length	Configure the minimum password length.
	length	4 ~ 16 characters
Defaults	4 characters	
Command Modes	Global configuration	
Usage Guidelines	Length range: 4 ~ 16 characters	
Examples	`MOXA# configure terminal` `MOXA(config)# password-policy minimum-length 5`	
Error Messages	Password minimum length should between 4~16	

permit

Use the **permit** ACL configuration command on the switch to add a permit rule in the current ACL for traffic with specified IPs. Use the **no** form of this command to delete the rule.

Commands

permit *ip-address*

no permit *ip-address*

Syntax Description	**permit**	Configure PERMIT filter
	ip-address	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	ACL configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-acl)# permit` `  <IPV4ADDR:ipaddr>  - E.g., 11.22.33.44`	
Error Messages	Invalid IPv4 address	
Related Commands	Show ip access-list ip access-list	

ping

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

Commands

ping *ip-address*

Syntax Description	**ping**	Send echo messages
	ip-address	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	

Examples	`MOXA# ping 192.168.127.1`
	
	`PING 192.168.127.1, Send/Recv/Lost = 4/4/0`	

port-security

Use the **port-security** interface configuration command on the switch to add a static unicast MAC-address on a specified port. Use the **no** form of this command to remove the specified MAC address.

Commands

port-security *MAC-address*

no port-security *MAC-address*

Syntax Description	**port-security**	Set port security
	MAC-address	MAC address XX:XX:XX:XX:XX:XX
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-if)# port-security 00:00:00:00:00:01`
	
	`MOXA(config-if)# no port-security 00:00:00:00:00:01`	

Error Messages	Add new static unicast MAC address Fail !!!	

profinetio

Use the **profinetio** command to disable/enable PROFINET support (EDS-400A-PN series support only).

Commands

profientio

no profientio

Syntax Description	**profinetio**	Enable PROFINET IO
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# profinetio` `MOXA(config)# no profinetio`	
Error Messages	N/A	
Related Commands	Show profinetio	

ptp announce-receipt-timeout

Use the **ptp announce-receipt-timeout** configuration command on the switch to set the announce-receipt-timeout parameter.

Commands

ptp announce-receipt-timeout *interval*

Syntax Description	**ptp**	Configure PTP
	announce-receipt-timeout	Set the integral multiple of announceInterval
	interval	2 to 10
Defaults	Default is 3	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp announce-receipt-timeout`	
Error Messages	AnnounceReceiptTimeout must be in the range from 2 to 10	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp arb-time

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

Commands

ptp arb-time *time*

Syntax Description	**ptp**	Configure PTP
	arb-time	Set the ARB time parameter of the local clock
	time	0 to 2147483646
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp arb-time 0`	
Error Messages	Arb time must be in the range from 0 to 2147483646	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp clockclass

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

Commands

ptp clockclass *class*

Syntax Description	**ptp**	Configure PTP
	clockclass	Set the clock class parameter of the local clock
	class	0 to 255
Defaults	Default is 248	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp clockclass 248`	
Error Messages	Clockclass must be in the range from 0 to 255	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp domain-number

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

Commands

ptp domain-number *interval*

Syntax Description	**ptp**	Configure PTP
	domain-number	Set the domain number of the local clock
	interval	0 to 3
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	MOXA(config)# ptp domain-number	
Error Messages	domainNum must be in the range from 0 to 3	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp enable

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

Commands

ptp enable

no ptp

Syntax Description	**ptp**	Configure PTP
	enable	Enable the ptp operation
Defaults	ptp is default disable	
Command Modes	Configuration Interface configuration mode	
Usage Guidelines	N/A	

Examples	`MOXA(config)# ptp enable`
	`MOXA(config)# no ptp`
	`MOXA(config-if)# ptp enable`
	`MOXA(config-if)# no ptp`	

Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp leap59

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

Commands

ptp leap59

no ptp leap59

Syntax Description	**ptp**	Configure PTP
	leap59	enable the last minute of the current UTC day contains 59 seconds
Defaults	Default disable	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp leap59` `MOXA(config)# no ptp leap59`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp leap61

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

Commands

ptp leap61

no ptp leap61

Syntax Description	**ptp**	Configure PTP
	leap61	enable the last minute of the current UTC day contains 61 seconds
Defaults	Default disable	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp leap61` `MOXA(config)# no ptp leap61`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp log-sync-interval

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

Commands

ptp log-sync-interval *interval*

Syntax Description	**ptp**	Configure PTP
	log-sync-interval	Set the logarithm to the base 2 of the mean SyncInterval
	interval	-3 to 1
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp log-sync-interval`	
Error Messages	logSyncInterval must be in the range from -3 to 1	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp log-announce-interval

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

Commands

ptp log-announce-interval *interval*

Syntax Description	**ptp**	Configure PTP
	log-announce-interval	Set the logarithm to the base 2 of the mean AnnounceInterval
	interval	0 to 4
Defaults	Default is 1	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp log-announce-interval`	
Error Messages	logAnnounceInterval must be in the range from 0 to 4	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp log-min-delay-req-interval

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

Commands

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

Syntax Description	**ptp**	Configure PTP
	log-min-delay-req-interval	Set the logarithm to the base 2 of the mean minDelayReqInterval
	interval	0 to 5
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp log-min-delay-req-interval`	
Error Messages	LogMinDelayReqInterval must be in the range from 0 to 5	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp log-min-pdelay-req-interval

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

Commands

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

Syntax Description	**ptp**	Configure PTP
	log-min-delay-req-interval	Set the logarithm to the base 2 of the mean minPDelayReqInterval
	interval	-1 to 5
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp log-min-pdelay-req-interval`	
Error Messages	logMinPDelayReqInterval must be in the range from -1 to 5	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp mode

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

Commands

ptp mode *v1-bc*

ptp mode *v2-e2e-bc*

ptp mode *v2-p2p-bc*

ptp mode *v2-e2e-1step-tc*

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

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

Syntax Description	**ptp**	Configure PTP
	mode	Set the ptp operation mode
	v1-bc	ptp v1 boundary clock mode
	v2-e2e-bc	ptp v2 end-to-end boundary clock mode
	v2-p2p-bc	ptp v2 peer-to-peer boundary clock mode
	v2-e2e-1step-tc	ptp v2 end-to-end 1-step transparent clock mode
	v2-e2e-2step-tc	ptp v2 end-to-end 2-step transparent clock mode
	v2-p2p-2step-tc	ptp v2 peer-to-peer 2-step transparent clock mode
Defaults	Default setting of ptp is v1-bc mode	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp mode v1-bc`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp preferred-master

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

Commands

ptp enable

no ptp

Syntax Description	**ptp**	Configure PTP
	preferred-master	Set the local clock as the master clock(only valid in v1-bc mode)
Defaults	Default disable	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples (Set Switch As Local Master Clock)	`MOXA(config)# ptp preferred-master`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp priority1

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

Commands

ptp priority1 *priority*

Syntax Description	**ptp**	Configure PTP
	priority1	Set the priority1 parameter of the local clock
	priority	0 to 255
Defaults	Default is 128	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp priority1 128`	
Error Messages	priority1 must be in the range from 0 to 255	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp priority2

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

Commands

ptp priority2 *priority*

Syntax Description	**ptp**	Configure PTP
	priority2	Set the priority2 parameter of the local clock
	priority	0 to 255
Defaults	Default is 128	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp priority2 128`	
Error Messages	priority2 must be in the range from 0 to 255	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp timescale

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

Commands

ptp timescale [arb|ptp]

Syntax Description	**ptp**	Configure PTP
	timescale	Set the timescale parameter of the local clock
	arb	Set the timescale parameter of the local clock to ARB
	ptp	Set the timescale parameter of the local clock to PTP
Defaults	Default is ptp	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp timescale arb` `MOXA(config)# ptp timescale ptp`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp transport

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

Commands

ptp transport [802_3|ipv4]

Syntax Description	**ptp**	Configure PTP
	transport	Set the transport type of the ptp doman
	802_3	Set the transport type of the PTP domain to 802.3/Ethernet
	ipv4	Set the transport type of the PTP domain to IPv4
Defaults	Default is ipv4	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp transport 802_3` `MOXA(config)# ptp transport ipv4`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp utc-offset

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

Commands

ptp utc-offset *interval*

Syntax Description	**ptp**	Configure PTP
	utc-offset	sets the offset between TAI and UTC
	interval	0 to 65535
Defaults	Default is 0	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp utc-offset 0`	
Error Messages	utc_offset must be in the range from 0 to 65535	
Related Commands	Show ptp settings Show ptp status Show ptp port	

ptp utc-offset-valid

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

Commands

ptp utc-offset-valid

no ptp utc-offset-valid

Syntax Description	**ptp**	Configure PTP
	utc-offset-valid	UTC Offset field is valid
Defaults	Default disable	
Command Modes	Configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# ptp utc-offset-valid` `MOXA(config)# no ptp utc-offset-valid`	
Error Messages	N/A	
Related Commands	Show ptp settings Show ptp status Show ptp port	

qos highest-priority

Use the **qos highest-priority** interface configuration command on the switch to set the Port Priority of the ingress frames to "High" queues of the Ethernet ports/Trunks. Use the **no** form of this command to return to the default.

Commands

qos highest-priority

no qos highest-priority

Syntax Description	**qos**	Configure QoS
	highest-priority	Enable port highest priority queue
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# qos highest-priority`	
Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	show qos	

qos default-cos

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

Commands

qos default-cos *cos-value*

no qos default-cos

Syntax Description	**qos**	Configure QoS
	default-cos	Configure Default CoS of each port
	cos-value	CoS value (0 to 7)
Defaults	Default CoS value is 3	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# qos default-cos` `  <UINT:cos>  - CoS value (0 to 7)`	
Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	show qos	

qos inspect

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

Commands

qos inspect dscp *module_id*

no qos inspect dscp *module_id*

qos inspect cos

no qos inspect cos

Syntax Description	**qos**	Configure QoS
	inspect	Configure inspection criteria
	dscp	Enable DSCP inspection
	module_id	Module ID from 1 to 4
	cos	Enable CoS inpsection of each port
Defaults	N/A	
Command Modes	Global configuration Interface configuration	
Usage Guidelines	In product with 88E6095, the "qos inspect dscp" command is configured in interface configuration mode. In product with BCM5650, the "qos inspect dscp" command is configured in global configuration mode with module index.	

Examples	`MOXA(config)# qos inspect`
	`  dscp                  - Enable DSCP inspection`
	`MOXA(config-if)# qos inspect`
	`  cos                   - Enable CoS inpsection of each port`	

Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	show qos	

qos mapping

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

Commands

qos mapping cos-to-queue *cos-value queue*

no qos mapping cos-to-queue

qos mapping dscp-to-cos *dscp-value cos-value*

no qos mapping dscp-to-cos

qos mapping dscp-to-queue *dscp-value queue*

no qos mapping dscp-to-queue

Syntax Description	**qos**	Configure QoS
	mapping	Configure QoS mapping
	cos-to-queue	CoS to traffic queue
	cos-value	CoS value (0 to 7)
	queue	Traffic queue
	dscp-to-cos	DSCP to CoS mapping
	dscp-value	DSCP value (0 to 63)
	dscp-to-queue	DSCP to traffic queue
Defaults	Cos (queue): 0 (0), 1(0), 2(1), 3(1), 4(2), 5(2), 6(3), 7(3) DSCP(Cos): 0-7(0), 8-15(1), 16-23(2), 24-31(3), 32-39(4), 40-47(5), 48-55(6), 56-63(7)	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# qos mapping cos-to-queue 7`
	`  <UINT:queue>  - Traffic queue`
	`MOXA(config)# qos mapping cos-to-queue 7 3`
	`MOXA(config)# qos mapping dscp-to-cos 23`
	`  <UINT:cos>  - CoS value (0 to 7)`
	`MOXA(config)# qos mapping dscp-to-cos 23 7`	

Error Messages	Invalid parameter. CoS value must be 0 to 7 and queue number must be 0 to 3 Invalid parameter. CoS value must be 0 to 7 and DSCP value must be 0 to 63	
Related Commands	show qos	

qos mode

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

Commands

qos mode { weighted-fair | strict }

no qos mode

Syntax Description	**qos**	Configure QoS
	mode	Configure queuing mechanism
	weighted-fair	Weighted fair queuing
	strict	Strict queuing
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# qos mode`
	`  weighted-fair  - Weighted fair queuing`
	`  strict  - Strict queuing`	

Error Messages	N/A	
Related Commands	show qos	

quit

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

Commands

quit

Syntax Description	**quit**	Exit command line interface
Defaults	N/A	
Command Modes	N/A	
Usage Guidelines	N/A	
Examples	`MOXA # quit`	
Error Messages	N/A	
Related Commands	Exit	

rate-limit

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

Commands

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

no rate-limit { ingress | egress }

rate-limit ingress rate { none | 128k | 256k | 512k | 1M | 2M | 4M | 8M }

rate-limit ingress mode { bcast | bcast-mcast | bcast-mcast-dlf | all }

rate-limit mode {normal | port-disable}

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

no rate-limit normal { ingress | egress }

rate-limit normal ingress rate { none | 128k | 256k | 512k | 1M | 2M | 4M | 8M }

rate-limit normal ingress mode { bcast | bcast-mcast | bcast-mcast-dlf | all }

rate-limit port-disable period *period*

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

Syntax Description	**rate-limit**	Rate limiting
	normal	Rate limiting normal mode
	port-disable	Rate limiting port-disable mode
	ingress	Ingress rate limiting
	egress	Egress rate limiting
	percentage	Percentage correspond to current port speed
	percentage	Limit percentage, and will take effect at the percentage 0/3/5/10/15/25/35/50/65/85
	rate	Specify the rate
	mode	Specify the mode
	bcast	Limit broadcast frames
	bcast-mcast	Limit broadcast and multicast frames
	bcast-mcast-dlf	Limit broadcast, multicast and DLF frames
	all	All traffic
	period	Port disable period
	period	Seconds
Defaults	0 or none means unlimiting.	
Command Modes	Interface configuration	
Usage Guidelines	The percentage will only take effect at the 0/3/5/10/15/25/35/50/65/85 %. For port disable mode, the port will be disabled when the ingress rate reach the specified packet rate.	

Examples	`MOXA(config-if)# rate-limit percentage`
	`  <UINT:percent>       - Limit percentage, and will take effect at the percentage`
	`  0/3/5/10/15/25/35/50/65/85`
	`MOXA(config-if)# rate-limit ingress rate none none none none`
	
	`MOXA(config-if)# rate-limit port-disable ingress period 30`
	`MOXA(config-if)# rate-limit port-disable ingress rate 148810`	

Error Messages	Cannot configure on trunk member port 1/1!	
	This setting cannot be applied on trunk port!	
Related Commands	show interfaces rate-limit	

redistribute

Use the **redistribute** commands to enable learning routes from another IP routing protocol. Use the **no** form of this command to disable it.

Commands

redistribute connected

no redistribute connected

redistribute static

no redistribute static

redistribute rip

no redistribute rip

resitribute ospf

no redistribute ospf

Syntax Description	**redistribute**	Enable the switch's import routes learned through another IP routing protocol
	connected	Import routes learned through directly connected
	static	Import routes learned through static route
	rip	Import routes learned through RIP
	ospf	Import routes learned through OSPF
Defaults	N/A	
Command Modes	Router configuration mode as OSPF / RIP	
Usage Guidelines	N/A	
Examples	`MOXA(config-ospf)# redistribute rip` `MOXA(config-rip)# redistribute ospf`	
Error Messages	N/A	
Related Commands	show ip ospf show ip rip	

redundancy

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

Commands

redundancy

Syntax Description	**redundancy**	Enter redundancy configuration mode
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# redundancy` `MOXA(config-rdnt)#`	

redundancy mode

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

Commands

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

Syntax Description	**redundancy**	Enter redundancy configuration mode
	mode	Specify the redundancy protocol
	mst	MSTP
	rstp	Rapid Spanning Tree
	turbo-ring-v1	Turbo ring version 1
	turbo-ring-v2	Turbo ring version 2
	turbo-chain	Turbo chain
Defaults	The default redundancy protocol mode is RSTP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# redundancy mode`
	`  rstp  - Rapid Spanning Tree`
	`  turbo-ring-v1  - Turbo ring version 1`
	`  turbo-ring-v2  - Turbo ring version 2`
	`  turbo-chain  - Turbo chain`
	`  mst  - MSTP`	

Error Messages	N/A	
Related Commands	show redundancy mode	

relay-warning config relay

Use **relay-warning config relay** to select relay to trigger when a warning event occurs.

Commands

relay-warning config relay *[relayId]*

Syntax Description	**relay-warning**	Configure relay warning
	config	Choose which relay to configure
	relay	Relay
	relayId	Relay's ID = 1 or 2
Defaults	N/A	
Command Modes	Global configuration / Interface configuration	
Usage Guidelines	These commands only existed in device with multiple relays.	
Examples	N/A	
Error Messages	Please designate the relay ID Invalid relay ID	
Related Commands	show relay-warning	

relay-warning event

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

Commands

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

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

Syntax Description	**relay-warning**	Configure relay warning
	event	System events
	power-input1-fail	Power input 1 failure (On->Off)
	power-input2-fail	Power input 2 failure (On->Off)
	turbo-ring-break	Turbo Ring break
Defaults	All system events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# relay-warning`
	`  override  - Override the relay warning setting`
	`  event  - System events`
	`MOXA(config)# relay-warning event`
	`  power-input1-fail  - Power input 1 failure (ON->Off)`
	`  power-input2-fail  - Power input 2 failure (ON->Off)`
	`  turbo-ring-break  - Turbo Ring break`
	`MOXA(config)# relay-warning event turbo-ring-break`	

Error Messages	N/A	
Related Commands	show relay-warning	

relay-warning event link

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

Commands

relay-warning event { link-on | link-off }
no relay-warning event { link }

Syntax Description	**relay-warning**	Configure relay warning
	event	Port events
	link-on	Link ON
	link-off	Link OFF
	link	All link events
Defaults	All interface events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# interface ethernet 3/1`
	`MOXA(config-if)# relay-warning event ?`
	`  link-on  - Link ON`
	`  link-off  - Link OFF`
	`  traffic-overload  - Traffic overloading`
	`MOXA(config-if)# relay-warning event link-off`	

Error Messages	Threshold should be between 0 and 100	
	Duration should be between 1 and 300	
Related Commands	show relay-warning	

relay-warning event traffic-overload

Use the **relay-warning event traffic-overload** global configuration command on the switch to configure warning notification when the traffic overload event is triggered. Use the **no** form of this command to disable the function.

Commands

relay-warning event traffic-overload [[rx-threshold <rxThreshold>] [tx-threshold <txThreshold>] [duration <seconds>]]

no relay-warning event traffic-overload

Syntax Description	**relay-warning**	Relay warning setting
	event	System events
	traffic-overload	Enable traffic-overload
	rx-threshold	Specify a threshold for incoming packets
	rxThreshold	0 to 100 , zero means disable Rx-Threshold
	tx-threshold	Specify a threshold for outgoing packets
	txThreshold	0 to 100 , zero means disable Tx-Threshold
	duration	Specify a Traffic-Duration. The warning will be sent every Traffic-Duration seconds if the average rx-threshold/tx-threshold is surpassed during that time period.
	seconds	1 to 300 seconds
	Disabled.	
Defaults	All interface events are disabled by default.	
Command Modes	Interface configuration	

Usage Guidelines	`// enter configure terminal mode`
	`MOXA# configure terminal`
	`// enter interface ethernet mode (port 1 in below example)`
	`MOXA# interface ethernet 1/1`
	`// enable relay-warning traffic-overload event`
	`MOXA(config-if)# relay-warning event traffic-overload`
	`MOXA(config-if)# relay-warning event traffic-overload rx-threshold 10 tx-threshold 10 duration 10`
	`// disable relay-warning traffic-overload event`
	`MOXA(config-if)# no relay-warning event traffic-overload`	

Examples	Invalid! Threshold should be between 0 and 100 (%).	
Error Messages	Invalid! Duration should be between 1 and 300 (seconds).	
	^Parse error	
	^Incomplete command	
Related Commands	show relay-warning config	

relay-warning override

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

Commands

relay-warning override relay *[relayId]*
no relay-warning override relay *[relayId]*

Syntax Description	**relay-warning**	Configure relay warning
	override	Override the relay warning setting
	relay	Relay
	relayId	Relay's ID = 1 or 2
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	relayId will only be used on the product that have multiple relays.	
Examples	`MOXA(config)# relay-warning override relay`	
Error Messages	Please designate the relay ID Invalid relay ID	
Related Commands	show relay-warning	

reload

Use the **reload** privileged command on the switch to restart the MOXA Switch. Use the reload factory-default privileged command to restore the switch configuration to the factory default values. Use the **reload custom-default** command on the device to restore the current running-config from the custom default configuration.

Commands

reload [factory-default]

Syntax Description	**reload**	Halt and perform a cold restart
	factory-default	Halt and perform a cold restart with factory default
	custom default	Halt and perform a cold restart with custom default settings.
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# reload <LF> factory-default - Halt and perform a cold restart with factory default MOXA# rel reload - Halt and perform a cold restart MOXA# reload factory-default <LF> MOXA# reload Proceed with reload ? [Y/n] MOXA# reload factory-default Proceed with reload to factory default? [Y/n] ---------- MOXA# reload custom-default Proceed with reload to custom default? [Y/n]	
Error Messages	% Invalid: The specified custom default configuration does not exist.	
	^Parse error	
	^Incomplete command	
Related Commands	copy startup-config custom-default reload factory-default	

router ospf

To configure an Open Shortest Path First (OSPF) routing process, use the **router ospf** command in global configuration mode. To terminate an OSPF routing process, use the **no** form of this command.

Commands

router ospf *[router-id]*

no router ospf

Syntax Description	**router**	Enable a routing process
	ospf	Enable OSPF routing, and enter router configuration mode
	router-id	OSPF routing ID has a unique value
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Use router ospf commands to enable OSPF routing process. Use router ospf router-id to entering the Router configuration mode as OSPF.	

Examples	`MOXA(config)# router ospf`
	`MOXA(config)# router ospf 0.0.1.1`
	`MOXA(config-ospf)#`	

Error Messages	Invalid parameters!	
Related Commands	show ip ospf	

router rip

Use the **router rip** global configuration command to Enable a RIP routing process, and enter router configuration mode. To turn off the RIP routing process, use the **no** form of this command.

Commands

router rip

no router rip

Syntax Description	**router**	Enable a routing process
	rip	Enable RIP (Routing Information Protocol)
Defaults	RIP is disabled in factory default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# router rip` `MOXA(config-rip)#`	
Error Messages	N/A	
Related Commands	show ip rip	

router vrrp

To enable Virtual Router Redundancy Protocol (VRRP), use the **router vrrp** command in global configuration mode. To disable the VRRP, use the **no** form of this command.

Commands

router vrrp

no router vrrp

Syntax Description	**router**	Enable a routing process
	vrrp	Enable VRRP (Virtual Router Redundancy Protocol)
Defaults	VRRP is not default disabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# router vrrp`
	
	`MOXA(config)# no router vrrp`	

Error Messages	N/A	
Related Commands	show ip vrrp	

save config

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

Commands

save config

Syntax Description	**save**	Save running configuration to flash
	config	Save running configuration to flash
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# save config`
	
	`Saving configuration ...Success`	

show acl

> **NOTE**
>
> The command is supported only in Layer 3 switches.

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

Commands

show acl [*id*]

show acl summary

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

show auth tacacs+

Use the **show auth tacacs+** user EXEC command to display the setting of TACACS+ authentication traffic statistic information of interfaces.

Commands

show auth tacacs+

Syntax Description	**auth**	Display authentication settings
	tacacs+	Tacacs+ authentication
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show auth tacacs+`
	
	`Tacacs+ information:`
	`  Status  : Disabled`
	`  Auth server  : tacacs.server.moxa.com, port:49`
	`  Shared key  :`
	`  Auth type  : ASCII`
	`  Server Timeout  : 23 sec.`	

Error Messages	N/A	
Related Commands	auth tacacs+ auth tacacs+ server auth tacacs+ auth-type	

show authentication dot1x

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

Commands

show authentication dot1x

show authentication radius dot1x

show authentication local dot1x

Syntax Description	**show**	Show running system information
	authentication	Display authentication settings
	dot1x	Display dot1x authentication settings
	radius	Display RADIUS settings
	local	Display local db settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show authentication dot1x Dot1x Database Option : Local Re-Authentication : Enable Re-Authentication Period : 3600 Port 802.1X Enable ---- ------------- 1/2 Disable 1/3 Disable 1/4 Disable 1/5 Disable 1/6 Disable 1/7 Disable 1/8 Disable 1/9 Disable 1/10 Disable 1/11 Disable 1/12 Disable 1/13 Disable 1/14 Disable 1/15 Disable 1/16 Disable MOXA# show authentication radius dot1x-mab 1st Radius Server : 1st Server Port : 1812 1st Shared Key : 2nd Radius Server : 2nd Server Port : 1812 2nd Shared Key : MOXA# show authentication local dot1x Index User Name Description ----- ------------------------------ ------------------------------	
Error Messages	N/A	
Related Commands	authentication dot1x {radius [local] | local | reauth [period seconds]} no authentication dot1x [{reauth [period]}] authentication radius dot1x-mab {use login server | 1stServer server	

	Moxa Command Line Interface (FW_5.x) 105 authentication radius dot1x-mab {1stServer | 2ndServer} {server-ip server_ip | server-port server_port | shared-key shared_key} no authentication radius dot1x-mab {use login server | 1stServer | 2ndServer} authentication local dot1x username username password password desc description no authentication local dot1x {all user | username username}

show authentication login

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

Commands

show authentication login

show authentication radius login

show authentication tacacs+ login

Syntax Description	**show**	Show running system information
	authentication	Display authentication settings
	login	Display login authentication settings
	radius	Display RADIUS settings
	tacacs+	Display TACACS+ settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show authentication login Auth Server Mode: Local MOXA# show authentication radius login Radius information: Status : Disabled Auth server : Shared key : Auth type : PAP Server Timeout : 5 secs MOXA# show authentication tacacs+ login Tacacs+ information: Status : Disabled Auth server : Shared key : Auth type : ASCII Server Timeout : 5 secs MOXA# show authentication local dot1x Index User Name Description ----- ------------------------------ ------------------------------	
Error Messages	N/A	
Related Commands	authentication login {radius [local] | tacacs+ [plus local] | local} no authentication login authentication radius login {server ip serve_ ip | server port server_port | shared key shared_ key | timeout timeout | auth-type {pap | chap}} no authentication radius login authentication tacacs+ login {server ip serve_ ip | server port server_port | shared key shared_ key | timeout timeout | auth-type {asci | pap | chap | mschap}} no authentication tacacs+ login [auth-type]	

show clock

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

Commands

show clock

Syntax Description	**clock**	Display the system clock
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show clock Current Time : Fri Jan 01 08:38:28 2010 Daylight Saving Start Date : End Date : Offset : Time Zone : GMT-4:00 Time Server : Query Period : 600 sec NTP/SNTP Server : Disabled	
Error Messages	N/A	
Related Commands	clock set clock summer-time clock timezone ntp refresh-time ntp remote-server ntp server	

show config-name

Use the **show config-name** command on the device to display the name of the current configuration and the name of the custom default configuration.

Commands

show config-name

Syntax Description	**show**	Display configuration/status information
	config-name	Display name of configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show config-name Configuration Name: moxa-test Custom Default Configuration Name: No configuration found!	
Error Messages	% Invalid string	
	^Parse error	
	^Incomplete command	
Related Commands	show running-config config-name	

show duplicate-ip-detection

Use the **show duplicate-ip-detection** command on the device to display Duplicate IP Detection settings.

Commands

show duplicate-ip-detection

Syntax Description	**show**	Display information
	duplicate-ip-detection	Global Duplicate IP Detection subcommands
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	moxa# show duplicate-ip-detection --- Duplicate IP Detection: Enabled Probing Interval: 0 s (Periodic probing disabled.) --- Conflict Report: 88:a4:c2:d5:c7:c9 0a:79:d3:87:55:c7	
Error Messages	^Parse error	
	^Incomplete command	
Related Commands	duplicate-ip-detection	

show dot1x

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

Commands

show dot1x

Syntax Description	**dot1x**	Display 802.1x settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show dot1x Database Option: Local Radius Server : localhost Server Port : 1812 Shared Key : Re-Auth : Enable Re-Auth Period : 3600 Port 802.1X Enable ---- --- 1-1 Disable 1-2 Enable 1-3 Disable 1-4 Disable	
Error Messages	N/A	
Related Commands	dot1x auth dot1x reauth	

show dot1x local-userdb

To check the 802.1x local user database, use the **show dot1x local-userdb** command.

Commands

show dot1x local-userdb

Syntax Description	**dot1x**	Display 802.1x settings
	local-userdb	Display current local database
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show dot1x local-userdb Index User Name Description ----- ------------------------------ ------------------------------ 1 moxanet moxanet	
Error Messages	N/A	
Related Commands	dot1 local-userdb	

show eip

Commands

show eip

Syntax Description	**eip**	Display Ethernet/IP configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show eip` `eip disable`	
Error Messages	N/A	
Related Commands	eip	

show itxpt-inventory

Use the **show itxpt-inventory** command on the device to display the ITxPT Inventory Service settings.

Commands

show itxpt-inventory

Syntax Description	**show**	Display information
	itxpt-inventory	Global ITxPT subcommands
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show itxpt-inventory`
	`ITxPT Inventory : disable`
	`System Hostname: "Hostname"`
	`System Local Domain name: "Hostname"+".local"`
	
	`Service Instance Name:`
	`  "Unique Identifier"_inventory._itxpt_socket._tcp.local`
	
	`Inventory TXT records`
	`Attribute  Value`
	`----------`
	`txtvers:  1`
	`version:  2.1.2`
	`Type:  MESW`
	`Model:  "model name"`
	`Manufacturer:  MOXA`
	`serialnumber:  "serial number"`
	`softwareversion:  "software version"`
	`hardwareversion:  "model name"`
	`macaddress:  "mac address"`
	`services:  Inventory`	

Error Messages	^Parse error	
	^Incomplete command	
Related Commands	itxpt-inventory itxpt-inventory hostname	

show fault-led-mode

Use the **show fault-led-mode** command on the device to display Fault-LED-mode settings.

Commands

show fault-led-mode

Syntax Description	show	Display configuration/status information
	fault-led-mode	Fault LED Mode.
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show fault-led-mode` `Fault LED Mode: 0 (Default Mode)`	
Error Messages	N/A	
Related Commands	fault-led-mode	

show PROFINETIO

Use the **show profinetio** user EXEC command to display PROFINET configuration

Commands

show profinetio

Syntax Description	**show**	Show running system information
	profinetio	Display PROFINET configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show profinetio` `profinet io disable`	
Error Messages	N/A	
Related Commands	profinetio	

show email-warning config

Commands

show email-warning config

Syntax Description	**show**	Show running system information
	email-warning	Display Email warning configuration
	config	Email warning configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	MOXA# show email-warning config
	Mail Server and Email Setup
	  SMTP Server IP/Name :
	  SMTP Port : 25
	  Account Name :
	  Account Password :
	
	  1st email address :
	  2nd email address :
	  3rd email address :
	  4th email address :
	System Events
	  Cold Start : Disable
	  Warm Start : Disable
	  Conf. Changed : Disable
	  Power On->Off : Disable
	  Power Off->On : Disable
	  Auth. Failure : Disable
	  Topology Changed : Disable
	  CPU Usage Alarm : Disable
	--More--
	Port Events Setting
	  Link Link Traffic RX Tx Traffic
	Port ON OFF Overload Threshold(%) Threshold(%) Duration
	---- -------- ------- -------- ---------- ---------- --------
	1/1 Disable Disable Disable 50 50 10
	1/2 Disable Disable Disable 50 50 10
	MOXA#	

Error Messages	N/A	
Related Commands	email-warning event email-warning account email-warning server email-warning mail-address	

show gmrp

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

Commands

show gmrp

Syntax Description	**gmrp**	Show GMRP Settings
Defaults	N/A	

Command Modes	Privileged EXEC/User EXEC
Usage Guidelines	N/A

Examples	`MOXA# show gmrp`
	`Index Multicast Address Fixed Ports Learned Ports`
	`----- ---------- ---------- ----------`

Error Messages	N/A
Related Commands	gmrp

show gvrp

Use the **show gvrp** user EXEC command to display GVRP state information.

Commands

show gvrp

Syntax Description	**show**	Show running system information
	gvrp	Display GVRP configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User Exec	
Usage Guidelines	N/A	
Examples	`MOXA# show gvrp` `gvrp enable`	
Error Messages	N/A	
Related Commands	gvrp	

show interfaces acl

NOTE

The command is supported only in Layer 3 switches.

Use the **show interfaces acl** user EXEC command to display ACL configurations by port.

Command

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

Syntax Description	**show**	Show running system information
	interfaces	Interface status and configuration
	ethernet	IEEE 802.3/IEEE 802.3z
	module/port	Port ID or list. Ex. 1/1,2,3,2/1-3,5,...
	acl	Display ACL configurations by port
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces ethernet 2/1 acl`
	
	`Type ID Direction Index`
	`-------- ------- ---------- ------`
	`IP-base 2 Inbound 1`
	`MAC-base 4 Inbound 2`
	`IP-base 7 Inbound 3`
	`MAC-base 11 Outbound 4`	

Error Messages	Invalid ID!	

show interfaces counters

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

Commands

show interfaces counters

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

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

Syntax Description	**interfaces**	Interface status and configuration
	counters	Display counters
	port-id	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	trunk-id	Trunk ID (or list)
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	Detail counter information will contain the differences information from last query.	
Examples		

```
MOXA# show interfaces counters
  Port     Tx Packets(Load%)      Rx Packets(Load%)
  ---- ---------------------- ----------------------
  1/ 5                662( 0)                364( 0)
  1/ 6                  0( 0)                  0( 0)
  Trk1               1608( 0)               1608( 0)
  Trk2                  0( 0)                  0( 0)

MOXA# show interfaces ethernet 1/5 counters
Port 1/5 (last sample time: 16577 sec. ago)
  - TX -
    Unicast Packets     : 108             +108
    Multicast Packets   : 553             +553
    Broadcast Packets   : 2               +2
    Collision Packets   : 0               +0
  - RX -
    Unicast Packets     : 109             +109
    Multicast Packets   : 0               +0
    Broadcast Packets   : 255             +255
    Pause Packets       : 0               +0
  - Error -
    TX Late             : 0               +0
    TX Excessive        : 0               +0
    RX CRC error        : 0               +0
    RX Discard          : 0               +0
    RX Undersize        : 0               +0
    RX Fragments        : 0               +0
    RX Oversize         : 0               +0
    RX Jabber           : 0               +0
```

show interfaces ethernet

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

Commands

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

Syntax Description	**interfaces**	Interface status and configuration
	ethernet	IEEE 802.3/IEEE 802.3z
	module/port	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	config	Show interface module/port settings
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples		

```
MOXA# show interfaces ethernet
Port Link      Description       Speed     FDX Flow Ctrl MDI/MDIX
---- ------- ------------------ --------- ------------- --------
1-1  Down      100TX,RJ45.          --          --          --
1-2  Down      100TX,RJ45.          --          --          --
1-3  Down      100TX,RJ45.          --          --          --
1-4  Down      100TX,RJ45.          --          --          --
1-5  Up        100TX,RJ45.          100M-Full   Off         MDI
1-6  Down      100TX,RJ45.          --          --          --
1-7  Down      100TX,RJ45.          --          --          --
1-8  Down      100TX,RJ45.          --          --          --

MOXA# show interfaces ethernet 1/1-3 config
Port Enable Description             Speed     FDX Flow Ctrl
MDI/MDIX
---- ------ ---------------------- --------- ------------- -------
-
1-1  Yes    100FX,SC,Single,40.     100M-Full Disable       Auto
1-2  Yes    100FX,SC,Single,40.     100M-Full Disable       Auto
1-3  Yes    100TX,RJ45.             Auto      Disable       Auto
```

show interfaces filter-ip

Use the **show interfaces filter-ip** user EXEC command to display the setting of IP filtering entries.

Commands

show interfaces ethernet *module/port* filter-ip

Syntax Description	**interfaces**	Interface status and configuration
	ethernet	IEEE 802.3/IEEE 802.3z
	module/port	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	filter-ip	Rate limiting configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces ethernet 1/1-6 filter-ip`
	`Allowed IP in Port 1/1:`
	`    192.168.127.1`
	`    192.168.127.2`
	`    192.168.127.3`
	`    192.168.127.4`
	`    192.168.127.5`
	`    192.168.127.6`
	`    192.168.127.7`
	`    192.168.127.8`
	
	`Allowed IP in Port 1/2:`
	
	`Allowed IP in Port 1/3:`
	
	`Allowed IP in Port 1/4:`
	
	`--More--`
	`Allowed IP in Port 1/5:`
	`    192.168.127.1`
	
	`Allowed IP in Port 1/6:`	

Error Messages	N/A	
Related Commands	ip filter-ip	

show interfaces mgmt

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

Commands

show interfaces mgmt

Syntax Description	**interfaces**	Interface status and configuration
	mgmt	Display management VLAN information
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces mgmt`
	
	`IPv4`
	`  Management VLAN id  : 1`
	`  IP configuration  : Static`
	`  IP address  : 192.168.127.253`
	`  Subnet mask  : 255.255.255.0`
	`  Default gateway  : 0.0.0.0`
	`  DNS server  :`	

Error Messages	N/A	
Related Commands	ip address ip default-gateway ip name-server bind vlan	

show interfaces mgmt access-ip

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

Commands

show interfaces mgmt access-ip

Syntax Description	**show**	Show running system information
	interfaces	Interface status and configuration
	mgmt	Display management VLAN information
	access-ip	Display accessible IP list
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces mgmt access-ip`
	`Accessible IP List: Enable`
	`Index  IP / Netmast`
	`1  192.168.127.253 / 255.255.255.0`	

Error Messages	N/A	
Related Commands	access-ip	

show interfaces rate-limit

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

Commands

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

Syntax Description	**interfaces**	Interface status and configuration
	ethernet	IEEE 802.3/IEEE 802.3z
	module/port	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	rate-limit	Rate limiting configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces ethernet 1/1-3 rate-limit`
	
	`Port 1/1:`
	`  Ingress Limit Mode: Broadcast, Multicast, DLF`
	`  Ingress Limit Rate: 8M`
	`  Egress Limit Rate : Not Limited`
	`Port 1/2:`
	`  Ingress Limit Mode: Broadcast`
	`  Ingress Limit Rate: 8M`
	`  Egress Limit Rate : Not Limited`
	`Port 1/3:`
	`  Ingress Limit Mode: Broadcast`
	`  Ingress Limit Rate: 8M`
	`  Egress Limit Rate : Not Limited`	

Error Messages	N/A	
Related Commands	rate-limit	

show interfaces trunk

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

Commands

show interfaces trunk [*trunk-id-list*]

Syntax Description	**interfaces**	Interface status and configuration
	trunk	Show interface trunk information
	trunk-id-list	Trunk ID (or list)
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces trunk`
	`Trk#  Type  Enable Description  Speed`
	`---- ------ ------ ---------- ---------`
	`1    Static Yes  100M-Full`
	`2    Static Yes  100M-Full`
	
	`MOXA# show interfaces trunk 1-2`
	`Trunk-1 (Static):`
	`  Member  Status`
	`  ------ ----------`
	`  1/1  Success`
	`  1/2  Success`
	`Trunk-2 (Static):`
	`  Member  Status`
	`  ------ ----------`
	`  1/3  Fail`
	`  1/4  Fail`	

Error Messages	There is no member in Trunk 1	
Related Commands	trunk-mode trunk-group	

show interfaces vlan

Use the **show interfaces vlan** user EXEC command to display vlan ip interface information.

Commands

show interfaces vlan *[vlan-id-list]*

Syntax Description	**show**	Show running system information
	Interfaces	Interface status and configuration
	vlan	Display layer3 IP interface settings
	vlan-id-list	1 to 4094
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces vlan`
	
	`Interface Name: VLAN2`
	`IP Address: 10.10.10.10`
	`Subnet Mask: 255.255.255.0`
	`VLAN ID: 2`
	`Proxy ARP: Disable`	

Error Messages	N/A	
Related Commands	Interface vlan	

show interfaces mgmt trusted-access

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

Commands

show interfaces mgmt trusted-access

Syntax Description	**show**	Show running system information
	interfaces	Interface status and configuration
	mgmt	Display management VLAN information
	trusted-access	Display trusted access IP list
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show interfaces mgmt trusted-access`
	`Trusted Access IP List: Enable`
	`Index  IP / netmask`
	`1  192.168.127.253 / 255.255.255.0`	

Error Messages	N/A	
Related Commands	trusted-access	

show ip auto-assign

Use the **show ip auto-assign** command on the device to display DHCP IP assignment settings.

Commands

show ip auto-assign

Syntax Description	**show**	Display configuration/status information
	ip	Display IP information
	auto-assign	Display automatic IP assignment settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip auto-assign ---------- DHCP Lease Time : 86400 s ---------- 1/ 1 IP address: 192.168.127.1 Subnet mask: 255.255.255.0 Default gateway: 0.0.0.0 DNS server: 0.0.0.0 NTP server: 0.0.0.0 Log server: 192.168.127.1 Hostname: aaa Domain name: bbb ---------- 1/ 2 IP address: 192.168.127.2 Subnet mask: 255.255.255.0 Default gateway: 0.0.0.0 DNS server: 0.0.0.0 NTP server: 0.0.0.0 Log server: 0.0.0.0 Hostname: ccc Domain name: ddd ----------	
Error Messages	^Parse error	
	^Incomplete command	
Related Commands	ip auto-assign log-server	

show ip dhcp filter

Use the **show ip dhcp filter** user EXEC command to display DHCP filter configurations.

Commands

show ip dhcp filter

Syntax Description	**show**	Show running system information
	ip	Display IP information
	dhcp	Display DHCP configurations
	filter	Display DHCP filter configurations
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA # show ip dhcp filter Port DHCP Filter ---------- ---------- 1 Client 2 Disabled 3 Disabled 4 Server 5 Both 6 Disabled 7 Both 8 Disabled 9 Disabled 10 Client 11 Server 12 Disabled 13 Disabled 14 Disabled 15 Disabled 16 Disabled	
Error Messages	N/A	
Related Commands	ip dhcp client filter ip dhcp server filter	

show ip dhcp-relay config

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

Commands

show ip dhcp-relay config

Syntax Description	**show**	Show running system information
	ip	Display IP information
	dhcp-relay	Display DHCP relay configuration
	config	DHCP relay configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	MOXA# show ip dhcp-relay config
	DHCP Relay Agent Setting
	  1st server IP :
	  2nd server IP :
	  3rd server IP :
	  4th server IP :
	DHCP Relay Option 82: Enable
	  Remote ID type : Other
	  Remote ID value : 1234567890123
	  Remote ID display: 313233343536373839303132 33
	--More--
	DHCP Function Table
	Port Circuit-ID Option 82
	----- ---------- ----------
	1-1 01000101 Disable
	1-2 01000102 Disable
	1-3 01000103 Disable
	1-4 01000104 Disable
	1-5 01000105 Disable
	1-6 01000106 Disable
	1-7 01000107 Disable
	1-8 01000108 Disable
	3-1 01000111 Disable
	3-2 01000112 Disable
	3-3 01000113 Disable
	3-4 01000114 Disable
	3-5 01000115 Disable
	3-6 01000116 Disable
	3-7 01000117 Disable
	3-8 01000118 Disable
	MOXA#	

show ip dhcp server

Use the **show ip dhcp server** command on the device to display DHCP option 66/67 settings.

Commands

show ip dhcp server

Syntax Description	**show**	Display
	ip	IP information
	dhcp	DHCP
	server	DHCP server
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip dhcp server DHCP Server Option 66 Mode : User-defined 0. Local File Server IP Address : 1.2.3.4 DHCP Server Option 67 Mode : IP Address - The IP address assigned to each port will be used as the value for DHCP Option 67. ---------- - Port User-def File Server IP Addr User-def Bootfile Name ---------- 1/ 1 192.168.127.11 1/ 8 abc 1/17 .123. Trk1 192.17.7.4 ---------- MOXA#	
Error Messages	^Parse error	
	^Incomplete command	
Related Commands	ip dhcp server option-66 mode issued-by-dhcp ip dhcp server option-66 file-server ip dhcp server option-67 mode ip-address ip dhcp server option-67 bootfile	

show ip http-server status

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

Commands

show ip http-server status

Syntax Description	**show**	Show running system information
	ip	Display IP information
	http-server	HTTP server information
	status	Status
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip http-server status HTTP service is enable HTTP server capability: Present HTTPS secure server capability: Present Auto-logout: disable	

show ip igmp

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

Commands

show ip igmp

Syntax Description	**ip**	Display IP information
	igmp	Show IGMP snooping settings
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip igmp IGMP Snooping :Enable Query Interval :125(sec) Port GMP Port Enable -------------------- -------------------------------- 1 enable 2 enable ... -- VID |Static(S) / Learned(L) / Multicast Querier |Enable Querier|Querier State |Port & Querier(Q) connected Port | | -- 1 Enable(V2) Querier Index |Group |Port |Version |Filter Mode |Source -- 1 239.255.255.250 8 V2	
Error Messages	N/A	
Related Commands	ip igmp ip igmp snooping	

show ip ospf

Use the **show ip ospf** user EXEC command to display general information about OSPF routing processes.

Commands

show ip ospf

Syntax Description	**show**	Show running system information
	ip	Display IP information
	ospf	Display OSPF configurations
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show ip ospf OSPF Golbal Configuration ---------- OSPF Enabled Router ID 192.168.1.1 Current Router ID 192.168.1.1 Redistribute [Connected] OSPF Area Configuration Idx Area ID Area Type Metric ---------- 1 192.168.1.1 Normal 0 OSPF Virtual Link Configuration Idx Transit Area ID Neighbor Router ID ---------- 1 192.168.1.1 192.168.0.0 OSPF Aggregation Configuration Idx Area ID Network Address Network Mask ----------	
Error Messages	N/A	
Related Commands	area area virtual-link network area redistribute	

show ip ospf database

Use the **show ip ospf database** user EXEC command to display information related to the OSPF database for a specific router.

Commands

show ip ospf database

Syntax Description	**show**	Show running system information
	ip	Display IP information
	ospf	Display OSPF configurations
	database	OSPF database
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show ip ospf database`	
Error Messages	N/A	
Related Commands	ip ospf area	

show ip ospf interface

Use the **show ip ospf interface** user EXEC command to display the OSPF related interfaces information.

Commands

show ip ospf interface

Syntax Description	**show**	Show running system information
	ip	Display IP information
	ospf	Display OSPF configurations
	interface	OSPF routing interface
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show ip ospf interface`	
Error Messages	N/A	
Related Commands	ip ospf area ip ospf priority ip ospf hello-interval ip ospf dead-interval ip ospf cost	

show ip ospf neighbor

Use the **show ip ospf neighbor** user EXEC command to display OSPF neighbor information.

Commands

show ip ospf neighbor

Syntax Description	**show**	Show running system information
	ip	Display IP information
	ospf	Display OSPF configurations
	neighbor	OSPF neighbor information
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show ip ospf neighbor`	
Error Messages	N/A	
Related Commands	ip ospf area	

show ip rip

Use the **show ip rip** command to display the settings of RIP.

Commands

show ip rip

Syntax Description	**show**	Show running system information
	ip	Display IP information
	rip	Display RIP configurations
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show ip rip`
	`RIP Protocol : Enable`
	`RIP version : V2`
	`Distribution`
	`Connected : Enable`
	`Static : Disable`
	`OSPF : Disable`
	
	`RIP Enable Table`
	`Interface Name IP VID Enable`
	`---------- ---------- ---------- ----------`
	`vlan2if 192.168.102.1 2 Enable`	

show ip route

Use the **show ip route** user EXEC command to display current routing table entries.

Commands

show ip route [static]

Syntax Description	**show**	Show running system information
	ip	Display IP information
	route	Display routing entries
	static	Static routing entries
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	`MOXA# show ip ospf neighbor`	

show ip vrrp

To display a detailed status of all Virtual Router Redundancy Protocol (VRRP) virtual routers, use the **show ip vrrp** command in EXEC mode.

Commands

show ip vrrp

Syntax Description	**ip**	Display IP information
	vrrp	Display VRRP information
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show ip vrrp`
	`VRRP Enable Enable`
	`VRRP Interface Table`
	`Interface Name IP Address VID Status`
	`1 1.1.1.1 2 Init`
	`VRRP Basic Setting`
	`VRRP Entry Enable :Enable`
	`Virtual IP :0.0.0.0`
	`Virtual Router ID :0`
	`Priority :100`
	`Preemption Mode :Enable`
	`----------`
	`Interface Name IP Address VID Status`
	`2 2.2.2.2 3 Init`
	`VRRP Basic Setting`
	`VRRP Entry Enable :Disable`
	`Virtual IP :0.0.0.0`
	`Virtual Router ID :0`
	`Priority :100`
	`Preemption Mode :Enable`
	`----------`	

Error Messages	N/A	
Related Commands	router vrrp vrrp vrrp preempt vrrp priority	

show lldp

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

Commands

show lldp

show lldp entry

Syntax Description	**show**	Show running system information
	lldp	Display LLDP information
	entry	LLDP entries
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show lldp LLDP Enable : Enable Message Transmit Interval: 30 seconds MOXA# show lldp entry Port : 23 Neighbor ID : 00:90:e8:0a:0a:0a Neighbor Port : 3 Neighbor Port Descript : 100TX,RJ45. Neighbor System : Managed Redundant Switch 00000 Port : 19 Neighbor ID : 00:90:e8:0a:0a:0a Neighbor Port : 2 Neighbor Port Descript : 100TX,RJ45. Neighbor System : Managed Redundant Switch 00000 Port : 24 Neighbor ID : 00:90:e8:0a:0a:0a Neighbor Port : 1 Neighbor Port Descript : 100TX,RJ45. Neighbor System : Managed Redundant Switch 00000	
Error Messages	N/A	
Related Commands	lldp timer lldp run	

show logging

Use the **show logging** user EXEC command to display the setting of Syslog or event logs.

Commands

show logging [event-log]

Syntax Description	**logging**	Display syslog information
	event-log	Display system event logs
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show logging Syslog Bootup delay time: 0 sec Syslog server #1: 192.168.1.1, port: 514 Syslog server #2: Syslog server #3: MOXA# show logging event-log Idx Boot Time or Uptime Log --- ---- ---------- ---------- 1 337 2037/06/23, 20:46:08 192.168.127.1 admin Auth. ok 2 337 2037/06/23, 20:52:47 Authentication fail 3 338 2037/06/23, 21:51:59 Port 1-1(Trk1) link on 4 338 2037/06/23, 21:51:59 Port 1-2 link on 5 338 2037/06/23, 21:51:59 Port 1-5 link on 6 338 2037/06/23, 21:52:03 Port 1-5 link off 7 338 2037/06/23, 21:52:03 Warm start by Firmware Upgrade 8 338 2037/06/23, 21:52:04 Port 1-5 link on 9 338 2037/06/23, 22:03:43 192.168.127.1 admin Auth. ok 10 338 2037/06/23, 22:04:04 192.168.127.1 admin Auth. ok 11 338 2037/06/24, 00:02:47 Port 1-5 link off 12 338 2037/06/24, 00:02:48 Port 1-5 link on	
Error Messages	N/A	
Related Commands	logging	

show mac-address-table

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

Commands

show mac-address-table [static | learned | mcast]

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

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

Examples	MOXA# show mac-address-table
	  Line Swap Fast Recovery : Enabled
	  MAC Type VLAN Port
	---------- -------- ---- ----------
	00-40-F4-8D-0D-F7 ucast(l) 1 1/5
	
	MOXA# show mac-address-table learned
	  MAC Type VLAN Port
	---------- -------- ---- ----------
	00-40-F4-8D-0D-F7 ucast(l) 1 1/5	

show mac-address-table aging-time

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

Commands

show mac-address-table aging-time

Syntax Description	**mac-address-table**	Display MAC address forwarding table
	aging-time	MAC entry aging time
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show mac-address-table aging-time - MAC entry aging time MOXA# show mac-address-table aging-time MAC address aging time: 300 sec	
Error Messages	N/A	
Related Commands	mac-address-table aging-time	

show mcast-filter

Use the **show mcast-filter** user EXEC command to display the multicast filter configuration.

Commands

show mcast-filter *[module/port]*

Syntax Description	**mcast-filter**	Multicast Filtering Behavior
	module/port	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk4
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# show mcast-filter`
	`Port Multicast Filtering Behavior`
	`---- ----------------------------`
	`1-1  Forward All`
	`1-2  Forward Unknown`
	`1-3  Filter Unknown`	

Error Messages	N/A	
Related Commands	mcast-filter	

show modbus

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

Commands

show modbus

Syntax Description	**modbus**	Display Modbus configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	`MOXA# show modbus` `Modbus enable`	
Examples	N/A	
Error Messages	N/A	
Related Commands	modbus	

show port monitor

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

Commands

show port monitor

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

Examples	`MOXA# show port monitor`
	`Port Being Monitored Direction Mirror Port`
	`---------- ---------- ----------`
	`1-1 1-2 both 3-2`
	
	`MOXA#`	

Error Messages	N/A	
Related Commands	monitor	

show port-security

To check the port access control table, use the **show port-security** command.

Commands

show port-security *[module/port]*

Syntax Description	**port-security**	Display port access control table
	module/port	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	

Usage Guidelines	`MOXA# show port-security`
	`Port Index Mac Address Status`
	`---- ------ ----------------- --------------`
	`1-2 1 00-00-00-00-00-01 static lock`	

Examples	N/A	
Error Messages	N/A	
Related Commands	port-security	

show qos

Use the **show qos** user EXEC command to display QoS related settings.

Commands

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

Syntax Description	**qos**	Display QoS configuration
	cos-to-queue	CoS to traffic queue mappings
	dscp-to-cos	DSCP to CoS mappings
	dscp-to-queue	DSCP to traffic queue mappings
	priority-to-queue	Priority to traffic queue mappings
	dscp-to-priority	DSCP to priority mappings
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	

Examples

```
MOXA# show qos

    Queuing Mechanism    : Weighted Fair (1:2:4:8)
    Tos Inspection
        Module 1         : Disabled
        Module 3         : Disabled

    Int# CoS Inspection CoS
    ---- -------------- ---
    1/3          Enabled   3
    1/4          Enabled   3
    1/5          Enabled   3
    1/6          Enabled   3
    3/1          Enabled   3
    3/2          Enabled   3
    3/3          Enabled   3
    3/4          Enabled   3
    3/5          Enabled   3
    3/6          Enabled   3
    3/7          Enabled   3
    3/8          Enabled   3
    Trk1         Enabled   3

MOXA# show qos cos-to-queue

CoS Queue #
--- -------
  0 Q0
  1 Q0
  2 Q1
  3 Q1
  4 Q2
  5 Q2
  6 Q3
  7 Q3
MOXA# show qos dscp-to-cos

DSCP Cos DSCP Cos DSCP Cos DSCP Cos
---- --- ---- --- ---- --- ---- ---
   0   0    1   0    2   0    3   0
   4   0    5   0    6   0    7   0
```

	8 1 9 1 10 1 11 1 12 1 13 1 14 1 15 1 16 2 17 2 18 2 19 2 20 2 21 2 22 2 23 2 24 3 25 3 26 3 27 3 28 3 29 3 30 3 31 3 32 4 33 4 34 4 35 4 36 4 37 4 38 4 39 4 40 5 41 5 42 5 43 5 44 5 45 5 46 5 47 5 48 6 49 6 50 6 51 6 52 6 53 6 54 6 55 6 56 7 57 7 58 7 59 7 60 7 61 7 62 7 63 7
Error Messages	N/A
Related Commands	qos mode qos inspect qos mapping qos default-cos

show redundancy mst configure

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

Commands

show redundancy mst configuration

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

show redundancy mst instance

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

Commands

show redundancy mst instance *instance-id*

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

show redundancy spanning-tree

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

Commands

show redundancy spanning-tree

Syntax Description	**redundancy**	Display redundancy protocol status
	spanning-tree	Display spanning tree settings
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show redundant spanning-tree Spanning tree status: Enabled Role : Root Bridge priority : 32768 Hello time : 2 sec Forwarding delay: 30 sec Max age time : 20 sec Int# Enable Edge Port Prio Cost Status ---- -------- --------- -------- -------- --------------- 1/1 Disabled Auto 128 200000 --- 1/2 Disabled Auto 128 200000 --- 1/3 Disabled Auto 128 200000 --- 1/4 Disabled Auto 128 200000 --- 1/5 Disabled Auto 128 200000 --- 1/6 Disabled Auto 128 200000 ---	
Error Messages	N/A	
Related Commands	spanning-tree forward-delay spanning-tree hello-time spanning-tree max-age spanning-tree priority spanning-tree spanning-tree cost spanning-tree edge-port spanning-tree priority show redundancy spanning-tree	

show redundancy turbo-chain

Use the **show redundancy turbo-chain** user EXEC command to display turbo-chain state information.

Commands

show redundancy turbo-chain

Syntax Description	**redundancy**	Display redundant settings
	turbo-chain	Display turbo chain status
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show redundancy turbo-chain Role :HEAD ---------- Port Role Port Number Port Status ---------- ---------- ---------- Head Port 1-1 Forwarding Member Port 1-2 Forwarding	
Error Messages	N/A	
Related Commands	turbo-chain	

show redundancy turbo-ring-v1

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

Commands

show redundancy turbo-ring-v1

Syntax Description	**show**	Show running system information
	redundancy	Display redundancy protocol status
	turbo-ring-v1	Display turbo ring v1 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show redundancy turbo-ring-v1 Turbo Ring V1 settings: Set as master: Disabled 1st port: 4-3 2nd port: 4-4 Ring Coupling: Disabled Coupling Port: 4-1 Coupling Control Port: 4-2 Turbo Ring V1 status: Master/Slave: --- Redundant Ports Status: 1st port: --- 2nd port: --- Ring Coupling Ports Status: --- Coupling Port: --- Coupling Control Port: ---	
Error Messages	N/A	
Related Commands	turbo-ring-v1	

show redundancy turbo-ring-v2

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

Commands

show redundancy turbo-ring-v2

Syntax Description	**show**	Show running system information
	redundancy	Display redundancy protocol status
	turbo-ring-v2	Display turbo ring v2 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show redundancy turbo-ring-v2 Turbo Ring V2 settings: Ring 1: Enabled Set as master: Disabled 1st port: 4-3 2nd port: 4-4 Ring 2: Disabled Set as master: Disabled 1st port: 4-1 2nd port: 4-2 Ring Coupling: Disabled Primary Port:4-1 Backup Port:4-2 Turbo Ring V2 status: Ring 1: Status:--- Master/Slave:--- 1st Ring Port Status:--- 2nd Ring Port Status:--- Ring 2: Status:--- Master/Slave:--- 1st Ring Port Status:--- 2nd Ring Port Status:--- Coupling: Mode:--- Coupling Port Status: ---	
Error Messages	N/A	
Related Commands	turbo-ring-v2	

show relay-warning

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

Commands

show relay-warning config

show relay-warning status

Syntax Description	**show**	Show running system information
	relay-warning	Display relay warning configuration
	config	Relay warning configuration
	status	Current relay warning list
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	

Examples	MOXA# show relay-warning config
	System Events Setting
	  Override Relay Warning Settings : Disable
	  Power Input 1 failure(On->Off) : Disable
	  Power Input 2 failure(On->Off) : Disable
	  Turbo Ring Break : Disable
	--More--
	  Link Link Traffic RX Tx Traffic
	Port ON OFF Overload Threshold(%) Threshold(%) Duration(s)
	---- ------- ------- -------- ---------- ---------- ----------
	1/1 Disable Disable Disable 50 50 10
	1/2 Disable Disable Disable 50 50 10
	MOXA#	

show running-config

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

Commands

show running-config

Syntax Description	**show**	Show running system information
	running-config	Current operating configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show running-config Building configuration ... ! ip telnet ip http-server ip http-server auto-logout 120 ! ntp remote-server time.nist.gov ! ! vlan mode 1qvlan gvrp ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp run lldp timer 30 ! ! dhcp-relay option82 dhcp-relay option82 remote-id-type other dhcp-relay option82 man-id 1234567890123 ! ! interface ethernet 1/1 no shutdown speed-duplex Auto no flowcontrol media cable-mode auto --More--	
Error Messages	N/A	
Related Commands	show startup-config	

show startup-config

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

Commands

show running-config

Syntax Description	**show**	Show running system information
	startup-config	Contents of startup configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show startup-config Building configuration ... ! ip telnet ip http-server ip http-server auto-logout 120 ! ntp remote-server time.nist.gov ! ! vlan mode 1qvlan gvrp ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp run lldp timer 30 ! ! dhcp-relay option82 dhcp-relay option82 remote-id-type other dhcp-relay option82 man-id 1234567890123 ! ! interface ethernet 1/1 no shutdown speed-duplex Auto no flowcontrol media cable-mode auto --More--	
Error Messages	N/A	
Related Commands	show running-config	

show snmp

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

Commands

show snmp

Syntax Description	**snmp**	Display SNMP configuration
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	MOXA# show snmp SNMP Read/Write Settings SNMP Versions : v1-v2c V1,V2c Read Community : public V1,V2c Write/Read Community: private Trap Settings 1st Trap Server IP/Name : 1st Trap Community : public 2nd Trap Server IP/Name : 2nd Trap Community : public Trap Mode Mode : Trap Private MIB information Switch Object ID : enterprise.8691.7.15	
Examples	N/A	
Error Messages	N/A	
Related Commands	snmp-server community snmp-server host snmp-server trap-mode snmp-server user snmp-server version	

show storm-control

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

Commands

show storm-control

Syntax Description	**stom-control**	Display storm protection settings
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show storm-control Storm Supress: Broadcast,DLF	
Error Messages	N/A	
Related Commands	storm-control	

show system

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

Commands

show system

Syntax Description	**show**	Show running system information
	system	System hardware and software status
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show system System Information System Name : Managed Redundant Switch 09458 System Location : Xidian No. 135 6F Taiwan System Description : MOXA PT Series Maintainer Information : 8860289191230 MAC Address : 00:90:E8:1D:24:36 System Uptime : 0d0h6m46s	
Error Messages	N/A	
Related Commands	snmp-server description snmp-server contact snmp-server location	

show users

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

Commands

show users

Syntax Description	**show**	Show running system information
	users	Display login user settings
Defaults	N/A	
Command Modes	Privileged EXEC/User EXEC	
Usage Guidelines	N/A	
Examples	MOXA# show users Login account information: Name Authority ---------- ---------- admin admin user user	
Error Messages	N/A	
Related Commands	username	

show vlan

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

Commands

show vlan

Syntax Description	**show**	Show running system information
	vlan	Display VLAN status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	MOXA# show vlan
	vlan mode: 802.1Q vlan
	mgmt vlan: 1
	
	VLAN 1:
	  Access Ports: 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8,
	  Trunk Ports:
	  Hybrid Ports:
	PT	

show vlan config

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

Commands

show vlan config

Syntax Description	**show**	Show running system information
	vlan	Display VLAN status
	config	Display VLAN configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	vlan mode: 802.1Q vlan VLAN Ports(Type) ----- ------------------------------ 1 1-1(A), 1-2(A), 1-3(A), 1-4(A), 1-5(A), 1-6(A), 1-7(A), 1-8(A), Port Trunk Native vlan Port Fixed VLAN (Tagged) Port Forbidden VLAN Port Fixed VLAN (Untagged) Current VLAN interface vid: 1, 2,	
Error Messages	N/A	
Related Commands	interface vlan	

shutdown

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

Commands

shutdown

no shutdown

Syntax Description	**shutdown**	Shutdown the selected interface
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-if)# shutdown`
	
	`MOXA(config-if)# no shutdown`	

Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	show interfaces ethernet show interfaces trunk	

snmp-server authority

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

Commands

snmp-server authority authority_type **auth** auth-type [data_encryption_key]

snmp-server authority authority_type encrypt { no-encrypt | des | aes}

Syntax Description	**snmp-server**	Configure SNMP server
	authority	Configure SNMP authority settings
	authority_type	admin/user
	auth	Configure SNMP authentication settings
	auth-type	Select the auth type: no-auth | MD5 | SHA
	data_encryption_key	Specify the encryption password (maximum 30 characters)
	encrypt	Configure SNMP encryption settings
	no-encrypt	Do not use any encryption
	des	Use DES encryption
	aes	Use AES encryption
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	authority_type is only allowed to be set as “admin” or “user” auth-type is only allowed to be set as “no-auth”, “md5” or “sha”	

Examples	`MOXA# configure terminal`
	`MOXA(config)# snmp-server authority admin auth md5`
	`MOXA(config)# snmp-server authority admin auth md5 12345678`	

Error Messages	SNMP user must be (admin | user)!! SNMP authtype must be (no-auth | md5 | sha)!! Admin Data Encryption must between 8 and 30 characters!!! To set this function, snmp version must be (v1-v2c-v3 | v3)!! SNMP authority must be (admin | user)!! To set this function, snmp auth. type must be (md5 | sha)!!	
Related Commands	show snmp	

snmp-server community

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

Commands

snmp-server community *text mode*

Syntax Description	**snmp-server**	Configure SNMP server
	community	SNMP community setting
	text	SNMP community string
	mode	ro | rw
Defaults	Public community is ro Private community is rw	
Command Modes	Global configuration	
Usage Guidelines	Specifies read-only access. Authorized management stations are only able to retrieve MIB objects. Specifies read-write access. Authorized management stations are able to both retrieve and modify MIB objects	
Examples	`MOXA(config)# snmp-server community public ro`	
Error Messages	SNMP community mode must be (ro|rw)!!	
	The longest snmp community string length is 30!!	
Related Commands	show snmp	

snmp-server contact

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

Commands

snmp-server contact *text*

no snmp-server contact

Syntax Description	**snmp-server**	Configure SNMP server
	contact	Switch maintainer contact information
	text	Maintainer contact information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	"text" parameter can be set as string separated by space. Maximum string tokens are 5. Maximum length of switch maintainer contact info is 40.	

Examples	`MOXA(config)# snmp-server contact`
	`  <STRING:token1>  - Maintainer contact information`
	
	`MOXA(config)# no snmp-server contact`	

Error Messages	Length of maintainer info is too long	
Related Commands	show snmp	

snmp-server default

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

Commands

snmp-server default

Syntax Description	**snmp-server**	Configure SNMP server
	default	Reset the SNMP Community, SNMP Inform, and SNMP Trap version to their default value
Defaults	snmp community: V1,V2c Read Community: public V1,V2c Write/Read Community: private snmp inform: Retries: 3 Timeout: 10 trap version: Trap V1.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	`MOXA# configure terminal` `MOXA(config)# snmp-server default`	
Error Messages	N/A	
Related Commands	show snmp	

snmp-server description

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

Commands

snmp-server description *text*

no snmp-server description

Syntax Description	**snmp-server**	Configure SNMP server
	description	Switch description
	text	Description string
Defaults	The default description is the model name.	
Command Modes	Global configuration	
Usage Guidelines	"text" parameter can be set as string separated by space. Maximum string tokens are 5. Maximum length of switch maintainer contact info is 40.	

Examples	`MOXA(config)# snmp-server description MOXA PT Series`
	`MOXA(config)# exit`
	`MOXA# show system`
	`System Information`
	`  System Name  : Managed Redundant Switch 09458`
	`  System Location  : Xidian No. 135 6F Taiwan`
	`  System Description  : MOXA PT Series`
	`  Maintainer Information  : 8860289191230`
	`  MAC Address  : 00:90:E8:1D:24:36`
	`  System Uptime  : 0d0h6m46s`	

Error Messages	Length of system description is too long	
Related Commands	show snmp	

snmp-server host

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

Commands

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

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

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

Examples	`MOXA(config)# snmp-server host 192.168.127.253 moxacli`
	
	`MOXA(config)# no snmp-server host`	

Error Messages	Trap server are full, please remove at least one first!!!	
Related Commands	show snmp	

snmp-server location

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

Commands

snmp-server location *text*

no snmp-server location

Syntax Description	**snmp-server**	Configure SNMP server
	location	Switch location
	text	Location string
Defaults	The default text is Switch Location	
Command Modes	Global configuration	
Usage Guidelines	"text" parameter can be set as string separated by space. Maximum string tokens are 5. Maximum length of switch location is 80.	

Examples	`MOXA(config)# snmp-server location`
	`  <STRING:token1>      - Location string token 1`
	
	`MOXA(config)# no snmp-server location`	

Error Messages	Length of location is too long	
Related Commands	show snmp	

snmp-server trap-mode

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

Commands

snmp-server trap-mode trap

snmp-server trap-mode trap-v2c

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

snmp-server trap-mode inform [retry *times* **timeout** *seconds***]**

no snmp-server trap-mode

Syntax Description	**snmp-server**	Configure SNMP server
	trap-mode	Configure SNMP Trap/Inform mode settings
	trap	Use SNMP Trap v1
	trap-v2c	Use SNMP Trap v2c
	inform	Use SNMP Inform v1
	inform-v2c	Use SNMP Inform v2c
	retry	Inform retries times
	times	1 to 99
	timeout	Timeout timer
	seconds	1 to 300 seconds
Defaults	times default is 3 seconds default is 10	
Command Modes	Global configuration	
Usage Guidelines	Data range: Times: 1 to 99 Seconds: 1 to 300	

Examples	`MOXA# configure terminal`
	`MOXA(config)# snmp-server trap-mode inform-v2c`
	`MOXA(config)# snmp-server trap-mode inform-v2c retry 5 timeout 300`
	`MOXA(config)# snmp-server trap-mode inform-v3`
	`MOXA(config)# snmp-server trap-mode inform-v3 retry 5 timeout 300`	

Error Messages	To enable INFORM v3, please configure trap user name first!! Invalid inform retries value !!! Invalid inform timeout value !!!	
Related Commands	show snmp	

snmp-server user

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

Commands

snmp-server user *username* **auth** *auth-type password*

Syntax Description	**snmp-server**	Configure SNMP server
	user	SNMP user setting
	user-privilege	SNMP user privilege
	auth	Specifies which authentication level should be used
	auth-type	no-auth | md5 | sha
	password	Password (maximum 30 characters)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	username is only allowed to be set as "admin" or "user" auth-type is only allowed to be set as "no-auth", "md5" or "sha"	
Examples	`MOXA(config)# snmp-server user admin auth md5 moxacli`	
Error Messages	SNMP user must be (admin | user)!!	
	SNMP authtype must be (no-auth | md5 | sha)!!	
	Admin/User Password must be at least 8 bytes !!!	
	Admin/User Data Encryption must be at least 8 bytes !!!	
Related Commands	show snmp	

snmp-server version

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

Commands

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

Syntax Description	**snmp-server**	Configure SNMP server
	version	SNMP version setting
	v1-v2c-v3	Version 1, 2C and 3 support
	v1-v2c	Version 1 and 2C support
	v3	Only version 3 support
Defaults	Default version is v1-v2c	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# snmp-server version`
	`  v1-v2c-v3  - Version 1, 2C and 3 support`
	`  v1-v2c  - Version 1 and 2C support`
	`  v3  - Only version 3 support`	

Error Messages	N/A	
Related Commands	show snmp	

spanning-tree forward-delay

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

Commands

spanning-tree forward-delay *seconds*

no spanning-tree forward-delay

Syntax Description	**spanning-tree**	Configure spanning tree
	forward-delay	Configure spanning tree BPDU forward delay
	seconds	Range from 4 to 30 seconds
Defaults	Forward delay = 15 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	2*(hello-time + 1.0 sec) <= max-age <= 2*(forward-delay - 1.0 sec)	
Examples	`MOXA(config-rdnt)# spanning-tree forward-delay` `  <UINT:seconds>  - Range from 4 to 30 seconds`	
Error Messages	The BPDU forward delay time must be in the range from 4 to 30 sec.	
	The formula must be obeyed: 2 x (Hello Time + 1 sec) <= Max age <= 2 x (Forward Delay - 1 sec)	
Related Commands	spanning-tree hello-time spanning-tree max-age show redundancy spanning-tree	

spanning-tree hello-time

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

Commands

spanning-tree hello-time *seconds*

no spanning-tree hello-time

Syntax Description	**spanning-tree**	Configure spanning tree
	hello-time	Configure spanning tree BPDU hello time
	seconds	Range from 1 to 2 seconds
Defaults	Hello time = 2 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	2*(hello-time + 1.0 sec) <= max-age <= 2*(forward-delay - 1.0 sec)	
Examples	`MOXA(config-rdnt)# spanning-tree hello-time` `  <UINT:seconds>  - Range from 1 to 2 seconds`	
Error Messages	BPDU hello time must be in the range from 1 to 2 sec.	
	The formula must be obeyed: 2 x (Hello Time + 1 sec) <= Max age <= 2 x (Forward Delay - 1 sec)	
Related Commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree	

spanning-tree max-age

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

Commands

spanning-tree max-age *seconds*

no spanning-tree max-age

Syntax Description	**spanning-tree**	Configure spanning tree
	max-age	Configure spanning tree max age
	seconds	Range from 6 to 40 seconds
Defaults	Forward delay = 20 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	2*(hello-time + 1.0 sec) <= max-age <= 2*(forward-delay - 1.0 sec)	
Examples	`MOXA(config-rdnt)# spanning-tree max-age` `  <UINT:seconds>  - Range from 6 to 40 seconds`	
Error Messages	The BPDU forward delay time must be in the range from 4 to 30 sec.	
	The formula must be obeyed: 2 x (Hello Time + 1 sec) <= Max age <= 2 x (Forward Delay - 1 sec)	
Related Commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree	

spanning-tree mst cist cost

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

Commands

spanning-tree mst cist cost *cost*

no spanning-tree mst cist cost

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

spanning-tree mst cist port-priority

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

Commands

spanning-tree mst cist port-priority *priority*

no spanning-tree mst cist port-priority

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	cist	Configure mstp cist port
	port-priority	Configure mstp cist port priority
	priority	Configure mstp cist port priority
Defaults	priority = 128	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# spanning-tree mst cist port-priority 128` `  <UINT:priority>  - Configure mstp cist port priority`	
Error Messages	MSTP port priority must be in the range from 0 to 240	
	MSTP port %s priority set error	
	MSTP port priority should be 16 times the value	
Related Commands	show redundancy mst configuration	

spanning-tree mst cist priority

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

Commands

spanning-tree mst cist priority *priority*

no spanning-tree mst cist priority

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	cist	Configure mstp cist
	priority	Set mstp cist bridge priority
	priority	Set mstp cist bridge priority
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# spanning-tree mst cist priority 32768` `  <UINT:priority>  - Set mstp cist bridge priority`	
Error Messages	MSTP bridge priority must be in the range from 0 to 61140	
	MSTP cist bridge priority set error	
	CIST bridge priority should be 4096 times the value	
Related Commands	show redundancy mst cist	

spanning-tree mst edge-port

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

Commands

spanning-tree mst edge-port

no spanning-tree mst edge-port

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	edge-port	Enable mstp edge port
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# spanning-tree mst edge` `  <edge>  - Enable mstp edge port`	
Error Messages	MSTP edge port enable set error	
Related Commands	show redundancy mst configuration	

spanning-tree mst enable

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

Commands

spanning-tree mst enable

no spanning-tree mst

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

spanning-tree mst forward-time

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

Commands

spanning-tree mst forward-time *time*

no spanning-tree mst forward-time

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	forward-time	Set mstp forwarding delay
	time	Set mstp forwarding delay
Defaults	time = 15	
Command Modes	Redundancy configuration	
Usage Guidelines	2*(hello-time + 1.0 sec) <= max-age <= 2*(forward-delay - 1.0 sec)	
Examples	`MOXA(config-rdnt)# spanning-tree mst forward-time 15` `  <UINT:time>  - Set mstp forwarding delay`	
Error Messages	MSTP forward delay must be in the range from 4 to 30	
	MSTP forward delay set error	
Related Commands	show redundancy mst configuration	

spanning-tree mst hello-time

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

Commands

spanning-tree mst hello-time *time*

no spanning-tree mst hello-time

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	hello-time	set mstp hello time
	time	set mstp hello time
Defaults	time = 2	
Command Modes	Redundancy configuration	
Usage Guidelines	2*(hello-time + 1.0 sec) <= max-age <= 2*(forward-delay - 1.0 sec)	
Examples	`MOXA(config-rdnt)# spanning-tree mst hello-time 1` `  <UINT:time>  - set mstp hello time`	
Error Messages	MSTP hello time must be in the range from 1 to 10	
	MSTP hello time set error	
Related Commands	show redundancy mst configuration	

spanning-tree mst instance

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

Commands

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

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

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	instance	Configure mstp msti
	instance-id	MSTP instance ID
	vlan	Configure mstp msti vlan mapping
	vlan-id-list	Configure mstp msti vlan mapping
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# spanning-tree mst instance 1 vlan 2`
	`  <STRING:instids>  - Configure mstp msti`
	`  <STRING:vidlist>  - Configure mstp msti vlan mapping`	

Error Messages	The instance id must be in the range from 1 to 16.	
	vlan 4097 is invalid!! should be range from 1 to 4094	
	The maximum VLAN mapping is 64.	
	The vlan id 2 setting is exist in another instance.	
	MSTI 1 vlan id 2 set error	
Related Commands	show redundancy mst instance	

spanning-tree mst instance cost

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

Commands

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

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

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

spanning-tree mst instance port-priority

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

Commands

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

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

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	instance	Configure mstp msti port
	instance-id-list	MSTP instance ID
	port-priority	Configure mstp msti port priority
	priority	Configure mstp msti port priority
Defaults	priority = 128	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-if)# spanning-tree mst instance 1 port-priority 128`
	`  <STRING:instids>  - Configure mstp msti port priority`
	`  <UINT:priority>  - Configure mstp msti port priority`	

Error Messages	MSTP port priority must be in the range from 0 to 240	
	MSTI 2 port 2-1 priority set error	
	MSTI 2 port priority should be 16 times the value	
Related Commands	show redundancy mst configuration	

spanning-tree mst instance priority

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

Commands

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

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

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

spanning-tree mst max-age

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

Commands

spanning-tree mst max-age *age*

no spanning-tree mst max-age

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

spanning-tree mst max-hops

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

Commands

spanning-tree mst max-hops *hops*

no spanning-tree mst max-hops

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

spanning-tree mst name

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

Commands

spanning-tree mst name *region-name*

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	name	Set mstp regional name
	region-name	Set mstp regional name
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# spanning-tree mst name mstp` `  <STRING:region>  - Set mstp reginal name`	
Error Messages	The length of mstp regional name should be smaller than 32	
	MSTP regional name set error	
Related Commands	show redundancy mst instance	

spanning-tree mst revision

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

Commands

spanning-tree mst revision *revision-level*

Syntax Description	**spanning-tree**	Configure spanning tree
	mst	Configure mstp
	revision	Set mstp revision level
	revision-level	Set mstp revision level
Defaults	revision-level = 0	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# spanning-tree mst revision 1` `  <UINT:level>  - Set mstp revision level`	
Error Messages	MSTP revision level must be in the range from 0 to 65535	
	MSTP revision level set error	
Related Commands	show redundancy mst configuration	

spanning-tree priority

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

Commands

spanning-tree priority *priority*

no spanning-tree priority

Syntax Description	**spanning-tree**	Configure spanning tree
	priority	Configure spanning tree bridge priority
	priority	Range from 0 to 61440, and must be the multiples of 4096
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	0 <= priority <= 61440, and must be multiples of 4096.	
Examples	`MOXA(config-rdnt)# spanning-tree priority` `  <UINT:prio>  - Range from 0 to 61440, in steps of 4096`	
Error Messages	The bridge priority must be in the range from 0 to 61440	
	The bridge priority must be the multiples of 4096	
Related Commands	show redundancy spanning-tree	

spanning-tree

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

Commands

spanning-tree

no spanning-tree

Syntax Description	**spanning-tree**	Enable spanning tree
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# spanning-tree`	
Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	redundancy mode show redundancy spanning-tree	

spanning-tree cost

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

Commands

spanning-tree cost *cost*

no spanning-tree cost

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

spanning-tree edge-port

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

Commands

spanning-tree edge-port { auto | force }

no spanning-tree edge-port

Syntax Description	**spanning-tree**	Enable spanning tree
	edge-port	Configure as edge port
	auto	Auto determine as edge port
	force	Force the port as edge port
Defaults	port-fast = auto	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-if)# spanning-tree edge-port`
	`  auto  - Auto determine as edge port`
	`  force  - Force the port as edge port`	

Error Messages	Cannot configure on trunk member port 1/1!	
Related Commands	show redundancy spanning-tree	

spanning-tree priority

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

Commands

spanning-tree priority *prioriy*

no spanning-tree priority

Syntax Description	**spanning-tree**	Enable spanning tree
	priority	Configure port priority
	priority	Range from 0 to 240, in steps of 16
Defaults	priority = 128	
Command Modes	interface configuration	
Usage Guidelines	0 <= priority <= 240, and must be multiples of 16.	
Examples	`MOXA(config-rdnt)# spanning-tree priority` `  <UINT:prio>  - Range from 0 to 61440, in steps of 4096`	
Error Messages	The bridge priority must be in the range from 0 to 240	
	The bridge priority must be multiples of 16	
Related Commands	show redundancy spanning-tree	

speed-duplex

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

Commands

speed-duplex {10M-Full | 10M-Half | 100M-Full| 100M-Half | 1G-Full | Auto}

no speed-duplex

Syntax Description	**speed-duplex**	Configure speed and duplex operation
	10M-Full	Speed 10M-full
	10M-Half	Speed 10M-Half
	100M-Full	Speed 100M-Full
	100M-Half	Speed 100M-Half
	1G-Full	Speed 1G-Full
	Auto	Speed Auto
Defaults	The default is Auto	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config)# interface ethernet 1/1` `MOXA(config-if)# speed-duplex 100M-Full`	
Error Messages	Fiber port can not be set speed-duplex!!!	
	This port can not be set to 1G!!!	
	Parameter does not be defined!!!	
	Cannot configure on trunk member port 1/1	
	This setting cannot be applied on trunk port!	
Related Commands	show interfaces ethernet	

sshkeygen

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

Commands

sshkeygen

Syntax Description	**sshkeygen**	Generate SSH host key
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# sshkeygen`
	`generating ssh host key ...`
	`generating ssh host key : done`	

sslcertgen

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

Commands

sslcertgen

Syntax Description	**sslcertgen**	Generate SSL certificate
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	`MOXA# sslcertgen`
	`generating ssl certificate ...`
	`generating ssl certificate : done`	

storm-control

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

Commands

storm-control { bcast | mcast }

no storm-control bcast

no storm-control mcast

no storm-control

Syntax Description	**storm-control**	Storm protection
	bcast	Storm protection for broadcast traffic
	mcast	Storm protection for Multicast traffic
Defaults	The broadcast storm protection is default enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	storm-control bcast - Storm protection for broadcast traffic mcast - Storm protection for Multicast traffic	
Error Messages	N/A	
Related Commands	show storm-control	

switchport access vlan

Use the **switchport access vlan** interface configuration command on the switch to configure a port as a static-access or dynamic-access port. If the switchport mode is set to access, the port operates as a member of the specified VLAN. If set to dynamic, the port starts discovery of VLAN assignment based on the incoming packets it receives. Use the **no** form of this command to reset the access mode to the default VLAN for the switch.

Commands

switchport access vlan *vlan-id*

no switchport access vlan

Syntax Description	**switchport**	Set switching mode characteristics
	access	Set access mode characteristics of the interface
	vlan	Set (default) pvid in access mode
	vlan-id	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	MOXA(config-if)# switchport access vlan 2 <UINT:vlanid> - 1 to 4094	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related Commands	show vlan show vlan config	

switchport hybrid fixed vlan add

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

Commands

switchport hybrid fixed vlan add *vlan-id-list* **tag**

switchport hybrid fixed vlan add *vlan-id-list* **untag**

no switchport hybrid fixed vlan tag

no switchport hybrid fixed vlan untag

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

switchport hybrid forbidden vlan add

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

Commands

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

no switchport hybrid forbidden vlan

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

switchport hybrid forbidden vlan remove

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

Commands

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

no switchport hybrid forbidden vlan

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

switchport hybrid native vlan

Use the **switchport hybrid native vlan** interface configuration command on the switch to configure PVID of a port. Use the **no** form of this command to return to the default PVID.

Commands

switchport hybrid native vlan *vlan-id*

no switchport hybrid native vlan

Syntax Description	**switchport**	Set switching mode characteristics
	hybrid	Set hybrid mode characteristics of the interface
	native	Set trunking native characteristics
	vlan	Set pvid vlanid in hybrid mode
	vlan-id	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	`MOXA(config-if)# switchport hybrid native vlan 2` `  <UINT:vlanid>  - 1 to 4094`	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related Commands	show vlan show vlan config	

switchport pvlan

Use the **switchport pvlan** interface configuration command on the switch stack to define a port-based VLAN association for an isolated or community port or a mapping for a promiscuous port. Use the **no** form of this command to remove the port-based VLAN association or mapping from the port.

Commands

switchport pvlan *vlan-groups*

no switchport pvlan *vlan-groups*

Syntax Description	**switchport**	Set switching mode characteristics
	pvlan	Configure port-based vlan
	vlan-groups	Set/unset port-based vlan group
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# switchport pvlan 2,3,4` `  <STRING:groups>  - set port-based vlan group`	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related Commands	show vlan show vlan config	

switchport trunk fixed vlan add

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

Commands

switchport trunk fixed vlan add *vlan-id-list*

no switchport trunk fixed vlan

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

switchport trunk fixed vlan remove

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

Commands

switchport trunk fixed vlan remove *vlan-id-list*

no switchport trunk fixed vlan

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

switchport trunk forbidden vlan add

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

Commands

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

no switchport trunk forbidden vlan

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

switchport trunk forbidden vlan remove

Use the **switchport trunk forbidden vlan remove** configuration command on the switch stack or on a standalone switch to remove the trunk forbidden characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

Commands

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

no switchport trunk forbidden vlan

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

switchport trunk native vlan

Use the **switchport trunk native vlan** interface configuration command on the switch to configure PVID of a port as a trunking port. Use the **no** form of this command to return to the default.

Commands

switchport trunk native vlan *vlan-id*

no switchport trunk native vlan

Syntax Description	**switchport**	Set switching mode characteristics
	trunk	Set trunking mode characteristics of the interface
	native	Set trunking native characteristics
	vlan	Set pvid vlanid in trunk mode
	vlan-id	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	`MOXA(config-if)# switchport trunk native vlan 2` `  <UINT:vlanid>  - 1 to 4094`	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related Commands	show vlan show vlan config	

trunk-group

Use the **trunk-group** interface configuration command on the switch to assign an Ethernet port to a trunk group. Use the **no** form of this command to remove an Ethernet port from a trunk group.

Commands

trunk-group *trunk_id*

no trunk-group

Syntax Description	**trunk-group**	Join trunk group as members
	trunk_id	Trunk ID. From 1 to 4
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-if)# trunk-group` `  <UINT:trunk_id>  - Trunk ID. From 1 to 4`	
Error Messages	This setting cannot be applied on trunk port!	
	Trunk ID is only allowed from 1 to 4	
Related Commands	show interfaces trunk	

trunk-mode

Use the **trunk-mode** interface configuration command on the switch to set the trunk mode of the specified trunk group. Use the **no** form of this command to return to the default setting.

Commands

trunk-mode { static | lacp }

no trunk-mode

Syntax Description	**trunk-mode**	Trunk mode configuration
	static	Configure as static trunk
	lacp	Configure as LACP trunk
Defaults	The default trunk mode of creating trunk manually is static.	
Command Modes	Interface configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-if)# trunk-mode`
	`  static  - Configure as static trunk`
	`  lacp  - Configure as LACP trunk`	

Error Messages	This setting cannot be applied on normal port!	
Related Commands	show interfaces trunk	

turbo-chain

Use the **turbo-chain** redundancy configuration command on the switch stack or on a standalone switch to configure Turbo Chain.

Commands

turbo-chain role {head | member | tail} primary interface *module/port* **secondary interface** *module/port*

Syntax Description	**turbo-chain**	Configure turbo chain
	role	Turbo chain role setting
	head	Turbo chain role head setting
	member	Turbo chain role member setting
	tail	Turbo chain role tail setting
	primary	Turbo chain primary port setting
	interface	Turbo chain port interface setting
	secondary	Turbo chain secondary port setting
	module/port	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# turbo-chain role head primary interface 1/1 secondary interface 1/2`	
Error Messages	N/A	
Related Commands	show redundancy turbo-chain	

turbo-ring-v1

Use the **turbo-ring-v1** redundancy configuration command on the switch to enable the Turbo Ring v1 with specified Ring ports.

Commands

turbo-ring-v1 primary interface *primary-port* **secondary interface** *secondary-port*

Syntax Description	**turbo-ring-v1**	Configure turbo ring v1
	primary	Turbo ring v1 ring ports setting
	interface	Turbo ring v1 ring ports setting
	primary-port	Port ID. E.g., 1/3, Trk2,...
	secondary	Turbo ring v1 ring ports setting
	interface	Turbo ring v1 ring ports setting
	secondary-port	Port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-rdnt)# turbo-ring-v1 primary interface 2/1 secondary interface 2/2`
	`<STRING:pri_port>  - Port ID. E.g., 1/3, Trk2,...`
	`<STRING:sec_port>  - Port ID. E.g., 1/3, Trk2,...`	

Error Messages	Interface 2-1 not exist	
	One port is the same in ring ports or coupling ports	
Related Commands	show turbo-ring-v1	

turbo-ring-v1 coupling

Use the **turbo-ring-v1 coupling** redundancy configuration command on the switch to set the coupling for Turbo Ring v1. Use the **no** form of this command to disable it.

Commands

turbo-ring-v1 coupling interface *primary-port* **coupling-control-port interface** *secondary-port*

no turbo-ring-v1 coupling

Syntax Description	**turbo-ring-v1**	Configure turbo ring v1
	coupling	Configure ring coupling
	interface	Turbo ring v1 ring ports setting
	primary-port	Primary port ID. E.g., 1/3, Trk2,...
	coupling-control-port	Turbo ring v1 coupling ports setting
	interface	Turbo ring v1 ring ports setting
	secondary-port	Secondary port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config-rdnt)# turbo-ring-v1 coupling interface 2/1 coupling-control-port interface 2/2`
	`<STRING:pri_port>  - Port ID. E.g., 1/3, Trk2,...`
	`<STRING:sec_port>  - Port ID. E.g., 1/3, Trk2,...`	

Error Messages	Interface 2-1 not exist	
	One port is the same in ring ports or coupling ports	
Related Commands	show turbo-ring-v1	

turbo-ring-v1 master

Use the **turbo-ring-v1 master** redundancy configuration command on the switch to set the switch as the Turbo Ring v1 Master. Use the **no** form of this command to return to the normal Turbo Ring v1 member.

Commands

turbo-ring-v1 master

no turbo-ring-v1 master

Syntax Description	**turbo-ring-v1**	Configure turbo ring v1
	master	Set ring as master
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# turbo-ring-v1 master` `  master  - Set ring as master`	
Error Messages	N/A	
Related Commands	show turbo-ring-v1	

turbo-ring-v2

Use the **turbo-ring-v2** redundancy configuration command on the switch to configure the Turbo Ring v2 with specified Ring ports. Use the **no** form of this command to disable the specified ring.

Commands

turbo-ring-v2 *ring-id* **primary interface** *primary-port* **secondary interface** *secondary-port*

no turbo-ring-v2 *ring-id*

Syntax Description	**turbo-ring-v2**	Configure turbo ring v2
	ring-id	Turbo ring v2 ring id
	primary	Turbo ring v2 ring ports setting
	interface	Turbo ring v2 ring ports setting
	primary-port	Port ID. E.g., 1/3, 2/1,...
	secondary	Turbo ring v2 ring ports setting
	interface	Turbo ring v2 ring ports setting
	secondary-port	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	

Examples	`MOXA(config-rdnt)# turbo-ring-v2 1 primary interface 2/1 secondary interface 2/2`
	`  <STRING:pri_port>  - Port ID. E.g., 1/3, Trk2,...`
	`  <STRING:sec_port>  - Port ID. E.g., 1/3, Trk2,...`	

Error Messages	Turbo ring v2 only supports maximum 2 ring domains	
	Interface 2-1 not exist	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
	Please enable one Ring in "Ring Coupling" mode!!!	

Related Commands	show turbo-ring-v2

turbo-ring-v2 coupling backup

Use the **turbo-ring-v2 coupling backup** redundancy configuration command on the switch to configure the backup port of Ring coupling for Turbo Ring v2. Use the **no** form of this command to disable the coupling.

Commands

turbo-ring-v2 coupling backup interface *backup-port*

no turbo-ring-v2 coupling

Syntax Description	**turbo-ring-v2**	Configure turbo ring v2
	coupling	Configure ring coupling
	backup	Configure ring coupling mode
	interface	Turbo ring v2 coupling ports setting
	backup-port	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	`MOXA(config-rdnt)# turbo-ring-v2 coupling backup interface 2/1` `  <STRING:pri_port>    - Port ID. E.g., 1/3, Trk2,...`	
Error Messages	Turbo ring v2 only supports maximum 2 ring domains	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
	Please enable one Ring in "Ring Coupling" mode!!!	
Related Commands	show turbo-ring-v2	

turbo-ring-v2 coupling dual-homing

Use the **turbo-ring-v2 coupling dual-homing** redundancy configuration command on the switch to enable dual homing feature of Ring coupling for the Turbo Ring v2. Use the **no** form of this command to disable it.

Commands

turbo-ring-v2 coupling dual-homing primary interface *primary-port* **backup interface** *secondary-port*

no turbo-ring-v2 coupling

Syntax Description	**turbo-ring-v2**	Configure turbo ring v2
	coupling	Configure ring coupling
	dual-homing	Configure dual homing mode
	primary	Turbo ring v2 ring ports setting
	interface	Turbo ring v2 ring ports setting
	primary-port	Port ID. E.g., 1/3, 2/1,...
	backup	Turbo ring v2 ring ports setting
	interface	Turbo ring v2 ring ports setting
	secondary-port	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	

Examples	`MOXA(config-rdnt)# turbo-ring-v2 coupling dual-homing primary interface 2/1 secondary interface 2/2`
	`<STRING:pri_port> - Port ID. E.g., 1/3, Trk2,...`
	`<STRING:sec_port> - Port ID. E.g., 1/3, Trk2,...`	

Error Messages	Turbo ring v2 only supports maximum 2 ring domains	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
	Please enable one Ring in "Ring Coupling" mode!!!	
Related Commands	show turbo-ring-v2	

turbo-ring-v2 coupling primary

Use the **turbo-ring-v2 coupling primary** redundancy configuration command on the switch to configure the primary port of Ring coupling for Turbo Ring v2. Use the **no** form of this command to return to the default setting.

Commands

turbo-ring-v2 coupling primary interface *primary-port*

no turbo-ring-v2 coupling

Syntax Description	**turbo-ring-v2**	Configure turbo ring v2
	coupling	Configure ring coupling
	primary	Configure ring coupling mode
	interface	Turbo ring v2 coupling ports setting
	primary-port	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	`MOXA(config-rdnt)# turbo-ring-v2 coupling primary interface 2/1` `  <STRING:pri_port>  - Port ID. E.g., 1/3, Trk2,...`	
Error Messages	Turbo ring v2 only supports maximum 2 ring domains	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
	Please enable one Ring in "Ring Coupling" mode!!!	
Related Commands	show turbo-ring-v2	

turbo-ring-v2 master

Use the **turbo-ring-v2 master** redundancy configuration command on the switch to configure the switch as the Ring Master of specified ring for Turbo Ring v2. Use the **no** form of this command to configure the switch as the normal member of specified ring for Turbo Ring v2.

Commands

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

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

Syntax Description	**turbo-ring-v2**	Configure turbo ring v2
	ring-id	Turbo ring v2 ring id
	master	Set turbo ring v2 ring id as master
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	`MOXA(config-rdnt)# turbo-ring-v2 1 master` `  master  - Set turbo ring v2 ring id as master`	
Error Messages	Turbo ring v2 only supports maximum 2 ring domains	
Related Commands	show turbo-ring-v2	

trusted-access

Same as **access-ip**.

Commands

trusted-access *[ip-address netmask]*

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

Syntax Description	**trusted-access**	Enable the trusted IP list for access
	ip-address	IP address
	netmask	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	This feature will take effect when the "trusted-access" command is executed.	

Examples	`MOXA(config)# interface mgmt`
	`MOXA(config-vlan)# trusted-access 10.10.10.10 255.255.255.0`
	`  <IPV4ADDR:ipaddr>  - IP address`
	`  <IPV4ADDR:netmask>  - IP netmask`
	`MOXA(config-vlan)# trusted-access`	

Error Messages	Trusted access ip list full	
	IP: IP-format mask: mask-format does not exist in trusted access IP list	
Related Commands	show interface mgmt trusted-access	

username

Use the **username** global configuration command on the switch to set the username and password of the local login user. Use the **no** form of this command will clear the password setting of the specified user.

Commands

username { admin | user } password *password*

no username { admin | user } password

Syntax Description	**username**	Configuration for login account authentication
	username	User name
	privilege	Privilege for account
	privilege-level	3 values, "admin" and "user" for account leve, "no login" indicates account as non-login user
	password	Specify the password
	password	Password string (Length of password should be from 4 to 16, and empty password is no longer allowed)
Defaults	There is no password for each user	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# username admin password 1234`
	`  <LF>`
	`MOXA(config)# username user password 5678`
	`  <LF>`	

Error Messages	N/A	
Related Commands	show users	

version

Use the **version** command in router configuration mode as RIP on the switch to change the version of the current running RIP.

Commands

version *version*

Syntax Description	**version**	Set RIP version
	version	1 | 2 | 1c
Defaults	Default is 1 (i.e. RIP version 1)	
Command Modes	Router configuration as RIP	
Usage Guidelines	N/A	

Examples	`MOXA# configure terminal`
	`MOXA(config)# router rip`
	`MOXA(config-rip)# version 2`
	`MOXA(config-rip)#`
	`MOXA# show ip rip`
	`RIP Protocol : Enable`
	`RIP version : V2`
	`Distribution`
	`Connected : Enable`
	`Static : Disable`
	`OSPF : Disable`
	
	`RIP Enable Table`
	`Interface Name IP VID Enable`
	`---------- ---------- ---------- ----------`
	`vlan2if 192.168.102.1 2 Enable`	

Error Messages	Invalid version	
Related Commands	N/A	

vlan create

Use the **vlan create** global configuration command on the switch to create a VLAN in the VLAN database. Use the **no** form of this command to delete a VLAN.

Commands

vlan create *vlan-id-list*

no vlan create *vlan-id-list*

Syntax Description	**vlan**	Configure VLAN parameters
	create	Configure VLAN parameters
	vlan-id-list	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	`MOXA(config)# vlan create 1,3-5,7` `<STRING:vlanids> - VLAN IDs of the VLANs`	
Error Messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interfaces are full, total vlan interface is 64 !!	
Related Commands	show vlan config	

vlan mode

Use the **vlan mode** configuration command on the switch to change current VLAN mode operated on the switch. Use the **no** form of this command to return to the default.

Commands

vlan mode { 1qvlan | pvlan | unaware }

no vlan mode

Syntax Description	**vlan**	Configure VLAN parameters
	mode	Set (default) vlan mode
	1qvlan	IEEE 802.1Q
	pvlan	Port-based vlan
	unaware	Unaware vlan
Defaults	The default mode is 802.1Q mode in the product with 802.1Q supported; otherwise is port-based VLAN mode.	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	`MOXA(config)# vlan mode 1qvlan`
	`  1qvlan  - IEEE 802.1Q`
	`  pvlan  - Port-based vlan`
	`  unaware  - Unaware vlan`	

Error Messages	N/A	
Related Commands	show vlan	

vrrp

To configure the Virtual Router Redundancy Protocol (VRRP) on an interface, use the **vrrp** command in VRRP interface configuration mode. To disable the VRRP configuration, use the **no** form of this command

Commands

vrrp

vrrp *vrid* **vrip** *ip-address*

no vrrp

Syntax Description	**vrrp**	VRRP interface setting
	vrid	VRRP interface virtual router ID
	vrip	set virtual router ID and virtual IP
	ip-address	virtual IP(IPv4 address)
Defaults	VRRP is not configured	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use vrrp command in VLAN configuration mode to enable vrrp in the VLAN interface.	

Examples	`MOXA(config-vlan)# vrrp 1 vrip 1.1.1.1`
	
	`MOXA(config-vlan)# no vrrp`	

Error Messages	Entry not Found!	
Related Commands	vrrp preempt vrrp priority show ip vrrp	

vrrp preempt

VRRP preempt is enabled by default. This means that a VRRP router with higher priority than the master VRRP router will take over as master router. To disable this feature, use the **no** form of this command.

Commands

vrrp preempt

no vrrp preempt

Syntax Description	**vrrp**	VRRP interface setting
	preempt	VRRP preemption mode enable VRRP preemption mode disable
Defaults	VRRP preempt is enable	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use vrrp command in VLAN configuration mode to enable vrrp in the VLAN interface.	

Examples	`MOXA(config-vlan)# vrrp preempt`
	
	`MOXA(config-vlan)# no vrrp preempt`	

Error Messages	Entry not Found!	
Related Commands	vrrp vrrp priority	

vrrp priority

To set the priority of the virtual router, use the **vrrp priority** command in VRRP interface configuration mode. To remove the priority of the virtual router, use the **no** form of this command.

Commands

vrrp priority

no vrrp priority

Syntax Description	**vrrp**	VRRP interface setting
	priority	VRRP priority (1 to 254) Set VRRP priority to default (100)
Defaults	priority = 100	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use vrrp command in VLAN configuration mode to enable vrrp in the VLAN interface.	

Examples	`MOXA(config-vlan)# vrrp priority 100`
	
	`MOXA(config-vlan)# no vrrp priority`	

Error Messages	Entry not Found!	
	Invalid parameters!	
Related Commands	vrrp vrrp preempt	