14-Debugging and Diagnosis

Table of Contents

1. SHOW

clear history all-users

Syntax	**clear history all-users**
Parameter	none
Default	none
Mode	Admin mode
Usage	Using this command can clear the command history of all users.
Example	Switch#clear history all-users

clear logging

Syntax	**clear logging sdram**
Parameter	none
Default	none
Mode	Admin mode
Usage	When the old information in the log buffer zone is no longer concerned, we can use this command to clear all the information.
Example	Clear all information in the log buffer zone sdram. Switch#clear logging sdram

history all-users max-length

Syntax	**history all-users max-length <count>**	
Parameter	**<count>**	the command history number can be saved, ranging from 100 to 1000
Default	The system can save 100 recent command history of all users at best by default	
Mode	Global mode	
Usage	using this command can set the max command history number	
Example	Switch#config Switch(config)#history all-users max-length 500	

logging

Syntax	**logging { <ipv4-addr> | <ipv6-addr> } [facility <local-number>] [level <severity>]** **no logging { <ipv4-addr> | <ipv6-addr> } [facility <local-number>]**	
Parameter	**<ipv4-addr>**	IPv4 address of the host
	<ipv6-addr>	IPv6 address of the host
	<local-number>	recording equipment of the host with a valid range of local0～local7, which is in accordance with the facility defined in the RFC3164
	<severity>	severity threshold of the log information severity level. The rule of the log information output is explained as follows: only those with a level equal to or higher than the threshold will be outputted. For detailed description on the severity please refer to the operation manual.
Default	No log information output to the log host by default. The default recorder of the log host is the local0; the default severity level is warnings.	
Mode	Global mode	
Usage	The command is used to configure the output channel of the log host. The “no” form of this command will disable the output at the log host output channel. Only when the log host is configured by the logging command, this command will be available. We can configure many IPv4 and IPv6 log hosts.	
Example	Send the log information with a severity level equal to or higher than warning to the log server with an IPv4 address of 100.100.100.5, and save to the log recording equipment local1. Switch#config Switch(config)#logging 100.100.100.5 facility local1 level warnings	

logging executed-commands

Syntax	**logging executed-commands {enable | disable}**
Parameter	**none**
Default	Disable state.
Mode	Global mode
Usage	After enable this command, the commands executed by user at the console, telnet or ssh terminal will record the log, so it should be used with the logging LOGHOST command.
Example	Enable the command and send the commands executed by user into log host (10.1.1.1) Switch#config Switch(config)#logging 10.1.1.1 Switch(config)#logging executed-commands enable

logging loghost sequence-number

Syntax	**logging loghost sequence-number** **no logging loghost sequence-number**
Parameter	**none**
Default	Do not include the sequence-number.
Mode	Global mode
Usage	Add the loghost sequence-number for the log; the no command does not include the loghost sequence-number. Use logging command to configure the loghost before this command is set.
Example	Open the loghost sequence-number Switch#config Switch(config) #logging loghost sequence-number

logging source-ip

Syntax	**logging source-ip { <A.B.C.D> | <X:X::X:X> }**	
Parameter	**<ipv4-addr>**	IPv4 address of the host
	<ipv6-addr>	IPv6 address of the host
Default	None0000	
Mode	Global mode	
Usage	Appoint the source IP address of the log packet which is sent to the log server, the ipv4 or ipv6 addresses can be configured. After configured this command, the log information sent to the server has the IP address; if this command is not configured, the log information does not have the IP address.	
Example	Configure the source IP address of the log packet which is sent to the log server. Switch#config Switch(config)#logging source-ip 2010::10	

ping

Syntax	**ping [[src <source-address>] { <destination-address> | host <hostname> }]**	
Parameter	**<source-address>**	***<source-address>*** is the source IP address where the ping command is issued, with IP address in dotted decimal format.
	<destination-address>	***<destination-address>*** is the target IP address of the ping command, with IP address in dotted decimal format
	<hostname>	***<hostname>*** is the target host name of the ping command, which should not exceed 64 characters.
Default	5 ICMP echo requests will be sent. The default packet size and time out is 56 bytes and 2 seconds.	
Mode	Admin mode	
Usage	Issue ICMP request to remote devices, check whether the remote device can be reached by	

the switch.

When the ping command is entered without any parameters, interactive configuration mode will be invoked. And ping parameters can be entered interactively.

Example

Example 1：To ping with default parameters.

Switch#ping 10.1.128.160

Type ^c to abort.

Sending 5 56-byte ICMP Echos to 10.1.128.160, timeout is 2 seconds.

...!!

Success rate is 40 percent (2/5), round-trip min/avg/max = 0/0/0 ms

In the example above, the switch is made to ping the device at 10.1.128.160. The command did not receive ICMP reply packets for the first three ICMP echo requests within default 2 seconds timeout. The ping failed for the first three tries. However, the last two ping succeeded. So the success rate is 40%. It is denoted on the switch "." for ping failure which means unreachable link, while "!" for ping success, which means reachable link.

Example 2：Ping with parameters entered interactively.

Switch#ping

VRF name：

Use IP Address[y]: y

Target IP address：10.1.128.160

Use source address option[n]: y

Source IP address: 10.1.128.161

Repeat count [5]: 100

Datagram size in byte [56]：1000

Timeout in milli-seconds [2000]: 500

Extended commands [n]: n

Display Information	Explanation
VRF name	VRM name. If MPLS is not enabled, this field will be left empty.
Target IP address：	The IP address of the target device.
Use source address option[n]	Whether or not to use ping with source address.
Source IP address	To specify the source IP address for ping.
Repeat count [5]	Number of ping requests to be sent. The default value is 5.
Datagram size in byte [56]	The size of the ICMP echo requests, with default as 56 bytes.
Timeout in milli-seconds [2000]:	Timeout in milli-seconds, with default as 2 seconds.
Extended commands [n]:	Whether or to use other extended options.

ping6

Syntax **ping6 [<dst-ipv6-address> | host <hostname> | src <src-ipv6-address> {<dst-ipv6-address > | host <hostname>}]**

Parameter **<dst-ipv6-address>** target IPv6 address of the ping command

	<src-ipv6-address>	source IPv6 address where the ping command is issued
	<hostname>	arget host name of the ping command, which should not exceed 64 characters.

Default Five ICMP6 echo request will be sent by default, with default size as 56 bytes, and default timeout to be 2 seconds.

Mode Admin mode

Usage To check whether the destination network can be reached.
When the ping6 command is issued with only one IPv6 address, other parameters will be default. And when the ipv6 address is a local data link address, the name of VLAN interface should be specified. When the source IPv6 address is specified, the command will fill the icmp6 echo requests with the specified source address for ping.

Example

Example 1：To issue ping6 command with default parameters.

```
Switch#ping6 2001:1:2::4
Type ^c to abort.
Sending 5 56-byte ICMP Echos to 2001:1:2::4, timeout is 2 seconds.
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/320/1600 ms
```

Example 2：To issue the ping6 command with parameters input interactively.

```
Switch#ping6
Target IPv6 address:fe80::2d0:59ff:feb8:3b27
Output Interface: vlan1
Use source address option[n]:y
Source IPv6 address: fe80::203:fff:fe0b:16e3
Repeat count [5]:
Datagram size in byte [56]:
Timeout in milli-seconds [2000]:
Extended commands [n]:
Type ^c to abort.
Sending 5 56-byte ICMP Echos to fe80::2d0:59ff:feb8:3b27, using src address fe80::203:fff:fe0b:16e3, timeout is 2 seconds.
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/16 ms
```

Display Information	Explanation
ping6	The ping6 command
Target IPv6 address	The target IPv6 address of the command
Output Interface	The name of he VLAN interface, which should be specified when the target address is a local data link address.
Use source IPv6 address [n]:	Whether or not use source IPv6 address. Disabled by default.
Source IPv6 address	Source IPv6 address.
Repeat count[5]	Number of the ping packets.
Datagram size in byte[56]	Packet size of the ping command. 56 byte by default.
Timeout in	Timeout for ping command. 2 seconds by default.

milli-seconds[2000]	
Extended commands[n]	Extended configuration. Disabled by default.
!	The network is reachable.
.	The network is unreachable.
Success rate is 100 percent(8/8), round-trip min/avg/max = 1/1/1ms	Statistic information, success rate is 100 percent of ping packet.

show boot-files

Syntax	**show boot-files**
Parameter	none
Default	none
Mode	Admin and Configuration Mode.
Usage	Display the first and second IMG files and the CFG file enabled by switch. After implementing this command, the booting sequence of IMG files in the corresponding storage device, which IMG file is currently used in booting, the configuration information of the CFG file in the storage device and the CFG file currently booted.
Example	Display the first and second IMG files and the CFG file enabled by switch. Switch#show boot-files Booted files on switch The primary img file at the next boot time: flash:/nos.img The backup img file at the next boot time: flash:/nos.img Current booted img file: flash:/nos.img The startup-config file at the next boot time: flash:/startup.cfg Current booted startup-config file: flash:/startup.cfg If the CFG file of the next booting is set as NULL, the CFG part mentioned above will be displayed as follows: The startup-config file at the next boot time: NULL Current booted startup-config file: flash:/startup.cfg

show flash

Syntax	**Show flash**
Parameter	**none**
Default	none
Mode	Admin and Configuration Mode.
Usage	Show the size of the files which are reserved in the system flash memory.
Example	To list the files and their size in the flash. Switch#show flash

	total 12227K -rw- 12516553 nos.img -rw- 3224 startup.cfg Drive : flash: Size:30.0M Used:13.0M Available:17.0M Use:43%

show history

Syntax	**show history**
Parameter	**none**
Default	none
Mode	Admin Mode
Usage	Display the recent user command history. The system holds up to 20 commands the user entered, the user can use the UP/DOWN key or their equivalent (ctrl+p and ctrl+n) to access the command history.
Example	Switch# show history enable config interface ethernet 1/0/3 enable dir show ftp

show history all-users

Syntax	**show history all-users [detail]**	
Parameter	**detail**	shows user name of the executing command. IP address of the user will be shown when logging in the executing command through Telnet or SSH
Default	none	
Mode	Admin and configuration mode	
Usage	This command is used to show the recent command history of all users, including time, logging type, executing command, etc. Notice: The user can only check the command history of other users whose purview should not be higher than oneself.	
Example	Switch# show history all-users detail Time Type User Command 0w 0d 0h 2m Telnet/SSH admin show history all-users detail 192.168.1.2:1419 0w 0d 0h 1m Telnet/SSH admin show history all-users 192.168.1.2:1419 0w 0d 0h 1m Console Null show history all-users 0w 0d 0h 1m Console Null end 0w 0d 0h 1m Console Null ip address 192.168.1.1 255.255.255.0	

	0w 0d 0h 0m Console Null in v 1 0w 0d 0h 0m Console Null telnet-server enable

show logging buffered

Syntax	**show logging buffered [level {critical | warnings} | range <begin-index> <end-index>]**	
Parameter	**level {critical | warnings}**	level of critical information
	<begin-index>	index start value of the log message, the valid range is 1-65535
	<end-index>	index end value of the log message, and the valid range is 1-65535. When only display logging buffered information of the line card must be added range parameter, but the main control has not the reques
Default	No parameter specified indicates all the critical log information will be displayed.	
Mode	Admin and configuration mode	
Usage	This command displays the detailed information in the log buffer channel. This command is not supported on low end switches. Warning and critical log information is saved in the buffer zone. When displayed to the terminal, their display format should be: index ID time <level> module ID [mission name] log information.	
Example	Display the critical log information in the log buffer zone channel and related to the main control with index ID between 940 and 946. Switch# show logging buffered level critical range 940 946 Current messages in SDRAM:0	

show logging executed-commands state

Syntax	**show logging executed-commands state**
Parameter	**none**
Default	none
Mode	Admin Mode
Usage	Use this command to display the state (enable or disable).
Example	Switch#show logging executed-commands state Logging executed command state is enable

show logging source

Syntax	**show logging source mstp**
Parameter	**None**
Default	None
Mode	Admin and configuration mode

Usage	Show the log information source of MSTP module.
Example	Show the log information source of MSTP. Switch#show logging source mstp system module log switch status: Channel Onoff Severity logbuff on warning loghost on warning terminal on warning

show running-config

Syntax	**show running-config**
Parameter	**none**
Default	None
Mode	Admin Mode
Usage	Display the current active configuration parameters for the switch. When the user finishes a set of configuration and needs to verify the configuration, show running-config command can be used to display the current active parameters. 。
Example	Switch#show running-config

show running-config current-mode

Syntax	**show running-config current-mode**
Parameter	none
Default	none
Mode	All configuration modes.
Usage	Enter into any configuration mode and input this command under this mode, it can show all the configurations under the current mode.
Example	Switch(config-if-ethernet1/0/1)#show run c ! Interface Ethernet1/0/1 switchport access vlan 2 !

show startup-config

Syntax	**show startup-config**
Parameter	**none**
Default	If the configuration parameters read from the Flash are the same as the default operating parameter, nothing will be displayed.
Mode	Admin Mode
Usage	The **show running-config** command differs from **show startup-config** in that when the user

	finishes a set of configurations, **show running-config** displays the added-on configurations whilst **show startup-config** won't display any configurations. However, if **write** command is executed to save the active configuration to the Flash memory, the displays of **show running-config** and **show startup-config** will be the same.
Example	Switch#show startup-config

show switchport interface

Syntax	**show switchport interface [ethernet] <IFNAME>**
Parameter	**<IFNAME>** port number
Default	none
Mode	Admin and configuration mode
Usage	Show the VLAN port mode, VLAN number and Trunk port messages of the VLAN port mode on the switch.
Example	Show VLAN messages of port ethernet 1/0/1 Switch#show switchport interface ethernet 1/0/1 Ethernet1/0/1 Type :Universal Mode :Trunk Port VID :1 Trunk allowed Vlan :1-4094

Displayed Information	Description
Ethernet1/0/1	Corresponding interface number of the Ethernet.
Type	Current interface type.
Mode: Trunk	Current interface VLAN mode.
Port VID :1	Current VLAN number the interface belongs.
Trunk allowed Vlan : ALL	VLAN permitted by Trunk

show tcp

Syntax	**show tcp**
Parameter	**none**
Default	none
Mode	Admin Mode
Usage	Display the current TCP connection status established to the switch.
Example	Switch#show tcp LocalAddress LocalPort ForeignAddress ForeignPort State 0.0.0.0 23 0.0.0.0 0 LISTEN 0.0.0.0 80 0.0.0.0 0 LISTEN

Displayed information	Description
LocalAddress	Local address of the TCP connection.
LocalPort	Local pot number of the TCP connection.
ForeignAddress	Remote address of the TCP connection.
ForeignPort	Remote port number of the TCP connection.
State	Current status of the TCP connection.

show tcp ipv6

Syntax	**show tcp ipv6**
Parameter	**none**
Default	none
Mode	Admin and configuration mode
Usage	Show the current TCP connection.
Example	Switch#show tcp ipv6 LocalAddress LocalPort RemoteAddress RemotePort State IF VRF :: 80 :: 0 LISTEN 0 0 :: 23 :: 0 LISTEN 0 0

Displayed Information	Explanation
LocalAddress	Local IPv6 address of TCP connection
LocalPort	Local port of TCP connection
RemoteAddress	Remote IPv6 address of TCP connection
RemotePort	Remote Port of TCP connection
State	The current state of TCP connection
IF	Local port index of TCP connection
VRF	Virtual route forward instance

show telnet login

Syntax	**show telnet login**
Parameter	**none**
Default	none
Mode	Admin and configuration mode

Usage	This command used to list the information of currently available telnet clients which are connected to the switch
Example	Switch#show telnet login Authenticate login by local. Login user: aa

show udp

Syntax	**show udp**
Parameter	**none**
Default	none
Mode	Admin Mode
Usage	Display the current UDP connection status established to the switch.

Example

Switch#show udp

LocalAddress	LocalPort	ForeignAddress	ForeignPort	State
0.0.0.0	32768	0.0.0.0	0	CLOSE
0.0.0.0	3071	0.0.0.0	0	CLOSE

Displayed Information	Description
LocalAddress	Local address of the UDP connection.
LocalPort	Local pot number of the UDP connection.
ForeignAddress	Remote address of the UDP connection.
ForeignPort	Remote port number of the UDP connection.
State	Current status of the UDP connection.

show udp ipv6

Syntax	**show udp ipv6**
Parameter	**none**
Default	none
Mode	Admin and configuration mode
Usage	Show the current UDP connection

Example

Switch#show udp ipv6

LocalAddress	LocalPort	RemoteAddress	RemotePort	State
::	3071	::	0	CLOSE

Displayed Information	Description
LocalAddress	Local IPv6 address of the UDP connection.
LocalPort	Local port number of the UDP connection.
RemoteAddress	Remote IPv6 address of the UDP connection.
RemotePort	Remote port number of the UDP connection.
State	Current status of the UDP connection.

show version

Syntax	**show version**
Parameter	**none**
Default	none
Mode	Admin Mode
Usage	Display the switch version. Use this command to view the version information for the switch, including hardware version and software version.
Example	Switch#show version

traceroute

Syntax	**traceroute [source <ipv4-addr>] { <ip-addr> | host <hostname> } [hops <hops>] [timeout <timeout>]**	
Parameter	**<ipv4-addr>**	assigned source host IPv4 address in dot decimal format
	<ip-addr>	target host IP address in dot decimal format
	<hostname>	hostname for the remote host
	<hops>	maximum gateway number allowed by Traceroute command
	<timeout>	timeout value for test packets in milliseconds, between 100 -10000
Default	The default maximum gateway number is 30, timeout in 2000 ms.	
Mode	Admin mode	
Usage	This command is tests the gateway passed in the route of a packet from the source device to the target device. This can be used to test connectivity and locate a failed sector. Traceroute is usually used to locate the problem for unreachable network nodes.	
Example	Switch#traceroute 192.168.2.36 Type ^c to abort. Traceroute to host 192.168.2.36, maxhops is 30, timeout is 2000ms. 1 0ms 192.168.2.36 Traceroute completed.	

traceroute6

Syntax	**traceroute6 [source <addr>] {<ipv6-addr> | host <hostname>} [hops <hops>] [timeout <timeout>]**	
Parameter	**<ipv4-addr>**	assigned source host IPv6 address in colonned hex notation.
	<ip-addr>	IPv6 address of the destination host, shown in colonned hex notation
	<hostname>	name of the remote host
	<hops>	max number of the gateways the traceroute6 passed through, ranging between 1-255
	<timeout>	timeout period of the data packets, shown in millisecond and ranging between 100~10000
Default	Default number of the gateways passes by the data packets is 30, and timeout period is defaulted at 2000ms.	
Mode	Admin mode	
Usage	This command is for testing the gateways passed by the data packets from the source device to the destination device, so to check the accessibility of the network and further locating the network failure. Traceroute6 is normally used to locate destination network inaccessible failures.	
Example	Switch#traceroute6 2004:1:2:3::4 Type ^c to abort. Traceroute to IPv6 host 2004:1:2:3::4, maxhops is 30, timeout is 2000ms. Traceroute6 error occured.	

reload after

Syntax	**reload after {[<HH:MM:SS>] [days <days>]}**	
Parameter	**<HH:MM:SS>**	specified time, HH (hours) ranges from 0 to 23, MM (minutes) and SS (seconds) range from 0 to 59
	<days>	specified days, unit is day, range from 1 to 30.
Default	none	
Mode	Admin mode	
Usage	With this command, users can reboot the switch without shutdown its power after a specified period of time, usually when updating the switch version. The switch can be rebooted after a period of time instead of immediately after its version being updated successfully. This command will not be reserved, which means that it only has one-time effect. After this command is configured, it will prompt the reboot information when user logging in the switch by telnet.	
Example	Set the switch to automatically reload after 2 days, 10 hours and 1 second. Switch#reload after 10:00:01 days 2 Process with reboot after? [Y/N] y	

reload cancel

Syntax	**reload cancel**

Parameter	**none**
Default	none
Mode	Admin mode
Usage	Cancel the specified time period to reload the switch. With this command, users can cancel the specified time period to reload the switch, that is, to cancel the configuration of command “reload after”. This command will not be reserved.
Example	Prevent the switch to automatically reboot after the specified time. Switch#reload cancel Reload cancel successful.

show reload

Syntax	**show reload**
Parameter	none
Default	none
Mode	Admin and configuration mode
Usage	Display the user’s configuration of command “reload after”. With this command, users can view the configuration of command “reload after” and check how long a time is left before rebooting the switch.
Example	View the configuration of command “reload after”. In the following case, the user set the switch to be rebooted in 10 hours and 1 second, and there are still 9 hours 59 minutes and 48 seconds left before rebooting it. Switch#show reload The original reload after configuration is 10:00:01. System will be rebooted after 09:59:48 from now.

clear cpu-rx-stat protocol

Syntax	**clear cpu-rx-stat protocol [<protocol-type>]**	
Parameter	**<protocol-type>**	type of the protocol of the packet**,** , including dot1x, stp, snmp, arp, telnet, http, dhcp, igmp, ssh
Default	none	
Mode	Admin mode	
Usage	This command clear the statistics of the CPU received packets of the protocol type, it is supposed to be used with the help of the technical support.	
Example	Clear the statistics of the CPU receives ARP packets. Switch#config Switch(config)#clear cpu-rx-stat protocol arp	

cpu-rx-ratelimit protocol

Syntax	**cpu-rx-ratelimit protocol <protocol-type> <packets>** **no cpu-rx-ratelimit protocol <protocol-type>**	
Parameter	**<protocol-type>**	type of the protocol, including dot1x, stp, snmp, arp, telnet, http, dhcp, igmp, ssh
	<packets>	max rate of CPU receiving packets of the protocol type, its range is 1-2000 pps.
Default	A different default rate is set for the different type of protocol.	
Mode	Global mode	
Usage	Set the max rate of the CPU receiving packets of the protocol type, the no command set the max rate to default. The rate limit set by this command have an effect on CPU receiving packets, so it is supposed to be used with the help of the technical support.	
Example	set the rate of the ARP packets to 500pps. Switch#config Switch(config)#cpu-rx-ratelimit protocol arp 500	

cpu-rx-ratelimit total

Syntax	**cpu-rx-ratelimit total <packets>** **no cpu-rx-ratelimit total**	
Parameter	<packets>	max number of CPU receiving packets per second
Default	1200pps	
Mode	Global mode	
Usage	Set the total rate of the CPU receiving packets, the no command sets the total rate of the CPU receiving packets to default. The total rate set by the command have an effect on CPU receiving packets, so it is supposed to be used with the help of the technical support.	
Example	Set the total rate of the CPU receive packets to 1500pps. Switch#config Switch(config)# cpu-rx-ratelimit total 1500	

show cpu-rx protocol

Syntax	**show cpu-rx protocol [<protocol-type>]**	
Parameter	**<protocol-type>**	protocol type of the packets, if do not input parameters, show all statistic packets.
Default	none	
Mode	Admin and configuration mode	
Usage	Show the statistics of the CPU received packets of the specified protocol type. This command is used to debug, it is supposed to be used with the help of the technical support.	

Example	Show the statistics of CPU receiving ARP packets. Switch#show cpu-rx protocol arp Type Rate-limit TotPkts DropPkts DelayCount CurState ARP 300 0 0 0 allowed