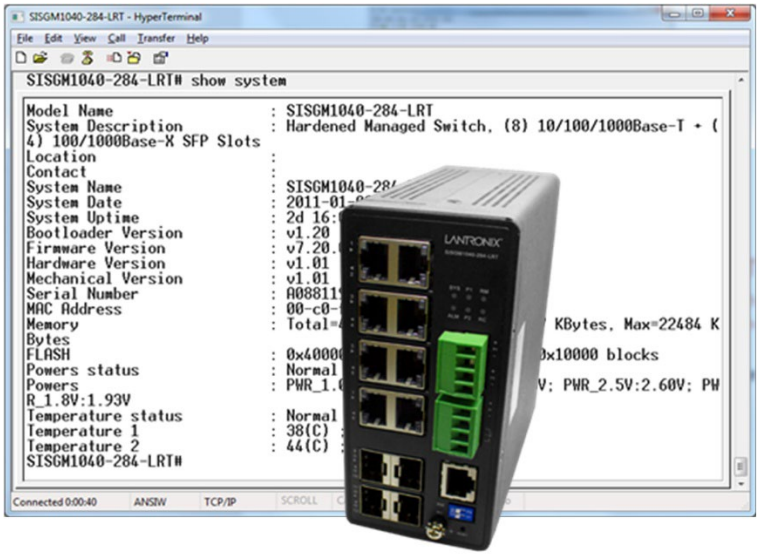

SISGM1040-284-LRT

Managed Hardened Gigabit Ethernet Switch
(8) 10/100/1000Base-T Ports + (4) 100/1000Base-X SFP Slots

CLI Reference

Part Number 33810
Revision H March 2025

Intellectual Property

Warranty

For details on the Lantronix warranty policy, see http://www.lantronix.com/support/warranty.

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Revision History

Date	Rev	Notes
7/26/21	D	FWv7.20.0063: fix LLDP TX interval reporting and add API commands. Modify API response structures. Fix Traceroute data format and SNMP Trap Destination Port value range. Remove Debug commands.
9/28/22	E	FW v7.20.0121: add API commands. Add 'Set reboot system when DI changes to abnormal' and fix DDM info update issue. Fix port link up when inserting TN-EOT-CO / -RT copper module. Update Radius server. Initial Lantronix rebrand. Add DHCP Option 229 and First Time Wizard. Add DHCP per port IP interface. Change default settings for SNMP mode and Auth Method. Add ConsoleFlow Cloud and LPM support.
10/11/23	F	FW v7.20.0190: Change ConsoleFlow to Percepxion. Add API in HTTPS. Fix issues with DeviceKey, FirmwareVersion, Serial # for Percepxion and MAC address for LPM. Update SSH and fix FW upgrade and DMS issues. Add PoE Status to Device Telemetry Data. Update to TLSv1.2 ciphers. Add two public OIDs. Remove invalid file name "mach10_combined.crt" from Config Download, Config Upload, Activate, and Delete pages. Automatically save Config changes to Startup Config in Percepxion server.
10/15/24	G	FW v7.20.0206: ♦ Update Percepxion. ♦ Modify Device/Product type API format. ♦ Fix Cable Diagnostics function. ♦ Add Capability Negotiation Definition with Percepxion Server. ♦ Fix issues with upload config via Percepxion. ♦ Update speed command syntax. See the Release Notes for details.
3/10/2025	H	FW v7.20.0215: ♦ Add support for MAC Authentication Bypass (MAB) for port-based access control. ♦ Update Percepxion description. See the Release Notes for details.

Contents

1. Introduction

The SISGM1040-284-LRT industrial L2+ managed GbE switch is a next generation industrial grade Ethernet switch offering powerful L2 and basic L3 features with better functionality and usability. In addition to the extensive management features, the SISGM1040-284-LRT also provides carrier Ethernet features such as OAM/CF, ERPS/EPS, and PTPv2, making it suitable for industrial and carrier Ethernet applications.

The SISGM1040-284-LRT delivers eight 10M/100M/1G RJ45 ports, four GbE SFP ports and one RJ45 console port. SISGM1040-284-LRT provides high hardware performance and environment flexibility for industrial and carrier Ethernet applications.

The embedded Device Managed System (DMS) features provides the benefits of ease-of-use, configuration, installation, and troubleshooting in video surveillance, wireless access, and other industrial applications. The SISGM1040-284-LRT delivers management simplicity, great user experience, and low total cost of ownership.

About This Manual

This manual gives specific information on how to operate CLI (Command Line Interface) to manage this switch.

The manual is intended for use by network administrators who are responsible for operating and maintaining network equipment. It assumes a strong knowledge of Ethernet switch functions, the RS-232 Console, Internet Protocol (IP), and Telnet Protocol.

Note: *Some Documentation may have Transition Networks named or pictured. Transition Networks was acquired by Lantronix in August 2021.*

Related Manuals

- SISGM1040-284-LRT Quick Start Guide, 33807
- SISGM1040-284-LRT Install Guide, 33808
- SISGM1040-284-LRT Web User Guide, 33809
- SISGM1040-284-LRT API User Guide, 33827
- Release Notes (version specific)

For Lantronix Drivers, Firmware, etc. go to the Lantronix Technical Resource Center. Note that this manual provides links to third party web sites for which Lantronix is not responsible.

2. Initial Switch Setup

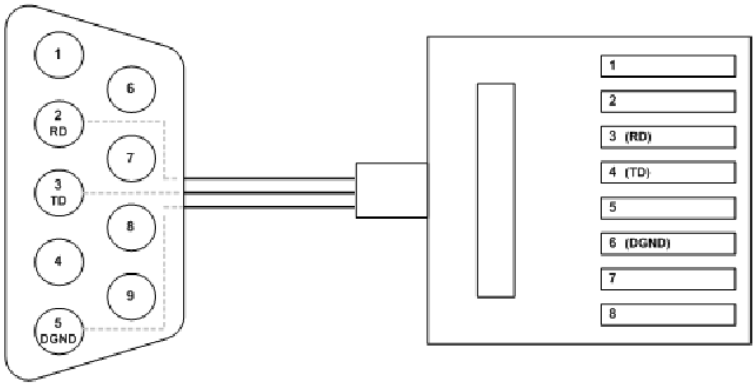
Console Port

The CONSOLE port is for local management by using an ASCII terminal or a computer with terminal emulation software.

- DB9 connector connect to PC COM port
- Baud rate: 115200bps
- 8 Data bits, 1 Stop bit
- Priority: None
- Flow control: None

To connect the host PC to the CONSOLE port, an RJ45 (male) connector-to-RS232 DB9 (female) connector cable is required. The RJ45 connector of the cable is connected to the CONSOLE port of the SISGM1040-284-LRT. The DB9 connector of the cable is connected to the PC COM port.

The console cable pin assignments are shown below:



Host PC <------- DB9 Connector ---------- Switch RJ45 Console Port

Access the CLI through the Console Port

The switch can be accessed and configured using a direct serial connection between the switch and your computer and terminal emulation software on your computer. Use a standard serial cable (RJ-45 to DB9). You will need a USB to serial adapter if your computer doesn't have a serial port.

To access the CLI through the console port:

1. Connect the serial cable to the console port (RJ45) on the switch and to the serial port on the computer (DB9) or use a DB9 to USB adapter if your computer lacks a serial port.
2. Use a terminal emulator program such as PuTTY or Tera Term to start a serial session.
3. Select Serial connection type, select the COM port, and enter the speed. Serial settings for the switch are the following: Baud rate=115200bps, Data bits=8, Parity=None, Stop bits=1 Flow control=none
    a. To find out which COM port to select, go to Device Manager > Ports to view the COM ports in use. (Windows)
4. At the terminal window, enter the factory default username (admin) and password (admin).
5. Perform initial switch configuration using the CLI.

Access the CLI using an SSH or Telnet Connection

The switch can be remotely accessed and configured through the Command Line Interface (CLI) using SSH or Telnet. Use a terminal emulator program such as PuTTY or Tera Term to establish the connection.

Your computer should have an IP address on the same network as the switch and be able to reach the switch's configured management IP address. SSH or Telnet service must be enabled on your switch. Telnet is disabled by default.

The switch's factory default configuration is IP address: 192.168.1.77, user name: admin, password: admin.

Note: *Telnet is not secure and can expose data to potential eavesdroppers. SSH should be used for more secure communication.*

To access the CLI using SSH or Telnet:

1. Launch the terminal emulator program on your computer .
2. Select SSH or Telnet as the session type.
3. Enter the hostname or IP address of the switch. SSH port = 22, Telnet port = 23.
4. At the terminal window, enter the factory default username (admin) and password (admin).
5. Perform switch configuration using the CLI.

IP configuration can be done with the commands below:

```
SISGM1040-284-LRT# enable
SISGM1040-284-LRT# configure terminal
SISGM1040-284-LRT(config-if-vlan)# ip address 172.16.100.123 255.255.255.0
SISGM1040-284-LRT(config-if-vlan)# exit
SISGM1040-284-LRT(config)#
```

Login

The command-line interface (CLI) is a text-based interface. User can access the CLI through either a direct serial connection to the device or an SSH or Telnet session.

The default username and password to log into the switch are listed below:

Username: admin

Password: admin

Note: *Telnet is not secure and can expose data to potential eavesdroppers. SSH should be used for more secure communication.*

After you login successfully, the prompt will be shown as "<sys_name>#". This means you can perform as an administrator and have the privilege for setting the Managed Switch. If not logged in as the administrator, the prompt will be shown as "<sys_name>>", which means you can perform as a guest and are only allowed for setting the system under the administrator. Each CLI command has a specific privilege level.

For example:

```
Username: admin
Password:
SISGM1040-284-LRT#
```

3. CLI Management

Privilege Levels

Every command has a privilege level (0-15). Users can run a command if the session's privilege level is greater than or equal to the command's privilege level. The session's privilege level initially comes from the login account's privilege level, though it is possible to change the session's privilege level after logging in.

Privilege Level	Types of Commands at this Privilege Level
0	Display basic system information
13	Configure features except for login accounts, the authentication method sequence, multiple logins, and administrator and enable passwords.
15	Configure login accounts, the authentication method sequence, multiple logins, and administrator and enable passwords.

Command Modes

The CLI is divided into several modes. If you have enough privilege to run a particular command, you must run the command in the correct mode. The modes that are available depend on the session's privilege level.

To see the commands of the mode, input "?" after the system prompt, and all commands will be listed on the screen. Command modes are listed below:

Mode	Prompt	Command Function in this Mode
exec	<sys_name>#	Display current configuration, diagnostics, maintenance
config	<sys_name>(config)#	Configure features other than those below
config -if	<sys_name>(config-interface)#	Configure ports
config -if-vlan	<sys_name>(config-if-vlan)#	Configure static vlan

Change Between Command Modes

Commands that reside in a specific mode can run only in that mode. To run a particular command, the user must change to the appropriate mode. The command modes are organized as a tree, and the user starts in Exec mode.

The following table explains how to change from one mode to another:

Mode	Enter Mode	Leave Mode
exec	--	--
config	configure terminal	exit
config-interface	interface <port-type> <port-type-list>	exit
config-vlan	interface vlan <vlan_list>	exit

Command Line Controls

To navigate the command line:

Control	Press	Description
More	-	dash key
Next page	Space	space bar
Continue	g	g key
Quit	^C	Control C
Parameters	?	Single question mark
Syntax	??	Two question marks
Available commands in table format	Tab key	available commands in table format

4. Exec Mode Commands

At the Exec mode prompt, enter a ? and press Enter to display the available Exec mode commands.

Command	Description
CableDiag	Cable Diagnostic keyword
clear	Reset functions
configure	Enter configuration mode
copy	Copy from source to destination
debug	Debugging functions
delete	Delete one file in flash: file system
dir	Directory of all files in flash: file system
disable	Turn off privileged commands
do	To run exec commands in config mode
dot1x	IEEE Standard for port-based Network Access Control
enable	Turn on privileged commands
erps	Ethernet Ring Protection Switching
exit	Exit from EXEC mode
firmware	Firmware upgrade/swap
help	Description of the interactive help system
ip	IPv4 commands
ipv6	IPv6 configuration commands
link-oam	Link OAM configuration
logout	Exit from EXEC mode
more	Display file
no	Negate a command or set its defaults
ping	Send ICMP echo messages
platform	Platform configuration
ptp	Misc non persistent 1588 settings
reload	Reload system.
send	Send a message to other tty lines
show	Show running system information
terminal	Set terminal line parameters
traceroute	traceroute program

Command: **CableDiag**

Description: Start the Cable Diagnostic.

Syntax: **CableDiag** interface <port_type> <port_type_id>

Parameters:	interface	Interface keyword
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_id>	Port ID in 1/1-8

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# CableDiag interface GigabitEthernet 1/1
Starting Cable Diagnostic - Please wait
Interface              Link Status    Test Result    Length
---------------------  -------------  -------------  -------------
GigabitEthernet 1/1    Link Down      detect error or check cable length is between 7-120
meters
SISGM1040-284-LRT#
```

Command: **clear**

Description: Reset functions

Syntax:

clear access management statistics

clear access-list ace statistics

clear dot1x statistics [interface (<port_type> [<v_port_type_list>])]

clear eps <inst> wtr

clear erps [<groups>] statistics

clear evc statistics { [<evc_id> | all] } [ece [<ece_id>]] [interface (<port_type> [<port_list>])] [pw <pw_num_list>]

clear ip arp

clear ip dhcp detailed statistics { server | client | snooping | relay | helper| all } [interface (<port_type> [<in_port_list>])]

clear ip dhcp relay statistics

clear ip dhcp server binding <ip>

clear ip dhcp server binding type { automatic | manual | expired }

clear ip dhcp server statistics

clear ip dhcp snooping statistics [interface (<port_type> [<in_port_list>])]

clear ip igmp snooping [vlan <v_vlan_list>] statistics

clear ip statistics [system] [interface vlan <v_vlan_list>] [icmp] [icmp-msg <type>]

clear ipv6 dhcp-client statistics [interface vlan <v_vlan_list>]

clear ipv6 mld snooping [vlan <v_vlan_list>] statistics

clear ipv6 neighbors

clear ipv6 statistics [system] [interface vlan <v_vlan_list>] [icmp] [icmp-msg <type>]

clear lacp statistics

clear link-oam statistics [interface (<port_type> [<plist>])]

clear lldp statistics { [interface (<port_type> [<plist>])] | global }

clear logging [info] [warning] [error] [emerg] [alert] [crit] [notice] [debug] [switch <switch_list>]

clear logging flash

clear mac address-table

clear mep <inst> { lm | dm | tst | bfd }

clear mvr [vlan <v_vlan_list> | name <mvr_name>] statistics

clear port-security sticky { All | interface (<port_type> [<plist>]) }

clear ptp <clockinst> servo

clear sflow statistics { receiver [<receiver_index_list>] | samplers [interface [<samplers_list>] (<port_type> [<v_port_type_list>])] }

clear spanning-tree { { statistics [interface (<port_type> [<v_port_type_list>])] } | { detected-protocols [interface (<port_type> [<v_port_type_list_1>])] } }

clear statistics [interface] (<port_type> [<v_port_type_list>])

Parameters:

access	Access management
access-list	Access list
dot1x	IEEE Standard for port-based Network Access Control
eps	Ethernet Protection Switching.
erps	Ethernet Ring Protection Switching
evc	Ethernet Virtual Connections
ip	Interface Internet Protocol config commands
ipv6	IPv6 configuration commands
lacp	Clear LACP statistics
link-oam	Clear Link OAM statistics
lldp	Clears LLDP statistics.
logging	System logging message
mac	MAC Address Table
mep	Maintenance Entity Point
mvr	Multicast VLAN Registration configuration
port-security	Enable/disable port security globally.
ptp	
sflow	Statistics flow.
spanning-tree	STP Bridge
statistics	Clear statistics for one or more given interfaces

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# clear access management statistics
SISGM1040-284-LRT# clear lacp statistics
SISGM1040-284-LRT# clear ip igmp snooping vlan 100-300 statistics
```

Command: **configure terminal**

Description: Enter Configuration mode. See the Config Mode Commands section on page 92.

Syntax: **configure terminal** <cr>

Parameters: Nine.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# configure terminal
SISGM1040-284-LRT(config)#
```

Command: **copy**

Description: Copy from source to destination. FW v7.20.0034 added copy command 'merge' and 'replace' options. The default value is 'replace'.

Syntax: **copy** { startup-config | running-config | <source_path> } { startup-config | running-config | <destination_path> } [syntax-check] [save-host-key] [ftp-active] [{ merge | replace }]

Parameters:

<url_file>	File in FLASH or on TFTP server. Syntax: <flash:filename| tftp://server/path-and-filename>. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), under score(_). The maximum length is 57 and hyphen must not be first character. A filename containing only '.' is not allowed.
running-config	Currently running configuration
startup-config	Startup configuration
merge	merge source file with running-config
replace	replace running-config with source file, default action
syntax-check	Perform syntax check on source configuration

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# copy running-config startup-config
Building configuration...
% Saving 1649 bytes to flash:startup-config
SISGM1040-284-LRT# copy sftp://root:trns@192.168.1.248/running_192.168.1.203_20110101
running-config save-host-key replace
SISGM1040-284-LRT# copy startup-config running-config merge
SISGM1040-284-LRT# copy startup-config running-config replace
SISGM1040-284-LRT# copy startup-config running-config syntax-check
SISGM1040-284-LRT# copy running-config startup-config
Building configuration...
% Saving 1392 bytes to flash:startup-config
```

Message: *% Protocol not supported.*

Message: *% Source and destination are identical; no copy done.*

Message: *% startup-config: Load failed: Cannot read file status.*

% Invalid source syntax, expected <protocol>:///[<username>[:<password>]@]<host>[:<port>][/<path>]

% Supported protocols are: [flash | tftp | http | ftp]

Secure File Transfer (SFTP) Set-Up

Switch Settings : RADIUS Authentication Using SSH Putty Port 22

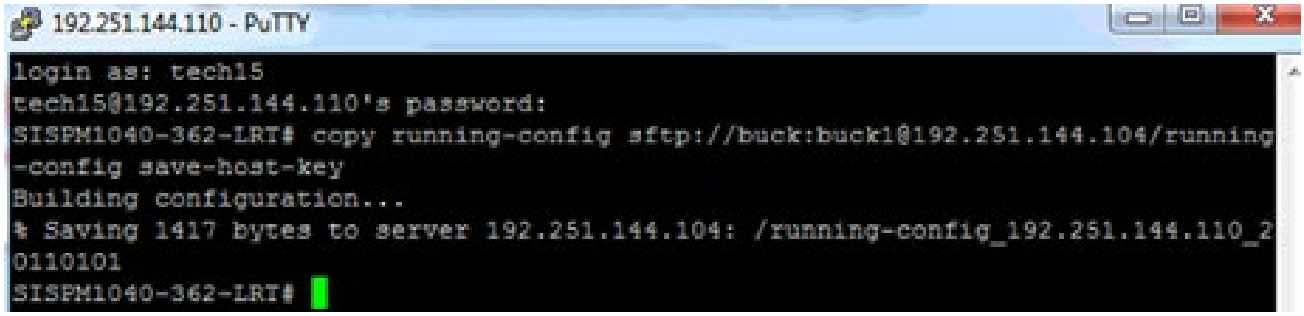
***Warning**: When setting first method for 'ssh' to other than 'local', you may lose connectivity unless you set a later method for'ssh' to 'local'. Do you want to continue?* Click OK to continue or click Cancel to quit.

CLI Command:

```
copy running-config sftp://buck:buck1@192.251.144.104/running-config save-host-key
```

Description: Transfer running-config from switch to SolarWinds, using SFTP protocol.

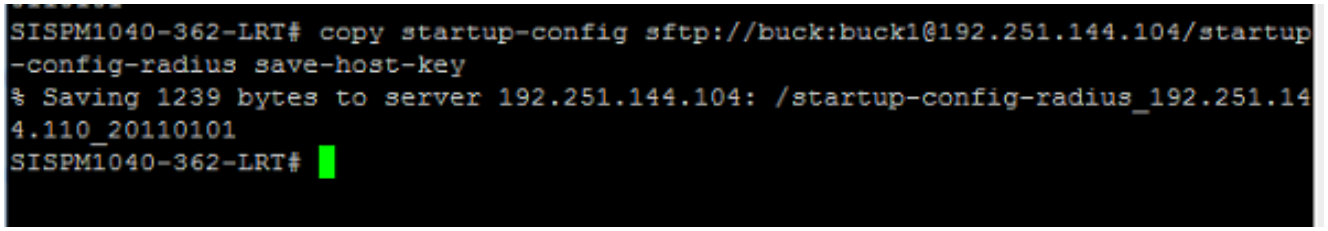
Example:



CLI Command: `copy startup-config sftp://buck:buck1@192.251.144.104/startup-config-radius save-host-key`

Description: Transfer startup-config from switch to SolarWinds, using SFTP protocol.

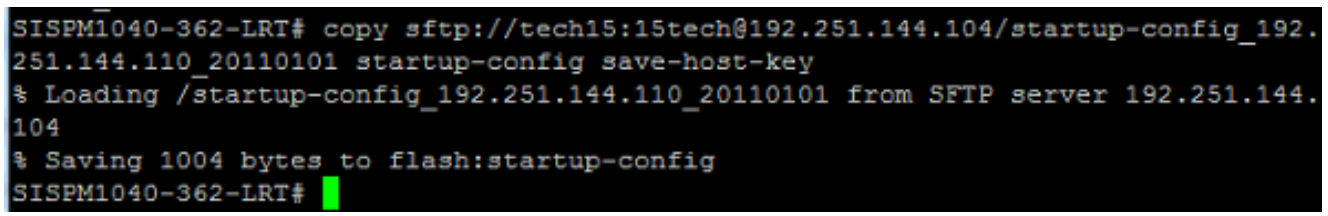
Example:



CLI Command: `copy sftp://tech15:15tech@192.251.144.104/startup-config_192.251.144.110_20110101 startup-config save-host-key`

Description: Transfer startup-config from SolarWinds to switch, using SFTP protocol

Example:



CLI Command: `copy running-config sftp://tech15:15tech@192.251.144.104/running-config save-host-key`

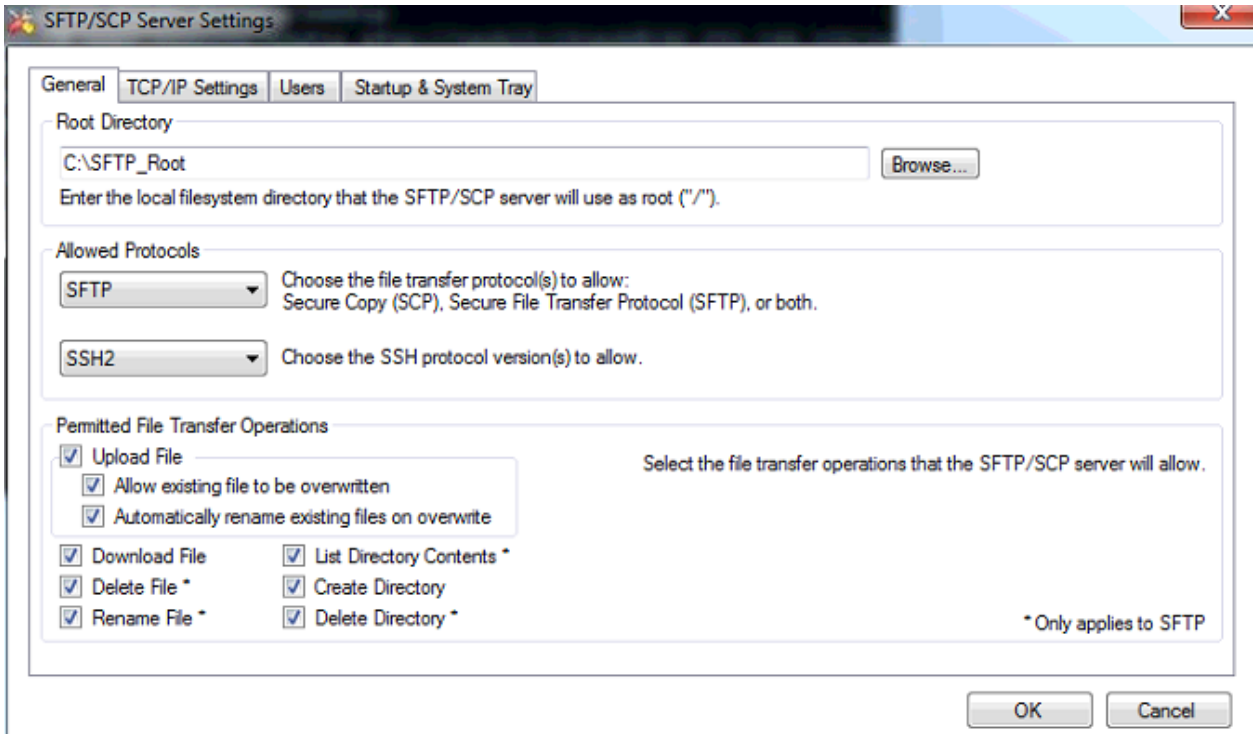
Description: Transfer running-config from SolarWinds to switch using SFTP protocol

Example:

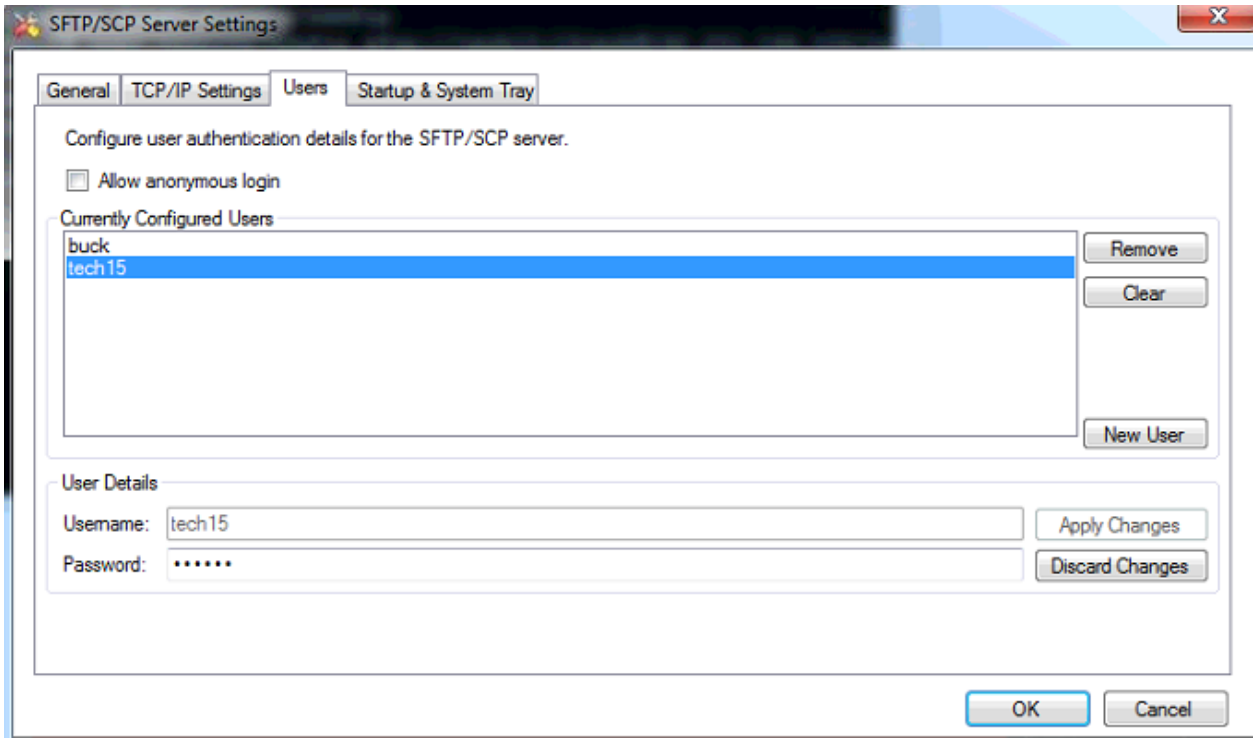
```
SISPM1040-362-LRT# copy running-config sftp://tech15:15tech@192.251.144.104/runn
ing-config save-host-key
Building configuration...
% Saving 1417 bytes to server 192.251.144.104: /running-config_192.251.144.110_2
0110101
SISPM1040-362-LRT#
```

Solar Winds SFTP Settings

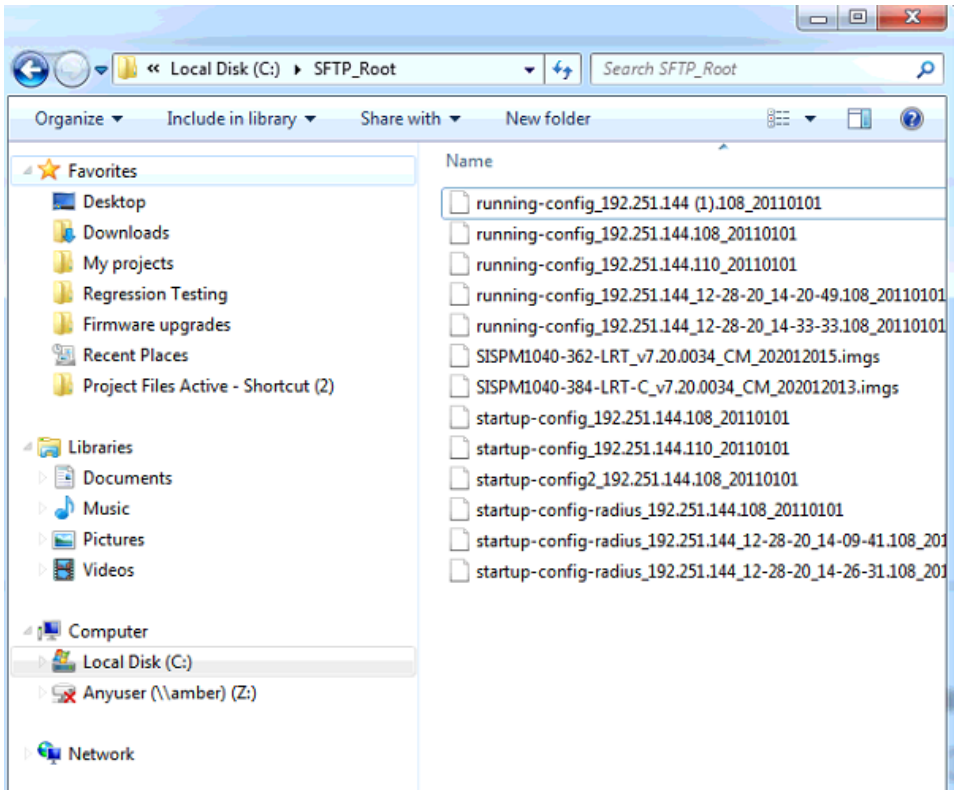
General tab



Users tab



Windows Explorer



Command: **debug**

Description: Debugging functions.

Warning: The use of 'debug' commands may negatively impact system behavior. Do not enable unless instructed to. (Use 'platform debug deny' to disable debug commands.)

***Note**: 'debug' command syntax, semantics and behavior are subject to change without notice.*
***Contact** Lantronix Technical Support for Debug command syntax, parameters, mode, and example information.*

Command: **delete**

Description: Delete one file in flash: file system

Syntax: **delete** <path>

Parameters:

<url_file> File in FLASH. Syntax: <flash:filename>. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), under score(_). The maximum length is 57 and hyphen must not be first character. The file name content that only contains '.' is not allowed.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# delete flash:startup-config
SISGM1040-284-LRT#
```

Messages: *% Delete of AaBbCc.txt failed: No such entity.*

Command: **dir**

Description: Directory of all files in flash: file system

Syntax: **dir** <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# dir
Directory of flash:
    r- 2010-12-31 23:59:59      716 default-config
1 file, 716 bytes total.
SISGM1040-284-LRT# dir
Directory of flash:
    r- 2010-12-31 23:59:59      716 default-config
    rw 2011-01-01 23:18:12     1392 startup-config
2 files, 2108 bytes total.
SISGM1040-284-LRT#
```

Command: **disable**
Description: Turn off privileged commands
Syntax: **disable** [<new_priv>]
Parameters: <0-15>
<cr>
Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# disable 10
SISGM1040-284-LRT#
```

Command: **dot1x**
Description: IEEE Standard for port-based Network Access Control
Syntax: **dot1x** initialize [interface (<port_type> [<plist>])]
Parameters:

initialize	Force re-authentication immediately
interface	Interface
<cr>	
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list for all port types
<port_type_list>	Port list in 1/1-12

Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# dot1x initialize interface GigabitEthernet 1/3
SISGM1040-284-LRT#
```

Command: **enable**
Description: Turn on privileged commands
Syntax: **enable** [<new_priv>]
Parameters: <0-15> Choose privileged level
<cr>
Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# enable 15
SISGM1040-284-LRT#
```

Command: **erps**

Description: Ethernet Ring Protection Switching

Syntax: **erps** <group> command { force | manual | clear } { port0 | port1 }

Parameters:

	1-64	ERPS group number
	command	Administrative Command
	clear	Clear command
	force	Force command
	manual	Manual command
	port0	ERPS Port 0 interface
	port1	ERPS Port 1 interface

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# erps 1 command manual port0
SISGM1040-284-LRT# erps 2 command manual port1
SISGM1040-284-LRT# erps 2 command clear port1
SISGM1040-284-LRT# erps 1 command force port1
SISGM1040-284-LRT#
```

Messages: *% ERPS group 1: Generic error occurred*

Command: **exit**

Description: Exit from EXEC mode. Hit Enter to display the login prompts.

Syntax: **exit** <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# exit
<disconnected>
<Enter>
Username: admin
Password:< admin >
SISGM1040-284-LRT#
```

Command: **firmware**

Description: Firmware upgrade/swap

Syntax: **firmware** swap

firmware upgrade <url_file> [save-host-key]

Parameters:

swap Swap between Active and Alternate firmware image.

upgrade Firmware upgrade.

<url_file> Uniform Resource Locator. It is a specific character string that constitutes a reference to a resource.

Syntax: *<protocol>:///[<username>[:<password>]@]<host>[:<port>][/<path>]/<file_name>*

If the following special characters: space !"#$%&'()*+,/:;<=>?@[\]^`{|}~ need to be contained in the input url string, they should have percent-encoded. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), under score (_). The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.

save-host-key Save the Host key.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# firmware swap
Alternate image activated, now rebooting.
SISGM1040-284-LRT# firmware upgrade sftp://admin : admin ?
% Incomplete word detected at '^' marker.
SISGM1040-284-LRT# firmware upgrade tftp://admin:admin ?
% Incomplete word detected at '^' marker.
SISGM1040-284-LRT#
```

Command: **help**

Description: Description of the interactive help system

Syntax: **help** <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# help
Help may be requested at any point in a command by entering
a question mark '?'.  If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
```

```
  and you want to know what arguments match the input
  (e.g. 'show pr?'.)

SISGM1040-284-LRT#
```

Command: **ip**
Description: IPv4 commands
Syntax: **ip** dhcp retry interface vlan <vlan_id>
Parameters:

	dhcp	DHCP commands
	retry	Restart the DHCP query process
	interface	Interface
	vlan	VLAN interface
	<vlan_id>	VLAN ID
	<cr>	

Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# ip dhcp retry interface vlan 100
SISGM1040-284-LRT#
```

Message: *% Failed to restart DHCP client on VLAN = 100.*

Command: **ipv6**
Description: IPv6 configuration commands
Syntax: **ipv6** dhcp-client restart [interface vlan <v_vlan_list>]
Parameters:

	dhcp-client	Manage DHCPv6 client service
	restart	Restart DHCPv6 client service
	interface	Select an interface to configure
	<cr>	
	vlan	VLAN of IPv6 interface
	<vlan_list>	IPv6 interface VLAN list

Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# ipv6 dhcp-client restart
SISGM1040-284-LRT#
```

Message: *% Invalid DHCPv6 client interface Vlan200*

Command: **link-oam**

Description: Link OAM configuration.

Syntax: **link-oam** remote-loopback { start | stop } interface (<port_type> [<v_port_type_list>])

Parameters:

remote-loopback	Configure remote loopback on interface
start	Start remote loopback test on interface
stop	Stop remote loopback test on interface
interface	Start/Stop remote loopback test on a specific interface or interfaces.
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list for all port types
<port_type_list>	Port list in 1/1-12

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# link-oam remote-loopback start interface GigabitEthernet 1/4-6
% Requested configuration is not supported with the current OAM mode for Gigabit Ethernet
1/4
SISGM1040-284-LRT# link-oam remote-loopback start interface GigabitEthernet 1/2
% Requested operation is already in progress for GigabitEthernet 1/2
SISGM1040-284-LRT#
```

Command: **logout**

Description: Exit from EXEC mode. Hit Enter to display the login prompt.

Syntax: **logout** <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# logout

Username:
Password:
```

Command: **more**

Description: Display file

Syntax: **more** <path>

Parameters:

<url_file> File in FLASH or on TFTP server. Syntax: <flash:filename | tftp://server/path-and-filename>.
A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), or under score (_). The maximum length is 57 and hyphen must not be first character. The file name content that only contains '.' is not allowed.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# more flash:run
% run: Load failed: Cannot read file status.
SISGM1040-284-LRT#
```

Command: **no**

Description: Negate a command or set its defaults

Syntax: **no** debug interrupt-monitor source <source>
no debug ipv6 nd
no debug misc busydeadlock
no debug trace hunt
no port-security shutdown [interface (<port_type> [<v_port_type_list>])]
no ptp <clockinst> wireless mode interface (<port_type> [<v_port_type_list>])
no terminal editing
no terminal exec-timeout
no terminal history size
no terminal length
no terminal width

Parameters:

debug	Debugging functions
port-security	Port security (MAC limit)
ptp	Misc non persistent 1588 settings.
terminal	Set terminal line parameters
interrupt-monitor	Print out of reception of the selected interrupt source.
ipv6	IPv6 configuration commands
misc	Miscellaneous commands
busydeadlock	display message
trace	
source	The selected interrupt source.
<uint>	The possible values are enum vtss_interrupt_source_t values found in file board/interrupt_api.h
nd	IPv6 Neighbor Discovery debugging
hunt	

	shutdown	Reopen one or more ports whose limit is exceeded and shut down.
	interface	
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<0-3>	Clock instance [0-3]
	wireless	Enable wireless mode for one or more interfaces.
	mode	Enable wireless mode for an interface.
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list for all port types
	editing	Enable command line editing
	exec-timeout	Set the EXEC timeout
	history	Control the command history function
	length	Set number of lines on a screen
	width	Set width of the display terminal

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# no debug trace hunt
SISGM1040-284-LRT# no port-security shutdown interface *
SISGM1040-284-LRT#
```

Command: **ping**

Description: Send ICMP echo messages

Syntax:

ping ip { <v_ip_addr> | <v_ip_name> } [repeat <count>] [size <size>] [interval <seconds>]

ping ipv6 { <v_ipv6_addr> | <v_ipv6_name> } [repeat <count>] [size <size>] [interval <seconds>] [interface vlan <v_vlan_id>]

Parameters:	ip	IP (ICMP) echo
	ipv6	IPv6 (ICMPv6) echo
	<domain_name>	ICMP destination IP domain name
	<ipv4_addr>	ICMP destination IPv4 address
	interval	Specify repeat interval
	repeat	Specify repeat count
	size	Specify datagram size
	<0-30>	0-30; Default is 0
	<1-60>	1-60; Default is 5
	<2-1452>	2-1452; Default is 56 (excluding MAC, IP and ICMP headers)

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# ping ip bob size 9 interval 4 repeat 3
*** Failed to resolve ip address for: bob
SISGM1040-284-LRT# ping ip 192.168.1.77 interval 3 repeat 3 size 6
PING server 192.168.1.77, 6 bytes of data.
14 bytes from 192.168.1.77: icmp_seq=0, time<10ms
14 bytes from 192.168.1.77: icmp_seq=1, time<10ms
14 bytes from 192.168.1.77: icmp_seq=2, time<10ms
Sent 3 packets, received 3 OK, 0 bad
SISGM1040-284-LRT#
```

Command: **platform**

Description: Platform configuration (debug).

Warning: The use of 'debug' commands may negatively impact system behavior. Do not enable unless instructed to. (Use 'platform debug deny' to disable debug commands.)

***Note**: 'debug' command syntax, semantics and behavior are subject to change without notice. Debug commands are only to be used by or at the direction of Lantronix Tech Support.*

Syntax: **platform** debug { allow | deny }

Parameters:		
	platform	Platform configuration
	allow	Allow debug commands
	deny	Deny debug commands (default)

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# platform debug allow

WARNING: The use of 'debug' commands may negatively impact system behavior.
Do not enable unless instructed to. (Use 'platform debug deny' to disable
debug commands.)

NOTE: 'debug' command syntax, semantics and behavior are subject to change
without notice.

SISGM1040-284-LRT#
```

Command: **ptp**

Description: Miscellaneous non-persistent 1588 settings

Syntax:

ptp <clockinst> local-clock { update | ratio <ratio> }

ptp <clockinst> wireless delay <base_delay> [<incr_delay>] interface (<port_type> [<v_port_type_list>])

ptp <clockinst> wireless mode interface (<port_type> [<v_port_type_list>])

ptp <clockinst> wireless pre-notification interface (<port_type> [<v_port_type_list>])

Parameters:

<0-3>	PTP Clock instance [0-3]
local-clock	Update local clock current time, or set clock ratio
wireless	Enable wireless mode for one or more interfaces.
ratio	Set the local master clock frequency ratio.
update	The local clock is synchronized to the system clock
<-10000000-10000000>	Ratio in units of 0,1 PPB, (ratio > 0 => faster clock, ratio < 0 => slower clock).
delay	Delay time
mode	Enable wireless mode for an interface.
pre-notification	Issue a pre notification that the wireless modem is going to change.
<0-1000000000>	Base wireless transmission delay (in pico seconds)
<0-1000000>	Incremental wireless transmission delay pr. byte (in pico seconds)
interface	Interface parameter
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list for all port types
Mode:	Exec mode.

Example:

```
SISGM1040-284-LRT# ptp 0 local-clock update
SISGM1040-284-LRT# ptp 0 local-clock ratio -4000
SISGM1040-284-LRT# ptp 0 wireless delay 6000 750000 interface *
Wireless mode not available for ptp instance 0, port 1
Wireless mode not available for ptp instance 0, port 2
Wireless mode not available for ptp instance 0, port 3
Wireless mode not available for ptp instance 0, port 4
Wireless mode not available for ptp instance 0, port 5
Wireless mode not available for ptp instance 0, port 6
Wireless mode not available for ptp instance 0, port 7
Wireless mode not available for ptp instance 0, port 8
Wireless mode not available for ptp instance 0, port 9
Wireless mode not available for ptp instance 0, port 10
Wireless mode not available for ptp instance 0, port 11
Wireless mode not available for ptp instance 0, port 12
SISGM1040-284-LRT#
```

Command: **reload**

Description: Reload system.

Syntax: **reload** { { { warm } [sid <usid>] } | { defaults [keep-ip] } }

Parameters:		
	defaults	Reload defaults without rebooting.
	warm	Reload warm (CPU restart only). You are logged out.
	keep-ip	Attempt to keep VLAN1 IP setup.
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# reload warm
% Warm reload in progress, please stand by.
SISGM1040-284-LRT#
Username: admin
Password:<admin>
SISGM1040-284-LRT# reload defaults keep-ip
% Reloading defaults, attempting to keep IP address. Please stand by.

SISGM1040-284-LRT#
```

Command: **send**

Description: Send a message to other tty lines.

Syntax: **send** { * | <session_list> | console 0 | vty <vty_list> } <message>

Parameters:		
	*	All tty lines
	<0~16>	Send a message to multiple lines
	console	Primary terminal line
	vty	Virtual terminal
	<line128>	Message to be sent to lines, in 128 characters
	<0~15>	Send a message to multiple lines
	0	Send a message to a specific line

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# send 0 Now is the time
Enter TEXT message.  End with the character 'N'.
Now is the timeN
SISGM1040-284-LRT#
```

Command: **show**

Description: Show running system information. See the Show Commands on page 30 below.

Syntax: See the Show Commands section below.

Parameters: See the Show Commands section below.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show vlan brief
VLAN  Name                            Interfaces
----  ------------------------------  ----------
1     default                         Gi 1/1-12

SISGM1040-284-LRT#
```

Command: **terminal**

Description: Set terminal line parameters

Syntax: **terminal** editing
terminal exec-timeout <min> [<sec>]
terminal help
terminal history size <history_size>
terminal length <lines>
terminal width <width>

Parameters:		
	editing	Enable command line editing
	exec-timeout	Set the EXEC timeout
	help	Description of the interactive help system
	history	Control the command history function
	length	Set number of lines on a screen
	width	Set width of the display terminal
	<0-1440>	Timeout in minutes
	size	Set history buffer size
	<0-32>	Number of history commands, 0 means disable

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# terminal exec-timeout 1440
SISGM1040-284-LRT# terminal help
Help may be requested at any point in a command by entering a
question mark '?'.  If nothing matches, the help list will be empty
and you must backup until entering a '?' shows the available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible argument.
2. Partial help is provided when an abbreviated argument is entered
```

```
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)
SISGM1040-284-LRT# terminal history size 8
SISGM1040-284-LRT#
```

Command: **traceroute**

Description: traceroute program

Syntax: **traceroute** { ip | ipv6 } <v_ip_addr> [protocol { icmp | udp | tcp }] [wait <v_wait_time>] [ttl <v_max_ttl>] [nqueries <v_nqueries>]

Parameters:

ip	IP
ipv6	IPv6
<word1-255>	destination address
nqueries	Specify number of probe packets
protocol	Specify protocol including icmp, udp and tcp
ttl	Specify max TTL
wait	Specify wait time
<1-10>	1-10; Default is 3
icmp	icmp/udp/tcp; Default is icmp
tcp	
udp	
<1-255>	1-255; Default is 30
<1-60>	1-60 sec; Default is 5 sec
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# traceroute ip 192.168.1.90 wait 9 nqueries 3 protocol tcp ttl 20
traceroute to 192.168.1.90 (192.168.1.90), 14 hops max, 40 byte packets
 1  * * *
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
SISGM1040-284-LRT#
```

5. Show Commands

At the Exec mode prompt, enter `show ?` to display the available show commands.

Command	Description
aaa	Authentication, Authorization and Accounting methods
access	Access management
access-list	Access list
aggregation	Aggregation port configuration
clock	Configure time-of-day clock
command-history-log	Command History List
dot1x	IEEE Standard for port-based Network Access Control
eps	Ethernet Protection Switching
erps	Ethernet Ring Protection Switching
evc	Ethernet Virtual Connections
event	Show trap event configuration
green-ethernet	Green ethernet (Power reduction)
history	Display the session command history
interface	Interface status and configuration
ip	Internet Protocol
ipmc	IPv4/IPv6 multicast configuration
ipv6	IPv6 configuration commands
lacp	LACP configuration/status
line	TTY line information
link-oam	Link OAM configuration
lldp	Display LLDP neighbors information.
logging	System logging message
loop-protect	Loop protection configuration
mac	Mac Address Table information
map-api-key	show google map key configuration
mep	Maintenance Entity Point
monitor	Monitoring different system events
mrp	Show MRP Status
mvr	Multicast VLAN Registration configuration
ntp	Configure NTP
platform	Platform configuration
port-security	Port Security status - Port Security is a module with no direct configuration.
privilege	Display command privilege
process	Show process
ptp	Precision time Protocol (1588)
pvlan	PVLAN configuration

qos	Quality of Service
radius-server	RADIUS configuration
rapid-ring	Display Rapid Ring configurations
rmon	RMON statistics
running-config	Show running system information
sflow	Statistics flow.
smtp	Show email information
snmp	Display SNMP configurations
spanning-tree	STP Bridge
switchport	Display switching mode characteristics
system	Show system info
tacacs-server	TACACS+ configuration
terminal	Display terminal configuration parameters
udld	Unidirectional Link Detection(UDLD) configurations, statistics and status
upnp	Display UPnP configuration
user-privilege	Users privilege configuration
users	Display information about terminal lines
version	System hardware and software status
vlan	VLAN status
voice	Voice appliance attributes
web	Web

Command: **aaa**

Description: Show Authentication, Authorization and Accounting methods.

Syntax: **show** aaa

Parameters: | Output modifiers

<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show aaa
Authentication :
  console : local, fallback disabled
  telnet  : local, fallback disabled
  ssh     : local, fallback disabled
  http    : local, fallback disabled
  https   : no, fallback disabled
Authorization :
  console : no, commands disabled, fallback disabled
  telnet  : no, commands disabled, fallback disabled
  ssh     : no, commands disabled, fallback disabled
  http    : no, commands disabled, fallback disabled
  https   : no, commands disabled, fallback disabled
Accounting :
  console : no, commands disabled, exec disabled
  telnet  : no, commands disabled, exec disabled
  ssh     : no, commands disabled, exec disabled
  http    : no, commands disabled, exec disabled
  https   : no, commands disabled, exec disabled
SISGM1040-284-LRT#
```

Command: **access**

Description: Show Access management.

Syntax: **show** access management [statistics | <access_id_list>]

Parameters:

management	Access management configuration
<1~16>	ID of access management entry
|	Output modifiers
statistics	Statistics data
|	Output modifiers
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show access management 1
Switch access management mode is disabled
```

```
W: WEB/HTTPS
S: SNMP
T: TELNET/SSH

Idx VID  Start IP Address               End IP Address                W S T
--- ---  ------------------------------ ------------------------------ - - -
SISGM1040-284-LRT# show access management statistics

Access Management Statistics:
-----------------------------
HTTP     Receive:          0    Allow:          0    Discard:          0
HTTPS    Receive:          0    Allow:          0    Discard:          0
SNMP     Receive:          0    Allow:          0    Discard:          0
TELNET   Receive:          0    Allow:          0    Discard:          0
SSH      Receive:          0    Allow:          0    Discard:          0
SISGM1040-284-LRT#
```

Command: **access-list**

Description: Show Access list.

Syntax:

show access-list [interface [(<port_type> [<v_port_type_list>])]] [rate-limiter [<rate_limiter_list>]] [ace statistics [<ace_list>]]

show access-list ace-status [static] [link-oam] [loop-protect] [dhcp] [ptp] [upnp] [arp-inspection] [evc] [mep] [ipmc] [ip-source-guard] [ip-mgmt] [tt-loop] [y1564] [dms-client] [dms-server] [dms-ssdp] [dms-onvif] [agv-car] [dms-mdns] [ztp] [rapid-ring] [lacp-on-air] [mrp] [conflicts] [switch <switch_list>]

Parameters:

|	Output modifiers
ace	Access list entry
ace-status	The local ACEs status
interface	Select an interface to configure
rate-limiter	Rate limiter
<1~256>	ACE ID
|	Output modifiers
statistics	Traffic statistics
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<1~16>	Rate limiter ID
arp-inspection	The ACEs that are configured by ARP Inspection module
conflicts	The ACEs that did not get applied to the hardware due to hardware limitations
dhcp	ACEs that are configured by DHCP module
dms-client	The ACEs that are configured by DMS module
dms-mdns	The ACEs that are configured by DMS module
dms-onvif	The ACEs that are configured by DMS module
dms-server	The ACEs that are configured by DMS module
dms-ssdp	The ACEs that are configured by DMS module
evc	The ACEs that are configured by EVC module
ip-source-guard	The ACEs that are configured by IP Source Guard module
ipmc	The ACEs that are configured by IPMC module
lacp-on-air	The ACEs that are configured by LACP On Air module
link-oam	The ACEs that are configured by Link OAM module
loop-protect	The ACEs that are configured by Loop Protect module
mep	The ACEs that are configured by MEP module
ptp	The ACEs that are configured by PTP module
rapid-ring	The ACEs that are configured by RRING module
static	The ACEs that are configured by users manually
upnp	The ACEs that are configured by UPnP module
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port

<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show access-list ace statistics rate-limiter

Switch access-list ace number: 0

Switch access-list rate limiter ID 1 is 1 pps
Switch access-list rate limiter ID 2 is 1 pps
Switch access-list rate limiter ID 3 is 1 pps
Switch access-list rate limiter ID 4 is 1 pps
Switch access-list rate limiter ID 5 is 1 pps
Switch access-list rate limiter ID 6 is 1 pps
Switch access-list rate limiter ID 7 is 1 pps
Switch access-list rate limiter ID 8 is 1 pps
Switch access-list rate limiter ID 9 is 1 pps
Switch access-list rate limiter ID 10 is 1 pps
Switch access-list rate limiter ID 11 is 1 pps
Switch access-list rate limiter ID 12 is 1 pps
Switch access-list rate limiter ID 13 is 1 pps
Switch access-list rate limiter ID 14 is 1 pps
Switch access-list rate limiter ID 15 is 1 pps
Switch access-list rate limiter ID 16 is 1 pps
SISGM1040-284-LRT# show access-list interface GigabitEthernet 1/3

GigabitEthernet 1/3 :
---------------------
GigabitEthernet 1/3 access-list action is permit
GigabitEthernet 1/3 access-list policy ID is 0
GigabitEthernet 1/3 access-list rate limiter ID is disabled
  EVC policer ID is disabled
GigabitEthernet 1/3 access-list redirect is disabled
GigabitEthernet 1/3 access-list mirror is disabled
GigabitEthernet 1/3 access-list logging is disabled
GigabitEthernet 1/3 access-list shutdown is disabled
GigabitEthernet 1/3 access-list port-state is enabled
GigabitEthernet 1/3 access-list counter is 0
SISGM1040-284-LRT#
```

Command: **aggregation**
Description: Show Aggregation port configuration.
Syntax: **show** aggregation [mode]
Parameters: | Output modifiers
mode Traffic distribution mode
<cr>
Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# show aggregation mode
Aggregation Mode:

SMAC  : Enabled
DMAC  : Disabled
IP    : Enabled
Port  : Enabled
SISGM1040-284-LRT#
```

Command: **clock**
Description: Show system time and date.
Syntax: **show** clock
show clock detail
Parameters: detail Display detailed information
<cr>
Mode: Exec mode.
Example:

```
SISGM1040-284-LRT# show clock
System Time     : 2022-01-17T14:28:49+00:00

SISGM1040-284-LRT# show clock detail
System Time     : 2022-01-17T14:28:54+00:00

Timezone : Timezone Offset : 0 ( 0 minutes)
Timezone Acronym :

Daylight Saving Time Mode : Disabled.
Daylight Saving Time Start Time Settings :
       Week: 1
       Day: 1
       Month: 1
       Date: 1
       Year: 2014
       Hour: 0
```

```
       Minute: 0
Daylight Saving Time End Time Settings :
       Week: 1
       Day: 1
       Month: 1
       Date: 1
       Year: 2097
       Hour: 0
       Minute: 0
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **command-history-log**

Description: Show Command History List status (enabled or disabled).

Syntax: **show** command-history-log status.

Parameters:

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show command-history-log status
The status of termal for Command History Feature : Disable
SISGM1040-284-LRT# show command-history-log status
The status of termal for Command History Feature : Enable
SISGM1040-284-LRT#
```

Command: **dot1x**

Description: Show IEEE Standard for port-based Network Access Control .

Syntax: **show** dot1x statistics { eapol | radius | all } [interface (<port_type> [<v_port_type_list>])]

show dot1x status [interface (<port_type> [<v_port_type_list>])] [brief]

Parameters:

statistics	Shows statistics for either eapol or radius.
status	Shows dot1x status, such as admin state, port state and last source.
all	Show all dot1x statistics
eapol	Show EAPoL statistics
radius	Show Backend Server statistics
|	Output modifiers
interface	Interface
<cr>	
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12
brief	Show status in a brief format

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show dot1x statistics all interface GigabitEthernet 1/5
GigabitEthernet 1/5 EAPOL Statistics:

Rx Total:                           0   Tx Total:
    0
Rx Response/Id:                      0   Tx Request/Id:
    0
Rx Response:                        0   Tx Request:
    0
Rx Start:                           0
Rx Logoff:                          0
Rx Invalid Type:                     0
Rx Invalid Length:                   0

GigabitEthernet 1/5 Backend Server Statistics:

Rx Access Challenges:                0   Tx Responses:
    0
Rx Other Requests:                  0
Rx Auth. Successes:                  0
Rx Auth. Failures:                  0
```

```
SISGM1040-284-LRT# show dot1x status brief interface GigabitEthernet 1/1
Inf       Admin  Port State  Last Src          Last ID        QOS   VLAN  Guest
--------  -----  ----------  ---------------   -------------  ---    --  --
Gi 1/1    Auth   Disabled    -                 -               -     -     -
SISGM1040-284-LRT#
```

Command: **eps**

Description: Show Ethernet Protection Switching.

Syntax: **show** eps [<inst>] [detail]

Parameters:

|	Output modifiers
<range_list>	The range of EPS instances.
detail	Show detailed state including configuration information.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show eps 1-2

EPS state is:
    Inst       State     Wstate     Pstate     TxAps r b     RxAps r b     FopPm     FopCm     FopNr
FopNoAps

SISGM1040-284-LRT# show eps detail

EPS state is:
    Inst       State     Wstate     Pstate     TxAps r b     RxAps r b     FopPm     FopCm     FopNr
FopNoAps



EPS Configuration is:
    Inst     Dom     Archi     Wflow     Pflow     Wmep     Pmep     APSmep Direct     Revert     Wtr
Hold     Aps

EPS Command is:
    Inst         Command

SISGM1040-284-LRT#
```

Command: **erps**

Description: Show Ethernet Ring Protection Switching.

Syntax: **show** erps { [<groups>] } [detail | statistics]

Parameters:

1~64	Zero or more ERPS group numbers
|	Output modifiers
detail	Show detailed information
statistics	Show statistics
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show erps 1
(L=Link Up/Down; B=Blocked/Unblocked)      Maj RPL  RPL   RPL  FSM   R-APS
Gr Typ V Rev Port 0     L B Port 1     L B Grp Role Port  Blck State TX RX FOP
--+---+-+---+----------+-+-+----------+-+-+---+----+-----+----+-----+--+--+---
 1 M-I 2 Rev Gi 1/1     U B Gi 1/2     U U -   -    -     -    PEND  Y     N
SISGM1040-284-LRT# show erps detail
```

```
Grp#  Port 0        Port 1        RPL:Role   Port    Blocking
   1  Gi 1/1        Gi 1/2        -          -       -
    Protected VLANS:
      None
    Protection Group State           :Active
    Port 0 SF MEP                   :1
    Port 1 SF MEP                   :2
    Port 0 APS MEP                  :1
    Port 1 APS MEP                  :2
    WTR Timeout                     :1
    WTB Timeout                     :5500
    Hold-Off Timeout                :0
    Guard Timeout                   :500
    Node Type                       :Major-Interconnected
    Reversion                       :Revertive
    Version                         :2
    ERPSv2 Administrative Command     :None

    FSM State                       :PENDING
    Port 0 Link Status               :Link Up
    Port 1 Link Status               :Link Up
    Port 0 Block Status              :BLOCKED
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT# show erps statistics
Grp      RAPS RX    RAPS Drop      L-SF   L-SF Cl   R-SF RX   R-FS RX     NR TX
---+------------+------------+---------+---------+---------+---------+---------
  1           0           0        0        0        0        0        0
  2           0           0        0        0        0        0        0
SISGM1040-284-LRT#
```

Message: *% No ERPS groups configured.*

Command: **evc**

Description: Show Ethernet Virtual Connections.

Syntax:

show evc statistics { [<evc_id> | all] } [ece [<ece_id>]] [interface (<port_type> [<port_list>])] [pw <pw_num_list>] [cos <cos>] [green | yellow | red | discard] [frames | bytes]

show evc { [<evc_id> | all] } [ece [<ece_id>]]

Parameters:		
	<1-256>	EVC identifier
	all	Process all EVCs
	ece	EVC Control Entry
	statistics	Statistic counters
	ece	EVC Control Entry
	<1-256>	ECE identifier
	cos	Setup Class of Service
	discard	Discard counters
	green	Green counters
	interface	Interface
	red	Red counters
	yellow	Yellow counters
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list for all port types
	<0~7>	Class of Service

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show evc 1 ece 1
                                  Inner Tag
               Outer Tag
                                  ----------------------------------------
---------------- ---------
EVC ID VID       IVID      Learning Type         VID Mode VID       PCP/DEI Pres
ervation PCP DEI VID       NNI Ports
------ --------- --------- -------- ------------ -------- --------- ------------
-------- --- --- --------- ---------
1      1         1         Enabled  None         Normal   1         Fixed
         0   0   10        2-4
SISGM1040-284-LRT# show evc statistics cos 0 interface GigabitEthernet 1/2
Interface GigabitEthernet 1/2, Class 0 Statistics:

Rx Green:                        3770   Tx Green:                          0
Rx Yellow:                          0   Tx Yellow:                         0
Rx Red:                             0
Rx Green Discard:                   0
```

```
Rx Yellow Discard:                 0
SISGM1040-284-LRT# show evc statistics cos 3 discard interface GigabitEthernet 1/4
Interface               Class  Rx Green Discard      Rx Yellow Discard
----------------------  -----  --------------------  --------------------
GigabitEthernet 1/4     3      0                     0
SISGM1040-284-LRT#
```

Command: **event**

Description: Show trap event configuration.

Syntax: **show** event

show event port

Parameters: port Show event port configuration

<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show event
Group Name                    Severity Level    Syslog Mode   Trap Mode   SMTP Mode     Digital Out
---------------  -----------  ------------     ------------  -----------  -----------    -----------
ACL                           Info             enable        disable     disable       N/A
ACL-Log                       Info             enable        disable     disable       N/A
Access-Mgmt                   Info             enable        disable     disable       N/A
Auth-Failed                   Warning          enable        disable     disable       N/A
Cold-Start                    Warning          enable        disable     disable       N/A
Config-Info                   Info             enable        disable     disable       N/A
DI-1-Abnormal                 Warning          enable        disable     disable       disable
DI-1-Normal                   Warning          enable        disable     disable       N/A
DMS                           Info             enable        disable     disable       N/A
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT# show event port
Port Active  LinkOn  LinkOff Overload RxThreshold TrafficDuration Syslog  Trap SMTP    DigitalOut
Severity
---- ------- ------- ------- -------- ----------- --------------- ------- ------ ---------- --------
1    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
2    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
3    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
4    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
5    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
6    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
7    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
8    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
9    enable  enable  enable  disable  0          1               enable  disable disable disable
Warning
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **format**

Description: Show current format.

Syntax: **show** format

Parameters: <cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show format
formatDateTime : disable
dateTime       : yyyy-mm-dd
timeFormat     : 24 hour
formatPortDesc : disable
SISGM1040-284-LRT#
```

Command: **green-ethernet**

Description: Show Green Ethernet (Power reduction).

Syntax: **show** green-ethernet [interface (<port_type> [<port_list>])]

show green-ethernet eee [interface (<port_type> [<port_list>])]

show green-ethernet energy-detect [interface (<port_type> [<port_list>])]

show green-ethernet short-reach [interface (<port_type> [<port_list>])]

Parameters:

|	Output modifiers
eee	Shows green Ethernet EEE status for a specific port or ports.
energy-detect	Shows green Ethernet energy-detect status for a specific port or ports.
interface	Shows green Ethernet status for a specific port or ports.
short-reach	Shows green Ethernet short-reach status for a specific port or ports.
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show green-ethernet eee interface GigabitEthernet 1/2
Interface              Lnk  EEE Capable  EEE Enabled  LP EEE Capable   EEE In Power Save
---------------------  ---  -----------  -----------  ---------------  -----------------
GigabitEthernet 1/2    Yes  Yes          No           No               No

SISGM1040-284-LRT# show green-ethernet short-reach interface GigabitEthernet 1/2

Interface              Lnk  Short-Reach
---------------------  ---  ------------
GigabitEthernet 1/2    Yes  No
SISGM1040-284-LRT#
```

Command: **history**

Description: Display the session command history.

Syntax: **show** history <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show history
  show eps
  show eps detail
  show erps 1
  show erps detail
  show erps statistics
  show evc 1 ece 1
  show evc ece
  show evc statistics interface *
  show evc statistics cos 0 green
  show evc statistics cos 0 interface GigabitEthernet 1/2
  show evc 1 ece 1
  show event
  show event port
  show green-ethernet eee interface GigabitEthernet 1/2
  show green-ethernet energy-detect
  show green-ethernet interface GigabitEthernet 1/2
  show green-ethernet short-reach
  show green-ethernet short-reach interface GigabitEthernet 1/2
  show history
SISGM1040-284-LRT#
```

Command: **interface**

Description: Show Interface status and configuration.

Syntax:

show interface (<port_type> [<in_port_list>]) switchport [access | trunk | hybrid]

show interface (<port_type> [<v_port_type_list>]) CableDiag

show interface (<port_type> [<v_port_type_list>]) capabilities [detail]

show interface (<port_type> [<v_port_type_list>]) description

show interface (<port_type> [<v_port_type_list>]) statistics [{ packets | bytes | errors | discards | filtered | { priority [<priority_v_0_to_7>] } }] [{ up | down }]

show interface (<port_type> [<v_port_type_list>]) status

show interface vlan [<vlist>]

Parameters:		
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	vlan	VLAN status
	<port_type_list>	Port list for all port types
	CableDiag	Display the latest cable diagnostic results.
	capabilities	Display capabilities.
	description	Show port description.
	statistics	Display statistics counters.
	status	Display status.
	switchport	Show interface switchport information
	<port_type_list>	Port list in 1/1-12
	|	Output modifiers
	<vlan_list>	VLAN list
	access	Show access ports status
	hybrid	Show hybrid ports status
	trunk	Show trunk ports status
	bytes	Show byte statistics.
	discards	Show discard statistics.
	down	Show ports which are down
	errors	Show error statistics.
	filtered	Show filtered statistics.
	packets	Show packet statistics.
	priority	Queue number
	up	Show ports which are up

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show interface GigabitEthernet 1/2 CableDiag
Interface              Link Status    Test Result    Length
---------------------  -------------  -------------  -------------
GigabitEthernet 1/2    No test results
```

```
SISGM1040-284-LRT# show interface GigabitEthernet 1/2 capabilities

GigabitEthernet 1/2 Capabilities:
     Tx Central                                Mon1      Mon2         Mon3
Port Wavelength  Bit Rate   Temperature   Vcc   (Bias)   (Tx PWR)     (Rx PWR)
---- ---------- ----------- ----------- ------- ------ ------------ ------------

  Model:               SISGM1040-284-LRT
  Type:                10/100/1000BaseT
  Speed:               10,100,1000,auto
  Duplex:              half,full,auto
  Trunk encap. type:    802.1Q
  Trunk mode:          access,hybrid,trunk
  Channel:             yes
  Broadcast suppression: no
  Flowcontrol:         yes
  Fast Start:          no
  QoS scheduling:       tx-(8q)
  CoS rewrite:         yes
  ToS rewrite:         yes
  UDLD:                no
  Inline power:         no
  RMirror:             yes
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT# show interface vlan
VLAN1
  LINK: 00-c0-f2-4a-11-36 Mtu:1500 <UP BROADCAST RUNNING MULTICAST>
  IPv4: 192.168.1.77/24 192.168.1.255
  IPv4: 169.254.78.68/16 169.254.255.255
  IPv6: fe80::2c0:f2ff:fe4a:1136/64 <UP RUNNING>

VLAN4096
  LINK: 00-c0-f2-4a-11-36 Mtu:1500 <BROADCAST MULTICAST>

VLAN4097
  LINK: 00-c0-f2-4a-11-36 Mtu:1500 <BROADCAST MULTICAST>
SISGM1040-284-LRT# show interface GigabitEthernet 1/3 switchport
Name: GigabitEthernet 1/3
Administrative mode: access
Access Mode VLAN: 1
Trunk Native Mode VLAN: 1
Administrative Native VLAN tagging: disabled
Allowed VLANs: 1-4095
Hybrid port configuration
```

```
-------------------------
Port Type: C-Port
Acceptable Frame Type: All
Ingress filter: Disabled
Egress tagging: All except-native
Hybrid Native Mode VLAN: 1
Hybrid VLANs Enabled: 1-4095

SISGM1040-284-LRT#
```

Command: **ip**

Description: Show Internet Protocol parameters.

Syntax:

show ip arp

show ip arp inspection [interface (<port_type> [<in_port_type_list>]) | vlan <in_vlan_list>]

show ip arp inspection entry [dhcp-snooping | static] [interface (<port_type> [<in_port_type_list>])]

show ip dhcp detailed statistics { server | client | snooping | relay | normal-forward | combined } [interface (<port_type> [<in_port_list>])]

show ip dhcp excluded-address

show ip dhcp pool [<pool_name>]

show ip dhcp relay [statistics]

show ip dhcp server

show ip dhcp server binding <ip>

show ip dhcp server binding [state { allocated | committed | expired }] [type { automatic | manual | expired }]

show ip dhcp server declined-ip

show ip dhcp server declined-ip <declined_ip>

show ip dhcp server statistics

show ip dhcp snooping [interface (<port_type> [<in_port_list>])]

show ip dhcp snooping table

show ip domain

show ip gateway interface

show ip http

show ip http server secure status

show ip igmp snooping [vlan <v_vlan_list>] [group-database [interface (<port_type> [<v_port_type_list>])] [sfm-information]] [detail]

show ip igmp snooping mrouter [detail]

show ip interface brief

show ip link-local interface

show ip name-server

show ip route

show ip source binding [dhcp-snooping | static] [interface (<port_type> [<in_port_type_list>])]

show ip ssh

show ip ssh key

show ip statistics [system] [interface vlan <v_vlan_list>] [icmp] [icmp-msg <type>]

show ip telnet

show ip verify source [interface (<port_type> [<in_port_type_list>])]

Parameters:		
	arp	Address Resolution Protocol
	dhcp	Dynamic Host Configuration Protocol
	domain	Default domain name
	gateway	gateway address binding interface
	http	Hypertext Transfer Protocol

igmp	Internet Group Management Protocol
interface	IP interface status and configuration
link-local	
name-server	Domain Name System
route	Display the current IP routing table
source	source command
ssh	Secure Shell
statistics	Traffic statistics
telnet	TELNET
verify	verify command
inspection	ARP inspection
entry	ARP inspection entries
interface	ARP inspection entry interface configuration
vlan	VLAN configuration
|	Output modifiers
dhcp-snooping	learn from DHCP snooping
interface	arp inspection entry interface configuration
static	setting from static entries
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<vlan_list>	Select a VLAN id to configure
detailed	DHCP server
excluded-address	Excluded IP database
pool	DHCP pools information
relay	DHCP relay agent configuration
server	DHCP server information
snooping	DHCP snooping
client	DHCP client
combined	Show all DHCP related statistics
normal-forward	DHCP normal L2 or L3 forward
relay	DHCP relay
server	DHCP server
snooping	DHCP snooping
<word32>	Pool name in 32 characters
statistics	Traffic statistics
binding	DHCP address bindings
declined-ip	Declined IP address
statistics	DHCP server statistics
interface	Select an interface to configure
table	show IP DHCP snooping table

server	HTTP web server
secure	Secure
status	Status
snooping	Snooping IGMP
detail	Detail running information/statistics of IGMP snooping
group-database	Multicast group database from IGMP
mrouter	Multicast router port status in IGMP
vlan	Search by VLAN
<vlan_list>	VLAN identifier(s): VID
brief	Brief IP interface status
interface	show Link-Local address binding interface
binding	IP source binding
dhcp-snooping	learn from DHCP snooping
interface	IP source binding interface configuration
static	setting from static entries
key	key
icmp	IPv4 ICMP traffic
icmp-msg	IPv4 ICMP traffic for designated message type
interface	Select an interface to configure
system	IPv4 system traffic
<0~255>	ICMP message type ranges from 0 to 255
source	verify source
interface	Gateway address binding interface

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show ip dhcp snooping table
SISGM1040-284-LRT# show ip domain

Current domain name is not configured.
SISGM1040-284-LRT# show ip http
Switch HTTP web server is enabled
Switch HTTP web server port is 80
SISGM1040-284-LRT# show ip http server secure status
Switch secure HTTP web server is disabled
Switch secure HTTP web server port is 443
Switch secure HTTP web redirection is disabled
Switch secure HTTP certificate is presented
SISGM1040-284-LRT# show ip igmp snooping vlan 100

IGMP Snooping is disabled to stop snooping IGMP control plane.
SISGM1040-284-LRT# show ip interface brief
Vlan Address            Method   Status
```

```
---- ------------------- -------- ------
   1 192.168.1.77/24     Manual   UP
SISGM1040-284-LRT# show ip link-local interface
Link-Local Address binding interface: 1
SISGM1040-284-LRT# show ip route
0.0.0.0/0 via 192.168.1.254 <UP GATEWAY HW_RT>
127.0.0.0/8 via 127.0.0.1 <UP>
127.0.0.1/32 via 127.0.0.1 <UP HOST>
169.254.0.0/16 via VLAN1 <UP HW_RT>
192.168.1.0/24 via VLAN1 <UP HW_RT>
224.0.0.0/4 via 127.0.0.1 <UP>
SISGM1040-284-LRT# show ip ssh
Switch SSH is enabled
Switch SSH port is 22
Switch scp is disabled
SISGM1040-284-LRT# show ip ssh key
ECDSA:
Public key portion is:
 521 ecdsa-sha2-nistp521 AAAAE2VjZHNhLXNoYTItbmlzdHA1MjEAAAAIbmlzdHA1MjEAAACFBAD
s9M5OxdKZ27mZU1nUaeOd8J/Tb12QEa8QuzPJhQ7TPI0Ah0mQetvVPsj02PcwKbaTztlatR3Bneu98XC
EU6dM/AHZQDKSHwd98j+UKhZO0+q6BmQAERXLzklMfM0NDubognkV3h4Dt3kOTaBBF9DxYIMPuOvmOzq
LlsaPF8uaP9DW7g==
ECDSA: md5 2e:f7:0e:3a:c1:1e:35:ed:2e:ad:10:a4:31:a5:5b:4d


SISGM1040-284-LRT# show ip telnet
Switch Telnet server is enabled
Switch TELNET server port is 23
SISGM1040-284-LRT# show ip gateway interface
Gateway Address binding interface: 1
SISGM1040-284-LRT#
```

Command: **ipmc**

Description: Show IPv4/IPv6 multicast configuration.

Syntax: **show** ipmc profile [<profile_name>] [detail]

show ipmc range [<entry_name>]

Parameters:		
	profile	IPMC profile configuration
	range	A range of IPv4/IPv6 multicast addresses for the profile
	|	Output modifiers
	<word16>	Profile name in 16 char's
	detail	Detail information of a profile
	<word16>	Range entry name in 16 characters
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show ipmc range
SISGM1040-284-LRT# show ipmc profile
SISGM1040-284-LRT#
SISGM1040-284-LRT# show ipmc profile

Profile: IpmcProf1 (In VER-INI Mode)
Description: IpmcRange1
SISGM1040-284-LRT#
```

Messages: *IPMC Profile is currently disabled, please enable profile to start filtering.*

Command: **ipv6**

Description: Show IPv6 configuration commands.

Syntax:

show ipv6 dhcp-client [interface vlan <v_vlan_list>]

show ipv6 interface [vlan <v_vlan_list> { brief | statistics }]

show ipv6 mld snooping [vlan <v_vlan_list>] [group-database [interface (<port_type> [<v_port_type_list>])] [sfm-information]] [detail]

show ipv6 mld snooping mrouter [detail]

show ipv6 neighbor [interface vlan <v_vlan_list>]

show ipv6 route [interface vlan <v_vlan_list>]

show ipv6 statistics [system] [interface vlan <v_vlan_list>] [icmp] [icmp-msg <type>]

Parameters:		
	dhcp-client	Manage DHCPv6 client service
	interface	Select an interface to configure
	mld	Multicast Listener Discovery
	neighbor	IPv6 neighbors
	route	IPv6 routes
	statistics	Traffic statistics
	interface	Select an interface to configure
	vlan	VLAN of IPv6 interface
	snooping	Snooping MLD
	detail	Detail running information/statistics of MLD snooping
	group-database	Multicast group database from MLD
	mrouter	Multicast router port status in MLD
	vlan	Search by VLAN
	interface	Search by port
	sfm-information	Including source filter multicast information from MLD
	icmp	IPv6 ICMP traffic
	icmp-msg	IPv6 ICMP traffic for designated message type
	interface	Select an interface to configure
	system	IPv6 system traffic
	<0~255>	ICMP message type ranges from 0 to 255
	vlan	IPv6 interface traffic
	<vlan_list>	VLAN identifier(s): VID

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show ipv6 mld snooping detail group-database

MLD Snooping is disabled to stop snooping MLD control plane.
Multicast streams destined to unregistered MLD groups will be flooding.
Groups in range ff3e::/96 follow MLD SSM registration service model.
```

```
MLD Group Database

Switch-1 MLD Group Count: 0
SISGM1040-284-LRT# show ipv6 neighbor

fe80::2c0:f2ff:fe4a:1136 via VLAN1: 00-c0-f2-4a-11-36 Permanent/REACHABLE

SISGM1040-284-LRT# show ipv6 route
::1/128 via ::1 <UP HOST>
SISGM1040-284-LRT#
```

Command: **lacp**

Description: Show LACP configuration/status.

Syntax: **show** lacp on-air

show lacp { internal | statistics | system-id | neighbor }

Parameters:

internal	Internal LACP configuration
neighbor	Neighbor LACP status
on-air	LACP On Air configuration
statistics	Internal LACP statistics
system-id	LACP system id

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show lacp internal
Port                Mode      Key   Role    Timeout  Priority
--------------------  --------  ----  ------  -------  --------
Gi 1/1              disabled   Auto  Active  Fast     32768
Gi 1/2              disabled   Auto  Active  Fast     32768
Gi 1/3              disabled   Auto  Active  Fast     32768
Gi 1/4              disabled   Auto  Active  Fast     32768
Gi 1/5              disabled   Auto  Active  Fast     32768
Gi 1/6              disabled   Auto  Active  Fast     32768
Gi 1/7              disabled   Auto  Active  Fast     32768
Gi 1/8              disabled   Auto  Active  Fast     32768
Gi 1/9              disabled   Auto  Active  Fast     32768
Gi 1/10             disabled   Auto  Active  Fast     32768
Gi 1/11             disabled   Auto  Active  Fast     32768
Gi 1/12             disabled   Auto  Active  Fast     32768
SISGM1040-284-LRT# show lacp on-air
LACP On Air configuration

Index   Port   Couple IP
----- -------- --------------- ---------------
  1   Disabled        0.0.0.0        0.0.0.0
  2   Disabled        0.0.0.0        0.0.0.0
```

```
  3   Disabled        0.0.0.0        0.0.0.0
  4   Disabled        0.0.0.0        0.0.0.0
  5   Disabled        0.0.0.0        0.0.0.0
  6   Disabled        0.0.0.0        0.0.0.0
  7   Disabled        0.0.0.0        0.0.0.0
  8   Disabled        0.0.0.0        0.0.0.0
SISGM1040-284-LRT# show lacp system-id
System Priority: 32768
SISGM1040-284-LRT#
```

Command: **line**

Description: Show TTY line information.

Syntax: **show** line [alive]

Parameters:

|	Output modifiers
alive	Display information about alive lines
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show line alive
Line is vty 0.
    * You are at this line now.
    Alive from Telnet.
    Default privileged level is 2.
    Command line editing is disabled
    Display EXEC banner is enabled.
    Display Day banner is enabled.
    Terminal width is 80.
            length is 24.
            history size is 32.
            exec-timeout is 1440 min 0 second.

    Current session privilege is 15.
    Elapsed time is 0 day 0 hour 55 min 17 sec.
    Idle time is 0 day 0 hour 0 min 0 sec.

SISGM1040-284-LRT# show line
Line is con 0.
    Not alive.
    Default privileged level is 2.
    Command line editing is disabled
    Display EXEC banner is enabled.
    Display Day banner is enabled.
    Terminal width is 80.
```

```
            length is 24.
            history size is 32.
            exec-timeout is 10 min 0 second.

    Current session privilege is 0.
    Elapsed time is 0 day 0 hour 0 min 0 sec.
    Idle time is 0 day 0 hour 0 min 0 sec.

Line is vty 0.
    * You are at this line now.
    Alive from Telnet.
    Default privileged level is 2.
    Command line editing is disabled
    Display EXEC banner is enabled.
    Display Day banner is enabled.
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **link-oam**

Description: Show Link OAM configuration.

Syntax: **show** link-oam { [status] [link-monitor] [statistics] } [interface (<port_type> [<plist>])]

Parameters:		
	interface	Interface status and configuration
	link-monitor	Display link-monitor status parameters
	statistics	Display statistics parameters
	status	Display local and remote node status parameters
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show link-oam interface GigabitEthernet 1/2

   Interface            Control    Mode       Status
--------------------    ---------  -------   -----------
GigabitEthernet    1/2    disabled  passive   non operational

SISGM1040-284-LRT# show link-oam link-monitor status

GigabitEthernet 1/1
----------------------------------------
Admin state:                          Disabled
PDU permission:                       Receive only
Discovery state:                      Fault state
Remote MAC Address:                   -

                                  Local client         Remote Client
                                  -------------        --------------

port status:                       non operational        -------
Mode:                              passive                -------
Unidirectional operation support:   disabled               -------
Remote loopback support:            disabled               -------
Link monitoring support:            enabled                -------
MIB retrieval support:              disabled               -------
OAM PDU Size:                      1500                   -------
Multiplexer state:                  Forwarding             -------
Parser state:                      Forwarding             -------
OUI:                               00-c0-f2               -------
PDU revision:                         0                   -------
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **lldp**

Description: Display Link Level Discovery Protocol information.

Syntax: **show** lldp [interface (<port_type> [<v_port_type_list>])]
show lldp eee [interface (<port_type> [<v_port_type_list>])]
show lldp med media-vlan-policy [<v_0_to_31>]
show lldp med remote-device [interface (<port_type> [<port_list>])]
show lldp neighbors [interface (<port_type> [<v_port_type_list>])]
show lldp statistics [interface (<port_type> [<v_port_type_list>])]

Parameters:

|	Output modifiers
eee	Display LLDP local and neighbor EEE information.
interface	Interface to display.
med	Display LLDP-MED neighbors information.
neighbors	Display LLDP neighbors information.
statistics	Display LLDP statistics information.
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12
media-vlan-policy	Display media VLAN policies.
remote-device	Display remote device LLDP-MED neighbors information.
<0~31>	List of policies.
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show lldp neighbors
No LLDP entries found
SISGM1040-284-LRT# show lldp statistics
LLDP global counters
Neighbor entries was last changed at 2010-12-31T23:59:59+00:00  (8146 secs. ago)
.
Total Neighbors Entries Added    0.
Total Neighbors Entries Deleted  0.
Total Neighbors Entries Dropped  0.
Total Neighbors Entries Aged Out 0.

LLDP local counters
                     Rx       Tx       Rx       Rx        Rx TLV   Rx TLV   R
x TLV
Interface             Frames   Frames   Errors   Discards  Errors   Unknown  Organiz.  Aged
---------             ------   ------   ------   --------  ------   -------  --------  ----
GigabitEthernet 1/1    0        0        0        0         0        0        0         0
GigabitEthernet 1/2    0        273      0        0         0        0        0         0
GigabitEthernet 1/3    0        0        0        0         0        0        0         0
```

```
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT# show lldp interface *
LLDP Configuration
------------------
TX Interval : 30

TX Hold : 4

TX Delay : 2

TX Reinit : 2

LLDP Port Configuration, Ena : Enabled, Dis : Disabled
------------------------------------------------------

Port     TX/RX Mode      CDP Aware      Port Descr      Sys Name     Sys Descr
   Sys Capa     Mgmt Addr
-------------------------------------------------------------------------------
-------------------------
  1      TX/RX           Ena            Ena           Ena          Ena
    Ena          Ena
  2      TX/RX           Ena            Ena           Ena          Ena
    Ena          Ena
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **logging**

Description: Show System logging message.

Syntax:

show logging <log_id> [switch <switch_list>]

show logging [info] [warning] [error] [emerg] [alert] [crit] [notice] [debug] [switch <switch_list>]

show logging flash [category { debug | system | application }] [level { informational | notice | warning | error }]

Parameters:		
	<1-4294967295>	Logging ID
	|	Output modifiers
	alert	Severity 1: Action must be taken immediately
	crit	Severity 2: Critical conditions
	debug	Severity 7: Debug-level messages
	emerg	Severity 0: System is unusable
	error	Severity 3: Error conditions
	flash	Logging message on Flash
	info	Severity 6: Informational messages
	notice	Severity 5: Normal but significant condition
	warning	Severity 4: Warning conditions
	exclude	Exclude lines that match
	include	Include lines that match
	<line>	String to match output lines
	<line>	String to match output lines
	switch	Switch
	<switch_list>	Switch ID list in 1
	category	Category of logging message
	level	Severity level
	application	Application category
	debug	Debug category
	system	System category
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show logging 9 switch 1
Switch : 1
ID     : 9
Level  : Info
Time   : 2011-01-01T00:00:12+00:00
Message:
topologyChange
SISGM1040-284-LRT#

ISGM1040-284-LRT# show logging
Switch logging host mode is disabled
```

```
Switch logging host address is null
Switch logging host port is 514
Number of entries on Switch 1:
Emerg       : 0
Alert       : 0
Crit        : 0
Error       : 0
Warning     : 7
Notice      : 0
Info        : 13
Debug       : 0
All         : 20

ID    Level   Time                      Message                                    iPush Status
----  ------  ------------------------  -------------------------------------------------
   1  Warning 2011-01-01T00:00:11+00:00  DI 1 change to abnormal
   2  Warning 2011-01-01T00:00:11+00:00  Link up on port 2
   3  Info    2011-01-01T00:00:11+00:00  Password of user 'admin' was changed
   4  Warning 2011-01-01T00:00:11+00:00  SFP module inserted on port 9
   5  Warning 2011-01-01T00:00:11+00:00  Switch just made a warm boot
   6  Warning 2011-01-01T00:00:11+00:00  SFP module inserted on port 10
   7  Warning 2011-01-01T00:00:11+00:00  SFP module inserted on port 12
   8  Info    2011-01-01T00:00:11+00:00  topologyChange
   9  Info    2011-01-01T00:00:12+00:00  topologyChange
  10  Warning 2011-01-01T00:00:29+00:00  DC Power 2 unavailable
  11  Info    2011-01-01T00:00:43+00:00  DMS: New Device(192.168.1.99) add in top
  12  Info    2011-01-01T00:00:49+00:00  Login passed for user 'admin'
  13  Info    2011-01-01T00:04:07+00:00  Login passed for user 'admin'
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT# show logging flash category application level warning
Category    | Level   | Time                     | Message
--------------------------------------------------------------------------------

Application | Warning     | 2011-01-01T00:00:11+00:00 | SFP module inserted on
port 11 Connector Type: SFP or SFP Plus - LC Fiber Type    : Multi-mode (MM) Tx
Wavelength : 850 Baud Rate     : 1000 Mbps Vendor OUI    : 00-c0-f2 Vendor Name
  : Transition      Vendor PN     : TN-SFP-SXD      Vendor Rev    : 0000 Vendor SN     :
8672217         Date Code     : 091215
Application | Warning     | 2011-01-01T00:00:11+00:00 | DI 1 change to abnormal
Application | Warning     | 2011-01-01T00:00:11+00:00 | Link up on port 2
Application | Warning     | 2011-01-01T00:00:11+00:00 | SFP module inserted on
port 12 Connector Type: SFP or SFP Plus - LC Fiber Type    : Reserved Tx Wavelength : 850
Baud Rate     : 10 Gbps Vendor OUI    : 00-c0-f2 Vendor Name   : Transition      Vendor PN
: TN-10GSFP-SR     Vendor Rev    : 0001 Vendor SN: 8801095         Date Code     : 120731
Application | Warning     | 2011-01-01T00:00:11+00:00 | Switch just made a warm boot
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **loop-protect**

Description: Show Loop protection configuration.

Syntax: **show** loop-protect [interface (<port_type> [<plist>])]

Parameters:		
	interface	Interface status and configuration
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list for all port types
	<port_type_list>	Port list in 1/1-12
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show loop-protect interface GigabitEthernet 1/2

Loop Protection Configuration
=====================================
Loop Protection   : Disable
Transmission Time : 5 sec
Shutdown Time     : 180 sec

GigabitEthernet 1/2
------------------------------
    Loop protect mode is enabled.
    Action is shutdown.
    Transmit mode is enabled.
    No loop.
    The number of loops is 0.
    Status is up.
SISGM1040-284-LRT#
```

Command: **mac**

Description: Show Mac Address Table information.

Syntax:

show mac address-table [conf | static | aging-time | { { learning | count } [interface (<port_type> [<v_port_type_list>]) | vlan <v_vlan_id_2>] } | { address <v_mac_addr> [vlan <v_vlan_id>] } | vlan <v_vlan_id_1> | interface (<port_type> [<v_port_type_list_1>])]

Parameters:		
	address-table	Mac Address Table
	address	MAC address lookup
	aging-time	Aging time
	conf	User added static mac addresses
	count	Total number of mac addresses
	interface	Select an interface to configure

	learning	Learn/disable/secure state
	static	All static mac addresses
	vlan	Addresses in this VLAN
	<mac_addr>	48 bit MAC address: xx:xx:xx:xx:xx:xx
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<vlan_id>	VLAN IDs 1-4095

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show mac address-table learning vlan 1
Vlan 1 learning is enabled
SISGM1040-284-LRT# show mac address-table count
Port Dynamic addresses
GigabitEthernet 1/1             0
GigabitEthernet 1/2             1
GigabitEthernet 1/3             0
GigabitEthernet 1/4             0
GigabitEthernet 1/5             0
GigabitEthernet 1/6             0
GigabitEthernet 1/7             0
GigabitEthernet 1/8             0
GigabitEthernet 1/9             0
GigabitEthernet 1/10            0
GigabitEthernet 1/11            0
GigabitEthernet 1/12            0

Total learned dynamic addresses for the switch: 1
Total static addresses in table: 6
SISGM1040-284-LRT# show mac address-table static
Type    VID  MAC Address       Ports
Static  1    00:c0:f2:4a:11:36   CPU
Static  1    01:00:0c:cc:cc:cc   CPU
Static  1    33:33:00:00:00:01  GigabitEthernet 1/1-12 CPU
Static  1    33:33:00:00:00:02  GigabitEthernet 1/1-12 CPU
Static  1    33:33:ff:4a:11:36  GigabitEthernet 1/1-12 CPU
Static  1    ff:ff:ff:ff:ff:ff  GigabitEthernet 1/1-12 CPU
SISGM1040-284-LRT#
```

Command: **map-api-key**

Description: Show Google Maps API key if one exists.

Syntax: **show** map-api-key

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show map-api-key
Key    :
SISGM1040-284-LRT
```

Command: **mep**

Description: Show Maintenance Entity Point.

Syntax: **show** mep [<inst>] [peer | cc | lm | dm | lt | lb | tst | aps | client | ais | lck | pm | syslog | tlv | bfd | rt | lst | lm-avail] [lm-hli] [detail]

Parameters:

<range_list>	The range of MEP instances
ais	Show AIS state
aps	Show APS state
bfd	show BFD state
cc	Show CC state
client	Show Client state
detail	Show detailed state including configuration information.
dm	Show DM state
lb	Show LB state
lck	Show LCK state
lm	Show LM state
lm-avail	show Availability state
lm-hli	show LM HLI state
lst	show LST state
lt	Show LT state
peer	Show peer mep state
pm	Show PM state
rt	show RT state
syslog	Show Syslog state
tlv	show TLV state
tst	Show TST state

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show mep
MEP state is:
  Inst  cLevel  cMeg  cMep  cAis  cLck cLoop cConf  cDeg  cSsf  aBlk  aTsd  aTsf
```

```
  Peer MEP  cLoc  cRdi cPeriod cPrio
     1   False False False False False False False False  True False False  True
     2   False False False False False False False False  True False False  True
     3   False False False False False False False False  True False False  True
SISGM1040-284-LRT# show mep 1 ais detail lm-hli
MEP LM High Loss Interval state is:
    Inst   Near Count   Far Count   Near/Far Consecutive Count
MEP LM High Loss Interval Configuration is:
    Inst     Interval   FLR Threshold
MEP AIS Configuration is:
    Inst      Rate     Protection
SISGM1040-284-LRT#
```

Command: **monitor**

Description: Show Monitoring different system events.

Syntax: **show** monitor [session { <session_number> | all | remote }]

Parameters:

	session	MIRROR session
	<1>	MIRROR session number
	all	Show all MIRROR sessions
	remote	Show only Remote MIRROR sessions
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show monitor session 1

Session 1
---------
Mode                    : Disabled
Type                    : Mirror
Source VLAN(s)           :
CPU Port                :
SISGM1040-284-LRT# show monitor session remote

Session 1
---------
Mode                    : Enabled
Type                    : Mirror
Source VLAN(s)           : 1,10-300
Destination Ports        : Gi 1/1
CPU Port                :
SISGM1040-284-LRT#
```

Command: **mrp**

Description: Show Media Redundancy Protocol status.

Syntax: **show** mrp <domainId>
show mrp <domainId> diag
show mrp <domainId> ringport [{ primary | secondary }]

Parameters:

<1-2>	Domain ID to display status of
|	Output modifiers
diag	Diagnostic output for MRP Domain
ringport	Ringport status for MRP Domain
primary	Show status for primary Ringport
secondary	Show status for secondary Ringport
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show mrp 1 diag
Status                          : 0x04(Open)
Error                           : 0x01(No error)
Transitions                      :           2
MRP Transmitted Frames           :      356290
MRP Received Frames              :           0
MRP Received Errors              :           0
MRP Received Unrecognized        :           0
Tx Error Total                  :           0
Rx Vlan Frames Total             :           0
Rx Test Frames Total             :           0
Rx Topology Change Frames Total  :           0
Rx Link Change Frames Total      :           0
ACL counter 0                   :           0
ACL counter 1                   :           0
Round Trip Delay Minimum, ms     :           0
Round Trip Delay Average, ms     :           0
Round Trip Delay Maximum, ms     :           0
Ring Open Count                 :           2
Lost frames by sequence id       :           0
Mixed frames by sequence id      :           0
Received with different UUID     :           0
Loop detected                   :           0
SISGM1040-284-LRT# show mrp 1 ringport
Primary Ring Port ID:     2
Status:                  Forwarding
Secondary Ring Port ID:    3
Status:                  Not connected
SISGM1040-284-LRT#
```

Command: **mvr**

Description: Show Multicast VLAN Registration configuration.

Syntax: **show** mvr [vlan <v_vlan_list> | name <mvr_name>] [group-database [interface (<port_type> [<v_port_type_list>])] [sfm-information]] [detail]

Parameters:		
	|	Output modifiers
	detail	Detail information/statistics of MVR group database
	group-database	Multicast group database from MVR
	name	Search by MVR name
	vlan	Search by VLAN
	sfm-information	Including source filter multicast information from MVR
	<word16>	MVR multicast VLAN name
	<vlan_list>	MVR multicast VLAN list
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list for all port types
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show mvr group-database interface * 1/2 vlan 1

MVR is now enabled to start group registration.

MVR Group Database

Switch-1 MVR Group Count: 0
SISGM1040-284-LRT# show mvr detail

MVR is now enabled to start group registration.

Switch-1 MVR-IGMP Interface Status

IGMP MVR VLAN 10 (Name is MVRCFG1) interface is enabled.
Querier status is IDLE ( Forced Non-Querier )
Querier Expiry Time: 255 seconds
IGMP address is set to 192.168.1.99
Control frames will be sent as Untagged
PRI:0 / RV:2 / QI:125 / QRI:100 / LMQI:5 / URI:1
RX IGMP Query:0 V1Join:0 V2Join:0 V3Join:0 V2Leave:0
TX IGMP Query:0 / (Source) Specific Query:0
IGMP RX Errors:0; Group Registration Count:0
Port Role Setting:
Inactive Port: Gi 1/1,Gi 1/2,Gi 1/3,Gi 1/4,Gi 1/5,Gi 1/6,Gi 1/7,Gi 1/8,Gi 1/9,Gi
 1/10,Gi 1/11,Gi 1/12
```

```
Interface Channel Profile: <No Associated Profile>

IGMP MVR VLAN 20 (Name is 3) interface is enabled.
Querier status is IDLE ( Forced Non-Querier )
Querier Expiry Time: 255 seconds
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT#
```

Messages:

% Invalid MVR VLAN VVVv.

MVR is currently disabled, please enable MVR to start group registration.

Command: **ntp**

Description: Display Network Timing Protocol status.

Syntax: **show** ntp status

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show ntp status
NTP Mode : disabled
Automatic: enabled
Idx   Server IP host address (a.b.c.d)
---   ----------------------------------------------------
1

Idx   Server IP host address (a.b.c.d) or a host name string
---   ----------------------------------------------------
1     www.ntppool.org
2     time-a-g.nist.gov
3     129.6.15.29
4     time.google.com
5     132.163.96.5
SISGM1040-284-LRT#
```

Command: **platform**

Description: Show Platform configuration.

Syntax: **show** platform debug
show platform phy [interface (<port_type> [<v_port_type_list>])]
show platform phy id [interface (<port_type> [<v_port_type_list>])]
show platform phy instance

Parameters:

debug	Debug command setting
phy	PHYs' information
|	Output modifiers

	id	ID #
	instance	PHY Instance Information
	interface	
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show platform debug
Platform debug command function is denied.
SISGM1040-284-LRT# show platform phy id interface GigabitEthernet 1/2
Port   Channel    API Base   Phy Id     Phy Rev.
----   -------    --------   -------    ------
2      7          0 (1g)     7420       3
SISGM1040-284-LRT# show platform debug

Platform debug command function is allowed.

SISGM1040-284-LRT# show platform phy
Port   API Inst   WAN/LAN/1G Mode       Duplex     Speed      Link
----   ---------  ---------  ----       ------     -----      ----
1      Default    1G         PD         -          -         ,No
2      Default    1G         PD         -          -         ,Yes
3      Default    1G         PD         -          -         ,No
4      Default    1G         PD         -          -         ,No
5      Default    1G         PD         -          -         ,No
6      Default    1G         PD         -          -         ,No
7      Default    1G         PD         -          -         ,No
8      Default    1G         PD         -          -         ,No
9      Default    1G         PD         -          -         ,No
10     Default    1G         PD         -          -         ,No
11     Default    1G         PD         -          -         ,No
12     Default    1G         PD         -          -         ,No
SISGM1040-284-LRT#
```

Command: **port-security**

Description: Show Port Security status – this module has no direct configuration.

Syntax: **show** port-security port [interface (<port_type> [<v_port_type_list>])]

show port-security switch [interface (<port_type> [<v_port_type_list>])]

Parameters:		
	port	Show MAC Addresses learned by Port Security
	switch	Show Port Security status.
	|	Output modifiers
	interface	
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	<port_type_list>	Port list for all port types
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show port-security port interface GigabitEthernet 1/2
GigabitEthernet 1/2
-------------------
MAC Address       VID   State       Added                    Age/Hold Time
----------------  ----  ----------  -----------------------  -------------
<none>

SISGM1040-284-LRT# show port-security switch
Users:
L = Limit Control
8 = 802.1X
V = Voice VLAN
Interface               Users  State         MAC Cnt
----------------------  -----  ------------  -------
GigabitEthernet 1/1      ---    No users           0
GigabitEthernet 1/2      ---    No users           0
GigabitEthernet 1/3      ---    No users           0
GigabitEthernet 1/4      ---    No users           0
GigabitEthernet 1/5      ---    No users           0
GigabitEthernet 1/6      ---    No users           0
GigabitEthernet 1/7      ---    No users           0
GigabitEthernet 1/8      ---    No users           0
GigabitEthernet 1/9      ---    No users           0
GigabitEthernet 1/10     ---    No users           0
GigabitEthernet 1/11     ---    No users           0
GigabitEthernet 1/12     ---    No users           0
SISGM1040-284-LRT#
```

Command: **privilege**

Description: Display command privilege.

Syntax: **show** privilege <cr>

Parameters:

|	Output modifiers
begin	Begin with the line that matches
exclude	Exclude lines that match
include	Include lines that match
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show privilege
SISGM1040-284-LRT#
```

Command: **process**

Description: Show process.

Syntax: **show** process list [detail]

show process load

Parameters:

list	list
load	load
|	Output modifiers
detail	optionally show thread call stack
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show process load
Load average(100ms, 1s, 10s):  27%,  12%,  11%
SISGM1040-284-LRT# show process list
ID  State SetPrio CurPrio Name                  1sec Load 10sec Load Stack Base Size  Used
--- ----- ------- ------- --------------------- --------- ---------- ---------- ----- -----
DSR N/A      N/A     N/A DSR Context                N/A       N/A       N/A   N/A   N/A
  3 Sleep      6       6 Network alarm support      N/A       N/A 0x84eaaf50  4096  1744
  4 Sleep      7       7 Network support            N/A       N/A 0x84ea8c90  8192  2360
  5 Susp      15      15 pthread.00000800           N/A       N/A 0x84ebfcb0  7828   300
  6 Sleep      7       7 Main                       N/A       N/A 0x83e86824 16384   524
  7 Sleep      7       7 Critd                      N/A       N/A 0x841ee430  8192   672
  8 Sleep      8       8 Configuration              N/A       N/A 0x814b35b0  8192  1084
  9 Sleep      7       7 ICFG Loader                N/A       N/A 0x82fac894 65536 12020
 10 Susp       7       7 ICFG Master Up Execute     N/A       N/A 0x82f9c774 65536  7100
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT# show process list detail
```

```
Version      : SISGM1040-284-LRT (standalone) v7.20.0206
Build Date   : 2024-03-05T16:21:15+08:00
Warning: Return addresses are highly unreliable (code seems to be compiled with
-O2)
ID  State SetPrio CurPrio Name                 1sec Load 10sec Load Stack Base
 Size  Used
--- ----- ------- ------- --------------------- --------- ---------- ----------
 ----- -----
DSR N/A       N/A     N/A DSR Context                N/A        N/A        N/A
   N/A   N/A
141 Exit        7       7 Trouble Shoot Ping ARP       N/A        N/A 0x815476f0
  8192  2512
#0  0x80794138
#1  0x80791bc0
#2  0x80791b94
142 Exit        7       7 Trouble Shoot Server T       N/A        N/A 0x81549890
  8192  5384
#0  0x80794138
#1  0x80791bc0
#2  0x80791b94
  3 Sleep       6       6 Network alarm support        N/A        N/A 0x84fdf540
  4096  1808
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **ptp**

Description: Show Precision time Protocol (1588) parameters.

Syntax:

show ptp <clockinst> local-clock

show ptp <clockinst> slave-cfg

show ptp <clockinst> slave-table-unicast

show ptp <clockinst> { default | current | parent | time-property | filter | servo | servo-extended | clk | ho | uni | master-table-unicast | slave | { { port-state | port-ds | wireless | foreign-master-record } [interface (<port_type> [<v_port_type_list>])] } }

show ptp ext

show ptp system-time

Parameters:		
	<0-3>	Show various PTP data
	ext	Show the 1PPS & External clock output configuration & vcxo frequency rate adjustment option.
	system-time	Show the PTP <-> system time synchronization mode.
	clk	Show PTP slave clock options parameters.
	current	Show PTP current data set (IEEE1588 paragraph 8.2.2).
	default	Show PTP default data set (IEEE1588 paragraph 8.2.1).
	filter	Show PTP filter parameters.

foreign-master-record	Show PTP port foreign masters.
ho	Show PTP slave holdover parameters.
local-clock	Show local clock current time
master-table-unicast	Show PTP master list of connected unicast slaves.
parent	Show PTP parent data set (IEEE1588 paragraph 8.2.3).
port-ds	Show PTP port data set (IEEE1588 paragraph 8.2.5).
port-state	Show PTP port state.
servo	Show PTP servo parameters.
servo-extended	Show PTP servo extended parameters.
slave	Show PTP slave clock lock threshold parameters.
slave-cfg	Show slave lock configuration
slave-table-unicast	Show the Unicast slave table of the requested unicast masters
time-property	Show PTP time properties data set (IEEE1588 paragraph 8.2.4).
uni	Show PTP slave unicast configuration parameters.
wireless	Show PTP port wireless parameters.
interface	Define interface list for the 'port' show commands. Default is show all interfaces.
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show ptp 0 clk
Option  threshold  'P'constant
------  ---------  -----------
SISGM1040-284-LRT#
SISGM1040-284-LRT# show ptp ext
PTP External One PPS mode: Disable, Clock output enabled: False, frequency : 1,
Preferred adj method: LTC frequency
SISGM1040-284-LRT#
SISGM1040-284-LRT# show ptp system-time
System clock synch mode (No System clock to PTP Sync)
SISGM1040-284-LRT#
SISGM1040-284-LRT# show ptp 0 default
ClockInst  DeviceType  2StepFlag  Ports  vtss_appl_clock_identity     Dom
---------  ----------  ---------  -----  --------------------------  ---
0                Inactive
SISGM1040-284-LRT#
SISGM1040-284-LRT# show ptp 3 local-clock
PTP Time (3)    : 1970-01-03T21:23:43+00:00 494,754,120
Clock Adjustment method: Software
SISGM1040-284-LRT#
```

Command: **pvlan**

Description: Show PVLAN configuration.

Syntax: **show** pvlan [<pvlan_list>]

show pvlan isolation [interface (<port_type> [<plist>])]

Parameters:

<range_list>	PVLAN ID to show configuration for
isolation	show isolation configuration
interface	List of port type and port ID, ex, Fast 1/1 Gigabit 2/3-5 Gigabit 3/2-4 Tengigabit 4/6
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12
<port_type_list>	Port list for all port types

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show pvlan 1
PVLAN ID  Ports
--------  --------------------------------------------------------------------------------
1         GigabitEthernet 1/1, GigabitEthernet 1/2, GigabitEthernet 1/3,
          GigabitEthernet 1/4, GigabitEthernet 1/5, GigabitEthernet 1/6,
          GigabitEthernet 1/7, GigabitEthernet 1/8, GigabitEthernet 1/9,
          GigabitEthernet 1/10, GigabitEthernet 1/11, GigabitEthernet 1/12
SISGM1040-284-LRT# show pvlan isolation interface GigabitEthernet 1/2
Port                            Isolation
-------------------------------  ---------
GigabitEthernet 1/2              Disabled
SISGM1040-284-LRT#
```

Messages: *% No such interface type: 1/2*

Command: **qos**

Description: Show Quality of Service.

Syntax:

show qos [{ interface [(<port_type> [<port>])] } | wred | { maps [dscp-cos] [dscp-ingress-translation] [dscp-classify] [cos-dscp] [dscp-egress-translation] } | storm | { qce [<qce>] }]

Parameters:		
	interface	Interface
	maps	Global QoS Maps/Tables
	qce	QoS Control Entry
	storm	Storm policer
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	cos-dscp	Map for cos to dscp
	dscp-classify	Map for dscp classify enable
	dscp-cos	Map for dscp to cos
	dscp-egress-translation	Map for dscp egress translation
	dscp-ingress-translation	Map for dscp ingress translation
	<1-256>	QCE ID

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show qos interface *
interface GigabitEthernet 1/1
 qos cos 0
 qos pcp 0
 qos dpl 0
 qos dei 0
 qos trust tag disabled
 qos map tag-cos pcp 0 dei 0 cos 1 dpl 0
 qos map tag-cos pcp 0 dei 1 cos 1 dpl 1
 qos map tag-cos pcp 1 dei 0 cos 0 dpl 0
 qos map tag-cos pcp 1 dei 1 cos 0 dpl 1
 qos map tag-cos pcp 2 dei 0 cos 2 dpl 0
 qos map tag-cos pcp 2 dei 1 cos 2 dpl 1
 qos map tag-cos pcp 3 dei 0 cos 3 dpl 0
 qos map tag-cos pcp 3 dei 1 cos 3 dpl 1
 qos map tag-cos pcp 4 dei 0 cos 4 dpl 0
 qos map tag-cos pcp 4 dei 1 cos 4 dpl 1
 qos map tag-cos pcp 5 dei 0 cos 5 dpl 0
 qos map tag-cos pcp 5 dei 1 cos 5 dpl 1
 qos map tag-cos pcp 6 dei 0 cos 6 dpl 0
 qos map tag-cos pcp 6 dei 1 cos 6 dpl 1
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT# show qos storm
```

```
qos storm:
==========
Unicast  : disabled       1 fps
Multicast: disabled       1 fps
Broadcast: disabled       1 fps
SISGM1040-284-LRT#
```

Messages: *% QOS: qce 1 not found*

No qce entries found!

Command: **radius-server**

Description: Show RADIUS configuration.

Syntax: **show** radius-server [statistics]

Parameters:

radius-server	RADIUS configuration
|	Output modifiers
statistics	RADIUS statistics
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show radius-server
Global RADIUS Server Timeout      : 5 seconds
Global RADIUS Server Retransmit   : 3 times
Global RADIUS Server Deadtime     : 0 minutes
Global RADIUS Server Key          : 96e8ba17230c7e71193c25bdd926ee6f22e5735838a1
1fd8b4ab3ca2e1911f5835058d24980d9557599124e710913f286632e6c4d90e621acea85682c2a2
60d0705e9389398572202ee32fae6097f04c5c11106f5bcace12e6e08a345a901d3018aeada0e495
157b53af55bc66a59012
Global RADIUS Server Attribute 4  : 192.168.1.30
Global RADIUS Server Attribute 95 :
Global RADIUS Server Attribute 32 : admin
RADIUS Server #1:
  Host name  : RadSrvr1
  Auth port  : 1812
  Acct port  : 1813
  Timeout    : 60 seconds
  Retransmit : 350 times
  Key        : e59539f0a5750b4aed1d90a4f3caab252aef6f93758ff78cb09999c2ba45bc980
96a49868bfff9ffb43c3aecab16c338fb520679e6267e85104648a2514f9e32
SISGM1040-284-LRT#

SISGM1040-284-LRT# show radius-server statistics
Global RADIUS Server Timeout      : 5 seconds
Global RADIUS Server Retransmit   : 3 times
Global RADIUS Server Deadtime     : 0 minutes
Global RADIUS Server Key          : 96e8ba17230c7e71193c25bdd926ee6f22e5735838a1
```

```
1fd8b4ab3ca2e1911f5835058d24980d9557599124e710913f286632e6c4d90e621acea85682c2a2
60d0705e9389398572202ee32fae6097f04c5c11106f5bcace12e6e08a345a901d3018aeada0e495
157b53af55bc66a59012
Global RADIUS Server Attribute 4  : 192.168.1.30
Global RADIUS Server Attribute 95 :
Global RADIUS Server Attribute 32 : admin
RADIUS Server #1:
  Host name  : RadSrvr1
  Auth port  : 1812
  Acct port  : 1813
  Timeout    : 60 seconds
  Retransmit : 350 times
  Key        : e59539f0a5750b4aed1d90a4f3caab252aef6f93758ff78cb09999c2ba45bc980
96a49868bfff9ffb43c3aecab16c338fb520679e6267e85104648a2514f9e32

RADIUS Server #1 (0.0.0.0:1812) Authentication Statistics:
Rx Access Accepts:                 0   Tx Access Requests:                0
Rx Access Rejects:                 0   Tx Access Retransmissions:          0
Rx Access Challenges:              0   Tx Pending Requests:                0
Rx Malformed Acc. Responses:        0   Tx Timeouts:                       0
Rx Bad Authenticators:             0
Rx Unknown Types:                  0
Rx Packets Dropped:                0
State:                         Ready
Round-Trip Time:                   0 ms

RADIUS Server #1 (0.0.0.0:1813) Accounting Statistics:
Rx Responses:                      0   Tx Requests:                      0
Rx Malformed Responses:            0   Tx Retransmissions:               0
Rx Bad Authenticators:             0   Tx Pending Requests:              0
Rx Unknown Types:                  0   Tx Timeouts:                      0
Rx Packets Dropped:                0
State:                         Ready
Round-Trip Time:                   0 ms
SISGM1040-284-LRT#
```

Messages: *No servers configured!*

Command: **rapid-ring**

Description: Display Rapid Ring parameters.

Syntax: **show** rapid-ring <cr>

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show rapid-ring
Entry Index              : 1
Rapid Ring Role          : Master
Rapid Ring Port 1        : 2
Rapid Ring Port 2        : 3
Rapid Ring Port 1 State   : Forwarding
Rapid Ring Port 2 State   : Discarding

Entry Index              : 2
Rapid Ring Role          : Member
Rapid Ring Port 1        : 4
Rapid Ring Port 2        : 5
Rapid Ring Port 1 State   : Discarding
Rapid Ring Port 2 State   : Discarding

Ring-to-Ring Role        : Active
Ring-to-Ring Port        : 6
Ring-to-Ring Port State   : Discarding
SISGM1040-284-LRT#
```

Command: **rmon**

Description: Show RMON parameters.

Syntax: **show** rmon alarm [<id_list>]
show rmon event [<id_list>]
show rmon history [<id_list>]
show rmon statistics [<id_list>]

Parameters:

alarm	Display the RMON alarm table
event	Display the RMON event table
history	Display the RMON history table
statistics	Display the RMON statistics table
<1~65535>	Alarm entry list
<1~65535>	Event entry list
<1~65535>	History entry list
<1~65535>	Statistics entry list
|	Output modifiers
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show rmon alarm 1

Alarm ID :    1
----------------
     Interval         : 30
     Variable         : .1.3.6.1.2.1.2.2.1.10.9
     SampleType       : deltaValue
     Value        : 0
     Startup          : risingOrFallingAlarm
     RisingThrld      : 2
     FallingThrld     : 1
     RisingEventIndex  : 3
     FallingEventIndex : 2

Alarm ID :    2
----------------
     Interval         : 30
     Variable         : .1.3.6.1.2.1.2.2.1.10.7
     SampleType       : deltaValue
     Value        : 0
     Startup          : risingOrFallingAlarm
     RisingThrld      : 2
     FallingThrld     : 1
-- more --, next page: Space, continue: g, quit: ^C
```

```
SISGM1040-284-LRT# show rmon event 1-2

Event ID :    1
---------------
     Description    : one
     Type          : log
     Community      : public
     LastSent       : Never

Event ID :    2
---------------
     Description    : two
     Type          : snmptrap
     Community      : public
     LastSent       :   1d 19:41:09
SISGM1040-284-LRT#

SISGM1040-284-LRT# show rmon history 1-2

History ID :    1
-----------------
   Data Source        : .1.3.6.1.2.1.2.2.1.1.3
   Data Bucket Request : 45
   Data Bucket Granted : 45
   Data Interval      : 1000

History ID :    2
-----------------
   Data Source        : .1.3.6.1.2.1.2.2.1.1.6
   Data Bucket Request : 50
   Data Bucket Granted : 50
   Data Interval      : 1800
SISGM1040-284-LRT#

SISGM1040-284-LRT# show rmon statistics 1-2

Statistics ID :    1
---------------------
   Data Source : .1.3.6.1.2.1.2.2.1.1.1
   etherStatsDropEvents         : 0
   etherStatsOctets             : 0
   etherStatsPkts               : 0
   etherStatsBroadcastPkts      : 0
   etherStatsMulticastPkts      : 0
   etherStatsCRCAlignErrors     : 0
```

```
    etherStatsUndersizePkts      : 0
    etherStatsOversizePkts       : 0
    etherStatsFragments          : 0
    etherStatsJabbers            : 0
    etherStatsCollisions         : 0
    etherStatsPkts64Octets       : 0
    etherStatsPkts65to127Octets  : 0
    etherStatsPkts128to255Octets : 0
    etherStatsPkts256to511Octets : 0
    etherStatsPkts512to1023Octets : 0
    etherStatsPkts1024to1518Octets: 0

-- more --, next page: Space, continue: g, quit: ^C
```

Command: **running-config**

Description: Show running system information.

Syntax: **show** running-config [all-defaults]

show running-config feature <feature_name> [all-defaults]

show running-config interface (<port_type> [<list>]) [all-defaults]

show running-config interface vlan <list> [all-defaults]

show running-config line { console | vty } <list> [all-defaults]

show running-config vlan { [<vlan_list>] } [all-defaults]

Parameters:

all-defaults	Include most/all default values
feature	Show configuration for specific feature
interface	Show specific interface or interfaces
line	Show line settings
vlan	VLAN
<cword>	Valid words are 'GVRP' 'R-Ring' 'access' 'access-list' 'activate' 'aggregation' 'arp-inspection' 'auth' 'cli_telnet' 'clock' 'dhcp' 'dhcp-snooping' 'dhcp6_client_interface' 'dhcp_server' 'dms-server' 'dns' 'dot1x' 'eps' 'erps' 'evc' 'green-ethernet' 'http' 'icli' 'ip-igmp-snooping' 'ip-igmp-snooping-port' 'ip-igmp-snooping-vlan' 'ipmc-profile' 'ipmc-profile-range' 'ipv4' 'ipv6' 'ipv6-mld-snooping' 'ipv6-mld-snooping-port' 'ipv6-mld-snooping-vlan' 'lacp' 'link-oam' 'lldp' 'logging' 'loop-protect' 'mac' 'mep' 'mstp' 'mvr' 'mvr-port' 'ntp' 'port' 'port-security' 'ptp' 'push_notification' 'pvlan' 'qos' 'rmon' 'sflow' 'smtp' 'snmp' 'source-guard' 'ssh' 'sysutil' 'trap_event' 'udld' 'upnp' 'user' 'vlan' 'voice-vlan' 'vtss-rmirror' 'vtun' 'web' 'web-privilege-group-level'
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show running-config vlan
Building configuration...
vlan 1
!
!
end
SISGM1040-284-LRT# show running-config all-defaults
Building configuration...
hostname SISGM1040-284-LRT
no logging on
command-history-log
no logging host
logging port 514
username admin privilege 15 password encrypted 063596b6a681674475933b85c86a61c96
b7c3a2a7c52aab05b8c2797ad7cad4b6facd95723428edf589173f85806f26993ab1e492e07cc9cd
298cbb0afe372fc
no access management
no loop-protect
```

```
loop-protect transmit-time 5
loop-protect shutdown-time 180
no ip dhcp server per-port
evc policer 1 enable type mef mode aware rate-type data cir 0 cbs 0 eir 0 ebs 0
evc policer 2 enable type single mode coupled rate-type data cir 0 cbs 0 eir 0 e
bs 0
! evc: 254 disabled policers not shown
evc 1 vid 1 ivid 1 interface GigabitEthernet 1/2-4 learning inner-tag add type n
one vid-mode normal vid 1 preserve disable pcp 0 dei 0 outer-tag add vid 10
evc 2 vid 100 ivid 11 interface GigabitEthernet 1/4-5 learning inner-tag add typ
e c-tag vid-mode normal vid 1 preserve disable pcp 0 dei 0 outer-tag add vid 11
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT# show running-config feature web-privilege-group-level all-defaults
Building configuration...
!
!
!
!
web privilege group Aggregation level cro 5 crw 10 sro 5 srw 10
web privilege group Debug level cro 15 crw 15 sro 15 srw 15
web privilege group DHCP level cro 5 crw 10 sro 5 srw 10
web privilege group DHCPv6_Client level cro 5 crw 10 sro 5 srw 10
web privilege group Diagnostics level cro 5 crw 10 sro 5 srw 10
web privilege group DMS_client level cro 5 crw 10 sro 5 srw 10
web privilege group DMS_server level cro 5 crw 10 sro 5 srw 10
web privilege group EEE level cro 5 crw 10 sro 5 srw 10
web privilege group EPS level cro 5 crw 10 sro 5 srw 10
web privilege group ERPS level cro 5 crw 10 sro 5 srw 10
web privilege group ETH_LINK_OAM level cro 5 crw 10 sro 5 srw 10
web privilege group EVC level cro 5 crw 10 sro 5 srw 10
web privilege group Green_Ethernet level cro 5 crw 10 sro 5 srw 10
web privilege group Install_Wizard level cro 5 crw 10 sro 5 srw 10
web privilege group IP level cro 5 crw 10 sro 5 srw 10
web privilege group IPMC_Snooping level cro 5 crw 10 sro 5 srw 10
web privilege group LACP level cro 5 crw 10 sro 5 srw 10
-- more --, next page: Space, continue: g, quit: ^C
```

Command: **sflow**

Description: Show Statistics flow.

Syntax: **show** sflow

show sflow statistics { receiver [<rcvr_idx_list>] | samplers [interface [<samplers_list>] (<port_type> [<v_port_type_list>])] }

Parameters: | Output modifiers

statistics	sFlow statistics.
receiver	Show statistics for receiver.
samplers	Show statistics for samplers.
interface	Show statistics for a specific interface or interfaces.
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12

Example:

```
SISGM1040-284-LRT# show sflow

Agent Configuration:
====================
Agent Address: 127.0.0.1

Receiver Configuration:
=======================
Owner       : <none>
Receiver    : 0.0.0.0
UDP Port    : 6343
Max. Datagram: 1400 bytes
Time left   : 0 seconds

No enabled collectors (receivers). Skipping displaying per-port info.
SISGM1040-284-LRT# show sflow statistics receiver
Tx Successes     Tx Errors       Flow Samples     Counter Samples
--------------  --------------  --------------  ---------------
            0               0               0               0
SISGM1040-284-LRT# show sflow statistics samplers

Per-Port Statistics:
====================

Interface              Rx Flow Samples  Tx Flow Samples  Counter Samples
---------------------  ---------------  ---------------  ----------------
GigabitEthernet 1/1                  0                0                0
GigabitEthernet 1/2                  0                0                0
GigabitEthernet 1/3                  0                0                0
GigabitEthernet 1/4                  0                0                0
GigabitEthernet 1/5                  0                0                0
GigabitEthernet 1/6                  0                0                0
GigabitEthernet 1/7                  0                0                0
GigabitEthernet 1/8                  0                0                0
GigabitEthernet 1/9                  0                0                0
GigabitEthernet 1/10                 0                0                0
```

```
GigabitEthernet 1/11                0              0              0
GigabitEthernet 1/12                0              0              0
SISGM1040-284-LRT#
```

Command: **smtp**

Description: Show email information.

Syntax: show smtp

Parameters: None.

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show smtp
Mail Server     : 192.168.1.77
User Name       : jeffs
Password        : ********
Sender          : sisgm1040-284-lrt
Return Path     : jeffs@lantronix.com
Email Adress 1  : jeffsherman@comcast.net
Email Adress 2  : jeffs@lantronix.net
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  :
SISGM1040-284-LRT#
```

Command: **snmp**

Description: Display SNMP configurations.

Syntax:
show snmp
show snmp access [<group_name> { v1 | v2c | v3 | any } { auth | noauth | priv }]
show snmp community v3 [<community>]
show snmp host [<conf_name>] [system] [switch] [interface] [aaa]
show snmp info
show snmp mib context
show snmp mib ifmib ifIndex
show snmp security-to-group [{ v1 | v2c | v3 } <security_name>]
show snmp user [<username> <engineID>]
show snmp view [<view_name> <oid_subtree>]

Parameters:

|	Output modifiers
access	access configuration
community	Community
host	Set SNMP host's configurations
info	show snmp info
mib	MIB(Management Information Base)
security-to-group	security-to-group configuration
user	User
view	MIB view configuration
<word32>	group name
v3	SNMPv3
<word32>	Name of the host configuration
aaa	AAA event group
interface	Interface event group
switch	Switch event group
system	System event group
context	MIB context
ifmib	IF-MIB
v1	v1 security model
v2c	v2c security model
v3	v3 security model
<word32>	Security user name
<word32>	MIB view name

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show snmp host switch
Trap Global Mode: disabled
SISGM1040-284-LRT# show snmp info
```

```
SNMP Info:
Conf VendorName:TN, VENDOR_GENERIC, PRODUCT:SISGM1040-284-LRT
EngineID: 800007e5017f000001
Using     oid :1.3.6.1.4.1.868.2.80.9, length:10
SISGM1040-284-LRT#


SISGM1040-284-LRT# show snmp mib context
BRIDGE-MIB :
    - dot1dBase (.1.3.6.1.2.1.17)
    - dot1dTp (.1.3.6.1.2.1.17.4)
Dot3-OAM-MIB :
    - dot3OamMIB (.1.3.6.1.2.1.158)
ENTITY-MIB :
    - entityMIBObjects (.1.3.6.1.2.1.47.1)
EtherLike-MIB :
    - transmission (.1.3.6.1.2.1.10)
IEEE8021-BRIDGE-MIB :
    - ieee8021BridgeBasePortTable (.1.3.111.2.802.1.1.2.1.1.4)
IEEE8021-MSTP-MIB :
    - ieee8021MstpMib (.1.3.111.2.802.1.1.6)
IEEE8021-PAE-MIB :
    - ieee8021paeMIB (.1.0.8802.1.1.1.1)
IEEE8021-Q-BRIDGE-MIB :
    - ieee8021QBridgeMib (.1.3.111.2.802.1.1.4)
IEEE8023-LAG-MIB :
    - lagMIBObjects (.1.2.840.10006.300.43.1)
IF-MIB :
    - ifMIB (.1.3.6.1.2.1.31)
IP-FORWARD-MIB :
SISGM1040-284-LRT# show snmp mib ifmib ifIndex
ifIndex    ifDescr                              Interface
---------  -----------------------------------  ---------
        1  Switch  1 - Port  1                  GigabitEthernet 1/1
        2  Switch  1 - Port  2                  GigabitEthernet 1/2
        3  Switch  1 - Port  3                  GigabitEthernet 1/3
        4  Switch  1 - Port  4                  GigabitEthernet 1/4
        5  Switch  1 - Port  5                  GigabitEthernet 1/5
        6  Switch  1 - Port  6                  GigabitEthernet 1/6
        7  Switch  1 - Port  7                  GigabitEthernet 1/7
        8  Switch  1 - Port  8                  GigabitEthernet 1/8
        9  Switch  1 - Port  9                  GigabitEthernet 1/9
       10  Switch  1 - Port 10                  GigabitEthernet 1/10
       11  Switch  1 - Port 11                  GigabitEthernet 1/11
       12  Switch  1 - Port 12                  GigabitEthernet 1/12
```

```
    50001  VLAN    1                          vlan 1
    60001  VLAN    1
SISGM1040-284-LRT# show snmp user
User Name              : default_user
Engine ID              : 800007e5017f000001
Security Level         : NoAuth, NoPriv
Authentication Protocol : None
Privacy Protocol       : None

SISGM1040-284-LRT#
```

Command: **spanning-tree**

Description: Show STP Bridge.

Syntax:

show spanning-tree [summary | active | { interface (<port_type> [<v_port_type_list>]) } | { detailed [interface (<port_type> [<v_port_type_list_1>])] } | { mst [configuration | { <instance> [interface (<port_type> [<v_port_type_list_2>])] }] }]

Parameters:		
	|	Output modifiers
	active	STP active interfaces
	detailed	STP statistics
	interface	Choose port
	mst	Configuration
	summary	STP summary
	<0-7>	Choose port
	configuration	STP bridge instance no (0-7, CIST=0, MST2=1...)
	interface	List of port type and port ID, ex, Fast 1/1 Gigabit 2/3-5 Gigabit 3/2-4 Tengigabit 4/6
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show spanning-tree
CIST Bridge STP Status
Bridge ID    : 32768.00-C0-F2-4A-11-29
Root ID      : 32768.00-C0-F2-4A-11-29
Root Port    : -
Root PathCost: 0
Regional Root: 32768.00-C0-F2-4A-11-29
Int. PathCost: 0
Max Hops     : 20
TC Flag      : Steady
```

```
TC Count     : 0
TC Last      : -
Port       Port Role       State       Pri  PathCost  Edge  P2P  Uptime
---------  --------------  ----------  ---  --------  ----  ---  -------------
Gi 1/2     DesignatedPort  Forwarding  128     20000  Yes   Yes    0d 19:11:26
Gi 1/7     DesignatedPort  Forwarding  128     20000  Yes   Yes    0d 19:11:26
SISGM1040-284-LRT# show spanning-tree summary
Protocol Version: RSTP
Hello Time      : 2
Max Age         : 20
Forward Delay   : 15
Tx Hold Count   : 6
Max Hop Count   : 20
BPDU Filtering  : Enabled
BPDU Guard      : Enabled
Error Recovery  : 30 seconds
CIST Bridge is active
SISGM1040-284-LRT#


SISGM1040-284-LRT# show spanning-tree mst 0
CIST Bridge STP Status
Bridge ID    : 32768.00-C0-F2-4A-11-29
Root ID      : 32768.00-C0-F2-4A-11-29
Root Port    : -
Root PathCost: 0
Regional Root: 32768.00-C0-F2-4A-11-29
Int. PathCost: 0
Max Hops     : 20
TC Flag      : Steady
TC Count     : 0
TC Last      : -
Mst    Port       Port Role       State       Pri  PathCost  Edge  P2P  Uptime
-----  ---------  --------------  ----------  ---  --------  ----  ---  -------------
CIST   Gi 1/2     DesignatedPort  Forwarding  128       900  Yes   Yes    0d 19:16:31
CIST   Gi 1/7     DesignatedPort  Forwarding  128     20000  Yes   Yes    0d 19:16:31
SISGM1040-284-LRT# show spanning-tree mst configuration
MSTI1  10-30
MSTI2  100-200
MSTI3  No VLANs mapped
MSTI4  No VLANs mapped
MSTI5  No VLANs mapped
MSTI6  No VLANs mapped
MSTI7  No VLANs mapped
SISGM1040-284-LRT#
```

Command: **switchport**

Description: Display switching mode characteristics.

Syntax: **show** switchport forbidden [{ vlan <vlan_list> } | { name <name> }]

Parameters:

forbidden	Lookup VLAN Forbidden port entry.
|	Output modifiers
name	Forbidden VLANs by VLAN name
vlan	Forbidden VLAN by VLAN ID
<word31>	VLAN name
<vlan_list>	VLAN IDs 1-4095

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show switchport forbidden vlan 1-8
VLAN  Name                            Interfaces
----  ------------------------------  ----------
1     default
2     VLAN0002
3     VLAN0003
4     VLAN0004
5     VLAN0005
6     VLAN0006
7     VLAN0007
8     VLAN0008

SISGM1040-284-LRT# show switchport forbidden
% No forbidden VLANs found
SISGM1040-284-LRT#
```

Command: **show system**

Description: Display version and other system-related information.

Syntax: **show** system

show system cpu status

show system di-do

show system reboot

Parameters:

	cpu	CPU
	di-do	Switch DI and DO default configuration
	reboot	Switch reboot scheduling
	status	Average CPU load

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show system cpu status
    Average load in 100 ms  : 1%
    Average load in   1 sec : 2%
    Average load in  10 sec : 2%
SISGM1040-284-LRT# show system di-do
Switch DI Mode: High
Switch DO Mode: open
SISGM1040-284-LRT# show system
Model Name                 : SISGM1040-284-LRT
System Description         : Hardened Managed Switch, (8) 10/100/1000Base-T + (4)
100/1000Base-X SFP Slots
Location                   :
Contact                    :
System Name                : SISGM1040-284-LRT
System Date                : 2011-01-01T19:19:40+00:00
System Uptime              : 19:19:41
Bootloader Version         : v1.20
Firmware Version           : v7.20.0206 2024-05-14
Hardware Version           : v1.02
Mechanical Version         : v1.01
Serial Number              : A088119AR2500001
MAC Address                : 00-c0-f2-4a-11-29
Memory                     : Total=45989 KBytes, Free=25813 KBytes, Max=25192 KBytes
FLASH                      : 0x40000000-0x41ffffff, 512 x 0x10000 blocks
Powers status              : Normal
Powers                     : PWR_1.0V:0.98V; PWR_3.3V:3.26V; PWR_2.5V:2.60V; PWR_1.8V:1.93V
Temperature status         : Normal
Temperature 1              : 41(C) ; 105(F)
Temperature 2              : 47(C) ; 116(F)
SISGM1040-284-LRT# show system reboot
Switch Reboot Mode: Disable
Switch Reboot Entry:
```

```
            Reboot Time
  Week Day     HH : MM
 ----------    -------
  Monday        -  -
  Tuesday       -  -
  Wednesday     -  -
  Thursday      -  -
  Friday       12 30
  Saturday      -  -
  Sunday        1  0

SISGM1040-284-LRT#
```

Command: **tacacs-server**

Description: Show TACACS+ configuration.

Syntax: **show** tacacs-server

Parameters: | Output modifiers

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show tacacs-server
Global TACACS+ Server Timeout      : 4 seconds
Global TACACS+ Server Deadtime     : 1 minutes
Global TACACS+ Server Key          :
TACACS+ Server #1:
  Host name  : TacSrvr1
  Port       : 49
  Timeout    : 60 seconds
  Key        : 21903ed96acb7590c77262255b165165291142f2377ba69bbd8fe0f259bb0168a
cd26e9afe00f5c6e3e446bcdea2f1167f16a3cd2fb4bfd9054fb9650b03af4c
SISGM1040-284-LRT#
```

Messages: *No servers configured!*

Command: **terminal**

Description: Display terminal configuration parameters.

Syntax: **show** terminal

Parameters: | Output modifiers

<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show terminal
Line is vty 0.
    * You are at this line now.
    Alive from Telnet.
    Default privileged level is 2.
    Command line editing is disabled
    Display EXEC banner is enabled.
    Display Day banner is enabled.
    Terminal width is 80.
            length is 24.
            history size is 32.
            exec-timeout is 1440 min 0 second.

    Current session privilege is 15.
    Elapsed time is 0 day 20 hour 33 min 12 sec.
    Idle time is 0 day 0 hour 0 min 0 sec.
SISGM1040-284-LRT#
```

Command: **udld**

Description: Show Unidirectional Link Detection (UDLD) configurations, statistics and Command status.

Syntax: **show** udld [interface (<port_type> [<plist>])]

Parameters:		
	|	Output modifiers
	interface	Choose port
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show udld interface GigabitEthernet 1/2

GigabitEthernet 1/2
--------------------------------------------------------------------------
UDLD Mode                : Disable
Admin State              : Disable
Message Time Interval(Sec): 7
Device ID(local)         : 00-C0-F2-4A-11-36
Device Name(local)       : SISGM1040-284-LRT
Bidirectional state      : Indeterminant

No neighbor cache information stored
---------------------
SISGM1040-284-LRT#
```

Command: **upnp**

Description: Display Universal Plug and Play configuration.

Syntax: **show** upnp

Parameters:		
	|	Output modifiers
	<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show upnp
UPnP Mode                : disabled
UPnP TTL                 : 4
UPnP Advertising Duration : 100
SISGM1040-284-LRT#
```

Command: **user-privilege**

Description: Show Users privilege configuration.

Syntax: **show** user-privilege

Parameters: <cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show user-privilege
username admin privilege 15 password encrypted 063596b6a681674475933b85c86a61c96
b7c3a2a7c52aab05b8c2797ad7cad4b6facd95723428edf589173f85806f26993ab1e492e07cc9cd
298cbb0afe372fc
SISGM1040-284-LRT# show user-privilege
username Bob privilege 14 password encrypted 9ac2a4e3631a02dbe6f24c88774e6ea33eb
6f10386f7690e8909ab4cc136adfeNjU0ZTAyNGM2M2ExN2FkZjhj24a1c7c957cec0636bd40ce0e0c
419a63c1a3789
username admin privilege 15 password encrypted bc296d81dc9a088de7b89e1754fce9a89
8d2e9faf7f90a6bc85a2df9d65cef28ab24e668b0df5e007eaaa99a5453d65d4d07978b6db13bebd
090024ab5276464
SISGM1040-284-LRT#
```

Command: **users**

Display information about terminal lines

Syntax: **show** users [myself]

Parameters: | Output modifiers

myself Display information about mine

<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show users
Line is vty 0.
    * You are at this line now.
    Connection is from 192.168.1.99:59559 by Telnet.
    User name is admin.
    Privilege is 15.
    Elapsed time is 0 day 20 hour 50 min 17 sec.
    Idle time is 0 day 0 hour 0 min 0 sec.

SISGM1040-284-LRT#
```

Command: **show version**

Description: Display version and other system-related information.

Syntax: **show** version [brief]

Parameters: | Output modifiers
brief
<cr>

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show version brief
Version      : SISGM1040-284-LRT (standalone) v7.20.0206
Build Date   : 2024-03-14T18:01:56+08:00
SISGM1040-284-LRT# show version

MEMORY          : Total=45557 KBytes, Free=24392 KBytes, Max=23799 KBytes
FLASH           : 0x40000000-0x41ffffff, 512 x 0x10000 blocks
MAC Address      : 00-c0-f2-4a-11-29
Previous Restart : Warm

System Contact   :
System Name      : SISGM1040-284-LRT
System Location  :
System Time      : 2011-01-01T01:32:02+00:00
System Uptime    : 01:30:50

Active Image
------------
Image           : managed
Version         : SISGM1040-284-LRT (standalone) v7.20.0206
Date            : 2024-05-14T18:01:56+08:00

Alternate Image
---------------
Image           : managed.bk
Version         : SISGM1040-284-LRT (standalone) v7.20.0202
Date            : 2023-08-25T10:01:43+08:00

SISGM1040-284-LRT#
```

Command: **vlan**

Description: Show VLAN status.

Syntax:

show vlan [id <vlan_list> | name <name> | brief] [all]

show vlan ip-subnet [<ipv4>]

show vlan mac [address <mac_addr>]

show vlan membership [id <vlan_list> | name <name>] [admin | combined | erps| evc | gvrp | mep | mstp | mvr | nas | rmirror | vcl | voice-vlan | dms | mrp | forbidden]

show vlan protocol [eth2 { <etype> | arp | ip | ipx | at }] [snap { <oui> | rfc-1042 | snap-8021h } <pid>] [llc <dsap> <ssap>]

show vlan status [interface (<port_type> [<plist>])] [admin | all | combined | conflicts | erps | evc | gvrp | mep | mstp | mvr | nas | rmirror | vcl | voice-vlan]

Parameters:		
	all	Show all VLANs (if left out only access VLANs are shown)
	brief	VLAN summary information
	id	VLAN status by VLAN id
	ip-subnet	Show VCL IP Subnet entries.
	mac	Show VLAN MAC entries.
	membership	VLAN membership
	name	VLAN status by VLAN name
	protocol	Protocol-based VLAN status
	status	Show the VLANs configured for each interface.
	address	Show a specific MAC entry.
	admin	Show the VLANs configured by administrator.
	combined	Show the combined set of configured VLANs.
	dms	Show the VLANs configured by DMS.
	evc	Show the VLANs configured by EVC.
	forbidden	Show VLANs configurations that has forbidden.
	gvrp	Show the VLANs configured by GVRP.
	id	VLAN membership by VLAN id
	mvr	Show the VLANs configured by MVR.
	name	VLAN membership by VLAN name
	nas	Show the VLANs configured by NAS.
	rmirror	Show the VLANs configured by Remote mirroring.
	voice-vlan	Show the VLANs configured by Voice VLAN.
	<word31>	Show VLAN name
	eth2	Ethernet protocol based VLAN status
	llc	LLC based VLAN status
	snap	SNAP-based VLAN status
	admin	Show the VLANs configured by administrator.
	all	Show VLANs configured VLANs for all VLAN users.
	combined	Show the combined set of configured VLANs.

conflicts	Show VLAN configurations that have conflicts.
erps	Show the VLANs configured by ERPS.
gvrp	Show the VLANs configured by GVRP.
interface	Show the VLANs configured for a specific interface or interfaces.
mep	Show the VLANs configured by MEP.
mstp	Show the VLANs configured by MSTP.
mvr	Show the VLANs configured by MVR.
nas	Show the VLANs configured by NAS.
rmirror	Show the VLANs configured by Remote mirroring.
vcl	Show the VLANs configured by VCL.
voice-vlan	Show the VLANs configured by Voice VLAN.
<0x600-0xffff>	Ether Type (Range: 0x600 - 0xFFFF)
arp	Ether Type is ARP
at	Ether Type is AppleTalk
ip	Ether Type is IP
ipx	Ether Type is IPX
<0x0-0xff>	DSAP (Range: 0x00 - 0xFF)
<0x0-0xffffff>	SNAP OUI (Range 0x000000 - 0XFFFFFF)
rfc-1042	SNAP OUI is rfc-1042
snap-8021h	SNAP OUI is 8021h
<ipv4_subnet>	Specify a specific IP Subnet.
<cr>	

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show vlan
VLAN  Name                            Interfaces
----  --------------------------------  ----------
1     default                         Gi 1/1-12
2     VLAN0002                        Gi 1/5-6
10    VLAN0010                        Gi 1/5-6
11    VLAN0011                        Gi 1/5-6
12    VLAN0012                        Gi 1/5-6
13    VLAN0013                        Gi 1/5-6
15    VLAN0015                        Gi 1/5-6

SISGM1040-284-LRT# show vlan protocol ?
    eth2    Ethernet protocol based VLAN status
    llc     LLC based VLAN status
    snap    SNAP-based VLAN status
    <cr>
SISGM1040-284-LRT# show vlan pro eth2 ip
The requested protocol was not found
```

```
% (VCL Error - The requested entry was not found in the switch)
SISGM1040-284-LRT# show vlan membership
VLAN  Name                            User Type   Interfaces
----  --------------------------------  ----------  ----------
1     default                         Admin       Gi 1/1-12
2     VLAN0002                        Admin       Gi 1/5-6
3     VLAN0003                        Admin       Gi 1/5-6
4     VLAN0004                        Admin       Gi 1/5-6
5     VLAN0005                        Admin       Gi 1/5-6

SISGM1040-284-LRT#
```

Messages: *The requested protocol was not found*

% (VCL Error - The requested entry was not found in the switch)

Command: **voice**

Description: Show Voice appliance attributes.

Syntax: **show** voice vlan [oui <oui> | interface (<port_type> [<port_list>])]

Parameters:		
	vlan	VLAN for voice traffic
	|	Output modifiers
	interface	Select an interface to configure
	oui	OUI configuration
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12
	<oui>	OUI value (e.g., 00-01-E3 = Siemens AG phones)

Mode: Exec mode.

Example:

```
SISGM1040-284-LRT# show voice vlan interface GigabitEthernet 1/2

GigabitEthernet 1/2 :
---------------------
GigabitEthernet 1/2 switchport voice vlan mode is auto
GigabitEthernet 1/2 switchport voice security is enabled
GigabitEthernet 1/2 switchport voice discovery protocol is lldp
SISGM1040-284-LRT# show voice vlan oui 00-01-E3
Telephony OUI  Description
-------------  -----------
SISGM1040-284-LRT# show voice vlan oui 00-01-E3
Telephony OUI  Description
-------------  -----------
00-01-E3       Siemens AG phones
SISGM1040-284-LRT# show voice vlan oui 00-dd-f1
Telephony OUI  Description
-------------  -----------
00-DD-F1       voip
SISGM1040-284-LRT# show voice vlan oui 00-0f-e2
Telephony OUI  Description
-------------  -----------
00-0F-E2       H3C phone
SISGM1040-284-LRT#
```

Command: **web**

Description: Display Web group privilege levels.

Syntax: **show** web privilege group [<group_name>] level

Parameters:

privilege Web privilege

group Web privilege group

<cword> Valid words are:

Aggregation	DHCP	DHCPv6_Client	DMS_client	DMS_server
Debug	Diagnostics	EEE	EPS	ERPS
ETH_LINK_OAM	EVC	Green_Ethernet	IP	IPMC_Snooping
Install_Wizard	LACP	LLDP	Loop_Protect	MAC_Table
MEP	MRP	MVR	Maintenance	NTP
PTP	Ports	Private_VLANs	QoS	RMirror
R_RING	SMTP	Security	Spanning_Tree	System
TS_client	TS_server	Trap_Event	Trouble_Shooting	UDLD
UPnP	VCL	VLAN_Translation	VLANs	VTUN
Voice_VLAN	XXRP	level	percepxion	sFlow

level Web privilege group level

Mode: Exec mode.

Example 1:

```
SISGM1040-284-LRT# show web privilege group lldp level
Group Name                     Privilege Level
                              CRO CRW SRO SRW
------------------------------ --- --- --- ---
LLDP                            5  10   5  10
SISGM1040-284-LRT# show web privilege group percepxion level
Group Name                     Privilege Level
                              CRO CRW SRO SRW
------------------------------ --- --- --- ---
percepxion                      5  10   5  10
SISGM1040-284-LRT#
```

Example 2:

```
SISGM1040-284-LRT# show web privilege group level
Group Name                     Privilege Level
                              CRO CRW SRO SRW
------------------------------ --- --- --- ---
Aggregation                     5  10   5  10
Debug                          15  15  15  15
DHCP                            5  10   5  10
DHCPv6_Client                   5  10   5  10
Diagnostics                     5  10   5  10
DMS_client                      5  10   5  10
DMS_server                      5  10   5  10
EEE                            5  10   5  10
```

```
EPS                              5  10   5  10
ERPS                             5  10   5  10
ETH_LINK_OAM                      5  10   5  10
EVC                              5  10   5  10
Green_Ethernet                    5  10   5  10
Install_Wizard                    5  10   5  10
IP                               5  10   5  10
IPMC_Snooping                     5  10   5  10
LACP                             5  10   5  10
LLDP                             5  10   5  10
Loop_Protect                      5  10   5  10
-- more --, next page: Space, continue: g, quit: ^C
```

Messages:

```
SISGM1040-284-LRT# +M25PXX : Init device with JEDEC ID 0x20BA19.
Luton26 board detected (VSC7429 Rev. E).
RedBoot(tm) bootstrap and debug environment [ROMRAM]
Release version 1_20-Vitesse - built 15:39:03, Jul  1 2016
Copyright (C) 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Free Software Foundation, Inc.
RedBoot is free software, covered by the eCos license, derived from the GNU General Public License.
You are welcome to change it and/or distribute copies of it under certain conditions. Under the
license terms, RedBoot's source code and full license terms must have been made available to you.
Redboot comes with ABSOLUTELY NO WARRANTY.
Platform: VCore-III (MIPS32 24KEc) LUTON26
RAM: 0x80000000-0x88000000 [0x80028320-0x87fdfffc available]
FLASH: 0x40000000-0x41ffffff, 512 x 0x10000 blocks
== Executing boot script in 1.000 seconds - enter ^C to abort
RedBoot> fis load -d managed
Image loaded from 0x80040000-0x8133dfb0
RedBoot> go
Press ENTER to get startedeth: DAD detected duplicate IPv6 address fe80:0002::02
c0:f2ff:fe4a:1136: NS in/out=187/1, NA in=0
eth: DAD complete for fe80:0002::02c0:f2ff:fe4a:1136 - duplicate found
eth: manual intervention required
eth: possible hardware address duplication detected, disable IPv6
```

6. Config Mode Commands

At the Exec mode prompt, enter `configure terminal <cr>` to enter config mode.

Command	Description
aaa	Authentication, Authorization and Accounting
access	Access management
access-list	Access list
aggregation	Aggregation mode
banner	Define a login banner
clock	Configure time-of-day clock
command-history-log	Enable to Save Command History to Flash
default	Set a command to its defaults
dms	Enable DMS Master
do	To run exec commands in config mode
dot1x	IEEE Standard for port-based Network Access Control
enable	Modify enable password parameters
end	Go back to EXEC mode
eps	Ethernet Protection Switching.
erps	Ethernet Ring Protection Switching
evc	Ethernet Virtual Connections
event	Trap event severity level
exec-timeout	Set Auto-logout Timeout period.
exit	Exit from current mode
green-ethernet	Green ethernet (Power reduction)
gvrp	Enable GVRP feature
help	Description of the interactive help system
hostname	Set system's network name
interface	Select an interface to configure
ip	Internet Protocol
ipmc	IPv4/IPv6 multicast configuration
ipv6	IPv6 configuration commands
lacp	LACP settings
line	Configure a terminal line
lldp	LLDP configurations.
logging	System logging message
loop-protect	Loop protection configuration
mac	MAC table entries/configuration
map-api-key	Set Google Maps key string
mep	Maintenance Entity Point
monitor	Monitoring different system events
mrp	MRP Configuration
mvr	Multicast VLAN Registration configuration
no	Negate a command or set its defaults
ntp	Configure NTP
percepxion	Configure Percepxion
port-security	Enable/disable port security globally.

privilege	Command privilege parameters
ptp	Precision time Protocol (1588)
qos	Quality of Service
radius-server	Configure RADIUS
rapid-ring	Set Rapid Ring's configurations
ring-to-ring	Set Ring to Ring's configurations
rmon	Remote Monitoring
sflow	Statistics flow.
smtp	Set email information
snmp-server	Set SNMP server's configurations
spanning-tree	Spanning Tree protocol
switchport	Set switching mode characteristics
system	Set Board Configuration
tacacs-server	Configure TACACS+
tzidx	Configure timezone city/area
udld	Enable UDLD in the aggressive or normal mode and to set the configurable message timer on all fiber-optic ports.
upnp	Set UPnP configuration
username	Establish User Name Authentication
vlan	VLAN commands
voice	Voice appliance attributes
web	Web

Command: **aaa**

Description: Configure Authentication, Authorization and Accounting.

Syntax:

aaa accounting { console | telnet | ssh } tacacs { [commands <priv_lvl>] [exec] }*1

aaa accounting { http | https } tacacs [exec]

aaa authentication login { console | telnet | ssh | https } { { local | radius | tacacs } [{ local | radius | tacacs } [{ local | radius | tacacs }]] } [fallback]

aaa authentication login { http } { { redirect | local | radius | tacacs } [{ redirect | local | radius | tacacs } [{ redirect | local | radius | tacacs } [{ redirect | local | radius | tacacs }]]] } [fallback]

aaa authorization { http | https } tacacs [fallback]

aaa authorization { console | telnet | ssh } tacacs commands <priv_lvl> [config-commands] [fallback]

Parameters:		
	accounting	Accounting
	authentication	Authentication
	authorization	Authorization
	console	Configure Console command accounting
	http	Configure HTTP command accounting
	ssh	Configure SSH command accounting
	telnet	Configure Telnet command accounting
	tacacs	Use TACACS+ for accounting
	exec	Enable EXEC accounting
	login	Login
	console	Configure Console authentication
	http	Configure HTTP authentication
	https	Configure HTTPS authentication
	ssh	Configure SSH authentication
	telnet	Configure Telnet authentication
	console	Configure Console command authorization
	http	Configure HTTP command authorization
	ssh	Configure SSH command authorization
	telnet	Configure Telnet command authorization
	http	Configure HTTP command authorization
	tacacs	Use TACACS+ for authorization
	commands	Enable command accounting
	exec	Enable EXEC accounting
	<0-15>	Command privilege level. Commands equal and above this level are accounted
	exec	Enable EXEC accounting
	commands	Enable command authorization
	local	Use local database for authentication
	radius	Use RADIUS for authentication
	tacacs	Use TACACS+ for authentication

	redirect	Secure HTTP web redirection
	tacacs	Use TACACS+ for authentication
	fallback	Configure local authentication fallback

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# aaa accounting http tacacs exec
SISGM1040-284-LRT(config)# aaa accounting ssh tacacs commands 15 exec
SISGM1040-284-LRT(config)# aaa authorization console tacacs commands 15
SISGM1040-284-LRT(config)# aaa authentication login http redirect fallback
SISGM1040-284-LRT(config)#
```

Command: **access**

Description: Configure Access management.

Syntax:

access management

access management <access_id> <access_vid> <start_addr> [to <end_addr>] { [web] [snmp] [telnet] | all }

access management <access_id> <access_vid> <start_addr> [to <end_addr>] { [web] [snmp] [telnet] | all }

Parameters:	management	Access management configuration
	<1-16>	ID of access management entry
	<1-4095>	The VLAN ID for the access management entry
	<ipv4_addr>	Start IPv4 address
	<ipv6_addr>	Start IPv6 address
	all	All services
	snmp	SNMP service
	telnet	TELNET/SSH service
	to	End address of the range
	web	Web service

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# access management 1 1 192.168.1.77 all
SISGM1040-284-LRT(config)#
```

Command: **access-list**
Description: Configure Access list.

Syntax:

access-list ace [update] <ace_id> [next { <ace_id_next> | last }] [ingress { switch <ingress_switch_id> | switchport { <ingress_switch_port_id> | <ingress_switch_port_list> } | interface { <port_type> <ingress_port_id> | (<port_type> [<ingress_port_list>]) } | any }] [policy <policy> [policy-bitmask <policy_bitmask>]] [tag { tagged | untagged | any }] [vid { <vid> | any }] [tag-priority { <tag_priority> | 0-1 | 2-3 | 4-5 | 6-7 | 0-3 | 4-7 | any }] [dmac-type { unicast | multicast | broadcast | any }] [frame-type { any | etype [etype-value { <etype_value> | any }] [smac { <etype_smac> | any }] [dmac { <etype_dmac> | any }] | arp [sip { <arp_sip> | any }] [dip { <arp_dip> | any }] [smac { <arp_smac> | any }] [arp-opcode { arp | rarp | other | any }] [arp -flag [arp-request { <arp_flag_request> | any }] [arp-smac { <arp_flag_smac> | any }] [arp-tmac { <arp_flag_tmac> | any }] [arp-len { <arp_flag_len> | any }] [arp-ip { <arp_flag_ip> | any }] [arp-ether { <arp_flag_ether> | any }]] | ipv4 [sip { <sipv4> | any }] [dip { <dipv4> | any }] [ip-protocol { < ipv4_protocol> | any }] [ip-flag [ip-ttl { <ip_flag_ttl> | any }] [ip-options { <ip_flag_options> | any }] [ip-fragment { <ip_flag_fragment> | any }]] | ipv4-icmp [sip { <sipv4_icmp> | any }] [dip { <dipv4_icmp> | any }] [icmp-type { <icmpv4_type> | any }] [icmp-code { <icmpv4_code> | any }] [ip-flag[ip-ttl { <ip_flag_icmp_ttl> | any }] [ip-options { <ip_flag_icmp_options> | any }] [ip-fragment { <ip_flag_icmp_fragment> | any }]] | ipv4-udp [sip { <sipv4_udp> | any }] [dip { <dipv4_udp> | any }] [sport { <sportv4_udp_start> [to <sportv4_udp_end>] | any }] [dport { <dportv4_udp_start> [to <dportv4_udp_end>] | any }] [ip-flag [ip-ttl { <ip_flag_udp_ttl> | any }] [ip-options { <ip_flag_udp_options> | any }] [ip-fragment { <ip_flag_udp_fragment> | any }]] | ipv4-tcp [sip { <sipv4_tcp> | any }] [dip { <dipv4_tcp> | any }] [sport { <sportv4_tcp_start> [to <sportv4_tcp_end>] | any }] [dport { <dportv4_tcp_start> [to <dportv4_tcp_end>] | any }] [ip-flag [ip-ttl { <ip_flag_tcp_ttl> | any }] [ip-options { <ip_flag_tcp_options> | any }] [ip-fragment { <ip_flag_tcp_fragment> | any }]] [tcp-flag [tcp-fin { <tcpv4_flag_fin> | any }] [tcp-syn { <tcpv4_flag_syn> | any }] [tcp-rst { <tcpv4_flag_rst> | any}] [tcp-psh { <tcpv4_flag_psh> | any }] [tcp-ack { <tcpv4_flag_ack> | any }] [tcp-urg { <tcpv4_flag_urg> | any }]] | ipv6 [next-header { <next_header> | any }] [sip { <sipv6> [sip-bitmask <sipv6_bitmask>] | any }] [hop-limit { <hop_limit> | any }] | ipv6-icmp [sip { <sipv6_icmp> [sip-bitmask <sipv6_bitmask_icmp>] | any }] [icmp-type { <icmpv6_type> | any }] [icmp-code { <icmpv6_code> | any }] [hop-limit { <hop_limit_icmp> | any }] | ipv6-udp [sip { <sipv6_udp> [sip-bitmask <sipv6_bitmask_udp>] | any }] [sport { <sportv6_udp_start> [to <sportv6_udp_end>] | any }] [dport { <dportv6_udp_start> [to <dportv6_udp_end>] | any }] [hop-limit { <hop_limit_udp> | any }] | ipv6-tcp [sip { <sipv6_tcp> [sip-bitmask <sipv6_bitmask_tcp>] | any }] [sport { <sportv6_tcp_start> [to sportv6_tcp_end>] | any }] [dport { <dportv6_tcp_start> [to <dportv6_tcp_end>] | any }] [hop-limit { <hop_limit_tcp> | any }] [tcp-flag [tcp-fin { <tcpv6_flag_fin> | any }] [tcp-syn { <tcpv6_flag_syn> | any }] [tcp-rst { <tcpv6_flag_rst> | any }] [tcp-psh { <tcpv6_flag_psh> | any }] [tcp-ack { <tcpv6_flag_ack> | any }] [tcp-urg { <tcpv6_flag_urg> | any }]] }] [action { permit | deny | filter { switchport <filter_switch_port_list> | interface (<port_type> [<fliter_port_list>]) } }] [rate-limiter { <rate_limiter_id> | disable }] [evc-policer { <evc_policer_id> | disable }] [mirror [disable]] [logging [disable]] [shutdown [disable]] [lookup-second [disable]] [redirect { switchport { <redirect_switch_port_id> | <redirect_switch_port_list> } | interface { <port_type> <redirect_port_id> | (<port_type> [<redirect_port_list>]) } | disable }]

access-list rate-limiter [<rate_limiter_list>] { pps <pps_rate> | 10pps <pps10_rate> | 100pps <pps100_rate> | 25kbps <kpbs25_rate> | 100kbps <kpbs100_rate> }

Parameters:

ace	Access list entry
rate-limiter	Rate limiter

update	Update an existing ACE
action	Access list action
dmac-type	The type of destination MAC address
evc-policer	EVC policer
frame-type	Frame type
ingress	Ingress
logging	Logging frame information. Note: The logging feature only works when the packet length is less than 1518 (without VLAN tags) and the System Log memory size and logging rate is limited.
mirror	Mirror frame to destination mirror port
next	insert the current ACE before the next ACE ID
policy	Policy
rate-limiter	Rate limiter
redirect	Redirect frame to specific port
shutdown	Shutdown incoming port. The shutdown feature only works when the packet length is less than 1518 (without VLAN tags).
tag	Tag
tag-priority	Tag priority
vid	VID field
deny	Deny
filter	Filter
permit	Permit
any	Don't-care the type of destination MAC address
broadcast	Broadcast destination MAC address
multicast	Multicast destination MAC address
unicast	Unicast destination MAC address
<1-256>	EVC policer ID
disable	Disable evc-policer
any	Don't-care the frame type
arp	Frame type of ARP
etype	Frame type of etype
ipv4	Frame type of IPv4
ipv4-icmp	Frame type of IPv4 ICMP
ipv4-tcp	Frame type of IPv4 TCP
ipv4-udp	Frame type of IPv4 TCP
ipv6	Frame type of IPv6
ipv6-icmp	Frame type of IPv6 ICMP
ipv6-tcp	Frame type of IPv6 TCP
ipv6-udp	Frame type of IPv6 UDP
any	Don't-care the ingress interface
interface	Select an interface to configure

<1-256>	The next ID
last	Place the current ACE to the end of access list
<1-16>	Rate limiter ID
disable	Disable rate-limiter
disable	Disable
interface	Select an interface to configure
any	Don't-care tagged or untagged
tagged	Tagged
untagged	Untagged
0-1	The range of tag priority
0-3	The range of tag priority
2-3	The range of tag priority
4-5	The range of tag priority
4-7	The range of tag priority
6-7	The range of tag priority
<0-7>	The value of tag priority
any	Don't-care the value of tag priority field
<1-4095>	The value of VID field
any	Don't-care the value of VID field
100kbps	100k bits per second
<1~16>	Rate limiter ID
pps	Packets per second
<0-10000>	Rate value
<0-3276700>	Rate value
Mode:	Config Mode

Example:

```
SISGM1040-284-LRT(config)# access-list ace 1 action deny
SISGM1040-284-LRT(config)# access-list ace 1
SISGM1040-284-LRT(config)# access-list rate-limiter 100kbps 5000
SISGM1040-284-LRT(config)#
```

Command: **aggregation**
Description: Configure Aggregation mode.
Syntax: **aggregation** mode { [smac] [dmac] [ip] [port] }*1
Parameters:

	mode	Traffic distribution mode
	dmac	Destination MAC affects the distribution
	ip	IP address affects the distribution
	port	IP port affects the distribution
	smac	Source MAC affects the distribution

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# aggregation mode dmac ip port smac
SISGM1040-284-LRT(config)#
```

Command: **banner**
Description: Define a login banner.
Syntax: **banner** [motd] <banner>
banner exec <banner>
banner login <banner>
Parameters:

	<line>	c banner-text c, where 'c' is a delimiting character
	exec	Set EXEC process creation banner
	login	Set login banner
	motd	Set Message of the Day banner

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# banner motd c c
SISGM1040-284-LRT(config)#
```

Command: **clock**

Description: Configure time-of-day clock.

Syntax:

clock set <icliDateWord> { <icliTimeWord24> | <icliTimeWord12> { AM | PM } }

clock summer-time <word16> date [<start_month_var> <start_date_var> <start_year_var> <start_hour_var> <end_month_var> <end_date_var> <end_year_var> <end_hour_var> [<offset_var>]]

clock summer-time <word16> recurring [<start_week_var> <start_day_var> <start_month_var> <start_hour_var> <end_week_var> <end_day_var> <end_month_var> <end_hour_var> [<offset_var>]]

clock timezone <word_var> <hour_var> [<minute_var> [<subtype_var>]]

Parameters:		
	set	set clock
	summer-time	Configure summer (daylight savings) time
	timezone	Configure time zone
	<word10>	yyyy/mm/dd
	<word8>	hh:mm:ss
	<word16>	name of time zone in summer
	date	Configure absolute summer time
	recurring	Configure recurring summer time
	<1-12>	Month to start
	<1-31>	Date to start
	<2000-2097>	Year to start
	<hhmm>	Time to start (hh:mm)
	<1-12>	Month to end
	<1-31>	Date to end
	<2000-2097>	Year to end
	<hhmm>	Time to end (hh:mm)
	<1-1440>	Offset to add in minutes
	<word16>	name of time zone
	<-23-23>	Hours offset from UTC
	<-59-59>	Minutes offset from UTC
	<0-8>	Sub type of time zone

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# clock set 2019/12/31 04:11:30
2019-12-31T04:11:30+00:00
SISGM1040-284-LRT(config)# clock summer-time CST date 6 15 2020 12:01 8 1 2020 1 2:59
SISGM1040-284-LRT(config)# clock timezone CST -23 30 4
```

Command: **command-history-log**
Description: Enable to Save Command History to Flash.
Syntax: **command-history-log**
Parameters: None
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# command-history-log
SISGM1040-284-LRT(config)#
```

Command: **default**
Description: Set a command to its defaults.
Syntax: **default** access-list rate-limiter [<rate_limiter_list>]
Parameters:

	access-list	Access list
	rate-limiter	Rate limiter
	<1~16>	Rate limiter ID

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# default access-list rate-limiter 1
SISGM1040-284-LRT(config)#
```

Command: **dms**
Description: Enable and configure Device Management System Mode.
Syntax: **dms** service-mode { disabled | enabled [priority { high | mid | low | non }] }
Parameters:

	service-mode	DMS mode
	disabled	DMS mode is disabled
	enabled	DMS mode is enabled
	priority	DMS priority. Choose the priority level of the switch.
	high	DMS priority is high; this will be the Controller (Master) Switch.
	low	DMS priority is low-level.
	mid	DMS priority is mid-level.
	non	This switch will never become the Controller (Master) Switch.

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# dms service-mode enabled priority high
SISGM1040-284-LRT(config)#
```

Command: **do**
Description: Run Exec commands in Config mode.
Syntax: **do** <command>
Parameters: <line> Exec Command
<cr>
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# do show vlan
VLAN  Name                            Interfaces
----  ------------------------------  ----------
1     default                         Gi 1/1-12

SISGM1040-284-LRT(config)#
```

Command: **dot1x**
Description: Configure IEEE Standard for port-based Network Access Control.
Syntax: **dot1x** authentication timer inactivity <v_10_to_100000>
dot1x authentication timer re-authenticate <v_1_to_3600>
dot1x feature { [guest-vlan] [radius-qos] [radius-vlan] }*1
dot1x guest-vlan <value>
dot1x guest-vlan supplicant
dot1x max-reauth-req <value>
dot1x re-authentication
dot1x system-auth-control
dot1x timeout quiet-period <v_10_to_1000000>
dot1x timeout tx-period <v_1_to_65535>
Parameters:

authentication	Authentication
feature	Globally enables/disables a dot1x feature functionality
guest-vlan	Guest VLAN
max-reauth-req	The number of times a Request Identity EAPoL frame is sent without response before considering entering the Guest VLAN
re-authentication	Set Re-authentication state
system-auth-control	Set the global NAS state
timeout	timeout
timer	timer
inactivity	Time in seconds between check for activity on successfully authenticated MAC addresses.
re-authenticate	The period between re-authentication attempts in seconds
<10-1000000>	seconds inactivity
<1-3600>	seconds re-authentication
guest-vlan	Globally enables/disables state of guest-VLAN

radius-qos	Globally enables/disables state of RADIUS-assigned QoS.
radius-vlan	Globally enables/disables state of RADIUS-assigned VLAN.
<1-4095>	Guest VLAN ID used when entering the Guest VLAN.
supplicant	The switch remembers if an EAPoL frame has been received on the port for the life-time of the port. Once the switch considers whether to enter the Guest VLAN, it will first check if this option is enabled or disabled. If disabled (unchecked; default), the switch will only enter the Guest VLAN if an EAPOL frame has not been received on the port for the life-time of the port. If enabled (checked), the switch will consider entering the Guest VLAN even if an EAPOL frame has been received on the port for the life-time of the port.
<1-255>	number of times for max-reauth-req
quiet-period	Time in seconds before a MAC-address that failed authentication gets a new authentication chance.
tx-period	the time between EAPoL retransmissions.
<10-1000000>	seconds for dot1x quiet-period
<1-65535>	seconds for dot1x timeout tx-period

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# dot1x feature guest-vlan radius-qos radius-vlan
SISGM1040-284-LRT(config)# dot1x guest-vlan 1
SISGM1040-284-LRT(config)# dot1x guest-vlan supplicant
SISGM1040-284-LRT(config)# dot1x max-reauth-req 1
SISGM1040-284-LRT(config)# dot1x system-auth-control
SISGM1040-284-LRT(config)# dot1x timeout quiet-period 50000
SISGM1040-284-LRT(config)# dot1x timeout tx-period 9000
SISGM1040-284-LRT(config)#
```

Command: **enable**

Description: Modify enable password parameters.

Syntax: **enable** password [level <priv>] <password>

enable secret { 0 | 5 } [level <priv>] <password>

Parameters:		
	password	Assign the privileged level clear password
	secret	Assign the privileged level secret
	<word32>	The UNENCRYPTED (clear-text) password
	level	Set exec level password
	<1-15>	Level number
	0	Specifies an UNENCRYPTED password will follow
	5	Specifies an ENCRYPTED secret will follow
	<word32>	Password

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# enable password level 15 admin
SISGM1040-284-LRT(config)# enable secret 0 admin
```

```
SISGM1040-284-LRT(config)# enable secret 5 level 15 admin
SISGM1040-284-LRT(config)# enable secret 5 level 14 abc123!@#
SISGM1040-284-LRT(config)#
```

Command: **end**
Description: Go back to EXEC mode.
Syntax: **end**
Parameters: None
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# end
SISGM1040-284-LRT#
```

Command: **eps**
Description: Configure Ethernet Protection Switching.
Syntax:

eps <inst> 1plus1 { bidirectional | { unidirectional [aps] } }

eps <inst> command { lockout | forced | manualp | manualw | exercise | freeze |lockoutlocal }

eps <inst> domain { port | tunnel-tp | pw } architecture { 1plus1 | 1for1 } work-flow { <flow_w> | <port_type> <port_w> } protect-flow { <flow_p> | <port_type> <port_p> }

eps <inst> holdoff <hold>

eps <inst> mep-work <mep_w> mep-protect <mep_p> mep-aps <mep_aps>

eps <inst> revertive { 10s | 30s | 5m | 6m | 7m | 8m | 9m | 10m | 11m | 12m | {wtr-value <wtr_value> } }

Parameters:

<1-100>	The EPS instance number.
1plus1	EPS 1+1 architecture.
command	EPS command.
domain	The domain of the EPS.
holdoff	Hold off timer.
mep-work	Working MEP instance.
revertive	Revertive EPS.
bidirectional	EPS 1+1 bidirectional protection type.
unidirectional	EPS 1+1 unidirectional protection type.
exercise	Exercise of the protocol - not traffic effecting. This is only allowed in case of 'Bidirectional' protection type
forced	Force switch normal traffic to protection.
freeze	Local Freeze of EPS.
lockout	Lockout of protection.
lockoutlocal	Local lockout of EPS.
manualp	Manual switch normal traffic to protection.

manualw	Manual switch normal traffic to working. This is only allowed in case of 'non-revertive' mode.
port	This EPS is protecting in the Port domain.
pw	This EPS is protecting in the MPLS-TP Pseudo-Wire domain.
tunnel-tp	This EPS is protecting in the MPLS-TP tunnel domain.
architecture	The EPS architecture.
architecture	The EPS architecture.
1for1	The architecture is 1 for 1.
1plus1	The architecture is 1 plus 1.
work-flow	The working flow instance that the EPS is related to.
GigabitEthernet	1 Gigabit Ethernet Port
<uint>	The working flow instance number when not in the port domain.
<port_type_id>	Port ID in 1/1-12
protect-flow	The protecting flow instance that the EPS is related to.
GigabitEthernet	1 Gigabit Ethernet Port
<uint>	The protecting flow instance number when not in the port domain.
<uint>	The hold off timer value in 100 ms. Max 10 sec.
<uint>	Working MEP instance number.
mep-protect	Protecting MEP instance.
<uint>	Protecting MEP instance number.
mep-aps	APS MEP instance.
<uint>	APS MEP instance number.
10m	WTR is 10 min.
10s	WTR is 10 sec.
11m	WTR is 11 min.
12m	WTR is 12 min.
30s	WTR is 30 sec.
5m	WTR is 5 min.
6m	WTR is 6 min.
7m	WTR is 7 min.
8m	WTR is 8 min.
9m	WTR is 9 min.
wtr-value	WTR as value.
Mode:	Config Mode

Example:

```
SISGM1040-284-LRT(config)# eps 1 1plus1 bidirectional
SISGM1040-284-LRT(config)# eps 1 command exercise
SISGM1040-284-LRT(config)# eps 1 domain tunnel-tp architecture 1plus1 work-flow
GigabitEthernet 1/2 protect-flow 3
MPLS-TP not supported
SISGM1040-284-LRT(config)# eps 1 holdoff 200
SISGM1040-284-LRT(config)# eps 1 mep-work 1 mep-protect 3 mep-aps 2
```

```
SISGM1040-284-LRT(config)# eps 1 revertive 5m
SISGM1040-284-LRT(config)#
```

Messages: *Error: EPS instance is not created*

Command: **erps**
Description: Configure Ethernet Ring Protection Switching.
Syntax:

erps <group> guard <guard_time_ms>

erps <group> holdoff <holdoff_time_ms>

erps <group> major port0 interface <port_type> <port0> port1 interface <port_type> <port1> [interconnect]

erps <group> mep port0 sf <p0_sf> aps <p0_aps> port1 sf <p1_sf> aps <p1_aps>

erps <group> revertive <wtr_time_minutes>

erps <group> rpl { owner | neighbor } { port0 | port1 }

erps <group> sub port0 interface <port_type> <port0> { { port1 interface <port_type> <port1> } | { interconnect <major_ring_id> } } [virtual-channel]

erps <group> topology-change propagate

erps <group> version { 1 | 2 }

erps <group> vlan { none | [add | remove] <vlans> }

Parameters:

1-64	ERPS group number
guard	Guard
holdoff	Hold-off time
major	Major ring
mep	MEP
revertive	Revertive
rpl	Ring Protection Link
sub	Sub-ring
topology-change	Topology Change
version	Version
vlan	VLAN
10-2000	Guard time in 10 ms steps between 10 and 2000 ms
0-10000	Hold-off time in ms
port0	ERPS Port 0 interface
interface	Ethernet interface
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_id>	Port ID in 1/1-12
port1	ERPS Port 1 interface
interface	Ethernet interface
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_id>	Port ID in 1/1-12
interconnect	Major ring is interconnected

port0	ERPS Port 0 interface
sf	Signal Fail
1-100	Index of Port 0 SignalFail MEP
aps	Automatic Protection Switching
1-100	Index of Port 0 APS MEP
port1	ERPS Port 1 interface
sf	Signal Fail
1-100	Index of Port 1 SignalFail MEP
aps	Automatic Protection Switching
1-100	Index of Port 1 APS MEP
1-12	Wait-to-restore time in minutes
neighbor	Neighbor role
owner	Owner role
port0	ERPS Port 0 interface
port1	ERPS Port 1 interface
interconnect	Sub-ring is interconnected
port1	ERPS Port 1 interface
1-64	Major ring group number
virtual-channel	Enable virtual channel for sub-ring
propagate	Propagate
1	ERPS version 1
2	ERPS version 2
<vlan_list>	List of VLANs
add	Add to set of included VLANs
none	Do not include any VLANs
remove	Remove from set of included VLANs

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# erps 1 guard 300
SISGM1040-284-LRT(config)# erps 1 holdoff 600
SISGM1040-284-LRT(config)# erps 1 major port0 interface GigabitEthernet 1/2 port 1 interface GigabitEthernet 1/4 interconnect
SISGM1040-284-LRT(config)# erps 1 mep port0 sf 25 aps 33 port1 sf 9 aps 14
SISGM1040-284-LRT(config)# erps 1 revertive 6
SISGM1040-284-LRT(config)# erps 1 rpl neighbor port0
SISGM1040-284-LRT(config)# erps 1 sub port0 interface GigabitEthernet 1/2 interconnect 2 virtual-channel
SISGM1040-284-LRT(config)# erps 1 topology-change propagate
SISGM1040-284-LRT(config)# erps 1 version 2
SISGM1040-284-LRT(config)# erps 1 vlan 100-200
SISGM1040-284-LRT(config)# erps 1 vlan add 100-200
SISGM1040-284-LRT(config)# erps 1 vlan remove 2-300
```

```
SISGM1040-284-LRT(config)# erps 1 vlan none
SISGM1040-284-LRT(config)#
```

Messages:

% ERPS group 1: Given protection group already created
% Invalid word detected at '^' marker.
% ERPS group 1: Maximum number of VLANs already configured for protection group

Command: **evc**
Description: Configure Ethernet Virtual Circuits.
Syntax:

evc [update] <evc_id> { [vid <evc_vid>] } [ivid <ivid>] [interface (<port_type> [<port_list>])] { [leaf { [vid <leaf_vid>] [ivid <leaf_ivid>] [interface { (<port_type> [<leaf_port_list>]) | none }] }*1] } [learning [disable]] [policer { <policer_id> | none | discard }] [inner-tag add { [type { none | c-tag | s-tag | s-custom-tag }] [vid-mode { normal | tunnel }][vid <it_add_vid>] [preserve [disable]] [pcp <it_add_pcp>] [dei <it_add_dei>] }*1] [outer-tag add vid <ot_add_vid>] [pw [<pw_num_list>] [split-horizon <pw_num_list_split_horizon>]]

evc ece [update] <ece_id> [next { <ece_id_next> | last }] [lookup { basic | advanced }] [interface (<port_type> [<port_list>])] [smac { <smac> | any }] [dmac { <dmac> | unicast | multicast | broadcast | any }] [outer-tag {[match { [type { untagged | tagged | c-tagged | s-tagged | any }] [vid { <ot_match_vid> | any }] [pcp { <ot_match_pcp> | any }] [dei { <ot_match_dei> |any }] }*1] [add { [mode { enable | disable }] [vid <ot_add_vid>] [preserve [disable]] [pcp-mode { classified | fixed | mapped }] [pcp <ot_add_pcp>] [dei-mode { classified | fixed | dp }] [dei <ot_add_dei>] }*1] }*1] [inner-tag { [match { [type { untagged | tagged | c-tagged | s-tagged | any }] [vid { <it_match_vid> | any }] [pcp { <it_match_pcp> | any }] [dei { <it_match_dei> | any }] }*1] [add { [type { none | c-tag | s-tag | s-custom-tag }] [vid <it_add_vid>] [preserve [disable]] [pcp-mode { classified | fixed | mapped }] [pcp <it_add_pcp>] [dei-mode { classified | fixed | dp }] [dei <it_add_dei>] }*1] }*1] [frame-type { any | { ipv4 [proto { <pr4> | udp | tcp | any }] [dscp { <dscp4> | any }] [sip { <sip4> | any }] [dip { <dip4> | any }] [fragment { yes | no | any }] [sport { <sp4> | any }] [dport { <dp4> | any }] } | { ipv6 [proto { <pr6> | udp | tcp | any }] [dscp { <dscp6> | any }] [sip { <sip6> | any }] [dip { <dip6> | any }] [sport { <sp6> |any }] [dport { <dp6> | any }] } | { etype [etype-value { <etype_value> | any }] [etype-data { <etype_data> | any } [<etype_mask>]] } | { llc [dsap {<dsap> | any }] [ssap { <ssap> | any }] [control { <control> | any }] [llc-data { <llc_data> | any } [<llc_mask>]] } | { snap [oui { <oui> | any }] [pid { <pid> | any }] } | { l2cp { stp | pause | lacp | lamp | loam | dot1x | elmi | pb | pb-gvrp | lldp | gmrp | gvrp | uld | pagp | pvst | cisco-vlan | cdp | vtp | dtp | cisco-stp | cisco-cfm } }] [direction { both | uni-to-nni | nni-to-uni }] [rule-type { both | rx | tx }] [tx-lookup { vid | pcp-vid | isdx}] [l2cp { [mode { tunnel | peer | forward | discard }] [tmac { cisco | custom }] }*1] [evc { <evc_id> | none }] [policer { <policer_id> | none | discard | evc }] [pop <pop>] [policy <policy_no>] [cos { <cos> | disable }] [dpl { <dpl> | disable }]

evc policer [update] <policer_id> [{ enable | disable }] [type { mef | single }] [mode { coupled | aware | blind }] [rate-type { line | data }] [cir <cir>] [cbs <cbs>] [eir <eir>] [ebs <ebs>]

Parameters:

<1-256>	EVC identifier
ece	EVC Control Entry
policer	Policer (ingress bandwidth profile)
update	Update existing entry

inner-tag	Setup inner tag options
interface	Setup NNI port list
ivid	Setup internal EVC VLAN ID
learning	Setup learning
outer-tag	Setup outer tag options
vid	Setup EVC VLAN ID
add	Setup inner tag add properties
dei	Setup added tag DEI
pcp	Setup added tag PCP
preserve	Setup tag PCP/DEI preservation
type	Setup added tag type
vid	Setup added tag VLAN ID
vid-mode	Setup inner tag VLAN ID mode
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<vlan_id>	Internal VLAN ID
disable	Disable learning
add	Setup outer tag add properties
vid	Setup added tag VLAN ID
<vlan_id>	Added tag VLAN ID
normal	Use EVC VLAN ID in outer tag
tunnel	Use EVC VLAN ID in inner tag
cos	Setup Class of Service
direction	Setup ECE direction
dmac	Setup matched DMAC
evc	EVC mapping
frame-type	Setup matched frame type
interface	Setup UNI
next	Setup the ECE ID of the next entry
outer-tag	Setup outer tag options
policy	Setup ACL policy
pop	Setup tag popping
smac	Setup matched SMAC
<1-256>	ECE identifier
update	Update existing entry
cos	Setup Class of Service
<0-7>	Class of Service
disable	Disable ECE CoS classification
both	Bidirectional traffic flow
nni-to-uni	NNI-to-UNI traffic flow

uni-to-nni	UNI-to-NNI traffic flow
any	Match any DMAC
broadcast	Match broadcast DMAC
multicast	Match multicast DMAC
unicast	Match unicast DMAC
<1-256>	EVC identifier
none	Map to no EVC ID
any	Match any frame type
ipv4	Match IPv4 frames
ipv6	Match IPv6 frames
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<1-256>	Select ECE ID of an existing entry
last	Make the ECE the last entry
add	Setup outer tag add properties
match	Setup outer tag match properties
<0-255>	ACL policy
cos	Setup Class of Service
direction	Setup ECE direction
dmac	Setup matched DMAC
evc	EVC mapping
frame-type	Setup matched frame type
interface	Setup UNI
next	Setup the ECE ID of the next entry
outer-tag	Setup outer tag options
pop	Setup tag popping
smac	Setup matched SMAC
<0-2>	Number of tags popped
cos	Setup Class of Service
direction	Setup ECE direction
dmac	Setup matched DMAC
evc	EVC mapping
frame-type	Setup matched frame type
interface	Setup UNI
next	Setup the ECE ID of the next entry
outer-tag	Setup outer tag options
policy	Setup ACL policy
smac	Setup matched SMAC
<mac_addr>	Matched SMAC
any	Match any SMAC

<1-256>	Policer ID
update	Update existing entry
cbs	Setup CBS
cir	Setup CIR
disable	Disable policer
ebs	Setup EBS for MEF policer
eir	Setup EIR for MEF policer
enable	Enable policer
mode	Setup policer mode
rate-type	Setup rate type
type	Setup policer type
cbs	Setup CBS
cir	Setup CIR
ebs	Setup EBS for MEF policer
eir	Setup EIR for MEF policer
mode	Setup policer mode
rate-type	Setup rate type
type	Setup policer type
<0-100000>	Committed Burst Size [bytes], default value 0
<0-10000000>	Committed Information Rate [kbps], default value 0
aware	Color-aware mode
coupled	Coupling mode
data	Data rate policing
line	Line rate policing
mef	MEF ingress bandwidth profile
single	Single bucket policer
<vlan_id>	Internal VLAN ID
c-tag	Add C-tag
none	No tag added
s-custom-tag	Add custom S-tag
s-tag	Add S-tag
Mode:	Config Mode

Example:

```
SISGM1040-284-LRT(config)# evc 1 inner-tag add dei 0
SISGM1040-284-LRT(config)# evc 1 outer-tag add vid 100 inner-tag add vid-mode tunnel
SISGM1040-284-LRT(config)# evc policer 1 type  mef
SISGM1040-284-LRT(config)# evc update 1 ivid 200
SISGM1040-284-LRT(config)# evc policer 1 type single ebs 6000 cir 550000 mode coupled rate-type data
SISGM1040-284-LRT(config)#
```

Message: *% EVC 2 does not exist*

Command: **event**
Description: Configure Trap event severity level.
Syntax:

event group { AC-Power | ACL | ACL-Log | Access-Mgmt | Auth-Failed | AUTO-SAVING | Cold-Start | Config-Info | DI-1-Normal | Digital-Out | Firmware-Upgrade | Import-Export | LACP | Link-Status | Login | Logout | Mgmt-IP-Change | Module-Change | NAS | Password-Change | PoE-PD-On | Port-Security | PWR-1-Off-On | PWR-2-Off-On | Spanning-Tree | Warm-Start | DC-Power | Battery-Power | BCS-Protection | DMS | Advanced | Dying-Gasp | PoE-Auto-Check | Poe-Auto-Power-Reset | FAN | ZTU-FAIL | Surveillance | SCP-Success | SCP-Fail } { level <lvl> | syslog { enable | disable } | trap { enable | disable } | smtp { enable | disable } | ipush { enable | disable } }

event group { PWR-1-On-Off | PWR-2-On-Off | DI-1-Abnormal | Loop-Protect | Temperature | Voltage | Rapid-Ring-Break | Rapid-Chain-Break | Rapid-Ring-Error | PoE-PD-Off | Over-Max-PoE-Power-Limitation | PoE-PD-Over-Current | OTP | MRP-Event } { level <lvl> | syslog { enable | disable } | trap { enable | disable } | smtp { enable | disable } | ipush { enable | disable } | digital-out { enable | disable } }

Parameters:	ACL	ACL-Log	Access-Mgmt	Auth-Failed
	Cold-Start	Config-Info	DI-1-Abnormal	DI-1-Normal
	DMS	Digital-Out	Firmware-Upgrade	Import-Export
	LACP	Login	Logout	Loop-Protect
	MRP-Event	Mgmt-IP-Change	Module-Change	NAS
	PWR-1-Off-On	PWR-1-On-Off	PWR-2-Off-On	PWR-2-On-Off
	Password-Change	Port-Security	Rapid-Chain-Break	Rapid-Ring-Break
	Rapid-Ring-Error	SCP-Fail	SCP-Success	Spanning-Tree
	Temperature	Voltage	Warm-Start	
level	Severity level			
smtp	smtp mode			
syslog	syslog mode			
trap	trap mode			
disable	smtp mode disable			
enable	smtp mode enable			
<0-7>	<0> Emergency ,<1> Alert ,<2> Critical ,<3> Error ,<4> Warning,<5> Notice ,<6> Information, <7> Debug			
disable	syslog mode disable			
enable	syslog mode enable			
disable	trap mode disable			
enable	trap mode enable			
Mode:	Config Mode			

Example:

```
SISGM1040-284-LRT(config)# event group digital-out smtp enable
SISGM1040-284-LRT(config)# event group Digital-Out trap enable
SISGM1040-284-LRT(config)# event group Digital-Out syslog enable
SISGM1040-284-LRT(config)# event group MRP-Event trap enable
SISGM1040-284-LRT(config)# event group NAS level 2
SISGM1040-284-LRT(config)#
```

Command: **exec-timeout autologout**

Description: Set Auto-logout Timeout period.

Syntax: **exec-timeout** autologout { 0 | 1 | 2 | 3 | 4 | 5 | 10 | 20 | 30 | 40 | 50 | 60 }

Parameters: autologout

0	Off – No Auto-Logout timeout
1	1 minute
10	10 minutes (default)
2	2 minutes
20	20 minutes
3	3 minutes
30	30 minutes
4	4 minutes
40	40 minutes
5	5 minutes
50	50 minutes
60	60 minutes

Example:

```
SISGM1040-284-LRT(config)# exec-timeout autologout 60
SISGM1040-284-LRT(config)# exec-timeout autologout 0
SISGM1040-284-LRT(config)#
```

After you change the Auto-Logout timeout and then log out and log back in, the Auto-Logout timeout setting will be the setting saved to the start-up config file.

When the Auto-Logout timeout setting is changed, it directly writes to running-config.

To save the timeout change to start-up config, you must execute a save to startup-config.

To examine the running-config, you can run the CLI command “showing running-config” or in the Web UI just log out and log back in again.

To save the timeout change into startup-config, you must do a save to startup-config and then reboot the switch.

In summary:

- When you power on the switch, it will get the settings from startup-config.
- When you logout and login (without switch reboot), the switch will get the timeout settings from startup-config.
- When you reload defaults, the switch will get the timeout settings default-config.

For the “Save to start-up config” behavior, if you don’t save the config, when you change the timeout setting but logout, at the next login the timeout setting remains unchanged as the setting in start-up config.

If you save timeout setting to start-up config:	If you don’t save timeout setting to start-up config:
When you change the timeout setting and save to startup-config (click the disc icon), the changed timeout setting will be applied to running-config and start-up config immediately.	When the you change the timeout setting (without save to startup-config), the timeout change will be applied to running-config immediately.

If you save timeout setting to start-up config:	If you don't save timeout setting to start-up config:
After Logout and login, the timeout setting will be the setting saved in start-up config.	After Logout and login, the timeout setting will be the setting saved in start-up configure.
After a switch reboot, the timeout setting will be the setting saved in start-up config.	After you reboot the switch, the timeout setting will be the setting saved in start-up config.

Command: **exit**
Description: Exit from current mode.
Syntax: **exit**
Parameters: None
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# exit
SISGM1040-284-LRT#
```

Command: **green-ethernet**
Description: Configure Green ethernet (Power reduction).
Syntax: **green-ethernet** eee optimize-for-power
Parameters:
eee Powering down of PHYs when there is no traffic.
optimize-for-power Set if EEE will be optimized for least power consumption or for least traffic latency.
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# green-ethernet eee optimize-for-power
SISGM1040-284-LRT(config)#
```

Command: **gvrp**
Description: Enable GVRP feature and configure parameters.
Syntax: **gvrp**
gvrp max-vlans <maxvlans>
gvrp time { [join-time <jointime>] [leave-time <leavetime>] [leave-all-time <leavealltime>] }*1

Parameters:		
	max-vlans	Number of simultaneous VLANs that GVRP can control.
	time	Configure GARP protocol timer parameters. IEEE 802.1D-2004, clause 12.11.
	<1-4095>	Number of VLANs.
	join-time	Set GARP protocol parameter JoinTime.
	leave-all-time	Set GARP protocol parameter LeaveAllTime.
	leave-time	Set GARP protocol parameter LeaveTime.
	<1-20>	Join-time in units of centi seconds. Range is 1-20. Default is 20.
	<1000-5000>	Leave-all-time in units of centi seconds Range is 1000-5000. Default is 1000.
	<60-300>	Leave-time in units of centi seconds. Range is 60-300. Default is 60.

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# gvrp time join-time 10 leave-all-time 2000 leave-time 100
SISGM1040-284-LRT(config)#
```

Messages: *W xxrp 01:07:43 143/gvrp_global_enable#193: Warning: Operation failed. Try to disable GVRP first*

Command: **help**
Description: Description of the interactive help system.
Syntax: **help** <cr>
Parameters: None
Mode: Config Mode
Example:

```
Help may be requested at any point in a command by entering
a question mark '?'.  If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)
```

Command: **hostname**

Description: Set system's network name.

Syntax: **hostname** <hostname>

Parameters: <line128> This system's network name.

<cr>

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# hostname Engineering
Engineering(config)# hostname SISGM1040-284-LRT
SISGM1040-284-LRT(config)#
```

Command: **interface**

Description: Select an interface to configure. See Interface Config Mode Commands on page 195.

Syntax: **interface** (<port_type> [<plist>])

interface vlan <vlist>

Parameters:		
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	vlan	VLAN interface configurations
	<port_type_list>	Port list for all port types
	<port_type_list>	Port list in 1/1-12
	<vlan_list>	List of VLAN interface numbers, 1~4095

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# interface *
SISGM1040-284-LRT(config-if)#
SISGM1040-284-LRT(config)# interface vlan 100
SISGM1040-284-LRT(config-if-vlan)#
```

Command: **ip**
Description: Configure Internet Protocol parameters.
Syntax:

ip arp inspection
ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var> <mac_var> <ipv4_var>
ip arp inspection translate [interface <port_type> <in_port_type_id> <vlan_var> <mac_var> <ipv4_var>]
ip arp inspection vlan <in_vlan_list>
ip arp inspection vlan <in_vlan_list> logging { deny | permit | all }
ip dhcp excluded-address <low_ip> [<high_ip>]
ip dhcp pool <pool_name>
ip dhcp relay
ip dhcp relay information option
ip dhcp relay information policy { drop | keep | replace }
ip dhcp server per-port
ip dhcp snooping
ip dns proxy
ip domain name { <v_domain_name> | dhcp [ipv4 | ipv6] [interface vlan <v_vlan_id_dhcp>] }
ip gateway interface <ifc>
ip helper-address <v_ipv4_ucast>
ip http port <port>
ip http secure-certificate { upload <url_file> [pass-phrase <pass_phrase>] | generate }
ip http secure-server port <port>
ip igmp host-proxy [leave-proxy]
ip igmp snooping
ip igmp snooping vlan <v_vlan_list>
ip igmp ssm-range <v_ipv4_mcast> <ipv4_prefix_length>
ip igmp unknown-flooding
ip link-local interface <ifc>
ip name-server [<order>] { <v_ipv4_addr> | { <v_ipv6_addr> [interface vlan <v_vlan_id_static>] } | dhcp [ipv4 | ipv6] [interface vlan <v_vlan_id_dhcp>]}
ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw>
ip routing
ip scp server { enable | disable }
ip source binding interface <port_type> <in_port_type_id> <vlan_var> <ipv4_var> <mac_var>
ip ssh
ip ssh keyregen
ip ssh port <port>
ip telnet port <port>
ip verify source
ip verify source translate

Parameters:

arp	Address Resolution Protocol
dhcp	Dynamic Host Configuration Protocol
dns	Domain Name System
domain	IP DNS Resolver
gateway	Gateway address binding interface
helper-address	DHCP relay server
http	Hypertext Transfer Protocol
igmp	Internet Group Management Protocol
link-local	Link-Local address binding interface
name-server	Domain Name System
route	Add IP route
routing	Enable routing for IPv4 and IPv6
scp	Secure copy function
source	source command
ssh	Secure Shell
telnet	TELNET
verify	verify command
inspection	ARP inspection
entry	ARP inspection entry
translate	ARP inspection translate all entries
vlan	arp inspection VLAN setting
interface	ARP inspection entry interface configuration
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_id>	Port ID in 1/1-12
<vlan_id>	Select a VLAN id to configure
<mac_ucast>	Select a MAC address to configure
excluded-address	Prevent DHCP from assigning certain addresses
pool	Configure DHCP address pools
relay	DHCP relay agent configuration
server	Enable DHCP server
snooping	DHCP snooping
<ipv4_addr>	Low IP address
<word32>	Pool name in 32 characters
option	DHCP option
policy	Policy for handling the receiving DHCP packet already include the information option
drop	Drop the package when receive a DHCP message that already contains relay information
keep	Keep the original relay information when receive a DHCP message that already has it
replace	Replace original relay information when receive a DHCP message that already has it
word32>	Pool name in 32 characters
bootfile	Boot file name

broadcast	Broadcast address in use on the client's subnet
client-identifier	Client identifier
client-name	Client host name
default-router	Default routers
dns-server	DNS servers
do	To run exec commands in config mode
domain-name	Domain name
end	Go back to EXEC mode
exit	Exit from current mode
hardware-address	Client hardware address
help	Description of the interactive help system
host	Client IP address and mask
lease	Address lease time
netbios-name-server	NetBIOS (WINS) name servers
netbios-node-type	NetBIOS node type
netbios-scope	NetBIOS scope
network	Network number and mask
nis-domain-name	NIS domain name
nis-server	Network information servers
no	Negate a command or set its defaults
ntp-server	NTP servers
tftp-server	TFTP servers
vendor	Vendor configuration
<word32>	Boot file name
<ipv4_addr>	Broadcast IP address
fqdn	FQDN type of client identifier
mac-address	MAC address type of client identifier
<word32>	Client host name in 32 characters
<ipv4_ucast>	Router's IP address
<ipv4_ucast>	Server's IP address
<line>	Exec Command
<word128>	Domain name
<mac_ucast>	Client MAC address
<ipv4_ucast>	Network number
<0-365>	Days
infinite	Infinite lease
<ipv4_ucast>	Server's IP address
b-node	Broadcast node
h-node	Hybrid node
m-node	Mixed node

p-node	Peer-to-peer node
<line128>	NetBIOS scope identifier, in 128 characters
<ipv4_ucast>	Network number
<word128>	NIS domain name
<ipv4_ucast>	Server's IP address
bootfile	Boot file name
broadcast	Broadcast address in use on the client's subnet
client-identifier	Client identifier
client-name	Client host name
default-router	Default routers
dns-server	DNS servers
domain-name	Domain name
hardware-address	Client hardware address
host	Client IP address and mask
lease	Address lease time
<ipv4_ucast>	Server's IP address
<word32>	TFTP servers
class-identifier	Vendor class identifier
per-port	Enable DHCP server per port
proxy	DNS proxy service
name	Define the default domain name
<domain_name>	Default domain name
dhcp	Dynamic Host Configuration Protocol
interface	Select an interface to configure
ipv6	DNS setting is derived from DHCPv6; Default selection
vlan	VLAN Interface
<vlan_id>	VLAN identifier (VID)
<domain_name>	Default domain name
<ipv4_ucast>	IP address of the DHCP relay server
port	Service port number
secure-certificate	HTTPS certificate
secure-server	secure web server
<1-65534>	Port number
generate	Generate a new self-signed RSA certificate
upload	Upload a certificate PEM file
<url_file>	Uniform Resource Locator. It is a specific character string that constitutes a reference to a resource. Syntax: *<protocol>:///[<username>[:<password>]@]<host>[:<port>][/<path>]/<file_name>* If the following special characters: space !"#$%&'()*+,/:;<=>?@[\]^`{|}~ must be contained in the input URL string; they should have percent-encoded. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), under score(_).

	The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.
host-proxy	IGMP proxy configuration
snooping	Snooping IGMP
ssm-range	IPv4 address range of Source Specific Multicast
unknown-flooding	Flooding unregistered IPv4 multicast traffic
leave-proxy	IGMP proxy for leave configuration
vlan	IGMP VLAN
<vlan_list>	VLAN identifier(s): VID
<ipv4_mcast>	Valid IPv4 multicast address
<0-3>	Preference of DNS server. Default selection is 0
<ipv4_addr>	A valid IPv4 unicast address
<ipv6_addr>	A valid IPv6 unicast address
ipv6	DNS setting is derived from DHCPv6
<ipv4_addr>	Network
server	support scp server
disable	Set mode to scp Disable
enable	Set mode to scp Enable
binding	IP source binding
interface	IP source binding entry interface configuration
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_id>	Port ID in 1/1-12
<vlan_id>	Select a VLAN id to configure
<ipv4_ucast>	Select an IP Address to configure
<mac_ucast>	Select a MAC address to configure
keyregen	Regenerate ssh key
port	Service port number
<1-65534>	Port number
translate	IP verify source translate all entries
A.B.C.D	Lighting Server's IP address

Mode: Config Mode

Example 1:

```
SISGM1040-284-LRT(config)# ip dhcp relay information policy drop
SISGM1040-284-LRT(config)# ip dhcp relay information policy keep
SISGM1040-284-LRT(config)# ip dhcp pool Pool1
SISGM1040-284-LRT(config)# ip dhcp relay information option
SISGM1040-284-LRT(config)# ip dhcp relay information policy keep
SISGM1040-284-LRT(config)# ip dhcp server per-port
SISGM1040-284-LRT(config)# ip dhcp snooping
SISGM1040-284-LRT(config)# ip dns proxy
SISGM1040-284-LRT(config)# ip domain name IpDomain1
SISGM1040-284-LRT(config)# ip http secure-server port 567
```

```
SISGM1040-284-LRT(config)# ip igmp host-proxy leave-proxy
SISGM1040-284-LRT(config)# ip igmp unknown-flooding
SISGM1040-284-LRT(config)# ip routing
SISGM1040-284-LRT(config)# ip scp server enable
```

Example 2:

```
SISGM1040-284-LRT(config)# ip ssh keyregen
W ssh 02:30:06 143/ssh_change_key#503: Warning: It will take some time. Please wait for key
generating complete...

W ssh 02:30:22 143/ssh_change_key#538: Warning: ECDSA : Public key portion is:
 521 ecdsa-sha2-nistp521 AAAAE2VjZHNhLXNoYTItbmlzdHA1MjEAAAAIbmlzdHA1MjEAAACFBAB
SghAI0gCvw8KrhDEnVew7ScY4umrIiLZao/w1tCkDPSPRD37zZOn7MfOO0lXXYxdmsRoBVoJrsWCDc1j
Dt6QuTAEnjHwZfGNi0EJW2OboQ9LAz/OJZNYsG4xS1f0OGASifq5OTTTd7OBtsBZHuckSIXYp1kJhvsP
4t5Ljx2MDWPtdEA==
ECDSA: md5 bc:f7:05:9c:5d:c7:6a:c1:64:26:8c:2f:6c:18:69:6e


W ssh 02:30:22 143/ssh_change_key#555: Warning: Key generation completed

SISGM1040-284-LRT(config)# ip verify source translate
IP Source Guard:
       Translate 0 dynamic entries into static entries.
SISGM1040-284-LRT(config)#
SISGM1040-284-LRT(config)# ip gateway interface 100
% Ip gateway interface 100 binding error!
SISGM1040-284-LRT(config)# ip gateway interface 1
SISGM1040-284-LRT(config)# ip ssh port 22
SISGM1040-284-LRT(config)#
```

Example 3:

```
SISGM1040-284-LRT(config)# ip link-local interface 10
SISGM1040-284-LRT(config)# ip gateway interface 2
SISGM1040-284-LRT(config)# do show ip gateway interface
Gateway Address binding interface: 2
SISGM1040-284-LRT(config)# do show ip link-local interface
Link-Local Address binding interface: 10
SISGM1040-284-LRT(config)#
```

Messages: *% Ip gateway interface 10 binding error!*

Example 4: DHCP option 229; specify a lighting server available to the client:

```
SISGM1040-284-LRT(config-dhcp-pool)# lighting server ?
A.B.C.D Server's IP address
SISGM1040-284-LRT(config-dhcp-pool)# lighting server 192.168.1.101
SISGM1040-284-LRT(config-dhcp-pool)#
```

Command: **ipmc**
Description: Set IPv4/IPv6 multicast configuration.
Syntax:
ipmc profile
ipmc profile <profile_name>
ipmc range <entry_name> { <v_ipv4_mcast> [<v_ipv4_mcast_1>] | <v_ipv6_mcast> [<v_ipv6_mcast_1>] }

Parameters:	profile	IPMC profile configuration
	range	A range of IPv4/IPv6 multicast addresses for the profile
	<word16>	Profile name in 16 characters.
	default	Set a command to its defaults
	description	Additional description about the profile in 64 characters
	do	To run exec commands in config mode
	end	Go back to EXEC mode
	exit	Exit from current mode
	help	Description of the interactive help system
	no	Negate a command or set its defaults
	range	A range of IPv4/IPv6 multicast addresses for the profile
	<word16>	Range entry name in 16 characters
	log	Log when matching
	next	Specify next entry used in profile. Default: Add entry last.
	<ipv4_mcast>	Valid IPv4 multicast address
	<ipv6_mcast>	Valid IPv6 multicast address
	<ipv4_mcast>	Valid IPv4 multicast address that is not less than start address
	deny	Deny matching addresses
	permit	Permit matching addresses
Mode:	Config Mode	

Example:

```
SISGM1040-284-LRT(config)# ipmc profile Prof1
SISGM1040-284-LRT(config-ipmc-profile)# ?
    default       Set a command to its defaults
    description    Additional description about the profile in 64 characters
    do            To run exec commands in config mode
    end           Go back to EXEC mode
    exit          Exit from current mode
    help          Description of the interactive help system
    no            Negate a command or set its defaults
    range         A range of IPv4/IPv6 multicast addresses for the profile
SISGM1040-284-LRT(config-ipmc-profile)# exit
SISGM1040-284-LRT(config)# ipmc range 224.0.0.0 239.255.255.255
SISGM1040-284-LRT(config)# do show ipmc range

Range Name   : 224.0.0.0
```

```
Start Address: 239.255.255.255
End Address  : 239.255.255.255
SISGM1040-284-LRT(config)# do show ipmc Profile

IPMC Profile is currently disabled, please enable profile to start filtering.

Profile: Prof1 (In VER-INI Mode)
Description:
SISGM1040-284-LRT(config)#
```

Command: **ipv6**

Description: IPv6 configuration parameters.

Syntax: **ipv6** mld host-proxy [leave-proxy]

ipv6 mld snooping

ipv6 mld snooping vlan <v_vlan_list>

ipv6 mld ssm-range <v_ipv6_mcast> <ipv6_prefix_length>

ipv6 mld unknown-flooding

ipv6 route <v_ipv6_subnet> { <v_ipv6_ucast> | interface vlan <v_vlan_id> <v_ipv6_addr> }

Parameters:		
	mld	Multicasat Listener Discovery
	route	Configure static routes
	host-proxy	MLD proxy configuration
	snooping	Snooping MLD
	ssm-range	IPv6 address range of Source Specific Multicast
	unknown-flooding	Flooding unregistered IPv6 multicast traffic
	<ipv6_subnet>	IPv6 prefix x:x::y/z
	leave-proxy	MLD proxy for leave configuration
	vlan	MLD VLAN
	<vlan_list>	VLAN identifier(s): VID
	<ipv6_mcast>	Valid IPv6 multicast address
	<ipv6_ucast>	IPv6 unicast address (except link-local address) of next-hop
	interface	Select an interface to configure
	vlan	VLAN Interface
	<vlan_id>	VLAN identifier(s): VID
	<ipv6_linklocal>	IPv6 link-local address of next-hop

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# ipv6 mld host-proxy leave-proxy
SISGM1040-284-LRT(config)# ipv6 mld snooping vlan 100
SISGM1040-284-LRT(config)# ipv6 mld unknown-flooding
SISGM1040-284-LRT(config)# ipv6 route 111:222::5/9 64:ff9b::0.0.0.0
SISGM1040-284-LRT(config)# ipv6 route 111:222::5/9 interface vlan 1 fe80::
SISGM1040-284-LRT(config)#
```

Command:	**lacp**	
Description:	LACP settings.	
Syntax:	**lacp** on-air index <v_1_to_8> { { port <port_type> <in_port_type_id> } | { couple-ip <ip1> <ip2> } }	
	lacp system-priority <v_1_to_65535>	
Parameters:	on-air	On Air
	system-priority	System priority
	index	Index
	<1-8>	1-8
	couple-ip	Set couple ip address
	port	Port
	<ipv4_addr>	IPv4 Address
	<1-65535>	Priority value, lower means higher priority
Mode:	Config Mode	

Example:

```
SISGM1040-284-LRT(config)# lacp on-air index 1 couple-ip 192.168.99.9 192.168.99.99
SISGM1040-284-LRT(config)# lacp system-priority 5000
SISGM1040-284-LRT(config)#
```

Command: **line**

Description: Configure a terminal line.

Syntax: **line** { <0~16> | console 0 | vty <0~15> }

Parameters:

<0~16>	List of line numbers
console	Console terminal line
vty	Virtual terminal
do	To run exec commands in config mode
editing	Enable command line editing
end	Go back to EXEC mode
exec-banner	Enable the display of the EXEC banner
exec-timeout	Set the EXEC timeout
exit	Exit from current mode
help	Description of the interactive help system
history	Control the command history function
length	Set number of lines on a screen
location	Enter terminal location description
motd-banner	Enable the display of the MOTD banner
no	Negate a command or set its defaults
privilege	Change privilege level for line
width	Set width of the display terminal
<0-1440>	Timeout in minutes
size	Set history buffer size
<0-32>	Number of history commands, 0 means disable
<0~15>	List of VTY numbers
0	Console Line number
level	Assign default privilege level for line
<0-15>	Default privilege level for line

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config-line)# exec-timeout 1440
SISGM1040-284-LRT(config-line)# history size 9
SISGM1040-284-LRT(config-line)#
```

Command: **lldp**
Description: Set Link Level Discovery Protocol and LLDP-MED parameters.
Syntax:

lldp holdtime <val>

lldp med datum { wgs84 | nad83-navd88 | nad83-mllw }

lldp med fast <v_1_to_10>

lldp med location-tlv altitude { meters | floors } <v_word11>

lldp med location-tlv civic-addr { { country <country> } | { state | county | city | district | block | street | leading-street-direction | trailing-street-suffix | street-suffix | house-no | house-no-suffix | landmark | additional-info | name | zip-code | building | apartment | floor | room-number | place-type | postal-community-name | p-o-box | additional-code } <v_line> }

lldp med location-tlv elin-addr <v_word25>

lldp med location-tlv latitude { north | south } <v_word8>

lldp med location-tlv longitude { west | east } <v_word9>

lldp med media-vlan-policy <policy_index> { voice | voice-signaling | guest-voice-signaling | guest-voice | softphone-voice | video-conferencing | streaming-video | video-signaling } { untagged | tagged <v_vlan_id> [l2-priority <v_0_to_7>] } [dscp <v_0_to_63>]

lldp reinit <val>

lldp timer <val>

lldp transmission-delay <val>

Parameters:

holdtime	Sets LLDP hold time (the neighbor switch will discard the LLDP information after "hold time" multiplied by "timer" seconds).
med	Media Endpoint Discovery.
reinit	LLDP tx reinitialization delay in seconds.
timer	Sets LLDP TX interval (the time between each LLDP frame transmitted in seconds).
transmission-delay	Sets LLDP transmission-delay (the amount of time that the transmission of LLDP frames will delayed after LLDP configuration has changed) in seconds.
<2-10>	2-10 seconds.
datum	Datum (geodetic system) type.
fast	Number of times to repeat LLDP frame transmission at fast start.
location-tlv	LLDP-MED Location Type Length Value parameter.
media-vlan-policy	Used to create a policy, which can be assigned to an interface.
<1-10>	1-10 seconds.
<5-32768>	5-32768 seconds.
<1-8192>	1-8192 seconds.
nad83-mllw	Mean lower low water datum 1983
nad83-navd88	North American vertical datum 1983
wgs84	World Geodetic System 1984
tagged	The policy uses tagged frames.
untagged	The policy uses untagged frames.

<vlan_id>	The VLAN the policy uses tagged frames.
dscp	Differentiated Services Code Point. If not given then DSCP value is set to 0.
l2-priority	Layer 2 priority. If not given then L2 priority value is set to 0.
<0-63>	DSCP value 0-63.
<0-7>	Priority 0-7.
altitude	Altitude parameter.
civic-addr	Civic address information and postal information. The total number of characters for the combined civic address information must not exceed 250 characters. Note: 1) A non-empty civic address location will use 2 extra characters in addition to the civic address location text. 2) The 2-letter country code is not part of the 250 characters limitation.
elin-addr	Emergency Call Service ELIN identifier data format is defined to carry the ELIN identifier as used during emergency call setup to a traditional CAMA or ISDN trunk-based PSAP. This format consists of a numerical digit string, corresponding to the ELIN to be used for emergency calling. Emergency Location Identification Number, (e.g. E911 and others), such as defined by TIA or NENA.
latitude	Latitude parameter.
longitude	Longitude parameter.
floors	Specify the altitude in floor.
meters	Specify the altitude in meters.
<word11>	Altitude value. Valid range -2097151.9 to 2097151.9
additional-code	Additional code - Example: 1320300003.
additional-info	Additional location info - Example: South Wing.
apartment	Unit (Apartment, suite) - Example: Apt 42.
block	Neighborhood, block.
building	Building (structure) - Example: Low Library.
city	City, township, shi (Japan) - Example: Copenhagen.
country	The two-letter ISO 3166 country code in capital ASCII letters - Example: DK, DE or US.
county	County, parish, gun (Japan), district.
district	City division, borough, city district, ward, chou (Japan).
floor	Floor - Example: 4.
house-no	House number - Example: 21.
house-no-suffix	House number suffix - Example: A, 1/2.
landmark	Landmark or vanity address - Example: Columbia University.
leading-street-direction	Leading street direction - Example: N.
name	Name (residence and office occupant) - Example: John Doe.
p-o-box	Post office box (P.O. BOX) - Example: 12345.
place-type	Place type - Example: Office.
postal-community-name	Postal community name - Example: Leonia.
room-number	Room number - Example: 450F.
state	National subdivisions (state, canton, region, province, prefecture).
street	Street - Example: Oxford Street.

street-suffix	Street suffix - Example: Ave, Platz.
trailing-street-suffix	Trailing street suffix - Example: SW.
zip-code	Postal/zip code - Example: 2791.
<line250>	Value for the corresponding selected civic address.
additional-info	Additional location info - Example: South Wing.
<line250>	Value for the corresponding selected civic address.
<line2>	The two-letter ISO 3166 country code in capital ASCII letters - Example: DK, DE or US.
<dword25>	ELIN value
north	Setting latitude direction to north.
south	Setting latitude direction to south.
<word8>	Latitude degrees (0.0000-90.0000).
east	Setting longitude direction to east.
west	Setting longitude direction to west.
<word9>	Longitude degrees (0.0000-180.0000).

<0-31>	Policy id for the policy which is created.
guest-voice	Create a guest voice policy.
guest-voice-signaling	Create a guest voice signaling policy.
softphone-voice	Create a softphone voice policy.
streaming-video	Create a streaming video policy.
video-conferencing	Create a video conferencing policy.
video-signaling	Create a video signaling policy.
voice	Create a voice policy.
voice-signaling	Create a voice signaling policy.
tagged	The policy uses tagged frames.
untagged	The policy uses untagged frames.
<vlan_id>	The VLAN the policy uses tagged frames.
dscp	Differentiated Services Code Point. If not given then DSCP value is set to 0.
l2-priority	Layer 2 priority. If not given then L2 priority value is set to 0.
<0-63>	DSCP value 0-63.
<0-7>	Priority 0-7.

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# lldp holdtime 4
SISGM1040-284-LRT(config)# lldp med datum wgs84
SISGM1040-284-LRT(config)# lldp holdtime 3
SISGM1040-284-LRT(config)# lldp reinit 6
SISGM1040-284-LRT(config)# lldp timer 7000
SISGM1040-284-LRT(config)# lldp med location-tlv elin-addr 1111
SISGM1040-284-LRT(config)# lldp med location-tlv latitude south 45.2500
SISGM1040-284-LRT(config)# lldp med location-tlv longitude east 66.987
```

```
SISGM1040-284-LRT(config)# lldp med media-vlan-policy 0 video-signaling tagged 1 0
l2-priority 2 dscp 9
SISGM1040-284-LRT(config)# lldp med media-vlan-policy 0 guest-voice-signaling untagged dscp
61
SISGM1040-284-LRT(config)# exit
SISGM1040-284-LRT# show lldp med media-vlan-policy
Policy Id  Application Type         Tag      Vlan ID  L2 Priority  DSCP
0         Video Signaling          Tagged   10       2            9
SISGM1040-284-LRT# configure terminal
SISGM1040-284-LRT(config)#
```

Command: **logging**
Description: System logging message.
Syntax: **logging** host { <ipv4_addr> | <domain_name> | <ipv6> }
logging on
logging port <port_no>
Parameters:

host	host
on	Enable Switch logging host mode
port	Service port number
<domain_name>	The domain name provides a mechanism for naming resources on the Internet. A complete domain name consists of one or more subdomain names which are separated by dots (.)
<ipv4_ucast>	The IPv4 address of the log server
<ipv6_ucast>	The IPv6 address of the log server
<1-65535>	Port number

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# logging on
SISGM1040-284-LRT(config)# logging port 987
SISGM1040-284-LRT(config)# logging host 192.168.1.30
SISGM1040-284-LRT(config)# logging port 514
SISGM1040-284-LRT(config)# logging port 6514
SISGM1040-284-LRT(config)# do show logging
Switch logging host mode is enabled
Switch logging host address is 192.168.1.30
Switch logging host port is 6514
Number of entries on Switch 1:
Emerg       : 0
Alert       : 0
Crit        : 0
Error       : 0
Warning     : 11
Notice      : 9
```

```
Info        : 67
Debug       : 0
All         : 87

ID    Level   Time                        Message                            iPush Status
----  ------  --------------------------  ---------------------------------  ------------
   1  Warning 2021-04-12T18:07:34+00:00  SFP module inserted on port 11
   2  Warning 2021-04-12T18:07:34+00:00  Link up on port 2
   3  Warning 2021-04-12T18:07:34+00:00  SFP module inserted on port 12
   4  Warning 2021-04-12T18:07:34+00:00  DI 1 change to abnormal
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT(config)#
```

Command: **loop-protect**
Description: Loop protection configuration.
Syntax: **loop-protect** <cr>
loop-protect shutdown-time <t>
loop-protect transmit-time <t>

Parameters:		
	shutdown-time	Loop protection shutdown time interval
	transmit-time	Loop protection transmit time interval
	<0-604800>	Shutdown time in seconds
	<1-10>	Transmit time in seconds

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# loop-protect transmit-time 4
SISGM1040-284-LRT(config)# loop-protect shutdown-time 9000
SISGM1040-284-LRT(config)# loop-protect <cr>
SISGM1040-284-LRT(config)# do show loop

Loop Protection Configuration
=====================================
Loop Protection   : Enable
Transmission Time : 4 sec
Shutdown Time     : 9000 sec

GigabitEthernet 1/1
------------------------------
    Loop protect mode is enabled.
    Action is shutdown.
    Transmit mode is enabled.
    No loop.
    The number of loops is 0.
    Status is down.
```

```
GigabitEthernet 1/2
------------------------------
    Loop protect mode is enabled.
    Action is shutdown.
    Transmit mode is enabled.
    No loop.
-- more --, next page: Space, continue: g, quit: ^C
SISGM1040-284-LRT(config)#
```

Command: **mac**
Description: MAC table entries/configuration.
Syntax:
mac address-table aging-time <v_0_10_to_1000000>
mac address-table learning vlan <vlan_list>
mac address-table static <v_mac_addr> vlan <v_vlan_id> interface [(<port_type> [<v_port_type_list>])]

Parameters:		
	address-table	MAC table entries/configuration
	aging-time	Mac address aging time
	learning	Mac Learning
	static	Static MAC address
	<0,10-1000000>	Aging time in seconds, 0 disables aging
	vlan	VLAN
	<vlan_list>	
	<mac_addr>	48 bit MAC address: xx:xx:xx:xx:xx:xx
	vlan	VLAN keyword
	<vlan_id>	VLAN IDs 1-4095
	interface	Select an interface to configure
	*	All switches or All ports
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_list>	Port list in 1/1-12

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# mac address-table static 11:22:33:44:55:66 vlan 100 interface
GigabitEthernet 1/4
SISGM1040-284-LRT(config)# mac address-table learning vlan 100
SISGM1040-284-LRT(config)# mac address-table static 11:22:33:44:55:66 vlan 100 i
nterface GigabitEthernet 1/4
```

Command: **map-api-key**
Description: Set Google Maps key string. You need a valid API key and a Google Cloud Platform billing account to access Google core product. If not, DMS Map View will not be able to load Google Maps correctly. At this Google website follow the directions to get an API key: https://developers.google.com/maps/documentation/directions/get-api-key
Syntax: **map-api-key** <key_str>
Parameters: <word127>
Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# map-api-key a1b2c3d4e5
SISGM1040-284-LRT(config)# do show map
Key   : a1b2c3d4e5
SISGM1040-284-LRT(config)#
```

Command: **mep**
Description: Set Maintenance Entity Point.
Syntax:

mep <inst> [mip] { up | down } domain { port | evc | vlan | tp-link | tunnel-tp | pw | lsp } [vid <vid>] [flow <flow>] level <level> [interface <port_type> <port>]

mep <inst> ais [fr1s | fr1m] [protect]

mep <inst> aps <prio> [multi | uni] { laps | { raps [octet <octet>] } }

mep <inst> cc <prio> [fr300s | fr100s | fr10s | fr1s | fr6m | fr1m | fr6h]

mep <inst> ccm-tlv

mep <inst> client domain { evc | vlan | lsp } flow <cflow> [level <level>] [ais-prio [<aisprio> | ais-highest]] [lck-prio [<lckprio> | lck-highest]]

mep <inst> dm <prio> [multi | { uni mep-id <mepid> }] [single | dual] [rdtrp | flow] interval <interval> last-n <lastn>

mep <inst> dm bin fd <num_fd_var>

mep <inst> dm bin ifdv <num_ifdv_var>

mep <inst> dm bin threshold <threshold_var>

mep <inst> dm ns

mep <inst> dm overflow-reset

mep <inst> dm proprietary

mep <inst> dm synchronized

mep <inst> lb <prio> [dei] [multi | { uni { { mep-id <mepid> } | { mac <mac>} } } | mpls ttl <mpls_ttl>] count <count> size <size> interval <interval>

mep <inst> lck [fr1s | fr1m]

mep <inst> level <level>

mep <inst> link-state-tracking

mep <inst> link-state-tracking r1m | fr6h] [flr <flr>] [threshold <loss_th>]

mep <inst> lm flow-counting

mep <inst> lm oam-counting { [y1731 | all] }

mep <inst> lm-avail interval <interval> flr-threshold <flr_th>

mep <inst> lm-avail maintenance

mep <inst> lm-hli flr-threshold <flr_th> interval <interval>

mep <inst> lm-notif los-int-cnt-holddown <los_int_cnt_holddown> los-th-cnt-holddown <los_th_cnt_holddown> hli-cnt-holddown <hli_cnt_holddown>

mep <inst> lm-sdeg tx-min <tx_min> flr-threshold <flr_th> bad-threshold <bad_th> good-threshold <good_th>

mep <inst> lt <prio> { { mep-id <mepid> } | { mac <mac> } } ttl <ttl>

mep <inst> meg-id <megid> { itu | itu-cc | { ieee [name <name>] } }

mep <inst> mep-id <mepid>

mep <inst> peer-mep-id <mepid> [mac <mac>]

mep <inst> performance-monitoring

mep <inst> syslog

mep <inst> tst <prio> [dei] mep-id <mepid> [sequence] [all-zero | all-one | one-zero] rate <rate> size <size>

mep <inst> tst rx

mep <inst> tst tx

mep <inst> vid <vid>

mep <inst> voe

mep os-tlv oui <oui> sub-type <subtype> value <value>

Parameters:

<1-100>	The MEP instance number.
os-tlv	Organization-Specific TLV
oui	Organizationally Unique Identified.
<0-0xFFFFFF>	
ais	Alarm Indication Signal
aps	Automatic Protection Switching protocol.
cc	Continuity Check.
ccm-tlv	The CCM TLV enable/disable
client	
dm	Delay Measurement.
down	This MEP is a Down-MEP.
lb	Loop Back.
lck	Locked Signal.
level	The MEG level of the MEP.
link-state-tracking	Link State Tracking. When LST is enabled in an instance, Local SF or received 'isDown' in CCM Interface Status TLV, will bring down the residence port. Only valid in Up-MEP. The CCM rate must be 1 f/s or faster.
lm	Loss Measurement.
lm-avail	Availability for Loss Measurement
lm-hli	High Loss Interval for Loss Measurement
lm-notif	Loss Measurement JSON notifications
lm-sdeg	Signal Degrade for Loss Measurement

lt	Link Trace.
meg-id	The ITU/IEEE MEG-ID.
mep-id	The MEP-ID.
mip	This MEP instance is a half-MIP.
peer-mep-id	The peer MEP-ID.
performance-monitoring	Performance monitoring Data Set collection (MEF35).
syslog	Enable syslog.
tst	Test Signal
up	This MEP is a UP-MEP.
vid	The MEP VID.
voe	MEP is VOE based.
<0-0xFFFFFF>	
sub-type	Sub-Type
<0-0xFF>	Sub-Type value - one octet.
<0-0xFF>	Sub-Type value - one octet.
value	Value
<0-0xFF>	Value value - one octet
fr1m	Frame rate is 1 f/min.
fr1s	Frame rate is 1 f/s.
protect	The AIS can be used for protection. At the point of state change three AIS PDU is transmitted as fast as possible.
<0-7>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID.
laps	Linear Automatic Protection Switching protocol.
multi	OAM PDU is transmitted with multicast MAC. Must me 'multi' in case of RAPS.
raps	Ring Automatic Protection Switching protocol.
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Only possible in case of LAPS.
fr100s	Frame rate is 100 f/s.
fr10s	Frame rate is 10 f/s.
fr1m	Frame rate is 1 f/min.
fr1s	Frame rate is 1 f/s.
fr300s	Frame rate is 300 f/s.
fr6h	Frame rate is 6 f/hour.
fr6m	Frame rate is 6 f/min.
evc	EVC client flow.
lsp	MPLS-TP LSP client flow.
vlan	VLAN client flow.
flow	Client flow instance.
<uint>	Client flow instance number value.
ais-prio	AIS injection priority.
lck-prio	LCK injection priority.

level	The MEG level on the client layer.
<0-7>	AIS injection priority value.
ais-highest	Request the highest possible AIS priority.
lck-prio	LCK injection priority.
level	The MEG level on the client layer.
<0-7>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID.
bin	Delay Measurement Binning.
ns	Nano Seconds
overflow-reset	Reset all Delay Measurement results on total delay counter overflow.
proprietary	Proprietary Delay Measurement.
synchronized	Near end and far end is real time synchronized.
dual	Delay Measurement based on 1DM PDU transmission.
flow	The two way delay is calculated as round trip symmetrical flow delay. The far end residence time is subtracted.
interval	Interval between PDU transmission in 10ms. Min value is 10.
multi	OAM PDU is transmitted with multicast MAC.
rdtrp	The two way delay is calculated as round trip delay. The far end residence time is not subtracted.
single	Delay Measurement based on DMM/DMR PDU.
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database.
<uint>	Interval value.
last-n	The last N dalays used for average last N calculation. Min value is 10.
<uint>	The last N value.
fd	the number of FD Measurement Bins.
ifdv	the number of IFDV Measurement Bins.
threshold	the threshold for each Delay Measurement Binning.
domain	The domain of the MEP.
evc	This MEP is a EVC domain MEP.
lsp	This MIP is an MPLS-TP LSP domain MIP.
port	This MEP is a Port domain MEP.
pw	This MEP is an MPLS-TP Pseudo-Wire domain MEP.
tp-link	This MEP is an MPLS-TP link domain MEP.
tunnel-tp	This MEP is an MPLS-TP tunnel domain MEP.
vlan	This MEP is a VLAN domain MEP.
flow	In case the MEP is a VLAN, EVC, MPLS-TP link, tunnel, LSP or Pseudo-Wire domain MEP, the flow instance that the MEP is related to must be given.
level	The MEG level of the MEP.
vid	In case the MEP is a Port domain Up-MEP or a EVC domain customer MIP (on the UNI), the VID must be given.

<uint>	The VLAN, EVC, MPLS-TP link, MPLS-TP tunnel, MPLS-TP LSP or MPLS-TP Pseudo-Wire flow instance number.
<0-7>	The MEG level value.
interface	The residence port of the MEP.
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_id>	Port ID in 1/1-12
<0-7>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID.
count	The number of LBM PDUs to send in one loop test. The value 0 indicates infinite transmission (test behavior). This is HW based LBM/LBR and Requires VOE.
dei	Drop Eligible Indicator in case of tagged OAM.
mpls	Specify optional values for loopback initiated from an MPLS-TP MEP.
multi	OAM PDU is transmitted with multicast MAC. Not used for MPLS-TP.
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Not used for MPLS-TP.
size	The LBM frame size. This is entered as the wanted size (in bytes) of a un-tagged frame containing LBM OAM PDU - including CRC (four bytes). Example when 'Size' = 64 => Un-tagged frame size = DMAC(6) + SMAC(6) + TYPE(2) + LBM PDU LENGTH(46) + CRC(4) = 64 bytes. The transmitted frame will be four bytes longer for each tag added - 8 bytes in case of a tunnel EVC. There are two frame MAX sizes to consider: Switch RX frame MAX size: The MAX frame size (all inclusive) accepted on the switch port of 9600 Bytes. CPU RX frame MAX size: The MAX frame size (all inclusive) possible to copy to CPU of 1526 Bytes. Consider that the Peer MEP must be able to handle the selected frame size. Consider that In case of SW based MEP, the received LBR PDU must be copied to CPU. Warning will be given if selected frame size exceeds the CPU RX frame MAX size. Frame MIN Size is 64 Bytes.
fr1m	Frame rate is 1 f/min.
fr1s	Frame rate is 1 f/s.
<0-7>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID.
flow-counting	Loss Measurement is counting service frames per flow – all priority in one.
oam-counting	Loss Measurement is counting OAM frames either as Y1731 or all
dual	Dual ended LM is based on CCM PDU.
flr	The Frame Loss Ratio interval.
fr10s	Frame rate is 10 f/s.
fr1m	Frame rate is 1 f/min.
fr1s	Frame rate is 1 f/s.
fr6h	Frame rate is 6 f/hour.
fr6m	Frame rate is 6 f/min.
multi	OAM PDU is transmitted with multicast MAC.
single	Single ended LM is based on LMM/LMR PDU.

threshold	Frame Loss threshold
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. In case of LM there is only one peer MEP.
interval	Availability interval
maintenance	Availability Maintenance indicator.
<uint>	Availability interval - number of measurements with same availability in order to change Availability state.
flr-threshold	High Loss Interval FLR Threshold
<0-1000>	High Loss Interval FLR Threshold in per mille
los-int-cnt-holddown	Holddown timer for JSON notification updates for near and far end frame loss interval count
tx-min	Minimum number of frames that must be transmitted in a measurement before FLR is tested against the SDEG FLR threshold.
<uint>	Minimum number of frames that must be transmitted in a measurement before FLR is tested against the SDEG FLR threshold.
<0-7>	Priority in case of tagged OAM. In the EVC domain this is the COS-ID.
<word>	The MEG-ID string. This is either the ITU MEG-ID or the IEEE Short MA, depending on the selected MEG-ID format. The ITU max. is 13 characters. The ITU-CC max. is 15 characters. The IEEE max. is 16 characters.
<uint>	The MEP-ID value.
down	This MEP is a Down-MEP.
up	This MEP is a UP-MEP.
up	This MEP is a UP-MEP.
domain	The domain of the MEP.
evc	This MEP is a EVC domain MEP.
lsp	This MIP is an MPLS-TP LSP domain MIP.
port	This MEP is a Port domain MEP.
pw	This MEP is an MPLS-TP Pseudo-Wire domain MEP.
tp-link	This MEP is an MPLS-TP link domain MEP.
tunnel-tp	This MEP is an MPLS-TP tunnel domain MEP.
vlan	This MEP is a VLAN domain MEP.
flow	In case the MEP is a VLAN, EVC, MPLS-TP link, tunnel, LSP or Pseudo-Wire domain MEP, the flow instance that the MEP is related to must be given.
level	The MEG level of the MEP.
vid	In case the MEP is a Port domain Up-MEP or a EVC domain customer MIP (on the UNI), the VID must be given.
<0-7>	The MEG level value.
interface	The residence port of the MEP.
<uint>	The peer MEP-ID value.
mac	The peer MAC. this will be overwritten by any learned MAC – through CCM reception.
<0-7>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID.

rx	Receive Test Signal.
tx	Transmit Test Signal.
evc	This MEP is a EVC domain MEP.
lsp	This MIP is an MPLS-TP LSP domain MIP.
port	This MEP is a Port domain MEP.
pw	This MEP is an MPLS-TP Pseudo-Wire domain MEP.
tp-link	This MEP is an MPLS-TP link domain MEP.
tunnel-tp	This MEP is an MPLS-TP tunnel domain MEP.
vlan	This MEP is a VLAN domain MEP.
flow	In case the MEP is a VLAN, EVC, MPLS-TP link, tunnel, LSP or Pseudo-Wire domain MEP, the flow instance that the MEP is related to must be given.
level	The MEG level of the MEP.
vid	If the MEP is a Port domain Up-MEP or a EVC domain customer MIP (on the UNI), the VID must be given.
Mode:	Config Mode

Example:

```
SISGM1040-284-LRT(config)# mep os-tlv oui 01 sub-type 01 value 01
SISGM1040-284-LRT(config)# mep 1 aps 0 laps
SISGM1040-284-LRT(config)# mep 1 cc 0 fr10s
SISGM1040-284-LRT(config)# mep 1 ccm-tlv
SISGM1040-284-LRT(config)# mep 1 dm 0 dual flow interval 1 last-n 6
SISGM1040-284-LRT(config)# mep 1 dm ns
SISGM1040-284-LRT(config)# mep 1 dm overflow-reset
SISGM1040-284-LRT(config)# mep 1 dm proprietary
SISGM1040-284-LRT(config)# mep 1 dm synchronized
SISGM1040-284-LRT(config)# mep 1 down domain evc flow 1 level 3 interface GigabitEthernet
1/8
SISGM1040-284-LRT(config)# mep 1 level 0
SISGM1040-284-LRT(config)# mep 1 lm 0 uni dual fr6h
SISGM1040-284-LRT(config)# mep 1 lm-avail maint
SISGM1040-284-LRT(config)# mep 1 mip up domain evc level 3
SISGM1040-284-LRT(config)# mep 1 performance-monitoring
SISGM1040-284-LRT(config)#
```

Messages:

This MEP is not enabled

SISGM1040-284-LRT(config)# mep 1 ais fr1m protect

Error: Invalid parameter error returned from MEP

Error: Invalid number of peer's for this configuration

Error: The MEP must be configured on a EVC NNI port

MEP instance is already created - must be deleted first

Error: The selected frame rate or interval is invalid

This MEP does not have availability configured

Command: **monitor**

Description: Monitoring different system events.

Syntax: **monitor** session <session_number> [destination { interface (<port_type> [<di_list>]) | remote vlan <drvid> reflector-port <port_type> <rportid> } | source { interface (<port_type> [<si_list>]) [both | rx | tx] | remote vlan <srvid> | vlan <source_vlan_list> | cpu [both | rx | tx] } | intermediate { interface (<port_type> [<ii_list>]) | remote vlan <irvid> }]

Parameters:

session	Configure a MIRROR session
<1>	MIRROR session number
destination	MIRROR destination interface or VLAN
intermediate	MIRROR intermediate interface, VLAN
source	MIRROR source interface, VLAN
interface	MIRROR destination interface
remote	MIRROR destination Remote
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
interface	MIRROR intermediate interface
remote	MIRROR intermediate Remote
cpu	MIRROR source CPU
interface	MIRROR source interface
remote	MIRROR source Remote
vlan	MIRROR source VLAN
<vlan_list>	MIRROR source VLAN
both	MIRROR source CPU receive both
rx	MIRROR source CPU receive Rx
tx	MIRROR source CPU receive Tx
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12
<port_type_list>	Port list for all port types
vlan	Remote MIRROR source RMIRROR VLAN
<vlan_id>	Remote MIRROR source RMIRROR VLAN number
Mode:	Config Mode

Example:

```
SISGM1040-284-LRT(config)# monitor session 1 source remote vlan 10
SISGM1040-284-LRT(config)# monitor session 1 destination remote vlan 10 reflector-port
GigabitEthernet 1/5
% Any device connected to a port set as a reflector port loses connectivity until the Remote
Mirroring is disabled.
SISGM1040-284-LRT(config)# do show monitor session 1

Session 1
```

```
---------
Mode                    : Enabled
Type                    : Remote Source Session
Dest RMIRROR VLAN        : 10
Reflector Port           : Gi 1/5
Source VLAN(s)           :
Source Ports             :
Intermediate Ports       : Gi 1/3
CPU Port                :
SISGM1040-284-LRT(config)#
```

Command: **mrp**

Description: Set Media Redundancy Protocol parameters. For more information see "Appendix B – MRP Operation and Examples" on page 230. Note that multiple MRMs in a single ring is not supported.

Syntax:

mrp <domainId> client blocked-state { enable | disable }
mrp <domainId> client link-interval <downInterval> <upInterval> [<linkChangeCount>]
mrp <domainId> diag-clear
mrp <domainId> manager link-change-react { enable | disable }
mrp <domainId> manager media-redundancy { enable | disable }
mrp <domainId> manager nonblocking-supported { enable | disable }
mrp <domainId> manager priority <priority>
mrp <domainId> manager test-interval <testInterval> [<shortTestInterval>]
mrp <domainId> manager test-monitoring <count> [<extendedCount>]
mrp <domainId> manager topology-change <topoChangeInterval> [<topoChangeRepeatCount>]
mrp <domainId> name <domainName>
mrp <domainId> ringport { primary | secondary } <port_type> <mrp_port>
mrp <domainId> ringport-delete { primary | secondary }
mrp <domainId> role { manager | client }
mrp <domainId> status { enable | disable }
mrp <domainId> uuid <domainUUID>
mrp <domainId> vlan <vlanId>
mrp domain delete <domainId>
mrp domain new <domainId>

Parameters:		
	<1-2>	Domain ID of Domain to modify
	domain	Create/Delete MRP Domain
	client	Operate on an MRP Client
	diag-clear	Clear Diagnostic stats for MRP Domain
	manager	Operate on an MRP Manager
	name	Set name for Domain
	ringport	Set/Add Ringport
	ringport-delete	Delete Ringport
	role	Set role in Domain to manager or client
	status	Enable/Disable a domain

uuid	Set UUID for Domain
vlan	Set VLAN for Domain
delete	Delete an MRP Domain
new	Create a new MRP Domain
<1-2>	Domain ID of Domain to be deleted
<1-2>	Domain ID of new Domain
blocked-state	Enable/Disable Blocked State support for MRP Client
link-interval	Set Client Link Intervals and Count for MRP Client
disable	Disable Client Blocked State support
enable	Enable Client Blocked State support (default)
<1-50>	Client Link Down Interval in ms (default=20)
<1-50>	Client Link Up Interval in ms (default=20)
<1-10>	Client Link Change Count (default=4)
link-change-react	Enable/Disable Manager Link Change Reaction
media-redundancy	Enable/Disable Manager Media Redundancy Mode (MRM)
nonblocking-supported	Enable/Disable Manager Non-blocking support
priority	Set Manager Priority
test-interval	Set Manager Test Intervals
test-monitoring	Set Manager Test Monitoring values
topology-change	Set Manager Topology Change settings
disable	Disable Manager link change reaction (default)
enable	Enable Manager link change reaction
<word32>	Updated Domain name
primary	Set primary Ringport
secondary	Set secondary Ringport
<port_type_id>	Port ID in 1/1-12
primary	Delete the primary Ringport
secondary	Delete the secondary Ringport
client	Set role in Domain to client
manager	Set role in Domain to manager
<word64>	Updated Domain UUID
<0-4094>	VLAN ID to apply to Domain (VLAN 0 means disable vlan)
<0-15>	New Manager Priority (0 is highest, default=8)

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# mrp 1 diag-clear
SISGM1040-284-LRT(config)# mrp 1 status disable
SISGM1040-284-LRT(config)# mrp 1 manager link-change-react enable
SISGM1040-284-LRT(config)# mrp 1 name MrpDomain-1
SISGM1040-284-LRT(config)# mrp 1 ringport primary GigabitEthernet 1/9
SISGM1040-284-LRT(config)# mrp 1 role manager
SISGM1040-284-LRT(config)# mrp 2 client link-interval 2 3 3
SISGM1040-284-LRT(config)#
```

Messages:

% Incomplete command.

W mrp 143/mrp_icli_client_blocked_state#501: Warning: MRP Client Blocked State: unable to modify domain with Id 1, Domain is enabled

W mrp 143/mrp_icli_domain_new#183: Warning: MRP Domain Create: unable to create domain with Id 2, Domain exists

W mrp 143/mrp_icli_domain_uuid#219: Warning: MRP Domain UUID: The UUID incorrect

W mrp 143/mrp_icli_manager_priority#354: Warning: MRP Manager Priority: unable to modify domain with Id 2, Invalid parameter

***Note**: Multiple MRMs in a single ring function is not supported. If there are two MRMs in one ring, then both MRMs are generated by the event MULTIPLE_MANAGERS. The multiple active MRMs cause the ring to an incorrect state. You must change all active MRMs to the MRC state (except one MRM) to fix this situation.*

Command: **mvr**

Description: Multicast VLAN Registration configuration.

Syntax:

mvr

mvr name <mvr_name> channel <profile_name>

mvr name <mvr_name> frame priority <cos_priority>

mvr name <mvr_name> frame tagged

mvr name <mvr_name> igmp-address <v_ipv4_ucast>

mvr name <mvr_name> last-member-query-interval <ipmc_lmqi>

mvr name <mvr_name> mode { dynamic | compatible }

mvr vlan <v_vlan_list> [name <mvr_name>]

mvr vlan <v_vlan_list> channel <profile_name>

mvr vlan <v_vlan_list> frame priority <cos_priority>

mvr vlan <v_vlan_list> frame tagged

mvr vlan <v_vlan_list> igmp-address <v_ipv4_ucast>

mvr vlan <v_vlan_list> last-member-query-interval <ipmc_lmqi>

mvr vlan <v_vlan_list> mode { dynamic | compatible }

Parameters:

name	MVR multicast name
vlan	MVR multicast vlan
<word16>	MVR multicast VLAN name
channel	MVR channel configuration
frame	MVR control frame in TX
igmp-address	MVR address configuration used in IGMP
last-member-query-interval	Last Member Query Interval in tenths of seconds
mode	MVR mode of operation
<word16>	Profile name in 16 char's
compatible	Compatible MVR operation mode
dynamic	Dynamic MVR operation mode
priority	Interface CoS priority

	tagged	Tagged IGMP/MLD frames will be sent
	<0-31744>	0 - 31744 tenths of seconds

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# mvr name Bob channel Prof-1
SISGM1040-284-LRT(config)# mvr vlan 10 last-member-query-interval 6000
SISGM1040-284-LRT(config)#
```

Messages: *% Invalid MVR VLAN BobB.*
% Failed to set MVR interface LMQI.

Command: **no**

Description: Negate a command or set its defaults in Config mode.

Syntax:

aaa	Authentication, Authorization and Accounting
access	Access management
access-list	Access list
aggregation	Aggregation mode
banner	Define a login banner
clock	Configure time-of-day clock
command-history-log	Disable to Save Command History to Flash
debug	Debugging functions
dot1x	IEEE Standard for port-based Network Access Control
enable	Modify enable password parameters
eps	Ethernet Protection Switching.
erps	Ethernet Ring Protection Switching
evc	Ethernet Virtual Connections
exec-timeout	EXEC timeout (autologout)
green-ethernet	Green ethernet (Power reduction)
gvrp	Enable GVRP feature
hostname	Set system's network name
interface	Select an interface to configure
ip	Internet Protocol
ipmc	IPv4/IPv6 multicast configuration
ipv6	IPv6 configuration commands
lacp	LACP settings
lldp	LLDP configurations.
logging	System logging message
loop-protect	Loop protection configuration
mac	MAC table entries/configuration
map-api-key	Google Map API Key
mep	Maintenance Entity Point
monitor	Monitoring different system events
mvr	Multicast VLAN Registration configuration
ntp	Configure NTP
port-security	Enable/disable port security globally.
privilege	Command privilege parameters
ptp	Precision time Protocol (1588)
qos	Quality of Service
radius-server	Configure RADIUS
rmon	Remote Monitoring
sflow	Statistics flow.
snmp-server	Enable SNMP server

	spanning-tree	STP Bridge
	switchport	VLAN
	system	Set the system description
	tacacs-server	Configure TACACS+
	udld	Disable UDLD configurations on all fiber-optic ports.
	upnp	Set UPnP configuration
	username	Establish User Name Authentication
	vlan	VLAN commands
	voice	Voice appliance attributes
	web	Web

Parameters:	aaa	access	access-list
	aggregation	banner	clock
	command-history-log	debug	dot1x
	enable	eps	erps
	evc	exec-timeout	green-ethernet
	gvrp	hostname	interface
	ip	ipmc	ipv6
	lacp	lldp	logging
	loop-protect	mac	map-api-key
	mep	monitor	mvr
	ntp	port-security	privilege
	ptp	qos	radius-server
	rmon	sflow	snmp-server
	spanning-tree	switchport	system
	tacacs-server	udld	upnp
	username	vlan	voice
	web		

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# no aggregation mode
SISGM1040-284-LRT(config)# no gvrp ?
    max-vlans    Number of simultaneous VLANs that GVRP can control
    time         Configure GARP protocol timer parameters. IEEE 802.1D-2004,
                 clause 12.11.
    <cr>
SISGM1040-284-LRT(config)# no gvrp
SISGM1040-284-LRT(config)# no exec-timeout autologout
SISGM1040-284-LRT(config)# no map-api-key
SISGM1040-284-LRT(config)# do show map
Key   :
SISGM1040-284-LRT(config)#
```

Command: **ntp**

Description: Configure Network Time Protocol.

Syntax: **ntp**

ntp automatic

ntp interval <interval>

ntp server <index_var> ip-address { <ipv4_var> | <ipv6_var> | <name_var> }

Parameters:		
	automatic	Configure Automatic
	interval	Configure NTP Time-Sync Interval <<5,10,15,30,60,120>>
	server	Configure NTP server
	<1-5>	index number
	ip-address	ip address
	<domain_name>	domain name
	<ipv4_ucast>	ipv4 address
	<ipv6_ucast>	ipv6 address

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# ntp interval 30
SISGM1040-284-LRT(config)# ntp automatic
SISGM1040-284-LRT(config)# ntp server 1 ip-address 192.168.1.79
SISGM1040-284-LRT(config)#
```

Command: **percepxion**

Description: Percepxion configuration; enter Percepxion Config mode and set Percepxion parameters.

Percepxion is a cloud or on-premise portal for the centralized management of multiple Lantronix switches. A browser-based interface allows an administrator to view status, send commands, view logs and charts, and update firmware. Each Lantronix device can communicate with the cloud server or on-premise server, sending status updates and responding to commands sent by the server.

The switch requires a unique Device ID to communicate with the Percepxion portal. The ID is viewable in the Percepxion settings by running the 'show' command at the 'config-percepxion' command mode. If a device is not already pre-configured with the ID, the ID must be provisioned using Lantronix Provisioning Manager (LPM).

The Percepxion client follows a sequence of steps to connect to the Percepxion server, send status updates, check for firmware and configuration updates, and respond to commands from the server. This series of steps is the same each time the client starts - at boot, or if the client is enabled. Any changes to the Percepxion Device ID, or registration settings require the Percepxion client to be disabled and re-enabled for the changes to take effect.

Percepxion client registration

The client will attempt to register to the Host using the project tag and device ID. If registration fails, the client will wait and retry. The client will retry until it is successful, or the client is disabled. Registration may fail if the Project Tag is invalid, the Device ID is invalid, the Host name cannot be resolved, or the Host is not reachable. Once registration is successful, the **Client State** will display **Registered** with the date and time of registration.

Telemetry

After registration, the client will connect to the Telemetry Host (the hostname is the same as the registration host provided during registration) and perform a telemetry handshake. This handshake may request that the client publish a set of statistics at regular intervals.

Messaging and Status Updates

After the telemetry handshake, the Percepxion client will connect to the messaging host to receive messages and publish status updates. If the connection fails, the client will wait and retry. The connection may fail if the messaging host name cannot be resolved, or the messaging host is not reachable. The client publishes status update messages (changes to the device attributes) at the interval defined by **Status Update Interval**. Each time a status update is published, the **Last status update** will be updated to indicate the elapsed time since the status was sent. The client also accepts command messages from the Percepxion server to perform actions, such as reboot.

Firmware updates and Configuration updates

The Percepxion client checks for firmware and configuration updates at the interval defined by the **Content Check Interval**. When the client checks for firmware or configuration updates, the **Last content check** will be updated to indicate the elapsed time since the check was made. The **Available Firmware updates** and **Available Configuration updates** will indicate if an update was found on the server, or show *Not available*, if no updates were found.

Subcommands:

```
SISGM1040-284-LRT(config-percepxion)# ?
   active       Sets active connection to Connection <number>
   apply        Sets the mode on firmware updates
   connection    Sets the connection 1 or connection 2
   content      Sets the firmware and configuration check interval
   device       Sets the device attributes
   do           To run exec commands in config mode
```

```
    end          Go back to EXEC mode
    exit         Exit from current mode
    help         Description of the interactive help system
    no           Removes
    show         Displays the current configuration
    state        Percepxion state
    status       Sets the status update interval
```

Syntax and Parameters:

active connection connection <1|2>

- connection - sets the active connection

apply configuration updates <enable|disable>

- configuration updates - enables or disables configuration updates

apply firmware updates <enable|disable>

- firmware updates - enables or disables firmware updates

connection <1|2> connect to <cloud|on premise>

connection <1|2> host <host name>

connection <1|2> port <number>

connection <1|2> secure port <enable|disable>

connection <1|2> validate certificates <enable|disable>

- Sets the connection 1 or 2 settings.
- <1|2> - Indicates which connection to configure.
- connect to - sets the connect mode to cloud or on-premise
- host - sets the host name or IP address of the Percepxion server
- port - sets the port number of the Percepxion server. Default is 443.
- secure port - enables or disables secure port.
- validate certificates - If enabled use a certificate authority to validate the HTTPS certificate. Disabled by default.

content check interval <1-56160>

- check interval - sets the interval of time in minutes that the agent waits between checks for firmware or configuration updates. Valid values are 1 to 56160 minutes.

device description <device_desp>

device id <device_id>

device key <device_key>

device name <device_name>

- Sets the device attributes.
- device_desp - sets the description
- device_id – sets the device id
- device_key – sets the device key. After it is set, the key is displayed as <Configured>.
- device_name – sets the device name as it will be shown in Percepxion UI.

do <command>

- Run exec commands in the configuration mode

end

- Go back to exec mode

exit

- Exit from the current mode

help

- Shows description of the interactive help system

no device description

no device id

no device key

no device name

- Removes the value of a configuration setting
- description – removes the description
- id – removes the device id
- key – removes the device key
- name – removes the device name

show connection <1|2>

- Displays the current configuration of the specified connection

show statistics

- Displays the Percepxion statistics

state <disable|enable>

- Sets the Percepxion client state. Enabled by default.

status update interval <1-1440>

- update interval <1-1440> Sets the interval of time in minutes that the agent waits between sending its status to the Percepxion server. Valid values are 1 to 1440 minutes.

Usage

Example 1:

```
SISGM1040-284-LRT (config-percepxion)# active connection connection 1

SISGM1040-284-LRT (config-percepxion)# apply configuration updates enable
SISGM1040-284-LRT (config-percepxion)# apply firmware updates enable
SISGM1040-284-LRT (config-percepxion)# connection 1 connect to cloud
SISGM1040-284-LRT (config-percepxion)# connection 1 host 1.2.3.4 BobB
SISGM1040-284-LRT (config-percepxion)# connection 1 port 444
SISGM1040-284-LRT (config-percepxion)# connection 1 secure port enable
SISGM1040-284-LRT (config-percepxion)# connection 1 validate certificates enable
SISGM1040-284-LRT (config-percepxion)# content check interval 2000
SISGM1040-284-LRT (config-percepxion)# show connection 1
Percepxion Connection 1 Configuration:
Connect To : Cloud
Host : 1.2.3.4 BobB
Port : 444
Secure Port : Enabled
Validate Certificates: Enabled
SISGM1040-284-LRT (config-percepxion)#
```

Example 2:

```
SISGM1040-284-LRT (config-percepxion)# show statistics
Client Status : Running
Not registered - Device ID or Key not set
Last Status Update : Not available
Last Content Check : Not available
Available Firmware Updates: Not available
Available Configuration Updates: Not available
SISGM1040-284-LRT (config-percepxion)# state enable
SISGM1040-284-LRT (config-percepxion)# status update interval 350
SISGM1040-284-LRT (config-percepxion)# exit
SISGM1040-284-LRT (config)#
```

Command: **port-security**
Description: Enable/disable port security globally and set aging time.
Syntax: **port-security**
port-security aging
port-security aging time <v_10_to_10000000>
Parameters:

	aging	Enable/disable port security aging.
	time	Time in seconds between check for activity on learned MAC addresses.
	<10-10000000>	seconds
	<cr>	

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# port-security aging time 60000
SISGM1040-284-LRT(config)#
```

Command: **privilege**
Description: Command privilege level parameters.
Syntax: **privilege** <mode_name> level <privilege> <cmd>
Parameters:

<cword>	Valid words are 'config-vlan' 'configure' 'dhcp-pool' 'exec' 'if-vlan' 'interface' 'ipmc-profile' 'line' 'snmps-host' 'stp-aggr'
level	Set privilege level of command
<0-15>	Privilege level
<line128>	Initial valid words and literals of the command to modify, in 128 characters

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# privilege ipmc-profile level 15 ipmc-profile IPMC-Profile
SISGM1040-284-LRT(config)#
```

Message: *% Fail to set privilege as command "abcd123" is invalid.*

Command: **ptp**
Description: Configure Precision Time Protocol (1588).
Syntax:

ptp <clockinst> clk sync <threshold> ap <ap>

ptp <clockinst> domain <domain>

ptp <clockinst> filter [delay <delay>] [filter-type { basic | ms-pdv }] [period <period>] [dist <dist>]

ptp <clockinst> ho [filter <ho_filter>] [adj-threshold <adj_threshold>]

ptp <clockinst> log <debug_mode>

ptp <clockinst> mode { boundary | e2etransparent | p2ptransparent | master | slave | bcfrontend } [onestep | twostep] [ethernet | ethernet-mixed | ip4multi | ip4mixed | ip4unicast | oam | onepps] [oneway | twoway] [id <v_clock_id>][vid <vid> [<prio>] [tag]] [mep <mep_id>] [profile { ieee1588 | g8265.1 | g8275.1 }] [clock-domain 0] [dscp <dscp_id>]

ptp <clockinst> priority1 <priority1>

ptp <clockinst> priority2 <priority2>

ptp <clockinst> servo ad <ad>

ptp <clockinst> servo ai <ai>

ptp <clockinst> servo ap <ap>

ptp <clockinst> servo displaystates

ptp <clockinst> servo phase-mode

ptp <clockinst> slave-cfg [stable-offset <stable_offset>] [offset-ok <offset_ok>] [offset-fail <offset_fail>]

ptp <clockinst> time-property [utc-offset <utc_offset>] [valid] [leap-59 |leap-61] [time-traceable] [freq-traceable] [ptptimescale] [time-source <time_source>]

ptp <clockinst> uni <idx> [duration <duration>] <ip>

ptp ext [output | input | out-in] [ext <clockfreq>] [vcxo | ltc-freq | synce-dpll | osc | ltc-phase]

ptp ref-clock { mhz125 | mhz156p25 | mhz250 }

ptp system-time { get | set }

ptp tc-internal [mode <mode>]

Parameters:

<0-3>	Clock instance [0-3]
ext	Update the 1PPS and External clock output configuration and vcxo frequency rate adjustment option
system-time	Enable synchronization between PTP time and system time
tc-internal	Define the internal mode used in TC's
clk	Set PTP slave clock options
domain	Clock domain for PTP
filter	Set filter parameters
ho	Set PTP Servo holdover parameters
log	Set the PTP debug mode
mode	Enable a PTP instance
priority1	Clock priority 1 for PTP BMC algorithm (0 is highest priority)
priority2	Clock priority 2 for PTP BMC algorithm (0 is highest priority)

servo	Set Servo parameters
slave-cfg	Set PTP clock Slave Configuration
time-property	Set time properties
uni	Set a Unicast Slave configuration entry
sync	Set PTP slave clock options to 'clock is SyncE locked'
<1-1000>	[1..1000] Threshold in ns for offsetFromMaster defines when the offset increment/decrement mode is entered
ap	Set the adjustment factor
<1-40>	[1..40] The offset increment/decrement adjustment factor
<0-127>	PTP domain: range = 0-127
delay	Set delay filter parameter
dist	Set offset filter dist parameter
dist	Set offset filter dist parameter
period	Set offset filter period parameter
<0-6>	Log2 of timeconstant in delay lowpass filter, valid range: 1-6,.Setting the value to 0 means use the same filter function as for the offset measurement, in this case the delay filter uses the 'period' and 'dist' parameters.
<1-10>	Distance between servo update n number of measurement periods, valid range: 1-10.
basic	Basic offset filter
ms-pdv	MS-PDV
<1-10000>	Measurement period in number of sync events, valid range: 1-10000
adj-threshold	Set adjustment threshold
filter	Set stabilization period
<1-4>	1-4 Debug log mode, 1 => log offset from master, 2 => log sync packets, 3 => log Delay_req, 4 => log both
bcfrontend	Boundary Clock front end
boundary	Ordinary / Boundary clock
e2etransparent	End to end transparent clock
master	Master only clock
p2ptransparent	Peer to peer transparent clock
slave	Slave only clock
<0-255>	PTP clock priority1: range = 0-255
<0-255>	PTP clock priority2: range = 0-255
<1-10000>	[1..10000] 'D' component in PID servo regulator
<1-10000>	[1..10000] 'I' component in PID servo regulator.
<1-1000>	[1..1000] 'P' component in PID servo regulator
offset-fail	set the offset-fail threshold
offset-ok	set the offset-ok threshold
stable-offset	set the stable-offset threshold
<0-1000000>	offset-fail threshold in ns
freq-traceable	frequency is traceable

leap-59	leap59 in current day
leap-61	leap61 in current day
ptptimescale	timing is a PTP time scale
time-source	set timesource
time-traceable	timing is traceable
utc-offset	set utc offset
valid	UTC offset is valid
<0-4>	[0..4] Index in the slave table
<ipv4_ucast>	IPv4 address of requested master clock
duration	Set the Duration parameter
<10-1000>	Duration [10..1000]. Number of seconds the Announce/Sync messages are requested
ext	Enable external clock frequency output
input	Enable 1PPS input
ltc-freq	Select Local Time Counter (LTC) frequency control
ltc-phase	Select Local Time Counter (LTC) phase control (assumes frequency is locked by SyncE)
osc	Select an oscillator independent of SyncE for frequency control, if supported by the HW
out-in	Enable 1PPS output and input (Jaguar1 only)
output	Enable 1PPS output
synce-dpll	Select SyncE DPLL frequency control, if allowed by SyncE
vcxo	Enable VCXO frequency control (same as synce-dpll, kept for backwards compatibility)
ext	Enable external clock frequency output
input	Enable 1PPS input
out-in	Enable 1PPS output and input (Jaguar1 only)
output	Enable 1PPS output
get	Get (update) the PTP time from the system time
set	Set (update) the system time from the PTP time
mode	Set mode
<0-3>	mode [0-3] (0 = MODE_30BIT, 1 = MODE_32BIT, 2 = MODE_44BIT, 3 = MODE_48BIT)

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# ptp 0 clk sync 6 ap 3
SISGM1040-284-LRT(config)# ptp 0 domain 0
SISGM1040-284-LRT(config)# ptp 0 servo phase-mode
SISGM1040-284-LRT(config)# ptp 0 time freq-traceable leap-59 ptptimescale valid
SISGM1040-284-LRT(config)# ptp ext input ext 60000 osc
One_pps_mode overrules clock_out_enable, i.e. clock_out_enable is set to false
SISGM1040-284-LRT(config)# ptp system-time get
System clock synch mode (Get PTP time from System time)
SISGM1040-284-LRT(config)# ptp system-time set
SISGM1040-284-LRT(config)# ptp tc-internal mode 0

Successfully set the TC internal mode...
```

```
Internal TC mode Configuration has been set, you need to reboot to activate the changed
conf.
SISGM1040-284-LRT(config)#
SISGM1040-284-LRT(config)#
```

Command: **qos**
Description: Configure Quality of Service.

Syntax:

qos map cos-dscp <cos> dpl <dpl> dscp { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3| cs4 | cs5 | cs6 | cs7 | ef | va } }

qos map dscp-classify { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }

qos map dscp-cos { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } } cos <cos> dpl <dpl>

qos map dscp-egress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21| af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4| cs5 | cs6 | cs7 | ef | va } } <dpl> to { <dscp_num_tr> | { be | af11 | af12 |af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2| cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }

qos map dscp-ingress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } } to { <dscp_num_tr> | { be | af11 | af12 | af13| af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }

qos qce refresh

qos qce { [update] } <qce_id> [{ next <qce_id_next> } | last] [interface (<port_type> [<port_list>])] [smac { <smac> | <smac_24> | any }] [dmac { <dmac> | unicast | multicast | broadcast | any }] [tag { [type { untagged | tagged | c-tagged | s-tagged | any }] [vid { <ot_vid> | any }] [pcp { <ot_pcp> | any }] [dei { <ot_dei> | any }] }*1] [inner-tag { [type { untagged | tagged | c-tagged | s-tagged | any }] [vid { <it_vid> | any }] [pcp { <it_pcp> | any }] [dei { <it_dei> | any }] }*1] [frame-type { any | { etype [{ <etype_type> | any }] } | { llc [dsap { <llc_dsap> | any }] [ssap { <llc_ssap>| any }] [control { <llc_control> | any }] } | { snap [{ <snap_data> | any }] } | { ipv4 [proto { <pr4> | tcp | udp | any }] [sip { <sip4> | any }] [dip { <dip4> | any }] [dscp { <dscp4> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } | any }] [fragment { yes | no | any }] [sport { <sp4> | any }] [dport { <dp4> | any }] } | { ipv6 [proto { <pr6> | tcp | udp | any }] [sip { <sip6> | any }] [dip { <dip6> | any }] [dscp { <dscp6> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 |af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } | any }] [sport { <sp6> | any }] [dport { <dp6> | any }] } }] [action { [cos { <action_cos> | default }] [dpl { <action_dpl> | default }] [pcp-dei { <action_pcp> <action_dei> | default }] [dscp { <action_dscp_dscp> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } | default }] [policy { <action_policy> | default }] }*1]

qos storm { unicast | multicast | broadcast } <rate> [fps | kfps | kbps | mbps]

Parameters:

map	Global QoS Map/Table
qce	QoS Control Entry
storm	Storm policer
cos-dscp	Map for CPS to DSCP
dscp-classify	Map for DSCP classify enable

dscp-cos	Map for DSCP to COS
dscp-egress-translation	Map for DSCP egress translation
dscp-ingress-translation	Map for DSCP ingress translation
<1-256>	QCE ID
refresh	Refresh QCE tables in hardware
update	Update an existing QCE
broadcast	Police broadcast frames
multicast	Police multicast frames
unicast	Police unicast frames
<0~7>	Specific class of service or range
dpl	Specify drop precedence level
0~1	Specific drop precedence level or range
dscp	Specify DSCP
<0-63>	Specific DSCP
af11	Assured Forwarding PHB AF11(DSCP 10)
af12	Assured Forwarding PHB AF12(DSCP 12)
af13	Assured Forwarding PHB AF13(DSCP 14)
af21	Assured Forwarding PHB AF21(DSCP 18)
af22	Assured Forwarding PHB AF22(DSCP 20)
af23	Assured Forwarding PHB AF23(DSCP 22)
af31	Assured Forwarding PHB AF31(DSCP 26)
af32	Assured Forwarding PHB AF32(DSCP 28)
af33	Assured Forwarding PHB AF33(DSCP 30)
af41	Assured Forwarding PHB AF41(DSCP 34)
af42	Assured Forwarding PHB AF42(DSCP 36)
af43	Assured Forwarding PHB AF43(DSCP 38)
be	Default PHB(DSCP 0) for best effort traffic
cs1	Class Selector PHB CS1 precedence 1(DSCP 8)
cs2	Class Selector PHB CS2 precedence 2(DSCP 16)
cs3	Class Selector PHB CS3 precedence 3(DSCP 24)
cs4	Class Selector PHB CS4 precedence 4(DSCP 32)
cs5	Class Selector PHB CS5 precedence 5(DSCP 40)
cs6	Class Selector PHB CS6 precedence 6(DSCP 48)
cs7	Class Selector PHB CS7 precedence 7(DSCP 56)
ef	Expedited Forwarding PHB(DSCP 46)
va	Voice Admit PHB(DSCP 44)
action	Setup action
dmac	Setup matched DMAC
frame-type	Setup matched frame type
interface	Interfaces

last	Place QCE at the end
next	Place QCE before the next QCE ID
smac	Setup matched SMAC. If 'qos qce addr destination' is set, this parameter specifies the DMAC
tag	Set up tag options
cos	Setup class of service action
dpl	Setup drop precedence level action
dscp	Setup DSCP action
pcp-dei	Setup PCP and DEI action
policy	Setup ACL policy action
any	Match any DMAC
broadcast	Match broadcast DMAC
multicast	Match multicast DMAC
unicast	Match unicast DMAC
any	Match any frame type
etype	Match EtherType frames
ipv4	Match IPv4 frames
ipv6	Match IPv6 frames
llc	Match LLC frames
snap	Match SNAP frames
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<1-256>	The next QCE ID
<mac_addr>	Matched SMAC (XX-XX-XX-XX-XX-XX)
any	Match any SMAC
dei	Setup matched DEI
pcp	Setup matched PCP
type	Setup matched tag type
vid	Setup matched VLAN ID
<0-1>	Matched DEI
any	Match any DEI
<pcp>	Matched PCP value/range
any	Match any PCP
any	Match tagged and untagged frames
tagged	Match tagged frames
untagged	Match untagged frames
<vcap_vr>	Matched VLAN ID value/range
any	Match any VLAN ID
broadcast	Police broadcast frames
multicast	Police multicast frames
unicast	Police unicast frames

<1-1024000>	Policer rate (default fps). Valid values are:{ 1, 2, 4, 8, 16, 32, 64, 128, 256, 512 } fps or kfps | 1024 fps | { 1000, 2000, 4000, 8000, 16000, 32000, 64000, 128000, 256000, 512000, 1024000 } fps .
fps	Unit is frames per second (default)
kfps	Unit is kiloframes per second

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# qos map cos-dscp 0 dpl 0 dscp 0
SISGM1040-284-LRT(config)# qos map cos-dscp 0 dpl 0 dscp ef
SISGM1040-284-LRT(config)# qos storm broadcast 100000 fps
% QOS: 100000 must be in {1, 2, 4, 8, 16, 32, 64, 128, 256, 512} fps or kfps | 1024 kfps
SISGM1040-284-LRT(config)# qos storm multicast 512 fps
SISGM1040-284-LRT(config)#
```

Command: **radius-server**

Description: Configure RADIUS server parameters.

Syntax:

radius-server attribute 32 <id>

radius-server attribute 4 <ipv4>

radius-server attribute 95 <ipv6>

radius-server deadtime <minutes>

radius-server host <host_name> [auth-port <auth_port>] [acct-port <acct_port>] [timeout <seconds>] [retransmit <retries>] [key { [unencrypted] <unencrypted_key> | encrypted <encrypted_key> }]

radius-server key { [unencrypted] <unencrypted_key> | encrypted <encrypted_key> }

radius-server retransmit <retries>

radius-server timeout <seconds>

Parameters:		
	attribute	NAS attributes
	deadtime	Time to stop using a RADIUS server that doesn't respond
	host	Specify a RADIUS server
	key	Set RADIUS encryption key
	retransmit	Specify the number of retries to active server
	timeout	Time to wait for a RADIUS server to reply
	32	attribute number 32 = NAS-Identifier
	4	attribute number 4 = NAS-IP-Address
	95	attribute number 95 = NAS-IPv6-Address
	<1-1440>	Time in minutes
	<word1-255>	Hostname or IP address
	<line1-63>	The shared key
	<1-1000>	Number of retries for a transaction
	<1-1000>	Wait time in seconds
	<line1-253>	NAS-Identifier
	<line1-63>	The shared key

acct-port	UDP port for RADIUS accounting server
auth-port	UDP port for RADIUS authentication server
key	Server specific key (overrides default)
retransmit	Specify the number of retries to active server (overrides default)
timeout	Time to wait for this RADIUS server to reply (overrides default)
<0-65535>	UDP port number or 0 to disable accounting
<0-65535>	UDP port number or 0 to disable authentication
<word1-63>	The UNENCRYPTED (Plain Text) secret key. Notice that you have no chance to get the Plain Text secret key after this command. The system will always display the ENCRYPTED password.
encrypted	Specifies an ENCRYPTED secret key will follow
unencrypted	Specifies an UNENCRYPTED secret key will follow
<word96-224>	The ENCRYPTED (hidden) secret key. Notice the ENCRYPTED secret key will be decoded by the system internally. You cannot directly use it the same as the Plain Text, and it is not human-readable text normally.

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# radius-server timeout 500
SISGM1040-284-LRT(config)# radius-server attribute 32 aaaa bbbb
SISGM1040-284-LRT(config)# radius-server deadtime 90
SISGM1040-284-LRT(config)# radius-server retransmit 444
SISGM1040-284-LRT(config)# radius-server timeout 350
SISGM1040-284-LRT(config)# radius-server host NNNNnn auth-port 5555 acct-port 6666 key
encrypted MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMNN
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN retransmit 300 timeout 400
SISGM1040-284-LRT(config)# do show radius
Global RADIUS Server Timeout      : 5 seconds
Global RADIUS Server Retransmit   : 3 times
Global RADIUS Server Deadtime     : 0 minutes
Global RADIUS Server Key          : 96e8ba17230c7e71193c25bdd926ee6f22e5735838a1
1fd8b4ab3ca2e1911f5835058d24980d9557599124e710913f286632e6c4d90e621acea85682c2a2
60d0705e9389398572202ee32fae6097f04c5c11106f5bcace12e6e08a345a901d3018aeada0e495
157b53af55bc66a59012
Global RADIUS Server Attribute 4  : 192.168.1.30
Global RADIUS Server Attribute 95 :
Global RADIUS Server Attribute 32 : admin
RADIUS Server #1:
  Host name  : RadSrvr1
  Auth port  : 1812
  Acct port  : 1813
  Timeout    : 60 seconds
  Retransmit : 350 times
  Key        : e59539f0a5750b4aed1d90a4f3caab252aef6f93758ff78cb09999c2ba45bc980
96a49868bfff9ffb43c3aecab16c338fb520679e6267e85104648a2514f9e32
```

```
SISGM1040-284-LRT(config)#
```

Messages:
Error: HTTPD cache has no valid entry!
% Incomplete word detected at '^' marker.

Command: **rapid-ring**
Description: Set Rapid Ring parameters. Note: Spanning Tree must be disabled.
Syntax:
rapid-ring entry <entryindex> role disabled port1 <port_type> <rport1> port2 <port_type> <rport2>
rapid-ring entry <entryindex> role master port1 <port_type> <rport1> port2 <port_type> <rport2>
rapid-ring entry <entryindex> role member port1 <port_type> <rport1> port2 <port_type> <rport2>
rapid-ring entry <entryindex> role rapid-chain port1 <port_type> <rport1> port2<port_type> <rport2>

Parameters:		
	entry	Set entry index
	<uint8>	index
	role	Set role value
	disabled	role value disabled
	master	role value master
	member	role value member
	rapid-chain	role value rapid-chain
	port1	Set port1
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_id>	Port ID in 1/1-12
	port2	Set port2

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# rapid-ring entry 1 role master port1 GigabitEthernet 1/5 port2
GigabitEthernet 1/9
SISGM1040-284-LRT(config)# rapid-ring entry 2 role member port1 GigabitEthernet 1/2 port2
GigabitEthernet 1/5
SISGM1040-284-LRT(config)# rapid-ring entry 3 role rapid-chain port1 GigabitEthernet 1/7
port2 GigabitEthernet 1/6
Rapid-Chain only one set.
SISGM1040-284-LRT(config)#
```

Messages:
R_RING_ICLI_system_set error in port 5, STP is enable
Rapid-Chain only one set.
The ports should not be same.

Command: **ring-to-ring**
Description: Set Ring to Ring parameters. Note that Spanning Tree must be disabled.
Syntax: **ring-to-ring** role active port <port_type> <rport>
ring-to-ring role backup port <port_type> <rport>
ring-to-ring role disabled port <port_type> <rport>

Parameters:		
	role	Set role value
	active	role value active
	backup	role value backup
	disabled	role value disabled
	port	Set port
	GigabitEthernet	1 Gigabit Ethernet Port
	<port_type_id>	Port ID in 1/1-12

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# ring-to-ring role active port GigabitEthernet 1/3
R_TO_R_ICLI_system_set error in port 3, same with rapid ring port
SISGM1040-284-LRT(config)# ring-to-ring role backup port GigabitEthernet 1/10
SISGM1040-284-LRT(config)# ring-to-ring role disabled port GigabitEthernet 1/12
SISGM1040-284-LRT(config)#
```

Messages:

R_TO_R_ICLI_system_set error in port 4, STP is enable

E packet 04:44:56 97.474,808 40/packet_tx#2768: Error: Assertion failed: port_cnt > 1 || port_no < VTSS_PORTS

Command: **rmon**
Description: Configure Remote Monitoring.
Syntax:

rmon alarm <id> { ifInOctets | ifInUcastPkts | ifInNUcastPkts | ifInDiscards | ifInErrors | ifInUnknownProtos | ifOutOctets | ifOutUcastPkts | ifOutNUcastPkts | ifOutDiscards | ifOutErrors } <ifIndex> <interval> { absolute | delta } rising-threshold <rising_threshold> [<rising_event_id>] falling-threshold <falling_threshold> [<falling_event_id>] { [rising | falling | both] }

rmon event <id> [log] [trap <community>] { [description <description>] }

Parameters:

alarm	Configure an RMON alarm
event	Configure an RMON event
<1-65535>	Alarm entry ID
<1-65535>	Event entry ID
ifInDiscards	The number of inbound packets that are discarded even the packets are normal
ifInErrors	The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol
ifInNUcastPkts	The number of broad-cast and multi-cast packets delivered to a higher-layer protocol
ifInOctets	The total number of octets received on the interface, including framing characters

ifInUcastPkts	The number of uni-cast packets delivered to a higher-layer protocol
ifInUnknownProtos	The number of the inbound packets that were discarded because of the unknown or unsupported protocol
ifOutDiscards	The number of outbound packets that are discarded event the packets is normal
ifOutErrors	The number of outbound packets that could not be transmitted because of errors
ifOutNUcastPkts	The number of broad-cast and multi-cast packets that request to transmit
ifOutOctets	The number of octets transmitted out of the interface , including framing characters
ifOutUcastPkts	The number of uni-cast packets that request to transmit
<uint>	Interface index
<1-2147483647>	Sample interval
absolute	Test each sample directly
delta	Test delta between samples
rising-threshold	Configure the rising threshold
<-2147483648-2147483647>	rising threshold value
<0-65535>	Event to fire on rising threshold crossing
falling-threshold	Configure the falling threshold
<-2147483648-2147483647>	falling threshold value
<0-65535>	Event to fire on falling threshold crossing
both	Trigger alarm when the first value is larger than the rising threshold or less than the falling threshold (default)
falling	Trigger alarm when the first value is less than the falling threshold
rising	Trigger alarm when the first value is larger than the rising threshold
description	Specify a description of the event
log	Generate RMON log when the event fires
trap	Generate SNMP trap when the event fires
<line127>	Event description
<word127>	SNMP community string
<line127>	Event description

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# rmon alarm 1 ifInErrors 1 5000 absolute rising-threshold 9999
falling-threshold 1111
SISGM1040-284-LRT(config)# rmon event 1 description RmonEvnt-1 InitialRMON Event
SISGM1040-284-LRT(config)# rmon event 1 log trap SNMPcommunString
SISGM1040-284-LRT(config)#
```

Messages: *% Invalid: rising threshold must be larger than falling threshold*

Command: **sflow**
Description: Configure Statistics flow.
Syntax:
sflow agent-ip { ipv4 <v_ipv4_addr> | ipv6 <v_ipv6_addr> }
sflow collector-address [receiver <rcvr_idx_list>] [<ipv4_var> | <ipv6_var> | <domain_name>]
sflow collector-port [receiver <rcvr_idx_list>] <collector_port>
sflow max-datagram-size [receiver <rcvr_idx_list>] <datagram_size>
sflow timeout [receiver <rcvr_idx_list>] <timeout>
Parameters:

agent-ip	The agent IP address used as agent-address in UDP datagrams. Defaults to IPv4 loopback address.
collector-address	Collector address
collector-port	Collector UDP port
max-datagram-size	Maximum datagram size.
timeout	Receiver timeout measured in seconds. The switch decrements the timeout once per second, and as long as it is non-zero, the receiver receives samples. Once the timeout reaches 0, the receiver and all its configuration is reset to defaults.
ipv4	<ipv4_addr>
ipv6	<ipv6_addr>
<domain_name>	Domain name identifying the collector receiver
<ipv4_addr>	IPv4 address identifying the collector receiver
<ipv6_ucast>	IPv6 address identifying the collector receiver
<1-65535>	Port number - collector
<200-1468>	bytes - max-datagram-size
<0-2147483647>	Number of seconds - timeout.

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# sflow agent-ip ipv4 192.168.1.30
SISGM1040-284-LRT(config)# sflow collector-address 192.168.1.40
SISGM1040-284-LRT(config)# sflow collector-port 789
SISGM1040-284-LRT(config)# sflow max-datagram-size 500
SISGM1040-284-LRT(config)# sflow timeout 70000
SISGM1040-284-LRT(config)#
```

Messages: *Invalid receiver IP address or failed DNS lookup of hostname.*

Command: **smtp**

Description: Set email information.

Syntax: **smtp** delete { server | username | sender | returnpath | mailaddress <index> }

smtp mailaddress <index> <mail_addr_name>

smtp returnpath <return_path>

smtp sender <sender_name>

smtp server <hostname>

smtp username <username> <password>

Parameters:		
	delete	Delete command
	mailaddress	Configure email address
	returnpath	Configure email returnpath
	sender	Configure email sender
	server	Configure email server
	username	Configure email user name
	<word47>	Up to 47 characters describing email server
	<word47>	Up to 47 characters describing sender
	<word31>	Up to 47 characters describing user name
	<word31>	Configure email password
	<1-6>	Email address index
	<word47>	Up to 47 characters describing mail address
	<word47>	Up to 47 characters describing returnpath

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# smtp server ItMs23
SISGM1040-284-LRT(config)# smtp sender BobB
SISGM1040-284-LRT(config)# smtp username SmtpUsr6 YourAdmin4
SISGM1040-284-LRT(config)# smtp mailaddress 1 SmtpMailAddr4
SISGM1040-284-LRT(config)# smtp returnpath SmtpRtnPath4
SISGM1040-284-LRT(config)# smtp delete username
SISGM1040-284-LRT(config)#
```

Command: **snmp-server**
Description: Set SNMP server's configuration; enter SNMP Host Config Mode and set parameters.

Syntax:

snmp-server

snmp-server access <group_name> model { v1 | v2c | v3 | any } level { auth | noauth | priv } [read <view_name>] [write <write_name>]

snmp-server community v2c <comm> [ro | rw]

snmp-server community v3 <v3_comm> [<v_ipv4_addr> <v_ipv4_netmask>]

snmp-server community writecommunity { enable | disable }

snmp-server contact <v_line255>

snmp-server engine-id local <engineID>

snmp-server host <conf_name>

snmp-server location <v_line255>

snmp-server security-to-group model { v1 | v2c | v3 } name <security_name> group <group_name>

snmp-server trap

snmp-server user <username> engine-id <engineID> [{ md5 { <md5_passwd> | { encrypted <md5_passwd_encrypt> } } | sha { <sha_passwd> | { encrypted <sha_passwd_encrypt> } } } [priv { des | aes } { <priv_passwd> | { encrypted <priv_passwd_encrypt> } }]]

snmp-server version { v1 | v2c | v3 }

snmp-server view <view_name> <oid_subtree> { include | exclude }

do <command>

end

exit

help

host <v_ipv6_ucast> [<udp_port>] [traps | informs]

host { <v_ipv4_ucast> | <v_word> } [<tcp_udp_port>] [traps | informs]

informs retries <retries> timeout <timeout>

no host

no informs

no shutdown

no trapmode { disable | udp | tcp }

no version

shutdown

trapmode { disable | udp | tcp }

version { v1 [<v1_comm>] | v2 [<v2_comm>] | v3 [probe | engineID <v_word10_to_64>] [<securtyname>] }

Parameters:

access	access configuration
community	SNMP server community
contact	Set the SNMP server's contact string
engine-id	Set SNMP engine ID
host	Set SNMP host's configurations

location	Set the SNMP server's location string
security-to-group	security-to-group configuration
trap	Set trap's configurations
user	Set the SNMPv3 user's configurations
version	Set the SNMP server's version
view	MIB view configuration
<word32>	group name
model	security model
any	any security model
v1	v1 security model
v2c	v2c security model
v3	v3 security model
level	security level
auth	authNoPriv Security Level
noauth	noAuthNoPriv Security Level
priv	authPriv Security Level
read	specify a read view for the group
write	specify a write view for the group
v2c	SNMPv2c
v3	SNMPv3
writecommunity	SNMP server WriteCommunity
disable	Disable SNMP server WriteCommunity
enable	Enable SNMP server WriteCommunity
<line255>	contact string
local	Set SNMP local engine ID
<word32>	Name of the host configuration
<line255>	location string
name	security user
<word32>	security user name
group	security group
<word32>	security group name
<word32>	Username
engine-id	engine ID
<word10-64>	Engine ID octet string
md5	Set MD5 protocol
sha	Set SHA protocol
<word8-32>	MD5 unencrypted password
encrypted	Specifies an ENCRYPTED password will follow.
<word8-40>	SHA unencrypted password
encrypted	Specifies an ENCRYPTED password will follow.

priv	Set Privacy
aes	Set AES protocol
des	Set DES protocol
<word8-32>	Privacy unencrypted password
encrypted	Specifies an ENCRYPTED password will follow.
v1	SNMPv1
v2c	SNMPv2c
v3	SNMPv3
<word32>	MIB view name
<word255>	MIB view OID
exclude	Excluded type from the view
include	Included type from the view
<domain_name>	hostname of SNMP trap host
<ipv4_ucast>	IP address of SNMP trap host
<ipv6_ucast>	IP address of SNMP trap host
<1-65535>	TCP/UDP port of the trap messges
informs	Send Inform messages to this host
traps	Send Trap messages to this host
retries	retires inform messages
<0-255>	retires times
timeout	timeout parmater
<0-2147>	timeout interval
disable	trapmode = disabled
tcp	trapmode = TCP
udp	trapmode = UDP
host	No SNMP host paramters
informs	No Send Inform messages to this host
shutdown	Disable the trap configuration
trapmode	No Configure trap mode
version	No Set SNMP trap version
v1	SNMP trap version 1
v2	SNMP trap version 2
v3	SNMP trap version 3
do	To run exec commands in config mode
end	Go back to EXEC mode
exit	Exit from current mode
help	Description of the interactive help system
host	host configuration
informs	Send Inform messages to this host
no	Negate a command or set its defaults

shutdown	Disable the trap configuration
trapmode	Configure trap mode
version	Set SNMP trap version

Mode: Config Mode / SNMP Host Config Mode

Example:

```
SISGM1040-284-LRT(config)# snmp-server access group1 model v3 level auth write SwriteView1
SISGM1040-284-LRT(config)# snmp-server community writecommunity enable
SISGM1040-284-LRT(config)# snmp-server security-to-group model v3 name Secv3BobB group Grp-1
SISGM1040-284-LRT(config)# snmp-server trap
SISGM1040-284-LRT(config)# snmp-server user ThomasT engine-id
800007e5017f000001123456789abcd sha matterhorn priv des pASSwORD45
SISGM1040-284-LRT(config)# snmp-server version v3
SISGM1040-284-LRT(config)# snmp-server host BobB
SISGM1040-284-LRT(config-snmps-host)# ?
    do          To run exec commands in config mode
    end         Go back to EXEC mode
    exit        Exit from current mode
    help        Description of the interactive help system
    host        host configuration
    informs     Send Inform messages to this host
    no          Negate a command or set its defaults
    shutdown    Disable the trap configuration
    trapmode    Configure trap mode
    version     Set SNMP trap version
SISGM1040-284-LRT(config-snmps-host)# do show version brief
Version      : SISGM1040-284-LRT (standalone) v7.20.0206
Build Date   : 2024-03-14T18:01:56+08:00
SISGM1040-284-LRT(config-snmps-host)# informs retries 20 timeout 30
SISGM1040-284-LRT(config-snmps-host)# trapmode tcp
SISGM1040-284-LRT(config-snmps-host)#
SISGM1040-284-LRT(config-snmps-host)# exit
SISGM1040-284-LRT(config)#
```

Messages:

first character must be '.'

The format of 'Engine ID' may not be all zeros or all 'ff'H and is restricted to 5 - 32 octet string

The group name 'gGGG' is not exist

Command: **spanning-tree**

Description: Configure Spanning Tree Protocol (STP).

Syntax: **spanning-tree** aggregation
spanning-tree edge bpdu-filter
spanning-tree edge bpdu-guard
spanning-tree mode { stp | rstp | mstp }
spanning-tree mst <instance> priority <prio>
spanning-tree mst <instance> vlan <v_vlan_list>
spanning-tree mst forward-time <fwdtime>
spanning-tree mst hello-time <hellotime>
spanning-tree mst max-age <maxage> [forward-time <fwdtime>]
spanning-tree mst max-hops <maxhops>
spanning-tree mst name <name> revision <v_0_to_65535>
spanning-tree recovery interval <interval>
spanning-tree transmit hold-count <holdcount>

Parameters:

aggregation	Aggregation mode
edge	Edge ports
mode	STP protocol mode
mst	STP bridge instance
recovery	The error recovery timeout
transmit	BPDUs to transmit
do	To run exec commands in config mode
end	Go back to EXEC mode
exit	Exit from current mode
help	Description of the interactive help system
no	Negate a command or set its defaults
spanning-tree	Spanning Tree protocol
auto-edge	Auto detect edge status
bpdu-guard	Enable/disable BPDU guard
edge	Edge port
link-type	Port link-type
mst	STP bridge instance
restricted-role	Port role is restricted (never root port)
restricted-tcn	Restrict topology change notifications
auto	Auto detect
point-to-point	Forced to point-to-point
shared	Forced to Shared
<0-7>	instance 0-7 (CIST=0, MST2=1...)
cost	STP Cost of this port

port-priority	STP priority of this port
<1-200000000>	Cost range
auto	Use auto cost
<0-240>	Range (lower higher priority)
bpdu-guard	Enable BPDU guard
mstp	Multiple Spanning Tree (802.1s)
rstp	Rapid Spanning Tree (802.1w)
stp	802.1D Spanning Tree
<0-7>	instance 0-7 (CIST=0, MST2=1...)
forward-time	Delay between port states
hello-time	MSTP bridge hello time
max-age	Max bridge age before timeout
max-hops	MSTP bridge max hop count
name	Name keyword
interval	The interval
<30-86400>	Range in seconds
<4-30>	Range in seconds
<1-10>	Hello BPDU timer value
<6-40>	Range in seconds
<6-40>	Hop count range
<word32>	Name of the bridge
hold-count	Max number of transmit BPDUs per sec
<1-10>	1-10 per sec, 6 is default
revision	Revision keyword
<0-65535>	Revision number

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# spanning-tree aggregation
SISGM1040-284-LRT(config-stp-aggr)# ?
    do              To run exec commands in config mode
    end             Go back to EXEC mode
    exit            Exit from current mode
    help            Description of the interactive help system
    no              Negate a command or set its defaults
    spanning-tree    Spanning Tree protocol
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree ?
    auto-edge         Auto detect edge status
    bpdu-guard        Enable/disable BPDU guard
    edge              Edge port
    link-type         Port link-type
    mst               STP bridge instance
    restricted-role    Port role is restricted (never root port)
```

```
    restricted-tcn     Restrict topology change notifications
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree auto-edge
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree bpdu-guard
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree edge
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree link-type shared
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree restricted-role
SISGM1040-284-LRT(config-stp-aggr)# spanning-tree restricted-tcn
SISGM1040-284-LRT(config-stp-aggr)# exit
SISGM1040-284-LRT(config)# spanning-tree ?
    aggregation    Aggregation mode
    edge           Edge ports
    mode           STP protocol mode
    mst            STP bridge instance
    recovery       The error recovery timeout
SISGM1040-284-LRT(config)# spanning-tree transmit hold-count 1
SISGM1040-284-LRT(config)# spanning-tree mst name SpnTr revision 900
SISGM1040-284-LRT(config)#
```

Command: **switchport**

Description: Set switching mode characteristics.

Syntax: **switchport** vlan mapping <gid> <vlan_list> <tvid>

Parameters:		
	vlan	VLAN
	mapping	Add VLAN translation entry into a group.
	<1-12>	Group id
	<vlan_list>	Original vlan-list
	<vlan_id>	Translated vlan-id (tvid)

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# switchport vlan mapping 1 100 200
SISGM1040-284-LRT(config)#
```

Messages: *%% Failed to add VLAN Translation mapping.*

Command: **system**

Description: Set system-level parameters.

Syntax:

system contact <v_line128>

system description <sys_desc>

system di reboot { enable | disable }

system di { high | low }

system di { normal | abnormal } <desc>

system do autorecovery { enable | disable }

system do relay { open | close }

system do { open | close }

system location <v_line128>

system name <v_line128>

system reboot mode { enable | disable }

system reboot { [Sun <hour_v00_0_to_23> <min_v00_0_to_55>] [Mon <hour_v10_0_to_23> <min_v10_0_to_55>] [Tue <hour_v20_0_to_23> <min_v20_0_to_55>] [Wed <hour_v30_0_to_23> <min_v30_0_to_55>] [Thr <hour_v40_0_to_23> <min_v40_0_to_55>] [Fri <hour_v50_0_to_23> <min_v50_0_to_55>] [Sat <hour_v60_0_to_23> <min_v60_0_to_55>] }

Parameters:		
	contact	Set the SNMP server's contact string
	description	Configure System Description
	di	Set the Switch DI input configurations
	do	Set the Switch DO output configurations
	location	Set the SNMP server's location string
	name	Set the SNMP server's system model name string
	reboot	Set the Switch Reboot configurations
	<line128>	contact string
	<line128>	System Description string
	<line128>	System Description string
	abnormal	Set di abnormal description
	high	Set High is Normal mode
	low	Set low is Normal mode
	normal	Set di normal description
	reboot	Set the Switch DI reboot configurations
	autorecovery	Auto recovery
	close	Set close is Normal mode
	open	Set open is Normal mode
	relay	Set the Switch DO relay configurations
	<line128>	location string
	<line128>	name string
	Fri	Configure Switch Reboot scheduling on Friday
	Mon	Configure Switch Reboot scheduling on Monday

	Sat	Configure Switch Reboot scheduling on Saturday
	Sun	Configure Switch Reboot scheduling on Sunday
	Thr	Configure Switch Reboot scheduling on Thursday
	Tue	Configure Switch Reboot scheduling on Tuesday
	Wed	Configure Switch Reboot scheduling on Wednesday
	mode	Switch reboot mode
	<0-23>	start hour
	<0-55>	start minute, value must be multiples of 5
	disable	Disable Switch Reboot
	enable	Enable Switch Reboot
	disable	Set Auto recovery disable
	enable	Set Auto recovery enable
	disable	Set DI reboot system to Disable
	enable	Set DI reboot system to “When DI was changed to abnormal”

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# system contact jeff@lantronix.com
SISGM1040-284-LRT(config)# system description TestUnit-5
SISGM1040-284-LRT(config)# system di high
SISGM1040-284-LRT(config)# system di normal Average
SISGM1040-284-LRT(config)# system do autorecovery enable
SISGM1040-284-LRT(config)# system di reboot enable
SISGM1040-284-LRT(config)# system location EngineeringLoc4
SISGM1040-284-LRT(config)# system name EngSVT-Doc
EngSVT-Doc(config)# system name SISGM1040-284-LRT
SISGM1040-284-LRT(config)# system reboot Fri 23 55
SISGM1040-284-LRT(config)# do show system
Model Name                 : SISGM1040-284-LRT
System Description          : TestUnit-5
Location                   : EngineeringLoc4
Contact                    : jeff@lantronix.com
System Name                : SISGM1040-284-LRT
System Date                : 2021-04-14T18:38:26+00:00
System Uptime              : 2d 00:31:04
Bootloader Version          : v1.20
Firmware Version           : v7.20.0206 2024-05-14
Hardware Version           : v1.01
Mechanical Version          : v1.01
Serial Number              : A088119AR2500001
MAC Address                : 00-c0-f2-4a-11-29
Memory                     : Total=45996 KBytes, Free=25807 KBytes, Max=25199 KBytes
FLASH                      : 0x40000000-0x41ffffff, 512 x 0x10000 blocks
Powers status               : Normal
```

```
Powers                    : PWR_1.0V:0.98V; PWR_3.3V:3.26V; PWR_2.5V:2.60V; PWR_1.8V:1.93V
Temperature status         : Normal
Temperature 1              : 40(C) ; 104(F)
Temperature 2              : 46(C) ; 114(F)
SISGM1040-284-LRT(config)#
```

Command: **tacacs-server**

Description: Configure TACACS+ server parameters.

Syntax:

tacacs-server deadtime <minutes>

tacacs-server host <host_name> [port <port>] [timeout <seconds>] [key { [unencrypted] <unencrypted_key> | encrypted <encrypted_key> }]

tacacs-server key { [unencrypted] <unencrypted_key> | encrypted <encrypted_key> }

tacacs-server timeout <seconds>

Parameters:

deadtime	Time to stop using a TACACS+ server that doesn't respond
host	Specify a TACACS+ server
key	Set TACACS+ encryption key
timeout	Time to wait for a TACACS+ server to reply
<1-1440>	Time in minutes
<word1-255>	Hostname or IP address
<1-1000>	Wait time in seconds
key	Server specific key (overrides default)
port	TCP port for TACACS+ server
timeout	Time to wait for this TACACS+ server to reply (overrides default)
<word1-63>	The UNENCRYPTED (Plain Text) secret key. Notice that you have no chance to get the Plain Text secret key after this command. The system will always display the ENCRYPTED password.
encrypted	Specifies an ENCRYPTED secret key will follow
unencrypted	Specifies an UNENCRYPTED secret key will follow
<word4-224>	The ENCRYPTED (hidden) secret key. Note the ENCRYPTED secret key will be decoded by system internally. You cannot directly use it same as Plain Text and it is not human-readable text normally.

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# tacacs-server timeout 90
SISGM1040-284-LRT(config)# tacacs-server deadtime 200
SISGM1040-284-LRT(config)# tacacs-server key encrypted ASDasd!@#123
SISGM1040-284-LRT(config)# tacacs-server key unencrypted mMnN7&6^5)(*
SISGM1040-284-LRT(config)# do show tacacs-server
Global TACACS+ Server Timeout      : 5 seconds
Global TACACS+ Server Deadtime     : 0 minutes
```

```
Global TACACS+ Server Key         : 7253a8c04e069b207518c6629c50030c5c896aed111
de91a791317007dcfeab3b8d054f32aa5e668bd13b1e8a9d6445ef1943ec31d24b8d0e23211f31cc8a695
TACACS+ Server #1:
  Host name  : BobB
  Port       : 49
  Timeout    :
  Key        :
SISGM1040-284-LRT(config)#
```

Command: **tzidx**

Description: Configure timezone city/area.

Syntax: **tzidx** <idx_var>

Parameters: <int> index of city/area

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# tzidx 3
SISGM1040-284-LRT(config)# tzidx 9
SISGM1040-284-LRT(config)# tzidx 100
SISGM1040-284-LRT(config)#
```

Command: **udld**

Description: Enable Unidirectional Link Detection in aggressive or normal mode and set the configurable message timer on all fiber-optic ports.

Syntax: **udld** { aggressive | enable | message time-interval <v_interval> }

Parameters:

	aggressive	Enables UDLD in aggressive mode on all fiber-optic ports.
	enable	Enables UDLD in normal mode on all fiber-optic ports.
	message	Configures the period of time between UDLD probe messages on ports that are in the advertisement phase and are determined to be bidirectional. The valid range is 7 - 90 seconds (current default message time interval is 7 seconds).
	time-interval	<7-90>

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# udld message time-interval 7
SISGM1040-284-LRT(config)#
```

Command: **upnp**
Description: Set Universal Plug and Play configuration.
Syntax: **upnp**
upnp advertising-duration <v_66_to_86400>
upnp ttl <v_1_to_255>

Parameters:		
	advertising-duration	Set advertising duration
	ttl	Set TTL value
	<66-86400>	advertising duration
	<1-255>	TTL value

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# upnp advertising-duration 5000
SISGM1040-284-LRT(config)# upnp ttl 75
SISGM1040-284-LRT(config)#
```

Command: **username**
Description: Establish User Name Authentication.
Syntax: **username** <username> privilege <priv> password encrypted <encry_password>
username <username> privilege <priv> password none
username <username> privilege <priv> password unencrypted <password>
Parameters:

<word31>	User name allows letters, numbers and underscores
privilege	Set user privilege level
<0-15>	User privilege level
password	Specify the password for the user
encrypted	Specifies an ENCRYPTED password will follow
none	NULL password
unencrypted	Specifies an UNENCRYPTED password will follow
<word4-44>	The ENCRYPTED (hidden) user password. Notice the ENCRYPTED password will be decoded by system internally. You cannot directly use it as same as the Plain Text and it is not human-readable text normally.
<line31>	The UNENCRYPTED (Plain Text) user password. Any printable characters including space is accepted. Notice that you have no chance to get the Plain Text password after this command. The system will always display the ENCRYPTED password.

Mode: Config Mode
Example:

```
SISGM1040-284-LRT(config)# username CsiEngineeringTst privilege 15 password unencrypted
admin
SISGM1040-284-LRT(config)# do show user-privilege
username admin privilege 15 password encrypted 115fc1f08698a2f86646c69bd87817fec
49b02e3137d1a32824340ccd286c25ce2b42270fe6dfeeffda201c95e8d2a3164b730dc5aef1d67b
6cb07ecfa1baac7
username CsiEngineeringTst privilege 15 password encrypted 7ae72ff6c587782b9231b
```

```
5e4e72a1f57cb19516e32a8f61f65b81cdf0dd2a0b48f45b743629590ef2eef30c3e48c087c511d9
de11b9aa7dc92078a882c9667a9
SISGM1040-284-LRT(config)#
```

Messages: *% The UNENCRYPTED password is not accepted*

Command: **vlan**

Description: Set VLAN parameters; enter VLAN config mode and set parameters.

Syntax: **vlan** <vlist>

vlan ethertype s-custom-port <etype>

vlan protocol { { eth2 { <etype> | arp | ip | ipx | at } } | { snap { <oui> | rfc-1042 | snap-8021h } <pid> } | { llc <dsap> <ssap> } } group <grp_id>

Parameters:

<vlan_list>	ISL VLAN IDs 1~4095
ethertype	EtherType for Custom S-ports
protocol	Protocol-based VLAN commands
<word31>	The ASCII name for the VLAN
s-custom-port	Custom S-ports configuration
<0x0600-0xffff>	EtherType (Range: 0x0600-0xffff)
eth2	Ethernet-based VLAN commands
llc	LLC based VLAN group
snap	SNAP-based VLAN group
<0x600-0xffff>	Ether Type (Range: 0x600 - 0xFFFF)
arp	Ether Type is ARP
at	Ether Type is AppleTalk
ip	Ether Type is IP
ipx	Ether Type is IPX
group	Protocol-based VLAN group commands
<word16>	Group Name (Range: 1 - 16 characters)
<0x0-0xff>	DSAP (Range: 0x00 - 0xFF)
<0x0-0xff>	SSAP (Range: 0x00 - 0xFF)
<word16>	Group Name (Range: 1 - 16 characters)
<0x0-0xffffff>	SNAP OUI (Range 0x000000 - 0XFFFFFF)
rfc-1042	SNAP OUI is rfc-1042
snap-8021h	SNAP OUI is 8021h
<0x0-0xffff>	PID (Range: 0x0 - 0xFFFF)
group	Protocol-based VLAN group commands
do	To run exec commands in config mode
end	Go back to EXEC mode
exit	Exit from current mode
help	Description of the interactive help system
name	ASCII name of the VLAN
no	negate command

	<line>	Exec Command

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# vlan 10
SISGM1040-284-LRT(config-vlan)# name VID10
SISGM1040-284-LRT(config-vlan)# exit
SISGM1040-284-LRT(config)# vlan ethertype s-custom-port 0x1500
SISGM1040-284-LRT(config)# vlan protocol eth2 0x700 group Grp1
SISGM1040-284-LRT(config)# vlan protocol llc 0xdf 0xef group Grp2
SISGM1040-284-LRT(config)# vlan protocol snap 0x700 0x900 group Grp3
SISGM1040-284-LRT(config)# vlan protocol snap rfc-1042 0x5555 group Grp4
SISGM1040-284-LRT(config)# vlan protocol snap snap-8021h 0x0 group Grp5
```

Message: *The default VLAN's name cannot be changed.*

Command: **voice**

Description: Set Voice appliance attributes.

Syntax: **voice** vlan

voice vlan aging-time <aging_time>

voice vlan class { <traffic_class> | low | normal | medium | high }

voice vlan oui <oui> [description <description>]

voice vlan vid <vid>

Parameters:		
	vlan	VLAN for voice traffic
	aging-time	Set secure learning aging time
	class	Set traffic class
	oui	Organizationally Unique Identifier configuration. A telephony OUI is assigned to a vendor by the IEEE. It must be 6 characters long and the input format is "xx-xx-xx" (where x is a hexadecimal digit).
	vid	Set VLAN ID
	<10-10000000>	Aging time, 10-10000000 seconds
	<0-7>	Traffic class value
	<oui>	OUI value
	description	Set description for the OUI
	<line32>	Description line for the OUI
	<cr>	

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# voice vlan aging-time 80000
SISGM1040-284-LRT(config)# voice vlan class 0
SISGM1040-284-LRT(config)# voice vlan oui 00-01-E3
SISGM1040-284-LRT(config)# voice vlan oui 00-01-E3 description CSITN
SISGM1040-284-LRT(config)# voice vlan vid 100
SISGM1040-284-LRT(config)# do show voice vlan
Switch voice vlan is enabled
Switch voice vlan ID is 100
```

```
Switch voice vlan aging-time is 80000 seconds
Switch voice vlan traffic class is 0

Telephony OUI  Description
-------------  -----------
00-01-E3       CSITN
00-0F-E2       H3C phone
00-DD-F1       voip

Voice VLAN switchport is configured on following:

GigabitEthernet 1/1 :
---------------------
GigabitEthernet 1/1 switchport voice vlan mode is disabled
GigabitEthernet 1/1 switchport voice security is disabled
GigabitEthernet 1/1 switchport voice discovery protocol is oui

GigabitEthernet 1/2 :
---------------------
GigabitEthernet 1/2 switchport voice vlan mode is disabled
-- more --, next page: Space, continue: g, quit: ^C

SISGM1040-284-LRT(config)# do show voice vlan oui 00-01-E3
Telephony OUI  Description
-------------  -----------
00-01-E3       CSITN
SISGM1040-284-LRT(config)# do show voice vlan oui 00-0F-E2
Telephony OUI  Description
-------------  -----------
00-0F-E2       H3C phone
SISGM1040-284-LRT(config)#
```

Command: **web**

Description: Configure Web privilege groups.

Syntax: **web** privilege group <group_name> level { [cro <configRoPriv>] [crw <configRwPriv>] [sro <statusRoPriv>] [srw <statusRwPriv>] }*1

Parameters:

privilege	Web privilege		
group	Web privilege group		
<cword>	Valid words are:		
Aggregation	DHCP	DHCPv6_Client	DMS_client
DMS_server	Debug	Diagnostics	EEE
EPS	ERPS	ETH_LINK_OAM	EVC
Green_Ethernet	IP	IPMC_Snooping	Install_Wizard
LACP	LLDP	Loop_Protect	MAC_Table
MEP	MRP	MVR	Maintenance
NTP	PTP	Ports	Private_VLANs
QoS	RMirror	R_RING	SMTP
Security	Spanning_Tree	System	TS_client
TS_server	Trap_Event	Trouble_Shooting	UDLD
UPnP	VCL	VLAN_Translation	VLANs
VTUN	Voice_VLAN	XXRP	Percepxion
sFlow			
level	Web privilege group level		
cro	Configuration Read-only level		
crw	Configuration Read-write level		
sro	Status/Statistics Read-only level		
srw	Status/Statistics Read-write level		
<0-15>	Privilege level		

Mode: Config Mode

Example:

```
SISGM1040-284-LRT(config)# web privilege group Install_Wizard level crw 15
SISGM1040-284-LRT(config)# web privilege group Debug level crw 15
SISGM1040-284-LRT(config)#
```

7. Interface Config Mode Commands

Configurable Interfaces

To view the configurable interfaces, type `interface ?` at the config mode prompt.

```
SISGM1040-384-LRT-C(config)# interface ?
    *                All switches or All ports
    GigabitEthernet    1 Gigabit Ethernet Port
    vlan               VLAN interface configurations
SISGM1040-384-LRT-C(config)# interface GigabitEthernet ?
    <port_type_list>    Port list in 1/1-12
SISGM1040-384-LRT-C(config)# interface
```

To enter Interface Config mode, type `interface <interface>` at the config mode prompt.

Example:

```
SISGM1040-384-LRT-C(config)# interface GigabitEthernet 1/2
SISGM1040-384-LRT-C(config-if)#
```

Interface Config Mode Command List

Command	Description
access-list	Access list
aggregation	Create an aggregation
description	Configures port description
do	To run exec commands in config mode
dot1x	IEEE Standard for port-based Network Access Control
duplex	Interface duplex
end	Go back to EXEC mode
evc	Ethernet Virtual Connections
event	Configure port event settings
excessive-restart	Restart backoff algorithm after 16 collisions
exit	Exit from current mode
flowcontrol	Traffic flow control.
frame-length-check	Drop frames with mismatch between EtherType/Length field and actually payload size.
green-ethernet	Green ethernet (Power reduction)
gvrp	Enable GVRP on interface or interfaces
help	Description of the interactive help system
ip	Internet Protocol
ipv6	IPv6 configuration commands
lacp	Enable LACP on this interface
link-oam	Enable or Disable(when the no keyword is entered) Link OAM on the interface
lldp	LLDP configurations.

loop-protect	Loop protection configuration on port
mac	MAC keyword
mtu	Maximum transmission unit
mvr	Multicast VLAN Registration configuration
no	Negate a command or set its defaults
port-security	Enable/disable port security per interface.
ptp	Precision time Protocol (1588)
pvlan	Private VLAN
qos	Quality of Service
rmon	Configure Remote Monitoring on an interface
sflow	Statistics flow.
shutdown	Shutdown of the interface.
spanning-tree	Spanning Tree protocol
speed	Configures interface speed. If you use 10, 100, or 1000 keywords with the auto keyword the port will only advertise the specified speeds.
switchport	Switching mode characteristics
udld	UDLD configurations.

Command: **access-list**

Description: Configure Access list parameters for an interface.

Syntax: **access-list** action { permit | deny }
access-list evc-policer <evc_policer_id>
access-list logging
access-list mirror
access-list policy <policy_id>
access-list port-state
access-list rate-limiter <rate_limiter_id>
access-list shutdown
access-list { redirect } interface { <port_type> <port_type_id> | (<port_type> [<port_type_list>]) }

Parameters:

action	Access list action
evc-policer	EVC policer
logging	Logging frame information. Note: The logging feature only works when the packet length is less than 1518 (without VLAN tags) and the System Log memory size and logging rate is limited.
mirror	Mirror frame to destination mirror port
policy	Policy
port-state	Re-enable shutdown port that was shut down by an access-list module
rate-limiter	Rate limiter
redirect	Redirect frame to specific port
shutdown	Shutdown incoming port. The shutdown feature only works when the packet length is less than 1518 (without VLAN tags)
deny	Deny
permit	Permit
<1-256>	EVC policer ID
interface	Select an interface to configure
*	All switches or All ports
GigabitEthernet	1 Gigabit Ethernet Port
<port_type_list>	Port list in 1/1-12

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# access-list evc-policer 1
SISGM1040-284-LRT(config-if)# access-list logging
SISGM1040-284-LRT(config-if)# access-list mirror
SISGM1040-284-LRT(config-if)# access-list policy 0
SISGM1040-284-LRT(config-if)# access-list port-state
SISGM1040-284-LRT(config-if)# access-list rate-limiter 1
% The ACL rate limiter and EVC policer can not both be enabled on GigabitEthernet 1/1.
SISGM1040-284-LRT(config-if)# access-list redirect interface GigabitEthernet 1/6
% Port redirect cannot be configured while permitted action on GigabitEthernet 1/1.
SISGM1040-284-LRT(config-if)# access-list shutdown
```

```
SISGM1040-284-LRT(config-if)#
```

Command: **aggregation**

Description: Create an aggregation group.

Syntax: **aggregation** group <v_uint>

Parameters: group Create an aggregation group

<uint> The aggregation group id

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# aggregation group 1
SISGM1040-284-LRT(config-if)# do show aggregation
Aggr ID  Name    Type    Speed  Configured Ports       Aggregated Ports  Aggregated Bandwidth
-------  ----    ------  -----  ---------------         ------------------  -----------------
1       LLAG1   Static   1G     GigabitEthernet 1/1-12 GigabitEthernet 1/2,5    2G
SISGM1040-284-LRT(config-if)#
```

Messages: *Error: LACP aggregation is enabled* *Could not add port(s) to aggregation*

Command: **description**

Description: Configure port description.

Syntax: **description** <description>

Parameters: <line128> Up to 128 characters describing this interface

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# description connToEng-SVT
SISGM1040-284-LRT(config-if)#
```

Command: **do**

Description: To run Exec commands in Config mode

Syntax: **do** <command>

Parameters: <line> Exec Command

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# do show ip int brief
Vlan Address             Method   Status
---- ------------------- -------- ------
   1 192.168.1.77/24      Manual   UP
SISGM1040-284-LRT(config-if)# do show vlan
VLAN  Name                            Interfaces
----  ------------------------------  ----------
1     default                         Gi 1/1-12
10    vid10

SISGM1040-284-LRT(config-if)#
```

Command: **dot1x**

Description: IEEE Standard for port-based Network Access Control

Syntax: **dot1x** guest-vlan

dot1x port-control { force-authorized | force-unauthorized | auto | single | multi | mac-based | mac-auth-bypass}

dot1x radius-qos

dot1x radius-vlan

dot1x re-authenticate

Parameters:		
	guest-vlan	Enables/disables guest VLAN
	port-control	Sets the port security state.
	radius-qos	Enables/disables per-port state of RADIUS-assigned QoS.
	radius-vlan	Enables/disables per-port state of RADIUS-assigned VLAN.
	re-authenticate	Refresh (restart) 802.1X authentication process.
	auto	Port-based 802.1X Authentication
	force-authorized	Port access is allowed
	force-unauthorized	Port access is not allowed
	mac-based	Switch authenticates on behalf of the client
	multi	Multiple Host 802.1X Authentication
	single	Single Host 802.1X Authentication
	mac-auth-bypass	MAC authentication bypass

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# dot1x guest-vlan
SISGM1040-284-LRT(config-if)# dot1x port-control auto
SISGM1040-284-LRT(config-if)# dot1x radius-vlan
SISGM1040-284-LRT(config-if)# dot1x port-control force-authorized
SISGM1040-284-LRT(config-if)# dot1x port-control force-unauthorized
SISGM1040-284-LRT(config-if)# dot1x port-control mac-based
SISGM1040-284-LRT(config-if)# dot1x port-control mac-auth-bypass
SISGM1040-284-LRT(config-if)# dot1x port-control multi
SISGM1040-284-LRT(config-if)#
```

Messages: *The 802.1X Admin State must be set to Authorized for ports that are enabled for Spanning Tree*

Command: **duplex**

Description: Interface duplex mode

Syntax: **duplex** { half | full | auto [half | full] }

Parameters:		
	auto	Auto negotiation of duplex mode.
	full	Forced full duplex.
	half	Forced half duplex

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# duplex full
```

```
SISGM1040-284-LRT(config-if)# duplex half
SISGM1040-284-LRT(config-if)# duplex auto
SISGM1040-284-LRT(config-if)# duplex auto full
<disconnect>
SISGM1040-284-LRT(config-if)#
```

Messages: *E port/conf 12:04:49 143/vtss_appl_port_conf_set#4937: Error: SFP ports only supports full aneg (port_no 8)*

Command: **end**

Description: Go back to EXEC mode

Syntax: **end** <cr>

Parameters: None

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# end
SISGM1040-284-LRT#
```

Command: **evc**

Description: Set Ethernet Virtual Connection parameters

Syntax:

evc [update] [dei { colored | fixed }] [tag { inner | outer }] [key { double-tag | normal | ip-addr | mac-ip-addr }] [key-advanced { double-tag | normal | ip-addr | mac-ip-addr }] [addr { source | destination }] [addr-advanced{ source | destination }] [l2cp { [peer <l2cp_peer_list>] [forward <l2cp_forward_list>] [discard <l2cp_discard_list>] }*1]

Parameters:		
	addr	Setup address match mode
	dei	Setup DEI mode
	l2cp	Setup L2CP forwarding
	tag	Setup tag match mode
	update	Update existing entry
	destination	Match DMAC and DIP
	source	Match SMAC and SIP
	colored	Allow policer to set DEI
	fixed	Use classified DEI
	forward	Allow forwarding of L2CP frames
	peer	Redirect L2CP frames to local protocol entity
	<0~31>	Select BPDU addresses (0-15) and GARP addresses (16-31)
	inner	Match inner tag
	outer	Match outer tag
	dei	Setup DEI mode
	update	Update existing entry

<cr>

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# evc addr destination l2cp peer 0 tag outer dei colored update
SISGM1040-284-LRT(config-if)# evc tag outer addr source
SISGM1040-284-LRT(config-if)# evc addr destination dei colored l2cp forward 1 peer 5 tag inner update
SISGM1040-284-LRT(config-if)# evc update addr source dei fixed l2cp forward 17 peer 13 tag outer
SISGM1040-284-LRT(config-if)#
```

Command: **event**

Description: Configure port event settings for an interface.

Syntax:

event { active { enable | disable } | link-on { enable | disable } | link-off {enable | disable } | overload { enable | disable } | rx-threshold <rx_threshold> | traffic-duration <traffic_duration> | syslog { enable | disable } | trap { enable | disable } | smtp { enable | disable } | switch2go { enable | disable } |digital-out { enable | disable } | severity <severity> }

Parameters:		
	active	Active
	digital-out	Digital out
	link-off	Link Off
	link-on	Link On
	overload	Traffic Overload
	rx-threshold	Rx threshold
	severity	Severity
	smtp	Smtp
	syslog	Syslog
	traffic-duration	Traffic duration
	trap	Trap
	<0-100>	Rx threshold 0-100
	<0-7>	<0> Emergency ,<1> Alert ,<2> Critical ,<3> Error ,<4> Warning ,<5> Notice ,<6> Informational ,<7> Debug
	disable	Disable Event
	enable	Disable Event
	disable	Active disable
	enable	Active enable
	disable	Link Off disable
	enable	Link Off enable
	disable	Link On disable
	enable	Link On enable
	disable	Traffic Overload disable

enable	Traffic Overload enable
<0-100>	Rx threshold 0-100
disable	Smtp disable
enable	Smtp enable
disable	Syslog disable
enable	Syslog enable
<1-300>	Traffic duration 1-300
disable	Trap disable
enable	Trap enable

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# event smtp disable
SISGM1040-284-LRT(config-if)# event severity 2
SISGM1040-284-LRT(config-if)# event rx-threshold 30
SISGM1040-284-LRT(config-if)# event trap enable
SISGM1040-284-LRT(config-if)# event active enable
SISGM1040-284-LRT(config-if)#
```

Command: **excessive-restart**

Description: Restart backoff algorithm after 16 collisions (No excessive-restart means discard frame after 16 collisions).

Syntax: **excessive-restart** <cr>

Parameters:

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# excessive-restart
GigabitEthernet 1/9 does not support this mode/speed
GigabitEthernet 1/10 does not support this mode/speed
GigabitEthernet 1/11 does not support this mode/speed
GigabitEthernet 1/12 does not support this mode/speed
SISGM1040-284-LRT(config-if)#
```

Command: **exit**

Description: Exit from current mode

Syntax: **exit** <cr>

Parameters: None

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# exit
SISGM1040-284-LRT(config)#
```

Command: **flowcontrol**
Description: Traffic flow control.
Syntax: **flowcontrol** { on | off }
Parameters: off Disable flow control.
on Enable flow control.
Mode: Interface Config Mode
Example:

```
SISGM1040-284-LRT(config-if)# flowcontrol on
SISGM1040-284-LRT(config-if)# flowcontrol off
SISGM1040-284-LRT(config-if)#
```

Command: **frame-length-check**
Description: Drop frames with mismatch between EtherType/Length field and actual payload size.
Syntax: **frame-length-check** <cr>
Parameters: None
Mode: Interface Config Mode
Example:

```
SISGM1040-284-LRT(config-if)# frame-length-check
SISGM1040-284-LRT(config-if)#
```

Command: **green-ethernet**
Description: Green ethernet (Power reduction)
Syntax: **green-ethernet** eee
green-ethernet eee urgent-queues [<urgent_queue_range_list>]
green-ethernet energy-detect
green-ethernet short-reach
Parameters:
eee Powering down of PHYs when there is no traffic.
energy-detect Enable power saving for ports with no link partner.
short-reach Enable power saving for ports which is connect to link partner with short cable.
urgent-queues Enables EEE urgent queue. An urgent queue means that latency is kept to a minimum for traffic going to that queue. Note: EEE power savings will be reduced. Valid range is 1-8.
<range_list> EEE Interface.
<cr>
Mode: Interface Config Mode
Example:

```
SISGM1040-284-LRT(config-if)# green-ethernet eee urgent-queues 2
SISGM1040-284-LRT(config-if)# green-ethernet energy-detect
GigabitEthernet 1/9 is not energy detect capable. Skipping
GigabitEthernet 1/10 is not energy detect capable. Skipping
GigabitEthernet 1/11 is not energy detect capable. Skipping
```

```
GigabitEthernet 1/12 is not energy detect capable. Skipping
SISGM1040-284-LRT(config-if)# green-ethernet short-reach
GigabitEthernet 1/9 is not short reach capable. Skipping
GigabitEthernet 1/10 is not short reach capable. Skipping
GigabitEthernet 1/11 is not short reach capable. Skipping
GigabitEthernet 1/12 is not short reach capable. Skipping
SISGM1040-284-LRT(config-if)#
```

Command: **gvrp**

Description: Enable GVRP (GARP VLAN Registration Protocol) on interface or interfaces.

Syntax: **gvrp** <cr>

Parameters: None

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# gvrp
SISGM1040-284-LRT(config-if)#
```

Command: **help**

Description: Description of the interactive help system

Syntax: **help** <cr>

Parameters: None

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# help
Help may be requested at any point in a command by entering
a question mark '?'.  If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)

SISGM1040-284-LRT(config-if)#
```

Command: **ip**

Description: Set Internet Protocol parameters for an interface.

Syntax: **ip** arp inspection check-vlan
ip arp inspection logging { deny | permit | all }
ip arp inspection trust
ip dhcp snooping trust
ip igmp snooping filter <profile_name>
ip igmp snooping immediate-leave
ip igmp snooping max-groups <throttling>
ip igmp snooping mrouter
ip verify source
ip verify source limit <cnt_var>

Parameters:

arp	Address Resolution Protocol
dhcp	Dynamic Host Configuration Protocol
igmp	Internet Group Management Protocol
verify	verify command
inspection	ARP inspection
check-vlan	ARP inspection VLAN mode configuration
logging	ARP inspection logging mode configuration
trust	ARP inspection trust configuration
all	log all entries
deny	log denied entries
permit	log permitted entries
snooping	DHCP snooping
trust	DHCP Snooping trust configuration
snooping	Snooping IGMP
filter	Access control on IGMP multicast group registration
immediate-leave	Immediate leave configuration
max-groups	IGMP group throttling configuration
mrouter	Multicast router port configuration
<word16>	Profile name in 16 char's
<1-10>	Maximum number of IGMP group registration
source	verify source
limit	limit command
<0-2>	the number of limit

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# ip arp inspection logging all
SISGM1040-284-LRT(config-if)# ip dhcp snooping trust
SISGM1040-284-LRT(config-if)# ip igmp snooping immediate-leave
```

```
SISGM1040-284-LRT(config-if)# ip igmp snooping max-groups 5
SISGM1040-284-LRT(config-if)# ip igmp snooping mrouter
SISGM1040-284-LRT(config-if)# ip verify source limit 1
SISGM1040-284-LRT(config-if)#
```

Messages: *% Please specify correct filter profile name.*
% Failed to set filtering profile Isf-1.

Command:	**ipv6**	
Description:	IPv6 MLD snooping configuration commands.	
Syntax:	**ipv6** mld snooping filter <profile_name>	
	ipv6 mld snooping immediate-leave	
	ipv6 mld snooping max-groups <throttling>	
	ipv6 mld snooping mrouter	
Parameters:	mld	Multicast Listener Discovery
	snooping	Snooping MLD
	filter	Access control on MLD multicast group registration
	immediate-leave	Immediate leave configuration
	max-groups	MLD group throttling configuration
	mrouter	Multicast router port configuration
	<word16>	Profile name in 16 char's
	<1-10>	Maximum number of MLD group registration
Mode:	Interface Config Mode	

Example:

```
SISGM1040-284-LRT(config-if)# ipv6 mld snooping immediate-leave
SISGM1040-284-LRT(config-if)# ipv6 mld snooping max-groups 6
SISGM1040-284-LRT(config-if)# ipv6 mld snooping mrouter
SISGM1040-284-LRT(config-if)#
```

Messages: *% Please specify correct filter profile name.*
% Failed to set filtering profile FI11.

Command: **lacp**

Description: Enable and configure LACP on this interface.

Syntax: **lacp**

lacp key { <v_1_to_65535> | auto }

lacp port-priority <v_1_to_65535>

lacp role { active | passive }

lacp timeout { fast | slow }

Parameters:		
	key	Key of the LACP aggregation
	port-priority	LACP priority of the port
	role	Active / Passive (speak if spoken to) role
	timeout	The period between BPDU transmissions
	<1-65535>	Key value
	auto	Choose a key based on port speed
	<1-65535>	Priority value, lower means higher priority
	active	Transmit LACP BPDUs continuously
	passive	Wait for neighbor LACP BPDUs before transmitting
	fast	Transmit BPDU each second (fast timeout)
	slow	Transmit BPDU each 30th second (slow timeout)
	<cr>	

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# lacp key 1
SISGM1040-284-LRT(config-if)# lacp key auto
SISGM1040-284-LRT(config-if)# lacp port-priority 6000
SISGM1040-284-LRT(config-if)# lacp role active
SISGM1040-284-LRT(config-if)# lacp timeout fast
SISGM1040-284-LRT(config-if)#
```

Messages: *Error:Static aggregation is enabled*
Could not set LACP parameter

Command: **link-oam**

Description: Enable or Disable (when the no keyword is entered) Link OAM on the interface.

Syntax:

link-oam
link-oam link-monitor frame { [window <error_window>] [threshold <error_threshold>] }*1
link-oam link-monitor frame-seconds { [window <error_window>] [threshold <error_threshold>] }*1
link-oam link-monitor supported
link-oam link-monitor symbol-period { [window <error_window>] [threshold <error_threshold>] }*1
link-oam mib-retrieval supported
link-oam mode { active | passive }
link-oam remote-loopback supported
link-oam variable-retrieve { local-info | remote-info }

Parameters:

link-monitor	Configure link monitoring
mib-retrieval	Set MIB retrieval support
mode	Set Link OAM mode Active or Passive on this interface
remote-loopback	Link OAM remote loopback support
variable-retrieve	Set mib variable retrieve local info or remote info
frame	Configure frame error event thresholds and window for error frames that trigger an error-frame link event
frame-seconds	Configure frame seconds summary
supported	Enable or Disable(when the no keyword is entered) link monitor on the interface
symbol-period	Configure window and thresholds for an error-symbol period that triggers an error-symbol period link event
threshold	Set a threshold in number of frames
window	Set the window of time during which error frames are counted
<0-4294967295>	Number of permissible errors frames in the period defined by error_window
<1-60>	Duration of the monitoring period in terms of seconds
supported	Enable or Disable MIB retrieval support on the interface (when the no keyword is entered)
active	Enable Link OAM Active mode on this interface
passive	Enable Link OAM Passive mode on this interface
supported	Enable or Disable remote loopback on the interface (when the no keyword is entered)
local-info	Set mib retrieve local info
remote-info	Set mib retrieve remote info

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# link-oam link-monitor frame threshold 9999 window 30
SISGM1040-284-LRT(config-if)# link-oam mib-retrieval supported
SISGM1040-284-LRT(config-if)# link-oam mode active
SISGM1040-284-LRT(config-if)# link-oam remote-loopback supported
SISGM1040-284-LRT(config-if)# link-oam variable-retrieve local-info
```

```
% This feature is not supported yet.
SISGM1040-284-LRT(config-if)# link-oam variable-retrieve remote-info
% This feature is not supported yet.
SISGM1040-284-LRT(config-if)#
```

Command: **lldp**

Description: Set Link Level Discovery Protocol parameters for an interface.

Syntax:

lldp cdp-aware

lldp med media-vlan policy-list <v_range_list>

lldp med transmit-tlv [capabilities] [location] [network-policy] [poe]

lldp med type { connectivity | end-point }

lldp receive

lldp tlv-select { management-address | port-description | system-capabilities |system-description | system-name }

lldp transmit

Parameters:

cdp-aware	Configures if the interface will be CDP aware (CDP discovery information is added to the LLDP neighbor table).
med	Media Endpoint Discovery.
receive	Enable/Disable decoding of received LLDP frames.
tlv-select	Which optional TLVs to transmit.
transmit	Enable/Disabled transmission of LLDP frames.
media-vlan	Media VLAN assignment.
transmit-tlv	LLDP-MED Location Type Length Value parameter.
type	Select if the interface is working as "Network Connectivity Device" or an "Endpoint Device". The difference between working as "Network Connectivity Device" and an "Endpoint Device" is a question of who is initializing the LLDP-MEDTVLs transmission. A "Network Connectivity Device" is not starting LLDP-MED TLVs transmission until it has detected an "Endpoint Device" as link partner. An "Endpoint Device" will start LLDP-MED TLVs transmission at once.
policy-list	Assignment of policies.
<range_list>	Policies to assign to the interface.
capabilities	Enable transmission of the optional capabilities TLV.
location	Enable transmission of the optional location TLV.
network-policy	Enable transmission of the optional network-policy TLV.
connectivity	Work as connectivity device.
end-point	Work as end-point device.
management-address	Enable/Disable transmission of management address.
port-description	Enable/Disable transmission of port description.
system-capabilities	Enable/Disable transmission of system capabilities.
system-description	Enable/Disable transmission of system description.
system-name	Enable/Disable transmission of system name.

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# lldp cdp-aware
SISGM1040-284-LRT(config-if)# lldp med type connectivity
SISGM1040-284-LRT(config-if)# lldp med type end-point
SISGM1040-284-LRT(config-if)# lldp receive
SISGM1040-284-LRT(config-if)# lldp tlv-select management-address
SISGM1040-284-LRT(config-if)# lldp tlv-select port-description
SISGM1040-284-LRT(config-if)# lldp tlv-select system-description
SISGM1040-284-LRT(config-if)# lldp tlv-select system-name
SISGM1040-284-LRT(config-if)#
```

Command: **loop-protect**

Description: Loop protection configuration on a port.

Syntax: **loop-protect**

loop-protect action { [shutdown] [log] }*1

loop-protect tx-mode

Parameters:		
	action	Action if loop detected
	tx-mode	Actively generate PDUs
	log	Generate log
	shutdown	Shutdown port
	<cr>	

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# loop-protect action log shutdown
SISGM1040-284-LRT(config-if)# loop-protect tx-mode
SISGM1040-284-LRT(config-if)#
```

Command: **mac**

Description: Configure MAC address table learning for an interface.

Syntax: **mac** address-table learning [secure]

Parameters:		
	address-table	MAC table configuration
	learning	Port learning mode
	secure	Port Secure mode

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# mac address-table learning
SISGM1040-284-LRT(config-if)# mac address-table learning secure
SISGM1040-284-LRT(config-if)#
```

Command: **mtu**

Description: Maximum transmission unit

Syntax: **mtu** <max_length>

Parameters: 1518-9600 Maximum frame size in bytes.

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# mtu 9600
SISGM1040-284-LRT(config-if)# mtu 1518
SISGM1040-284-LRT(config-if)# mtu 1599
SISGM1040-284-LRT(config-if)# mtu 9000
SISGM1040-284-LRT(config-if)#
```

Command: **mvr**

Description: Multicast VLAN Registration configuration

Syntax: **mvr** immediate-leave
mvr name <mvr_name> type { source | receiver }
mvr vlan <v_vlan_list> type { source | receiver }

Parameters:		
	immediate-leave	Immediate leave configuration
	name	MVR multicast name
	vlan	MVR multicast vlan
	<word16>	MVR multicast VLAN name
	type	MVR port role configuration
	receiver	MVR receiver port
	source	MVR source port
	<vlan_list>	MVR multicast VLAN list

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# mvr name MmVid-1 type receiver
SISGM1040-284-LRT(config-if)# mvr immediate-leave
SISGM1040-284-LRT(config-if)# mvr name AddNew1 type receiver
SISGM1040-284-LRT(config-if)# mvr vlan 10 type source
SISGM1040-284-LRT(config-if)#
```

Messages: *% Invalid MVR VLAN MmVid-1.*
% Failed to set MVR port role.
% Invalid MVR VLAN ID 11.

Command: **no**

Description: Negate a command or set its defaults for an interface.

Syntax: **no** <command>

Parameters:

access-list	aggregation	debug	description
dot1x	duplex	excessive-restart	flowcontrol
frame-length-check	green-ethernet	gvrp	ip
ipv6	lacp	link-oam	lldp
loop-protect	mac	mtu	mvr
port-security	ptp	pvlan	qos
rmon	sflow	shutdown	spanning-tree
speed	switchport	udld	

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# no aggregation group
SISGM1040-284-LRT(config-if)# no duplex
SISGM1040-284-LRT(config-if)#
```

Command: **port-security**

Description: Enable/disable port security per interface.

Syntax: **port-security**

port-security maximum { <v_1_to_1024> }

port-security sticky

port-security sticky <v_mac_addr> vlan <v_vlan_id>

port-security violation { protect | trap | trap-shutdown | shutdown }

Parameters:

maximum	Maximum number of MAC addresses that can be learned on this set of interfaces.
sticky	Enable/disable port security sticky function per interface.
violation	The action involved with exceeding the limit.
<1-1024>	Number of addresses
vlan	VLAN keyword
<vlan_id>	VLAN IDs 1-4095
<mac_addr>	48 bit MAC address: xx:xx:xx:xx:xx:xx
protect	Don't do anything
shutdown	Shutdown the port
trap	Send an SNMP trap
trap-shutdown	Send an SNMP trap and shutdown the port
<cr>	

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# port-security maximum 600
SISGM1040-284-LRT(config-if)# port-security sticky 11:22:33:44:55:66 vlan 100
SISGM1040-284-LRT(config-if)# port-security violation trap-shutdown
SISGM1040-284-LRT(config-if)# port-security violation protect
SISGM1040-284-LRT(config-if)#
```

Command: **ptp**

Description: Set Precision time Protocol (1588) parameters for an interface.

Syntax: **ptp** <clockinst> [internal]
ptp <clockinst> announce { [interval <interval>] [timeout <timeout>] }*1
ptp <clockinst> delay-asymmetry <delay_asymmetry>
ptp <clockinst> delay-mechanism { e2e | p2p }
ptp <clockinst> delay-req interval <interval>
ptp <clockinst> egress-latency <egress_latency>
ptp <clockinst> ingress-latency <ingress_latency>
ptp <clockinst> sync-interval <interval>

Parameters:

<0-3>	[0-3] Clock instance
announce	Set announce interval and timeout
delay-asymmetry	Set path delay asymmetry
delay-mechanism	Set delay mechanism
delay-req	Set pdelay req interval
egress-latency	Set port egress latency
ingress-latency	Set port ingress latency
internal	enable as an internal interface
sync-interval	Set sync interval
interval	Set announce interval
timeout	Set Announce timeout
<-3-4>	announce interval
timeout	Set Announce timeout
<1-10>	Announce timeout (* announce interval)
e2e	End to End Delay mechanism
p2p	Peer to Peer Delay mechanism
interval	Define Path-Delay request interval
<-7-5>	Path-Delay request intervalPath-Delay request interval
<-100000-100000>	Egress latency in ns
<-100000-100000>	Ingress latency in ns
<-7-4>	LogSyncInterval

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# ptp 0 announce interval 3 timeout 4
SISGM1040-284-LRT(config-if)# ptp 0 delay-asymmetry 5000
SISGM1040-284-LRT(config-if)# ptp 0 delay-mechanism e2e
SISGM1040-284-LRT(config-if)# ptp 0 delay-req interval 3
SISGM1040-284-LRT(config-if)# ptp 0 sync-interval 3
SISGM1040-284-LRT(config-if)# ptp 0 internal
SISGM1040-284-LRT(config-if)#
```

Message: *Error setting port data instance 0 port 1*

Command: **pvlan**

Description: Configure Private VLAN for an interface.

Syntax: **pvlan** <pvlan_list>
pvlan isolation

Parameters:

<range_list>	list of PVLANs. Range is from 1 to number of ports.
isolation	Port isolation

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# pvlan 4
SISGM1040-284-LRT(config-if)# pvlan isolation
SISGM1040-284-LRT(config-if)# do show pvlan
PVLAN ID  Ports
--------  --------------------------------------------------------------------------
1         GigabitEthernet 1/1, GigabitEthernet 1/2, GigabitEthernet 1/3,
          GigabitEthernet 1/4, GigabitEthernet 1/5, GigabitEthernet 1/6,
          GigabitEthernet 1/7, GigabitEthernet 1/8, GigabitEthernet 1/9,
          GigabitEthernet 1/10, GigabitEthernet 1/11, GigabitEthernet 1/12
SISGM1040-284-LRT(config-if)#
```

Command: **qos**

Description: Set Quality of Service for an interface.

Syntax:
qos cos <cos>
qos dei <dei>
qos dpl <dpl>
qos dscp-classify { zero | selected | any }
qos dscp-remark { rewrite | remap | remap-dp }
qos dscp-translate
qos map cos-tag cos <cos> dpl <dpl> pcp <pcp> dei <dei>
qos map tag-cos pcp <pcp> dei <dei> cos <cos> dpl <dpl>
qos pcp <pcp>
qos policer <rate> [kbps | mbps | fps | kfps] [flowcontrol]
qos qce { [addr { source | destination }] [key { double-tag | normal | ip-addr | mac-ip-addr }] }*1
qos queue-policer queue <queue> <rate> [kbps | mbps]
qos queue-shaper queue <queue> <rate> [kbps | mbps] [excess] [rate-type { line | data }]
qos shaper <rate> [kbps | mbps] [rate-type { line | data }]
qos tag-remark { pcp <pcp> dei <dei> | mapped }
qos trust dscp
qos trust tag
qos wrr <w0> <w1> <w2> <w3> <w4> <w5>

Parameters:

cos	Class of service configuration
dei	Drop Eligible Indicator configuration

dpl	Drop precedence level configuration
dscp-classify	DSCP ingress classification
dscp-remark	DSCP egress remarking
dscp-translate	DSCP ingress translation
map	QoS Map/Table configuration
pcp	Priority Code Point configuration
policer	Policer configuration
qce	QoS Control Entry
queue-policer	Queue policer configuration
queue-shaper	Queue shaper configuration
shaper	Shaper configuration
tag-remark	Tag remarking configuration
trust	Trust configuration
wrr	Weighted round robin configuration
<0-7>	Specific class of service
<0-1>	Specific Drop Eligible Indicator
any	Classify to new DSCP always
selected	Classify to new DSCP if classify is enabled for specific DSCP value in global dscp-classify map
zero	Classify to new DSCP if DSCP is 0
<0-1>	Specific drop precedence level
remap	Rewrite DSCP field using classified DSCP and DPL=0 remapped through global dscp-egress-translation map
remap-dp	Rewrite DSCP field using classified DSCP and DPL remapped through global dscp-egress-translation map
rewrite	Rewrite DSCP field with classified DSCP value (no translation)
cos-tag	Egress Map for cos to tag configuration
tag-cos	Ingress Map for tag to cos configuration
cos	Specify class of service
<0~7>	Specific class of service or range
dpl	Specify drop precedence level
<0~1>	Specific drop precedence level or range
pcp	Specify PCP (Priority Code Point)
<0-7>	Specific PCP
dei	Specify DEI (Drop Eligible Indicator)
<0-1>	Specific DEI
<uint>	Policer rate <100-3276700>(kbps) or <1-3276>(mbps) or <100-3276700>(fps) or <1-3276>(kfps).
flowcontrol	Enable flow control
fps	Unit is frames per second
kbps	Unit is kilobits per second (default)
kfps	Unit is kiloframes per second

mbps	Unit is Megabits per second
addr	Setup address match mode
destination	Match DMAC and DIP
source	Match SMAC and SIP (default)
queue	Specify queue
<0~7>	Specific queue or range
<1-3276700>	Policer rate (default kbps). Internally rounded up to the nearest value that the queue policer supports.
kbps	Unit is kilobits per second (default)
mbps	Unit is Megabits per second
kbps	Unit is kilobits per second (default)
mbps	Unit is Megabits per second
<uint>	Internally rounded up to the nearest value supported by the port shaper. Shaper rate <100-3281943>(kbps) or <1-3281>(mbps).
mapped	Used Egress mapped values (cos,dpl -> pcp,dei)
pcp	Specify Egress default PCP
<0-7>	Specific Egress PCP
dei	Specify Egress default DEI
<0-1>	Specific Egress DEI
dscp	DSCP value
tag	VLAN tag
<1-100>	Weight for queue 0
<1-100>	Weight for queue 1
<1-100>	Weight for queue 2
<1-100>	Weight for queue 3
<1-100>	Weight for queue 4
<1-100>	Weight for queue 5
Mode:	Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# qos cos 0
SISGM1040-284-LRT(config-if)# qos dei 1
SISGM1040-284-LRT(config-if)# qos dpl 0
SISGM1040-284-LRT(config-if)# qos dscp-remark remap
SISGM1040-284-LRT(config-if)# qos dscp-remark remap-dp
SISGM1040-284-LRT(config-if)# qos map cos-tag cos 0 dpl 0 pcp 4 dei 1
SISGM1040-284-LRT(config-if)# qos policer 3276 flowcontrol fps
SISGM1040-284-LRT(config-if)# qos qce addr destination
SISGM1040-284-LRT(config-if)# qos queue-policer queue 0 70000 mbps
% QOS: max rate is 3276 when using mbps
SISGM1040-284-LRT(config-if)# qos queue-shaper queue 0 90000 excess mbps
% QOS: max rate is 3281 when using mbps
SISGM1040-284-LRT(config-if)# qos shaper 1000 mbps
```

```
SISGM1040-284-LRT(config-if)# qos tag-remark pcp 0 dei 1
SISGM1040-284-LRT(config-if)# qos trust dscp
SISGM1040-284-LRT(config-if)# qos trust tag
SISGM1040-284-LRT(config-if)# qos wrr 1 2 3 4 5 6
SISGM1040-284-LRT(config-if)#
```

Command: **rmon**

Description: Configure Remote Monitoring on an interface

Syntax: **rmon** collection history <id> [buckets <buckets>] [interval <interval>]

rmon collection stats <id>

Parameters:		
	collection	Configure Remote Monitoring Collection on an interface
	history	Configure history
	<1-65535>	History entry ID
	stats	Configure statistics
	<1-65535>	Statistics entry ID
	buckets	Requested buckets of intervals. Default is 50 buckets
	<1-3600>	Interval in seconds to sample data for each bucket
	interval	Interval to sample data for each bucket. Default is 1800 seconds
	<1-65535>	Requested buckets of intervals

Mode: Interface Config Mode

```
SISGM1040-284-LRT(config-if)# rmon collection history 1 buckets 5000 interval 400
SISGM1040-284-LRT(config-if)# rmon collection stats 3500
SISGM1040-284-LRT(config-if)# do show rmon history 1

History ID :    1
------------------
   Data Source        : .1.3.6.1.2.1.2.2.1.1.5
   Data Bucket Request : 5000
   Data Bucket Granted : 50
   Data Interval      : 400
SISGM1040-284-LRT(config-if)#
```

Command: **sflow**

Description: Configure Statistics flow on an interface.

Syntax: **sflow** [<sampler_idx_list>]

sflow counter-poll-interval [sampler <sampler_idx_list>] [<poll_interval>]

sflow max-sampling-size [sampler <sampler_idx_list>] [<max_sampling_size>]

sflow sampler-type [sampler <sampler_idx_list>] { rx | tx | all }

sflow sampling-rate [sampler <sampler_idx_list>] [<sampling_rate>]

Parameters:

counter-poll-interval	The interval - in seconds - between counter poller samples.
max-sampling-size	Specifies the maximum number of bytes to transmit per flow sample.
sampler-type	Specifies the types of flow sample.
sampling-rate	Specifies the statistical sampling rate. The sample rate is specified as N to sample 1/Nth of the packets n the monitored flows. There are no restrictions on the value, but the switch will adjust it to the closest possible sampling rate.
<1-3600>	Interval seconds
<14-200>	Sampling size bytes
all	Sampling type All
rx	Sampling type RX
tx	Sampling type TX
<1-4294967295>	Sampling rate
<cr>	

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# sflow counter-poll-interval 350
SISGM1040-284-LRT(config-if)# sflow max-sampling-size 50
SISGM1040-284-LRT(config-if)# sflow sampler-type all
SISGM1040-284-LRT(config-if)# sflow sampler-type tx
SISGM1040-284-LRT(config-if)# sflow sampling-rate 7000000
SISGM1040-284-LRT(config-if)# do show sflow

Agent Configuration:
====================

Agent Address: 127.0.0.1

Receiver Configuration:
=======================

Owner        : <none>
Receiver     : 0.0.0.0
UDP Port     : 6343
Max. Datagram: 1400 bytes
Time left    : 0 seconds
```

```
No enabled collectors (receivers). Skipping displaying per-port info.
SISGM1040-284-LRT(config-if)#
SISGM1040-284-LRT(config-if)#
```

Command: **shutdown**

Description: Shutdown of the interface.

Syntax: **shutdown** <cr>

Parameters: None

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# shutdown
Username: admin
Password:
SISGM1040-284-LRT#
```

Command: **spanning-tree**

Description: Configure Spanning Tree Protocol (STP) for an interface.

Syntax: **spanning-tree**
spanning-tree auto-edge
spanning-tree bpdu-guard
spanning-tree edge
spanning-tree link-type { point-to-point | shared | auto }
spanning-tree mst <instance> cost { <cost> | auto }
spanning-tree mst <instance> port-priority <prio>
spanning-tree restricted-role
spanning-tree restricted-tcn

Parameters:		
	auto-edge	Auto detect edge status
	bpdu-guard	Enable/disable BPDU guard
	edge	Edge port
	link-type	Port link-type
	mst	STP bridge instance
	restricted-role	Port role is restricted (never root port)
	restricted-tcn	Restrict topology change notifications
	auto	Auto detect
	point-to-point	Forced to point-to-point
	shared	Forced to Shared
	<0-7>	instance 0-7 (CIST=0, MST2=1...)
	cost	STP Cost of this port
	port-priority	STP priority of this port
	<1-200000000>	Cost range
	auto	Use auto cost

<0-240> Range (lower number means higher priority)

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# spanning-tree auto-edge
SISGM1040-284-LRT(config-if)# spanning-tree bpdu-guard
SISGM1040-284-LRT(config-if)# spanning-tree edge
SISGM1040-284-LRT(config-if)# spanning-tree link-type auto
SISGM1040-284-LRT(config-if)# spanning-tree mst 0 cost 700000
SISGM1040-284-LRT(config-if)# spanning-tree restricted-role
SISGM1040-284-LRT(config-if)# spanning-tree restricted-tcn

SISGM1040-284-LRT(config-if)# do show spanning-tree
CIST Bridge STP Status
Bridge ID    : 32768.00-C0-F2-4A-11-29
Root ID      : 32768.00-C0-F2-4A-11-29
Root Port    : -
Root PathCost: 0
Regional Root: 32768.00-C0-F2-4A-11-29
Int. PathCost: 0
Max Hops     : 20
TC Flag      : Steady
TC Count     : 0
TC Last      : -
Port       Port Role       State       Pri  PathCost  Edge  P2P  Uptime
---------  --------------  ----------  ---  --------  ----  ---  -------------
LLAG1      DesignatedPort  Forwarding  128     10000  Yes   Yes    2d 18:51:24
SISGM1040-284-LRT(config-if)#
```

Command: **speed**

Description: Configures interface speed. If you use 10, 100, or 1000 keywords with the auto keyword the port will only advertise the specified speeds.

Syntax: **speed** { 1000 | 100 | 10 | }

auto { [10] [100] [1000] } }

Parameters:		
	10	10Mbps
	100	100Mbps
	1000	1Gbps
	auto	Auto negotiation

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# speed 1000
SISGM1040-284-LRT(config-if)# speed auto
SISGM1040-284-LRT(config-if)# do show interface GigabitEthernet 1/5 status
Interface              Mode     Speed & Duplex  Flow Control  Max Frame  Excessive  Link
---------------------  -------  --------------  ------------  ---------  ---------  --------
GigabitEthernet 1/5    enabled  1Gfdx           disabled      9000       Discard    Down
SISGM1040-284-LRT(config-if)#
SISGM1040-284-LRT(config-if)# speed sfp-auto-ams
                              ^
% Invalid word detected at '^' marker.

SISGM1040-284-LRT(config-if)#
```

Command: **switchport**

Description: Set Switching mode characteristics for an interface.

Syntax:
switchport access vlan <pvid>
switchport forbidden vlan { add | remove } <vlan_list>
switchport hybrid acceptable-frame-type { all | tagged | untagged }
switchport hybrid allowed vlan { all | none | [add | remove | except] <vlan_list> }
switchport hybrid egress-tag { none | all [except-native] }
switchport hybrid ingress-filtering
switchport hybrid native vlan <pvid>
switchport hybrid port-type { unaware | c-port | s-port | s-custom-port }
switchport mode { access | trunk | hybrid }
switchport trunk allowed vlan { all | none | [add | remove | except] <vlan_list> }
switchport trunk native vlan <pvid>
switchport trunk vlan tag native
switchport vlan ip-subnet [id <1-128>] <ipv4> vlan <vid>
switchport vlan mac <mac_addr> vlan <vid>
switchport vlan mapping <gid>
switchport vlan protocol group <grp_id> vlan <vid>
switchport voice vlan discovery-protocol { oui | lldp | both }
switchport voice vlan mode { auto | force | disable }
switchport voice vlan security

Parameters:

access	Set access mode characteristics of the interface
forbidden	Adds or removes forbidden VLANs from the current list of forbidden VLANs
hybrid	Change PVID for hybrid port
mode	Set mode of the interface
trunk	Change PVID for trunk port
vlan	VLAN commands
voice	Voice appliance attributes
vlan	Set VLAN when interface is in access mode
<vlan_id>	VLAN ID of the VLAN when this port is in access mode
vlan	Add or modify VLAN entry in forbidden table.
add	Add to existing list.
remove	Remove from existing list.
<vlan_list>	VLAN IDs
acceptable-frame-type	Set acceptable frame type on a port
allowed	Set allowed VLAN characteristics when interface is in hybrid mode
egress-tag	Egress VLAN tagging configuration
ingress-filtering	VLAN Ingress filter configuration
native	Set native VLAN
port-type	Set port type

all	Allow all frames
tagged	Allow only tagged frames
untagged	Allow only untagged frames
allowed	Set allowed VLAN characteristics when interface is in trunk mode
native	Set native VLAN
vlan	VLAN commands
vlan	Set allowed VLANs when interface is in trunk mode
<vlan_list>	VLAN IDs of the allowed VLANs when this port is in trunk mode
add	Add VLANs to the current list
all	All VLANs
except	All VLANs except the following
none	No VLANs
remove	Remove VLANs from the current list
ip-subnet	VCL IP Subnet-based VLAN configuration.
mac	MAC-based VLAN commands
mapping	Maps an interface to a VLAN translation group..
protocol	Protocol-based VLAN commands
<ipv4_subnet>	Source IP address and mask (Format: xx.xx.xx.xx/mm.mm.mm.mm).
id	Specify an index for the IP subnet entry (deprecated)
<mac_ucast>	48 bit unicast MAC address: xx:xx:xx:xx:xx:xx
1-12>	Group id
group	Protocol-based VLAN group commands
<word16>	Group Name (Range: 1 - 16 characters)
vlan	VLAN keyword
<vlan_id>	VLAN ID required for the group to VLAN mapping (Range: 1-4095)
<vlan_id>	VLAN ID required for the group to VLAN mapping (Range: 1-4095)
vlan	VLAN for voice traffic
discovery-protocol	Set Voice VLAN port discovery protocol
mode	Set Voice VLAN port mode
security	Enable Voice VLAN port security mode
both	Detect telephony device by OUI address and LLDP
lldp	Detect telephony device by LLDP
oui	Detect telephony device by OUI address
auto	Enable auto detect mode
disable	disjoin Voice VLAN
force	Force to join Voice VLAN

Mode: Interface Config Mode

Example:

```
SISGM1040-284-LRT(config-if)# switchport access vlan 10
SISGM1040-284-LRT(config-if)# switchport forbidden vlan add 10
SISGM1040-284-LRT(config-if)# switchport forbidden vlan remove 10
```

```
SISGM1040-284-LRT(config-if)# switchport hybrid acceptable-frame-type all
SISGM1040-284-LRT(config-if)# switchport hybrid acceptable-frame-type untagged
SISGM1040-284-LRT(config-if)# switchport mode access
SISGM1040-284-LRT(config-if)# switchport mode hybrid
SISGM1040-284-LRT(config-if)# switchport trunk allowed vlan all
SISGM1040-284-LRT(config-if)# switchport trunk allowed vlan none
SISGM1040-284-LRT(config-if)# switchport vlan mapping 1
SISGM1040-284-LRT(config-if)# switchport vlan protocol group 1 vlan 10
SISGM1040-284-LRT(config-if)# switchport voice vlan discovery-protocol both
SISGM1040-284-LRT(config-if)# switchport voice vlan mode auto
SISGM1040-284-LRT(config-if)# switchport voice vlan security
SISGM1040-284-LRT(config-if)#
```

Messages: *Interface 1/1 must disable Spanning Tree feature before enable Voice Vlan*

Command:	**udld**
Description:	Set UDLD parameters for an interface.
Syntax:	**udld** port [aggressive] [message time-interval <v_interval>]
Parameters:	
port	UDLD configuration on the interface
aggressive	Enable UDLD in the aggressive mode on an interface
message	Configures the period of time between UDLD probe messages on ports that are in the advertisement phase and are determined to be bidirectional. The range is from 7 to 90 seconds (currently the default message time interval of 7 seconds is supported).
time-interval	Configures the period of time between UDLD probe messages on ports that are in the advertisement phase and are determined to be bidirectional. The range is from 7 to 90 seconds (currently the default message time interval of 7 seconds is supported).
Mode:	Interface Config Mode
Example:	

```
SISGM1040-284-LRT(config-if)# udld port aggressive message time 7
SISGM1040-284-LRT(config-if)#
```

Configure Interface VLAN Commands

Command: **interface vlan**

Description: Configure Interface VLAN Mode commands

Syntax: < debug | do | end | exit | help | ip | ipv6 | no >

debug <mode>

do <command>

end

exit

help

ip address { { <address> <netmask> } | { dhcp [fallback <fallback_address> <fallback_netmask> [timeout <fallback_timeout>]] } }

ip dhcp server

ip igmp snooping

ip igmp snooping compatibility { auto | v1 | v2 | v3 }

ip igmp snooping last-member-query-interval <ipmc_lmqi>

ip igmp snooping priority <cos_priority>

ip igmp snooping querier { election | address <v_ipv4_ucast> }

ip igmp snooping query-interval <ipmc_qi>

ip igmp snooping query-max-response-time <ipmc_qri>

ip igmp snooping robustness-variable <ipmc_rv>

ip igmp snooping unsolicited-report-interval <ipmc_uri>

ipv6 address <subnet>

ipv6 address { autoconfig | dhcp [rapid-commit] }

ipv6 mld snooping

ipv6 mld snooping compatibility { auto | v1 | v2 }

ipv6 mld snooping last-member-query-interval <ipmc_lmqi>

ipv6 mld snooping priority <cos_priority>

ipv6 mld snooping querier election

ipv6 mld snooping query-interval <ipmc_qi>

ipv6 mld snooping query-max-response-time <ipmc_qri>

ipv6 mld snooping robustness-variable <ipmc_rv>

ipv6 mld snooping unsolicited-report-interval <ipmc_uri>

no ip address

no ip dhcp server

no ip igmp snooping

no ip igmp snooping compatibility

no ip igmp snooping last-member-query-interval

no ip igmp snooping priority

no ip igmp snooping querier { election | address }

no ip igmp snooping query-interval

no ip igmp snooping query-max-response-time
no ip igmp snooping robustness-variable
no ip igmp snooping unsolicited-report-interval
no ipv6 address [<ipv6_subnet>]
no ipv6 address { autoconfig | dhcp [rapid-commit] }
no ipv6 mld snooping
no ipv6 mld snooping compatibility
no ipv6 mld snooping last-member-query-interval
no ipv6 mld snooping priority
no ipv6 mld snooping querier election
no ipv6 mld snooping query-interval
no ipv6 mld snooping query-max-response-time
no ipv6 mld snooping robustness-variable
no ipv6 mld snooping unsolicited-report-interval
Parameters:

<vlan_list>	List of VLAN interface numbers, 1~4095
do	To run exec commands in config mode
end	Go back to EXEC mode
exit	Exit from current mode
help	Description of the interactive help system
ip	Interface Internet Protocol config commands
ipv6	IPv6 configuration commands
no	Negate a command or set its defaults
<line>	Exec Command
address	Address configuration
dhcp	Configure DHCP server parameters
igmp	Internet Group Management Protocol
address	Configure the IPv6 address of an interface
mld	Multicast Listener Discovery
<ipv4_addr>	IP address
dhcp	Enable DHCP
<ipv4_netmask>	IP netmask
<ipv6_subnet>	IPv6 prefix x:x::y/z
rapid-commit	Enable DHCPv6 client Rapid-Commit option
fallback	DHCP fallback settings
<ipv4_addr>	DHCP fallback address
timeout	DHCP fallback timeout, Default value is 60 seconds
<uint>	DHCP fallback timeout in seconds. Legal values are 0 to 4294967295 seconds
server	Enable DHCP server per VLAN
snooping	Snooping IGMP

compatibility Interface compatibility
last-member-query-interval Last Member Query Interval in tenths of a second
priority Interface CoS priority
querier IGMP Querier configuration
query-interval Query Interval in seconds
query-max-response-time Query Response Interval in tenths of seconds
robustness-variable Robustness Variable
unsolicited-report-interval Unsolicited Report Interval in seconds
auto Compatible with IGMPv1/IGMPv2/IGMPv3
v1 Forced IGMPv1
v2 Forced IGMPv2
v3 Forced IGMPv3
0-31744> 0 - 31744 tenths of a second
<0-7> CoS priority ranges from 0 to 7
address IGMP Querier address configuration
election Act as an IGMP Querier to join Querier-Election
<ipv4_ucast> A valid IPv4 unicast address
<1-31744> 1 - 31744 seconds - interval
<0-31744> 0 - 31744 tenths of seconds (max response time)
1-255> Packet loss tolerance count from 1 to 255 –(RV)
<0-31744> 0 - 31744 seconds (unsolicited-report-interval)
Mode: Interface Config Mode
Example:

```
SISGM1040-284-LRT(config)# interface vlan 10
SISGM1040-284-LRT(config-if-vlan)# ip address 192.168.1.90 255.255.255.0
% Failed to add IPv4 address to VLAN = 10.
SISGM1040-284-LRT(config-if-vlan)# ipv6 address dhcp rapid-commit
SISGM1040-284-LRT(config-if-vlan)# ip address dhcp fallback 1.2.3.4 255.255.255.0 timeout
750000
% Failed to add IPv4 address to VLAN = 11.
% Failed to add IPv4 address to VLAN = 12.
% Failed to add IPv4 address to VLAN = 13.
% Failed to add IPv4 address to VLAN = 14.
% Failed to add IPv4 address to VLAN = 15.
% Failed to add IPv4 address to VLAN = 16.
% IP interfaces are full. VLAN 17 is not configured
SISGM1040-284-LRT(config-if-vlan)# ip dhcp server
SISGM1040-284-LRT(config-if-vlan)# debug mode
Current VLAN List is 1 2 3 4 5 6 7 8 9 10
SISGM1040-284-LRT(config-if-vlan)#
```

Appendix A. DHCP per Port

You can configure DHCP Per Port via the CLI and Web UI as described below. The DHCP Per Port factory default mode is Disabled. See the *Web User Guide* for Web UI mode operation.

The switch's DHCP server assigns IP addresses. Clients get IP addresses in sequence and the switch assigns IP addresses to on a per-port basis starting from the configured IP range. For example, if the IP address range is configured as 192.168.10.20 - 192.168.10.37 with one DHCP device connected to port 1, the client will always get IP address 192.168.10.20, then port 3 is always distributed IP address 192.168.10.22, even if port 2 is an empty port (because port 2 is always distributed IP address 192.168.10.21).

The switch does not allow a DHCP per Port pool to include the switch address.

The IP address assigned range and VLAN 1 should stay in the same subnet mask.

The configurable IP address range is allowed to configure over 18 IP addresses, but the switch always assigns one IP address per port connecting device.

When the DHCP Per Port function is enabled, the switch software will automatically create the related DHCP pool named "DHCP_Per_Port".

Once the DHCP Per Port function is enabled on one switch, IPv4 DHCP client at VLAN1 mode (DMS DHCP mode), DHCP server mode are all limited to be enabled at the same time (an error message displays if attempted).

If the DHCP server pool has been configured, once you enable the DHCP Per port function that DHCP server pool configuration will be overwritten.

Only for VLAN 1, clients issued DHCP packets will not be broadcast/forwarded to other ports. DHCP packets in others VLANs will be broadcast/forwarded to others ports.

The DHCP Per Port function allows the switch to connect only one DHCP client device.

The DHCP Per Port function is configured and shown using these CLI commands:

```
SISGM1040-284-LRT# show ip dhcp server
SISGM1040-284-LRT(config)# ip dhcp server per-port
SISGM1040-284-LRT(config)# do show ip dhcp server
SISGM1040-284-LRT(config)# no ip dhcp server per-port
```

The CLI commands to configure and show DHCP Per Port are described below.

Command: Show the current DHCP Server and DHCP Per Port configuration

Syntax: **show ip dhcp server** <cr>

Description: Show if DHCP server is globally enabled or disabled, if all VLANs are disabled or enabled, and if the DHCP server Per Port function is disabled or enabled.

Example: Display the current DHCP Server and Per Port configuration, change the config, and display the results:

```
SISGM1040-284-LRT(config)# do show ip dhcp server

DHCP server is globally enabled.
  Enabled VLANs are 1.
  DHCP server per port is disabled.

SISGM1040-284-LRT(config)# ip dhcp server per-port
SISGM1040-284-LRT(config)# do show ip dhcp server
```

```
DHCP server is globally enabled.
  Enabled VLANs are 1.
  DHCP server per port is enabled.

SISGM1040-284-LRT(config)# no ip dhcp server per-port
SISGM1040-284-LRT(config)# do show ip dhcp server

DHCP server is globally enabled.
  Enabled VLANs are 1.
  DHCP server per port is disabled.

SISGM1040-284-LRT(config)#
```

Command: Configure the DHCP Per Port function

Syntax: **ip dhcp server per-port** <cr>

Description: Toggle the DHCP Per Port function from Disabled (default) to Enabled.

Example: Toggle the DHCP Per Port function and show the resulting config:

```
SISGM1040-284-LRT# show ip dhcp server

DHCP server is globally disabled.
  All VLANs are disabled.
  DHCP server per port is disabled.

SISGM1040-284-LRT# configure terminal
SISGM1040-284-LRT(config)# ip dhcp server

SISGM1040-284-LRT(config)# end
SISGM1040-284-LRT# show ip dhcp server

DHCP server is globally enabled.
  All VLANs are disabled.
  DHCP server per port is disabled.

SISGM1040-284-LRT#
```

DHCP IP per Port VLAN

The SISGM1040-284-LRT supports the DHCP IP per Port VLAN function. It lets you have an IP address from a DHCP pool on a switch be statically assigned to a switchport, such that whichever device plugs into the switchport it will always be assigned that specific IP address. The IP address is configured in the interface config settings. Note that this is binding an IP address to an interface, not to a MAC address, which is the classic binding technique found on most switches.

Appendix B. MRP Operation and Examples

You can configure Media Redundancy Protocol (MRP) parameters via the Web UI at Configuration > MRP and monitor them at Monitor > MRP, and via the CLI. See the *Web User Guide* for Web UI operation.

According to ANSI, IEC 62439-2 Ed. 1.0 b:2010 is applicable to high-availability automation networks based on ISO/IEC 8802-3 / IEEE 802.3 Ethernet technology. It specifies a recovery protocol based on a ring topology, designed to react deterministically on a single failure of an inter-switch link or switch in the network, under the control of a dedicated Media Redundancy Manager (MRM) node.

Media Redundancy Protocol per IEC 62439-2 is an interoperable ring technology designed to allow a switch to connect onto a universal redundant high-speed ring. MRP is self-healing and self-adjusting, requiring no operator interaction. MRP is based on the concept of standby connections for seamless redundancy.

MRP Description

1. MRP operates at the MAC Layer of the Ethernet Switch.
2. The Ring Manager is called the Media Redundancy Manager (MRM).
3. Ring Clients are called Media Redundancy Clients (MRCs).
4. MRM and MRC ports support three Status Types:
   a. *Disabled* ring ports drop all the received frames.
   b. *Blocked* ring ports drop all the received frames except the MRP control frames.
   c. *Forwarding* ring ports forward all the received frames.
5. Ring Reconfiguration speed is 200 ms for 50 switches on average.
6. The MRM continuously sends Watchdog Packets into the ring network to verify communication between ring points.
7. During normal operation, no packets are transmitted over the redundant link.
8. When the MRM no longer receives the Watchdog Packets it sent out, the redundant path is immediately activated, and it becomes the primary layer 2 packet path.
9. When the failed link is restored:
   a. The MRM switches back to normal operation and the first Path becomes the primary path again.
   b. You can configure a period before the MRM switches back to the primary path (to prevent the circuit from flapping if it is not stable).

MRP Operation

Normal operation: the network works in the *Ring-Closed* status. In this status, one of the MRM ring ports is blocked, while the other is forwarding. Conversely, both ring ports of all MRCs are forwarding. Loops are avoided because the physical ring topology is reduced to a logical stub topology.

Failure mode: the network works in the *Ring-Open* status. For instance, in case of failure of a link connecting two MRCs, both ring ports of the MRM are forwarding. The MRCs adjacent to the failure have a blocked and a forwarding ring port; the other MRCs have both ring ports forwarding. The physical ring topology is also a logical stub topology in the Ring-Open status.

Note: Multiple MRMs in a single ring function is not supported. If there are two MRMs in one ring, then both MRMs are generated by the event MULTIPLE_MANAGERS. The multiple active MRMs cause the ring to an incorrect state. You must change all active MRMs to the MRC state (except one MRM) to fix this situation.

Related Devices

MRP is implemented on the SISPM1040-384-LRT-C, SISPM1040-362-LRT, SISPM1040-582-LRT, **and SISGM1040-284-LRT**.

MRP Sample Setup

The example below shows SISPM1040-384-LRT-C switches (one MRM and five MRCs).

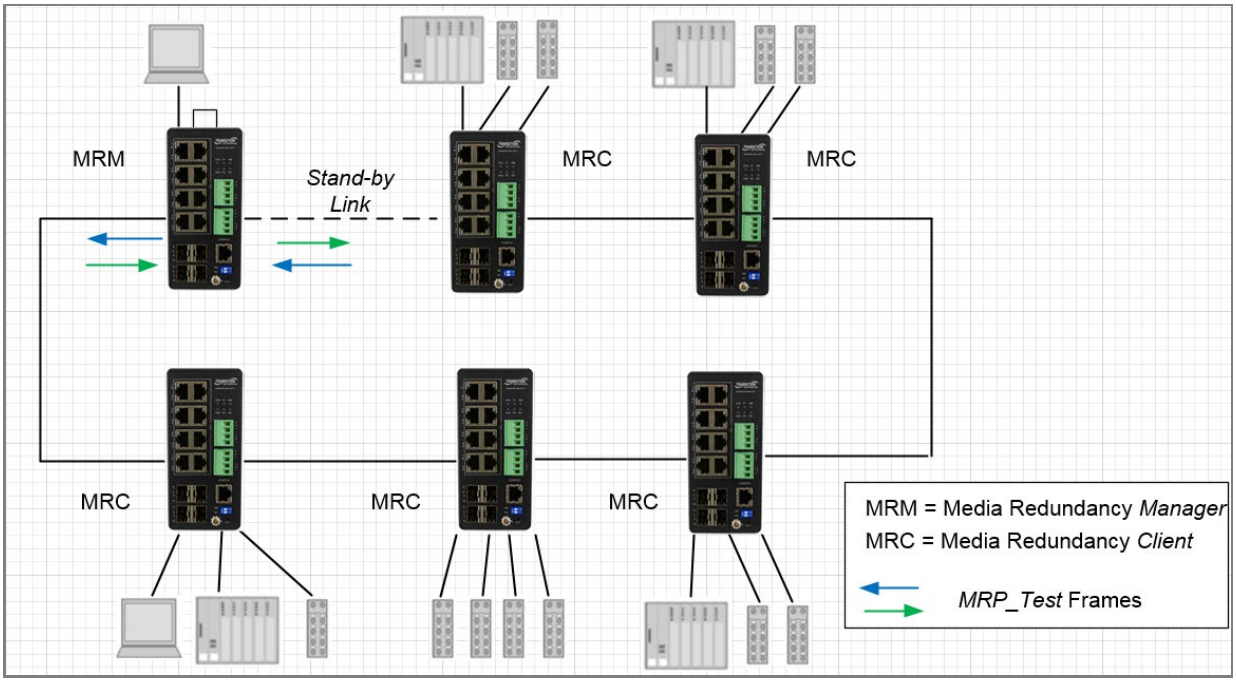


Figure: MRP Sample Setup

MRP Pre-Requisites (General)

The following are required to perform MRP setups.

1. Spanning Tree must be disabled at Configuration > Spanning Tree > CIST Port.
2. Other Ring technologies must be disabled (G.8031 EPS, G.8032 ERPS, Rapid-Ring, Ring-To-Ring, etc.).
3. Multiple MRMs in a single ring is not supported. If there are two MRMs in one ring, then both MRMs are generated by the event MULTIPLE_MANAGERS. The multiple active MRMs cause the ring to an incorrect state. Fix: change all active MRMs except one to the MRC state.
4. Other pre-requisites may apply to the specific examples below.

MRP Setup (CLI Commands)

Example 1: Create two new MRP domains on an SISPM1040-384-LRT-C:

```
SISPM1040-384-LRT-C(config)# mrp domain new 1
SISPM1040-384-LRT-C(config)# mrp domain new 2
SISPM1040-384-LRT-C(config)#
```

Example 2: Show default config for newly created MRP domains 1 and 2:

```
SISPM1040-384-LRT-C(config)# do show mrp 1
Domain:
  Admin Role:              Undefined
  Name:                    Domain1
  UUID:                    Default
  Primary Ring Port ID:     Undefined
  Secondary Ring Port ID:   Undefined
  VLAN ID:                 0
SISPM1040-384-LRT-C(config)# do show mrp 2
Domain:
  Admin Role:              Undefined
  Name:                    Domain2
  UUID:                    Default
  Primary Ring Port ID:     Undefined
  Secondary Ring Port ID:   Undefined
  VLAN ID:                 0
SISPM1040-384-LRT-C(config)#
```

Example 3: Configure MRP 1 (Manager) and MRP 2 (Client) parameters:

```
SISPM1040-384-LRT-C(config)# mrp 1 role manager
SISPM1040-384-LRT-C(config)# mrp 1 manager media-redundancy enable
SISPM1040-384-LRT-C(config)# mrp 1 manager priority 3
SISPM1040-384-LRT-C(config)# mrp 1 manager test-interval 25
SISPM1040-384-LRT-C(config)# mrp 1 manager test-monitoring 4 2
SISPM1040-384-LRT-C(config)# mrp 1 vlan 100
SISPM1040-384-LRT-C(config)# mrp 2 client blocked-state enable
SISPM1040-384-LRT-C(config)# mrp 2 client link-interval 15 30 2
SISPM1040-384-LRT-C(config)# mrp 2 ringport secondary GigabitEthernet 1/5
SISPM1040-384-LRT-C(config)# mrp 2 vlan 200
SISPM1040-384-LRT-C(config)#
```

Example 4: Show newly-configured MRP 1 parameters:

```
SISPM1040-384-LRT-C(config)# do show mrp 1
Operational:
  Role:                    Undefined
  Status:                  Disabled
  Ring State:              Undefined
  Primary Ring Port State:   Unknown
  Secondary Ring Port State: Unknown
Domain:
  Admin Role:              Manager
  Name:                    Domain1
  UUID:                    Default
  Primary Ring Port ID:     Undefined
  Secondary Ring Port ID:    Undefined
  VLAN ID:                 100
Manager:
  Priority:                       3
  Topology Change Interval, ms:     10
  Topology Change Repeat Count:     3
  Short Test Interval, ms:         10
  Default Test Interval, ms:       25
  Test Monitoring Count:           4
  Test Monitoring Extended Count:   2
  Non-blocking MRC supported:      Disabled
  React On Link Change:            Disabled
  Check Media Redundancy Event:     Enabled
SISPM1040-384-LRT-C(config)#
```

Example 5: Show newly-configured MRP 2 parameters:

```
SISPM1040-384-LRT-C(config)# do show mrp 2
Operational:
  Role:                    Undefined
  Status:                  Disabled
  Primary Ring Port State:   Unknown
  Secondary Ring Port State: Unknown
Domain:
  Admin Role:              Client
  Name:                    Domain2
  UUID:                    Default
  Primary Ring Port ID:     Undefined
  Secondary Ring Port ID:    5
  VLAN ID:                 200
Client:
  Link Down Interval, ms:    15
  Link Up Interval, ms:      30
  Link Change Count:         2
```

```
  BLOCKED state supported:   Enabled
SISPM1040-384-LRT-C(config)#
```

Messages: *W mrp 247/mrp_icli_domain_uuid#219: Warning: MRP Domain UUID: The UUID incorrect*

W mrp 247/mrp_icli_domain_vlan#321: Warning: MRP Domain Vlan ID: unable to modify domain with Id 2, VLAN ID is used in other ring domain

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