

# **PACSystems™ PROFINET Managed Industrial Ethernet Switches**

USER MANUAL

## Warnings and Caution Notes as Used in this Publication

### **WARNING**

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

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### **CAUTION**

Caution notices are used where equipment might be damaged if care is not taken.

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**Note:** Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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# Table of Contents

---

Table of Contents..... i

Table of Figures.....iv

Section 1 Introduction..... 1

    1.1 Revisions in this Manual ..... 2

    1.2 PACSystems Documentation ..... 2

        PACSystems Manuals ..... 2

        RX3i Manuals ..... 2

Section 2 Overview ..... 3

    2.1 System Overview..... 3

        2.1.1 IO-Devices on a PROFINET Network ..... 3

        2.1.2 Ethernet Devices on an Ethernet Network ..... 4

        2.1.3 GLM System Capabilities ..... 4

    2.2 GLM Product Differentiation ..... 5

    2.3 GLM Features ..... 6

    2.4 GLM LEDS ..... 7

Section 3 Installation..... 9

    3.1 Mounting..... 9

        3.1.1 DIN-Rail Mounting..... 9

    3.2 Panel Mounting..... 10

    3.3 Power Connection ..... 11

        3.3.1 GLM Switch Current Draw ..... 11

    3.4 Grounding ..... 12

    3.5 Alarm Relay Output ..... 13

    3.6 Ethernet Connections..... 13

        3.6.1 RJ45 Connections ..... 14

        3.6.2 SFP Connections ..... 15

3.7	LED Operation.....	16
3.8	System Reset .....	17
3.9	Console Connection .....	18
Section 4	Configuration.....	21
4.1	Import the GSDML file .....	21
4.2	Associating the IO-Device with its Controller .....	25
4.3	PROFINET Cyclic I/O Data .....	27
4.3.1	Slot 1: Device Status.....	29
4.3.2	Slot 2: Port Status.....	29
4.3.3	Slot 3: Port Alarm & Port Settings & Status.....	30
4.3.4	Slot 4: MRP Group 1 Status .....	32
4.3.5	Slot 5: MRP Group 2 Status .....	33
4.3.6	Slot 6: Ring Group 1 Status .....	34
4.3.7	Slot 7: MRE Group 1 Status .....	34
4.3.8	Slot 8: MRE Group 2 Status .....	34
4.4	PROFINET Acyclic I/O Data .....	36
4.4.1	Acyclic Device Data –Subslot 0 .....	36
4.4.2	Acyclic Port Data – Subslot 1 .....	38
4.4.3	Acyclic MRP Group 1 Data – Subslot 2 .....	39
4.4.4	Acyclic MRP Group 2 Data – Subslot 3 .....	39
4.4.5	Acyclic Ring Group 1 Data – Subslot 4.....	40
4.4.6	Acyclic MRPe Group 1 Data – Subslot 5.....	41
4.4.7	Acyclic MRPe Group 2 Data – Subslot 6.....	41
4.5	Assigning Device Name and IP Address .....	41
4.6	MRP Settings for IO-Devices .....	43
4.7	Download from PME to CPU .....	44
4.8	Hot Standby CPU Redundancy Considerations .....	44
4.9	Discovery Tool .....	44
Section 5	Diagnostics .....	47
5.1.1	Setting up and Sensing Alarms .....	48
5.1.2	Power Alarm .....	49

5.2	External Alarm Circuit .....	51
Appendix A Command Language Interface (CLI).....		53
A-1	Operator Interface.....	53
A-1.1	Login.....	53
A-1.2	Connection Interface.....	53
A-1.3	Login Screen Description.....	53
A-1.4	Execution Modes.....	55
A-1.5	Getting help.....	55
A-1.6	Terminal Key Function.....	55
A-1.7	Notation Conventions .....	56
5.2.1	Summary of Commands Descriptions .....	56
A-2	Command Descriptions .....	58
A-2.1	Initialize Mode Commands .....	58
A-2.2	Enable Mode Commands .....	59
A-2.3	Configure Mode Commands .....	92
A-2.4	VLAN Mode Commands .....	125
A-2.5	Interface VLAN Mode Commands.....	130
A-2.6	RingV2 Group Mode Commands .....	134
A-2.7	Spanning Tree Commands .....	136
A-2.8	sFlow Configure Commands.....	142
A-2.9	SNMP Configure Commands .....	145
A-2.10	Qos Function Commands .....	151
A-2.11	IGMP Functional Commands .....	158
A-2.12	MVR Functional Commands .....	161
A-2.13	MLD Functional Commands .....	166
A-2.14	Loop-Protection Configure Commands .....	170
A-2.15	LLDP Configure Commands.....	171
A-2.16	RFC2544 Testing Configure Commands .....	174
A-2.17	GVRP Configure Commands.....	176
A-2.18	Voice VLAN Configure Commands .....	178
A-2.19	Profile Alarm Commands.....	180
Appendix B Supported Ethernet Commands .....		181
General Contact Information .....		ii
Technical Support.....		ii

# Table of Figures

---

Figure 1: GLM064, GLM082, GLM104 .....	1
Figure 2: Typical PROFINET System with GLM Switches.....	3
Figure 3: GLM Switch Bottom Panel .....	6
Figure 4: Front-Panel LEDs.....	7
Figure 5: DIN-Rail Mounting .....	9
Figure 6: Panel-Mounting .....	10
Figure 7: Dual DC Power Input Connections.....	11
Figure 8: Ground Connection.....	12
Figure 9: Alarm Relay Output .....	13
Figure 10: RJ45 Pinout.....	14
Figure 11: Ports 1 & 2 Copper Connections.....	14
Figure 12: Fiber-Optic Cable with LC Duplex Connectors.....	15
Figure 13: Attach Fiber-Optic Cables to Installed SFP Socket .....	15
Figure 14: Reset Button Location .....	17
Figure 15: Console Port .....	18
Figure 16: Console Cable Wiring .....	19
Figure 17: PME Toolchest Feature .....	22
Figure 18: Toolchest Data Types.....	22
Figure 19: Select PROFINET Device .....	23
Figure 20: Import GSDML Command .....	23
Figure 21: Browse to Folder and Select GSDML file for Import .....	24
Figure 22: Toolchest Displays Newly-Added Device .....	24
Figure 23: Add IO-Device to PROFINET Controller .....	25
Figure 24: Select IO-Device from PROFINET Device Catalog.....	26
Figure 25: IO-Device Installed Under PNC001 .....	26
Figure 26: Assign Starting %I & %Q References for Cyclic I/O Data .....	27
Figure 27: Properties of IO-Device .....	41
Figure 28: Inspector Form for IO-Device .....	42
Figure 29: Accessing the MRP Parameters of an IO-Device.....	43
Figure 30: Set up MRP Ring Ports .....	43
Figure 31: MRP Group2 Data Tab .....	43
Figure 32: Launch Discovery Tool .....	44
Figure 33: Discovery Tool in Progress .....	46
Figure 34: Listing of all Detected Devices .....	46
Figure 35: GLM Switch Parameters Set in PME.....	48
Figure 36: Set Port Alarm Active or Inactive Using PME .....	49

Figure 37: External Alarm Circuit ..... 51

Figure 38: Login Constraints..... 54

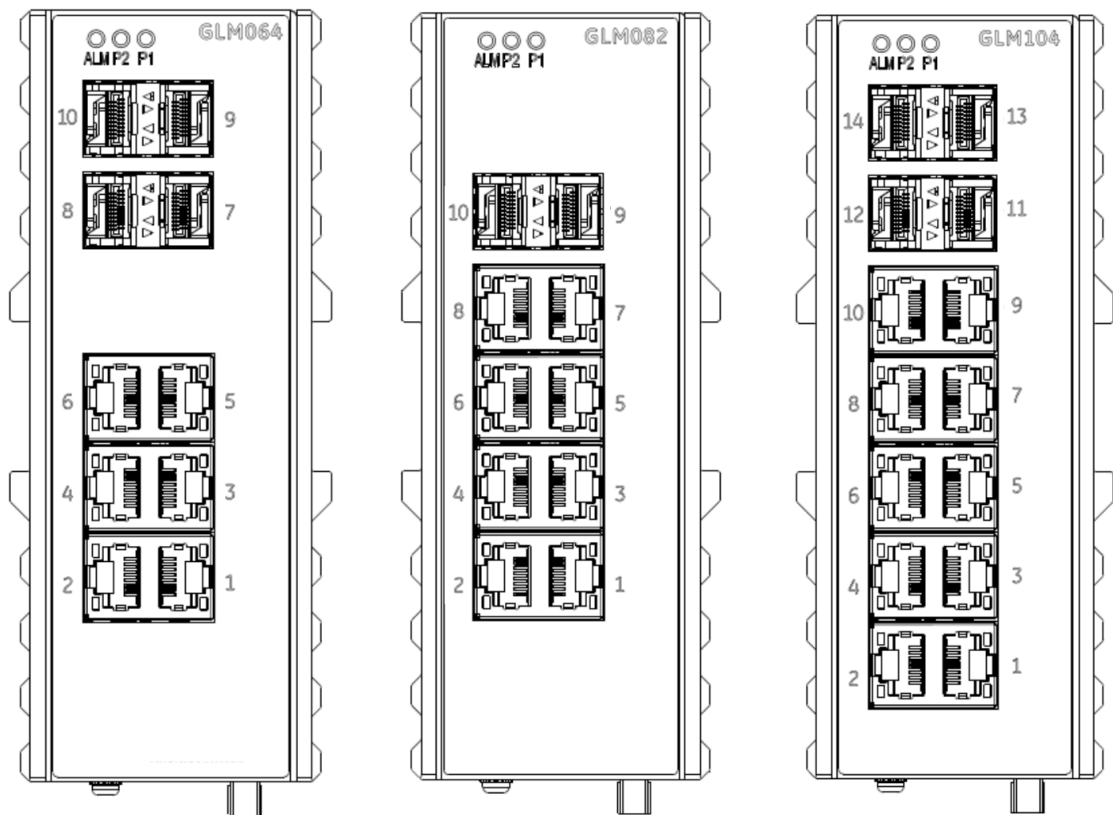
Figure 39: Telnet Login Screen ..... 54

# Section 1: Introduction

The PACSystems GLM series Industrial Ethernet Switches deliver high-quality Ethernet operation over a wide temperature range and can tolerate an extended power input range. These switches are ideal for harsh environments and mission-critical applications. They may be DIN-rail mounted or panel-mounted.

This document includes a product overview and covers installation, configuration, operation, and diagnostics.

Figure 1: GLM064, GLM082, GLM104





## 1.1 Revisions in this Manual

Rev	Date	Description
C	Aug 2022	Updates to support enhanced browser compatability.
B	May-2022	Updates to correct the details of thePROFINET database, browser compatibility, SFP details, and device data.
A	Jan-2020	Following Emerson's acquisition of this product, changes have been made to apply appropriate branding and registration of the product with required certification agencies. No changes to the material, process, form, fit, or functionality.
-	Dec-2017	Initial release.

## 1.2 PACSystems Documentation

### PACSystems Manuals

PACSystems RX3i and RSTi-EP CPU Reference Manual	GFK-2222
PACSystems RX3i and RSTi-EP CPU Programmer's Reference Manual	GFK-2950
PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual	GFK-2224
PACSystems TCP/IP Ethernet Communications Station Manager User Manual	GFK-2225
PACSystems Memory Xchange Modules User's Manual	GFK-2300
PACSystems Hot Standby CPU Redundancy User Manual	GFK-2308
Proficy Machine Edition Logic Developer Getting Started	GFK-1918
Proficy Process Systems Getting Started Guide	GFK-2487
PACSystems RXi, RX3i, and RSTi-EP Controller Secure Deployment Guide	GFK-2830
PACSystems RX3i & RSTi-EP PROFINET I/O Controller Manual	GFK-2571

### RX3i Manuals

PACSystems RX3i System Manual	GFK-2314
PACSystems RX3i Ethernet Network Interface Unit User's Manual	GFK-2439
PACSystems RX3i PROFINET Scanner Manual	GFK-2737

In addition to these manuals, datasheets and product update documents describe individual modules and product revisions. The most recent PACSystems documentation is available on the Emerson support website. Please see the links provided at the end of this document.

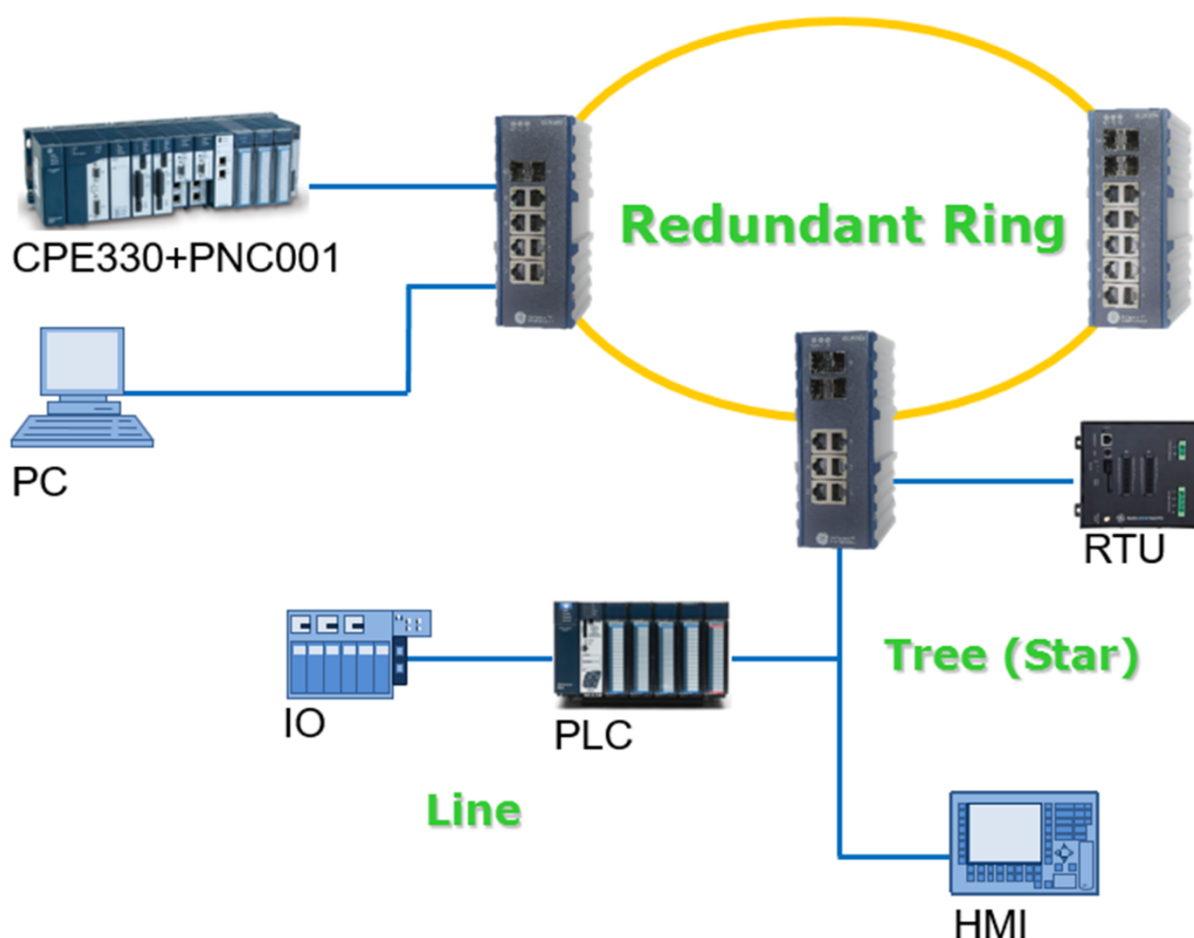
## Section 2: Overview

### 2.1 System Overview

#### 2.1.1 IO-Devices on a PROFINET Network

GLM Switches are treated as PROFINET-IO devices. The host PLC will therefore use an embedded PROFINET port or a PNC001 PROFINET IO-Controller Module. All physical connections use standard Ethernet connectors (RJ45 or SFP).

Figure 2: Typical PROFINET System with GLM Switches



## 2.1.2 Ethernet Devices on an Ethernet Network

The GLM switches contain several features which cannot be accessed over PROFINET but are available over Ethernet. The user may choose to install a separate Ethernet network for this purpose or run both PROFINET and Ethernet on the same physical network. Refer to Appendix A, *Supported Ethernet Commands*.

Care needs to be taken that connection to an Ethernet network does not expose the application to outside interference or monitoring, and does not impose heavy traffic on the PROFINET network, which is intended to service IO-Devices in a timely manner. Refer to the *PACSystems RXi, RX3i, RX7i, and RSTi-EP Controller Secure Deployment Guide*, GFK-2830.

### CAUTION

Within the RX3i, the user may install an ETM001 module in a rack controlled by the host PLC CPU or may use an embedded Ethernet port within the CPU itself to provide the Ethernet features. If none of the Ethernet-only features will be used, no dedicated Ethernet function is required.

The following features, which are outside the scope of this manual, may be accessed over Ethernet, but may not be accessed over PROFINET:

- Virtual LANs (VLANs)
- Access Control List Security (ACL)
- Quality of Service (QoS) features
- Internet Group Management Protocol (IGMP)

## 2.1.3 GLM System Capabilities

Function Name	System Max Value
VLAN ID	4096
VLAN Limitation	1024
Privilege Level of User	15
RMON Statistic Entry	65535
RMON Alarm Entry	65
RMON Event Entry	65535

Function Name	System Max Value
IPMC Profile	64
IPMC Rule / Address Entry	128
ACE	256
ICMP Type / Code	255
MAC-based VLAN Entry	256
IP subnet-based VLAN Entry	128
Protocol-based VLAN Group	125
Voice VLAN OUI	16
QCE	256
IP Interface (for management)	8
IP Route (for management)	32
Security Access Management	16
MVR VLAN	4
MAC Learning table address	8k
IGMP Group	256

## 2.2 GLM Product Differentiation

Product differentiation within the GLM Series of products lies in the number of standard RJ45 Ethernet connections and Small Form-Factor Pluggable (SFP) ports offered, as follows:

Product	Number of RJ45 Ports	Number of SFP Ports
IC086GLM064	6	4
IC086GLM082	8	2
IC086GLM104	10	4

Note that the final three digits of the GLM part numbers convey the information about the intrinsic port configuration.

## 2.3 GLM Features

Each is a stand-alone Ethernet switch that may be mounted on a DIN-rail, or panel-mounted. Refer to Section 3.1.

Operating Temperature Range: -40 °C to +75 °C (-40 °F to +167 °F).

Each is equipped with the same bottom panel (Figure 3), which includes a dual 12 Vdc-58 Vdc power input, a ground stud, an alarm contact, a reset pushbutton, and an RJ45 port suitable for attaching a console. Each of these features is discussed in *Section 3*.

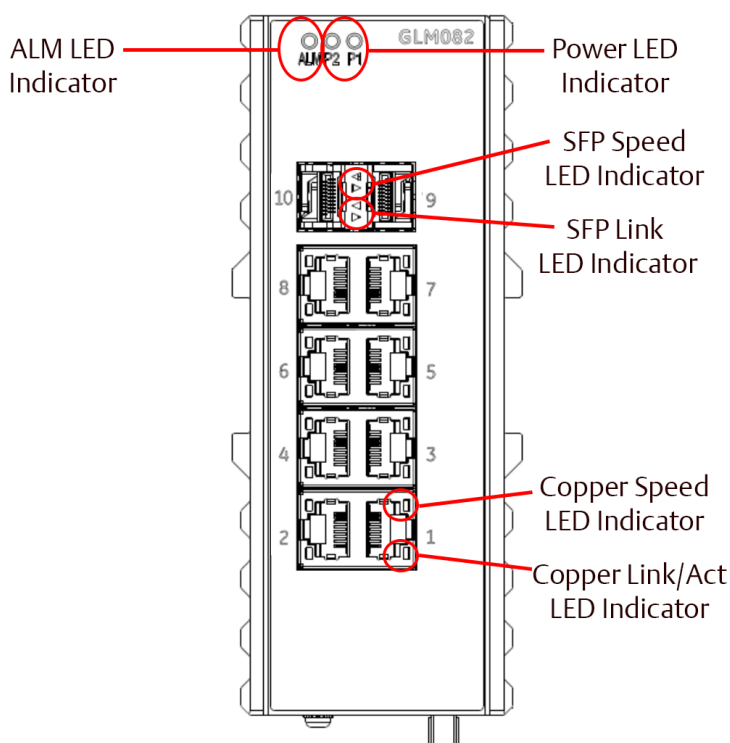
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**Figure 3: GLM Switch Bottom Panel**



## 2.4 GLM LEDS

Figure 4: Front-Panel LEDs



Each GLM Switch product is equipped with a common set of LEDs, as shown in Figure 4:

One LED for each of the two permitted power supply inputs (P1 and P2)

One LED for the Alarm Contact (ALM)

For each Ethernet port, there is an amber speed LED and a green Link Activity LED. The appearance is different for the RJ45 ports (suitable for copper cables) versus the SFP connectors, as indicated in Figure 4.

LED Operation is detailed in Section 3.7.



## Section 3: Installation

### 3.1 Mounting

The GLM switches may be DIN-rail mounted or panel-mounted.

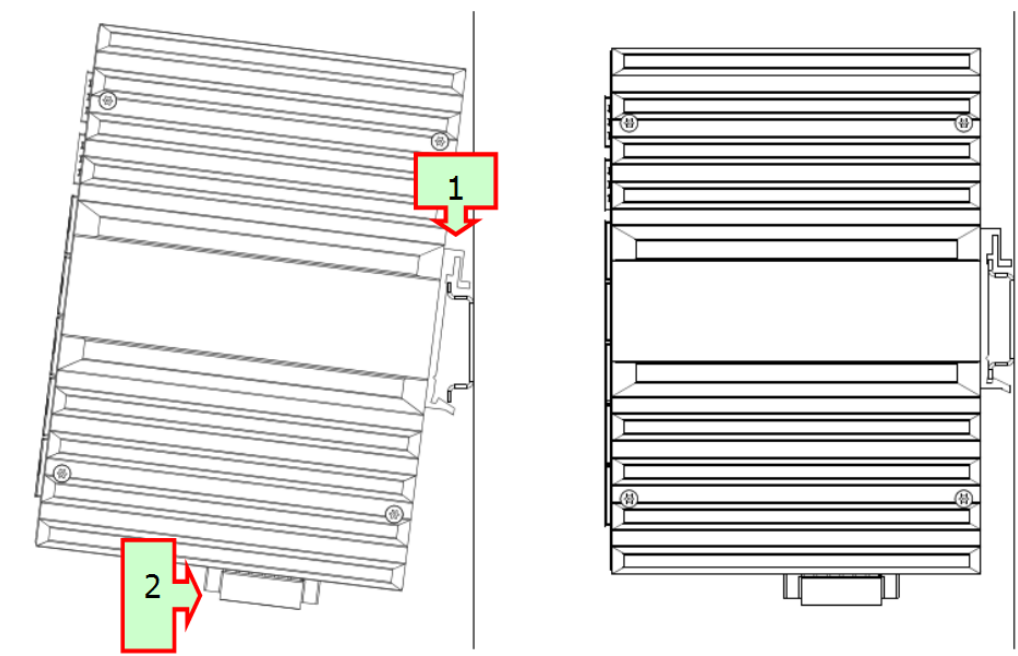
#### 3.1.1 DIN-Rail Mounting

Attach the DIN-Rail bracket to the mounting surface with the bracket and screws in the included accessory kit.

Hook the top edge of the DIN-Rail latch attached to the GLM switch over the top edge of the DIN rail.

Push the bottom of the GLM unit towards the DIN Rail until the bottom latch snaps into place.

**Figure 5: DIN-Rail Mounting**





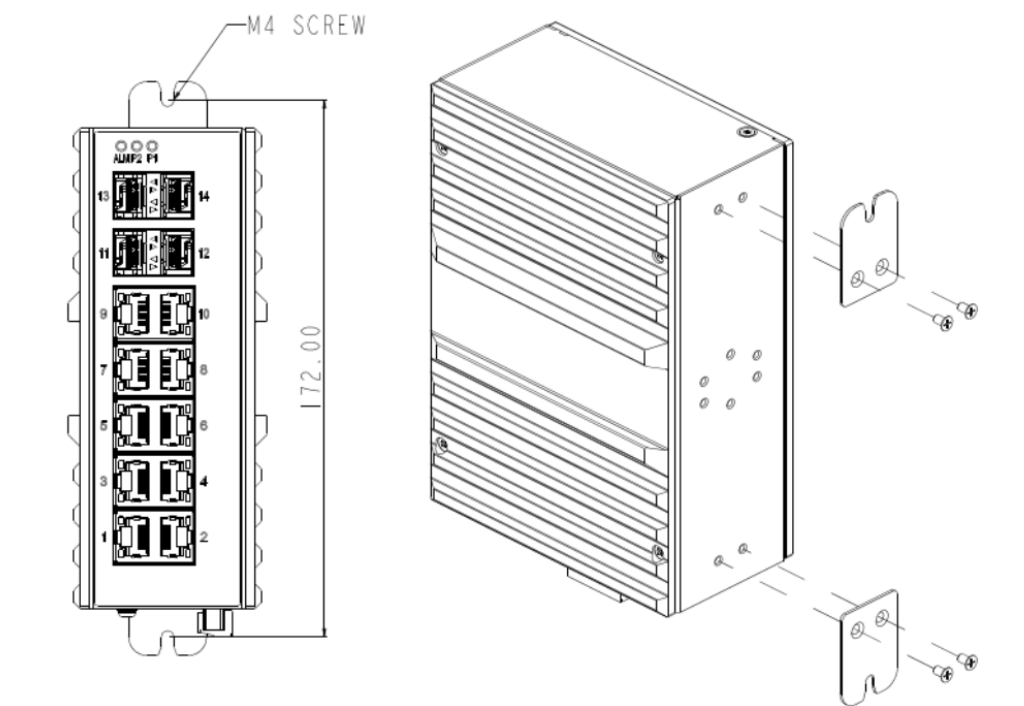
## 3.2 Panel Mounting

Prepare two pilot holes in the mounting surface 172mm apart, per Figure 6.

Attach the top and bottom panel-mounting plates to the rear of the GLM switch chassis using the screws provided in the accessory kit.

Secure the GLM switch to the mounting surface with a pair of M4 machine screws.

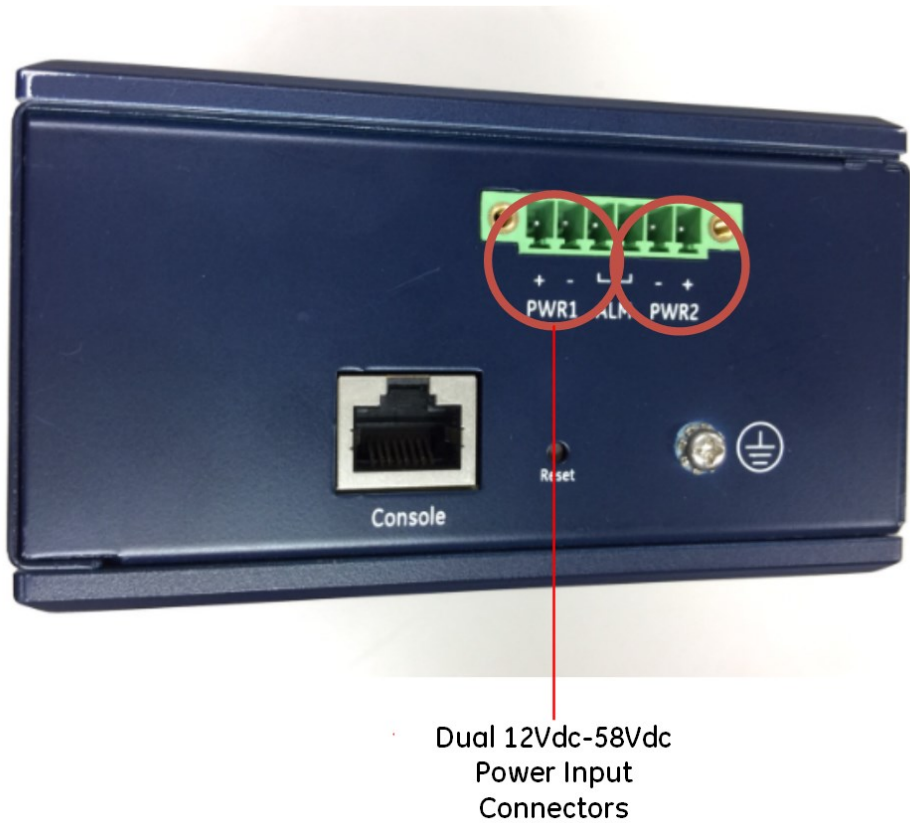
**Figure 6: Panel-Mounting**



### 3.3 Power Connection

The 6-pin terminal block on the bottom panel contains connectors for two DC power inputs. Each is indicated with polarity signs, as shown.

Figure 7: Dual DC Power Input Connections



The GLM Switch may be powered from one or both power inputs. The specified voltage range is 12Vdc–58Vdc.

The 6-pin terminal strip will accept AWG 28~14. The wire should be stripped back 6~7mm. The screw torque limit is 2Nm.

The P1 and P2 LEDs on the front panel indicate the status of these two power supply inputs, as shown in Section 3.7, *LED Operation*.

#### 3.3.1 GLM Switch Current Draw

The maximum current draw at 24Vdc (nominal) for each of the devices is shown below:

Device	Max Current @ 24Vdc (nominal)
--------	-------------------------------

GLM064	580mA
GLM082	521mA
GLM104	709mA

**Note:** Each DC power input should be connected to a suitably-fused power supply.

## 3.4 Grounding

Each GLM switch must be properly grounded for optimal performance. A ground screw (chassis ground) is provided as part of the bottom panel, as shown below. Loosen the ground screw, insert the stripped end of the ground strap, then tighten the ground screw to secure the ground strap in place. The other end of the ground strap (which should be as short as possible) should be securely connected to the earth ground.

**Figure 8: Ground Connection**



Ground Connection

## 3.5 Alarm Relay Output

The Alarm Relay Output is located on the two terminals in the center of the 6-pin terminal strip on the bottom panel.

**Figure 9: Alarm Relay Output**



Alarm Contact

The Alarm Relay Output may be connected to an external device. It is a Normally Open Relay. The state of the Alarm Relay is indicated on the ALM LED, as documented in Section 3.7, *LED Operation*.

Refer to Section 0 for wire size and stripping information.

Figure 38 diagrams a typical external alarm circuit.

## 3.6 Ethernet Connections

Ethernet connections use either RJ45 (electrical) or mini-GBIC (optical) interfaces. All Ethernet connections are located on the faceplate. Refer to Figure 1. The number and type available for each product in the GLM series are discussed in Section 2.1.3, *GLM System Capabilities*.

The activity and speed of each port are indicated separately, as documented in Section 3.7, *LED Operation*.

### 3.6.1 RJ45 Connections

GLM Switches use standard RJ45 connectors for their electrical interfaces. For example, on GLM082, Ports 1-8 are electrical only.

To connect to a PC, use a straight-through or a cross-over Ethernet cable

To connect the GLM Switch copper port to an Ethernet device, use UTP (Unshielded Twisted Pair) or STP (Shielded Twisted Pair) Ethernet cables.

Figure 10: RJ45 Pinout

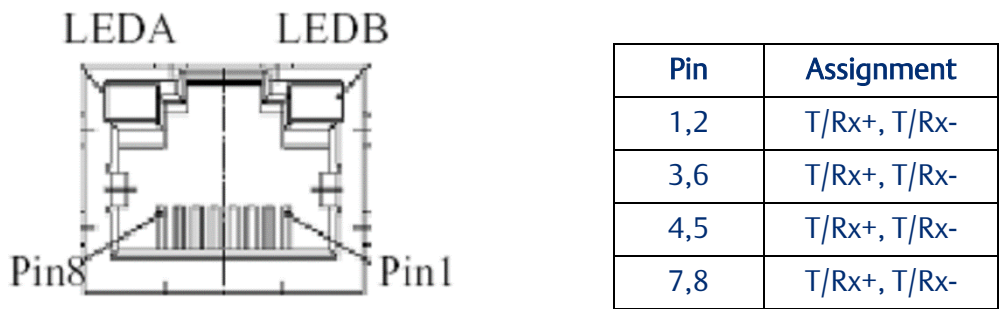


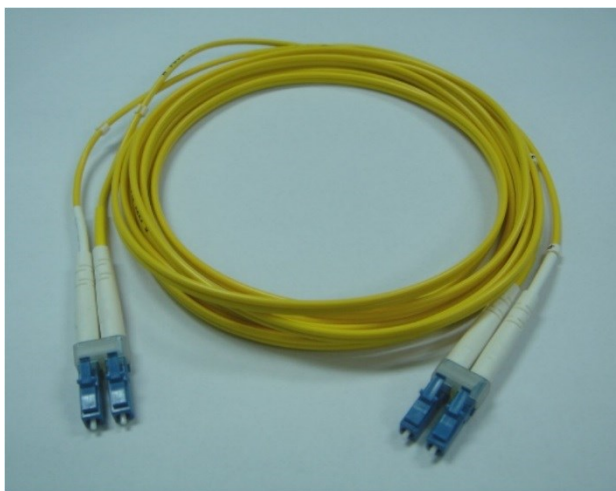
Figure 11: Ports 1 & 2 Copper Connections



## 3.6.2 SFP Connections

GLM Switches provide SFP connections using an optical (mini-GBIC) interface. For example, on GLM082, Ports 9 and 10 are SFP ports. The compatible SFP for GLM Switches is IC086SFP1MM.

**Figure 12: Fiber-Optic Cable with LC Duplex Connectors**



**Figure 13: Attach Fiber-Optic Cables to Installed SFP Socket**



Prepare a suitable SFP module and install it into the GLM optical port. Then connect the fiber optic cabling that uses LC connectors (or SC connectors with the use of an optional SC-to-LC adapter) to the fiber optic socket.

### **⚠ WARNING**

Never attempt to view optical connectors that might be emitting laser energy.

Do not power up the laser product without first connecting the laser to the optical fiber and properly installing the protective cover.

Laser light, which may cause damage to the eye, will be produced as soon as power is applied to the laser source.

## ⚠ WARNING

When a fiber optic connector is removed during installation, testing, or servicing, or when an energized fiber is broken, there is a risk of injury to the eye. Exposure to optical energy may be hazardous to the eye, depending on the laser output power.

The primary hazards of exposure to laser radiation from an optical-fiber communication system are:

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Damage to the eye by accidental exposure to a beam emitted by a laser source.

Damage to the eye from viewing a connector attached to a broken fiber or an energized fiber.

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## 3.7 LED Operation

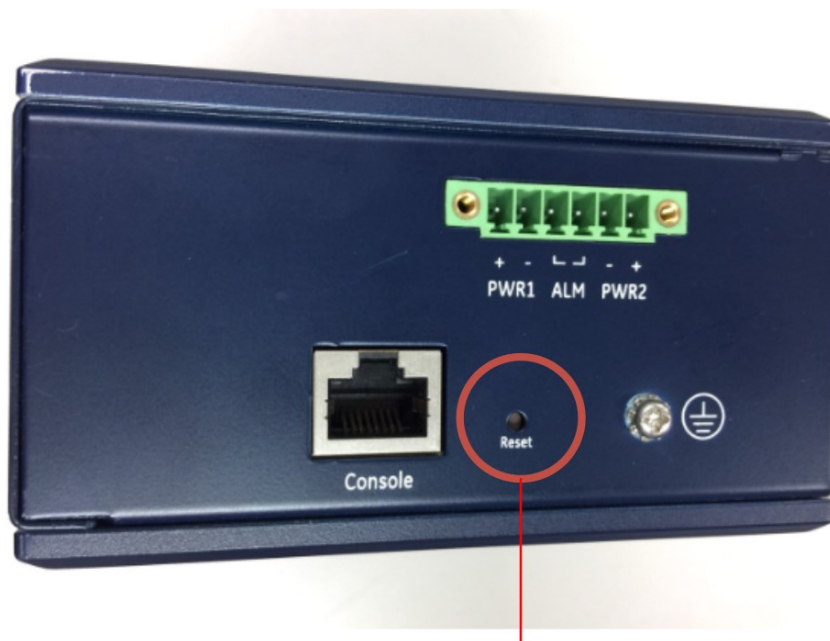
LED	STATE	Description
P1	On Green	P1 input power is within specification
	Off	P1 power line is disconnected or supply power is not within specifications
P2	On Green	P2 input power is within specification
	Off	P2 power line is disconnected or supply power is not within specifications
Alarm	On Red	Alarm contact energized
	Off	Alarm contact is not energized
Copper ports Link/Act	On Green	Ethernet link up but no traffic is detected
	Flashing Green	Ethernet link up and there is traffic detected
	Off	Ethernet link down
Copper ports Speed	On Yellow	A 100 Mbps or a 1000Mbps connection is detected
	Off	No link or a 10 Mbps connection is detected
SFP port Link/Act	On Green	Ethernet link up
	Off	Ethernet link down
SFP port Speed	On Yellow	SFP port speed 1000Mbps connection is detected.
	Off	No link or an SFP port speed 100Mbps connection is detected

## 3.8 System Reset

If a GLM switch becomes unresponsive, press the recessed Reset button located on the bottom panel. The reset pushbutton reboots the GLM switch without the need to remove power from that switch. Resetting a switch is normally not required. The Reset button is recessed to avoid accidental use.

---

**Figure 14: Reset Button Location**



Reset Pushbutton

---



## 3.9 Console Connection

The Console port, located on the bottom panel (

Figure 15), is intended for administrative functions, and its use is optional. It uses a terminal emulator or a computer with terminal emulation software, connected as follows:

DB9 connector connected to computer COM port

Baud rate: 115,200bps

8 data bits, 1 stop bit

No parity

No flow control

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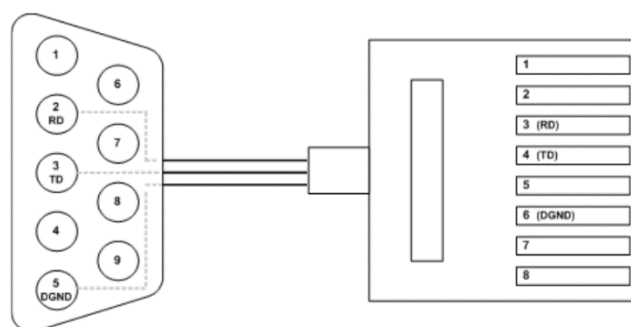
**Figure 15: Console Port**



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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 GLM Series; the DB9 connector of the cable is connected to the PC COM port. The wiring for this cable is shown in Figure 16.

Figure 16: Console Cable Wiring



### ⚠ CAUTION

Console connections should not be permanent. Once any administrative functions have been performed, disconnect the PC used for that purpose. Leaving a computer connected would expose the application to security risks. Refer to the *PACSystems RXi, RX3ii, and RSTi-EP Controller Secure Deployment Guide*, GFK-2830.

Refer to Appendix , *Command Language Interface (CLI)*, for related commands and syntax.



## Section 4: Configuration

Configuration is accomplished using Proficy Machine Edition (PME). Each GLM device has a corresponding GSDML file, which must also be imported.

The GLM Switch Device is always used as a PROFINET IO-Device. Select a suitable PROFINET Controller within the CPU and “add” a new IO- Device to the corresponding PROFINET Network. The PROFINET Controller may be an embedded PROFINET Controller Port in the CPU or a PROFINET Controller module located in a rack controlled by a CPU. Refer to the corresponding CPU manual for instructions on how to set up an embedded PROFINET Controller LAN. Refer also to the *PACSystems RX3i & RSTi-EP PROFINET I/O Controller Manual*, GFK-2571, which covers further details on embedded PROFINET Controllers and on setting up a PNC001 PROFINET Controller module.

If the GLM Switch Device is to be used as an Ethernet Device, select a suitable Ethernet Controller within the CPU and “add” a new IO- Device to the corresponding Ethernet Network. The controlling Ethernet Device may be an embedded Ethernet Port in the CPU or an Ethernet module located in a rack controlled by a CPU. Refer to the corresponding CPU manual for instructions on how to set up an embedded Ethernet LAN. Refer to the *PACSystems RX3i Ethernet Network Interface Unit User’s Manual*, GFK-2349, for instructions on locating an ETM001 in a suitable rack/slot location, then setting up its Ethernet LANs and adding devices to those LANs.

### 4.1 Import the GSDML file

Browse to the folder containing the GSDML file, then import it using the Toolchest feature of PME, as shown below. Alternately, use the *Have GSDML* button shown in Figure 24, and perform the import as the configuration progresses.

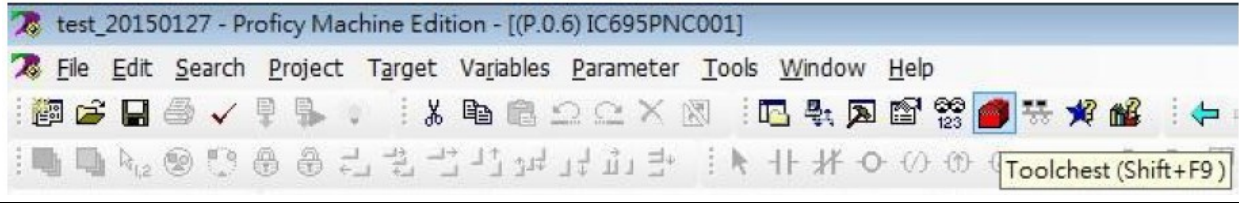
Each GLM Switch Catalog Number has a unique GSDML file associated with it.

Note that you will only need to import any given GSDML file once. The file can then be used to define the parameters associated with each GLM switch of the corresponding type added to the network.

If a newer version of a GSDML file becomes available, it will reside in the Toolchest alongside older versions. The user has the option to change the version of the GSDML file associated with each installed GLM Switch device.

If all GLM switches have been associated with a newer version of the GSDML file, and the older version of the GSDML file is no longer required, it can be deleted from the Toolchest.

Figure 17: PME Toolchest Feature



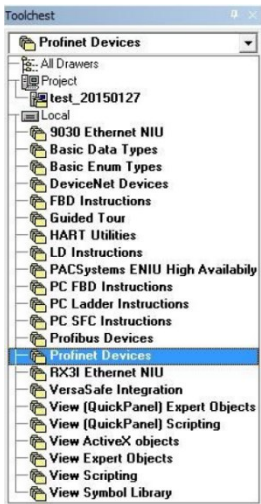
The Toolchest offers a drop-down list of various data types:

Figure 18: Toolchest Data Types



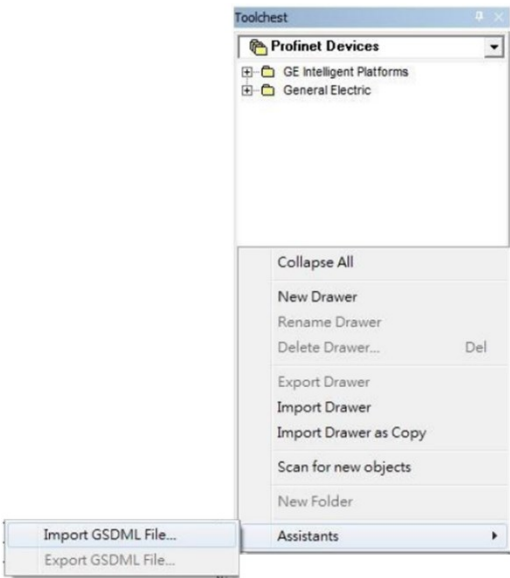
Since the GLM Switch is to be used as a PROFINET Device, select *PROFINET Devices* from the drop-down list (Figure 19).

Figure 19: Select PROFINET Device



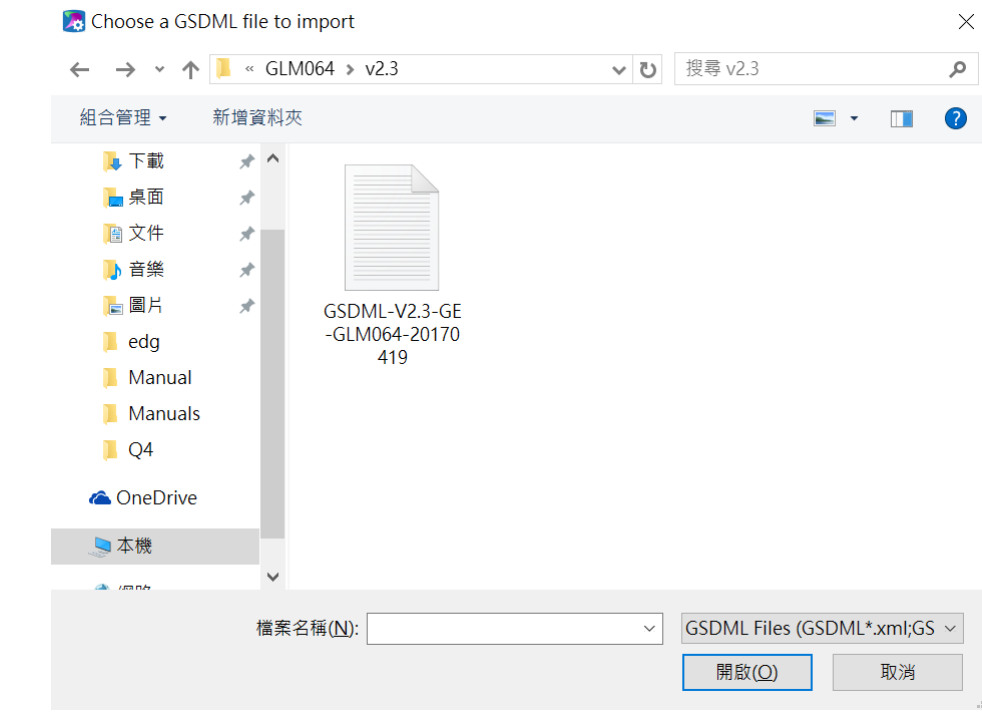
Right-click on the PROFINET Devices line item. At the bottom of the resulting drop-down menu, under *Assistants*, select the *Import GSDML* command.

Figure 20: Import GSDML Command



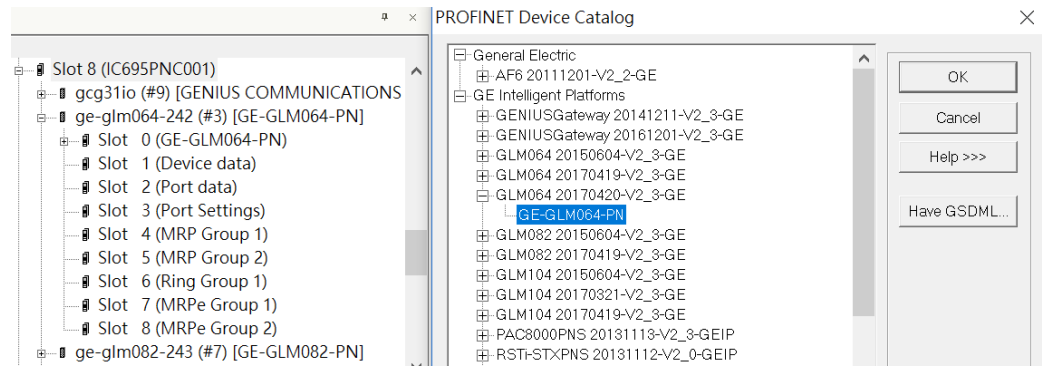
The resulting dialog box allows you to browse to the desired folder and select the GSDML file.

Figure 21: Browse to Folder and Select GSDML file for Import



The Toolchest now displays the newly-added device:

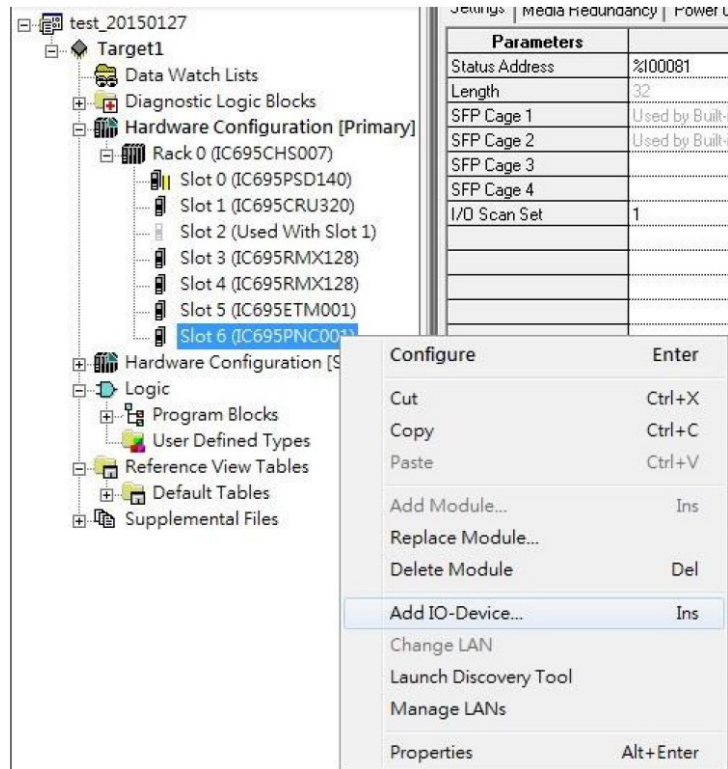
Figure 22: Toolchest Displays Newly-Added Device



## 4.2 Associating the IO-Device with its Controller

Each GLM Switch device has to be associated with the PROFINET Controller which will be controlling and monitoring it. Figure 23 shows that the PNC001 module located in Slot 6 of Rack 0 (the Main CPU Rack) has been selected. Then with right-click, the menu item *Add IO-Device* has been selected.

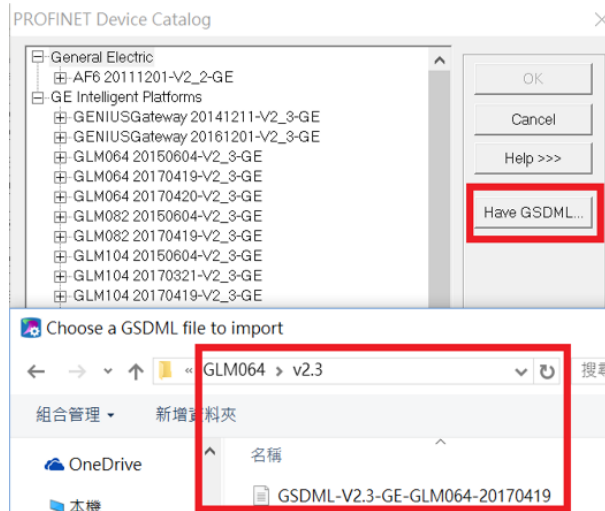
**Figure 23: Add IO-Device to PROFINET Controller**





Since the device being added is associated with a PROFINET-IO Controller, it will be selected from the catalog of available PROFINET Devices (upper left portion of Figure 24)

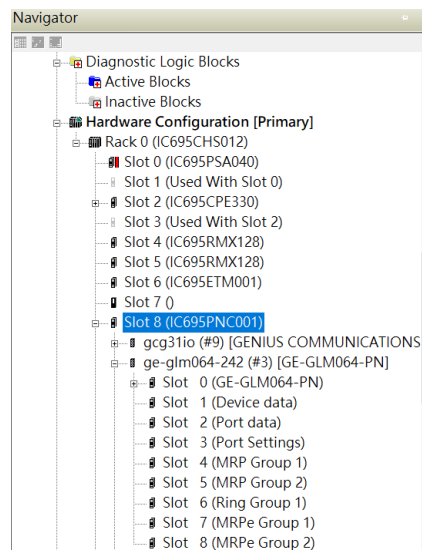
**Figure 24: Select IO-Device from PROFINET Device Catalog**



Use the *Have GSDML* button in Figure 24 to select the GSDML file associated with the previously selected GLM catalog number. This interface allows you to browse to the folder in which the GSDML file is located, and select the appropriate file. In Figure 24, expand the tree using the “+” icons and select the IO-Device from the catalog list.

Once selected, the IO-Device will display as having been installed under the previously selected PNC001.

**Figure 25: IO-Device Installed Under PNC001**



Also, note that the constituent parts of the new IO-Device are also displayed in Figure 25. The data from the associated slots (shown in Figure 25) is treated as Cyclic I/O Data (RTC) by the PROFINET Controller.

## 4.3 PROFINET Cyclic I/O Data

Cyclic I/O Data is the data obtained by the PROFINET Controller from each PROFINET IO-Device in a cyclic manner. The default transfer frequency of PROFINET cyclic data is 128ms. The GSDML file supports three possible values: 128ms, 256ms, and 512ms.

PME is used to assign base references to the Cyclic I/O Data of each GLM IO-Device. Each slot of the GLM IO-Device has a *Settings* form, such as that shown in Figure 26. Double-click on the slot to bring up the corresponding form.

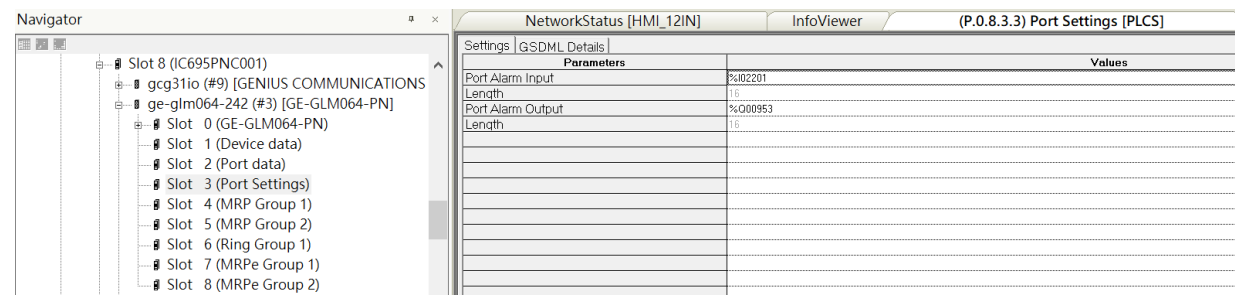
If the Slot has Output values (as defined by the Direction column in the following tables), it will require a base reference in %Q. The lowest order bit in the Output table will correspond to the selected %Q reference value, which must be a multiple of 8, plus 1.

If the Slot has Input values (as defined by the Direction column in the following tables), it will require a base reference in %I. The lowest order bit in the Input table will correspond to the selected %I reference value, which must be a multiple of 8, plus 1.

In the case of slot 3, where there are matching input and output settings, Emerson recommends selecting the same %I and %Q references, as this will avoid confusion when debugging and in the project documentation. For instance, if %I00129 is used for the Port Alarm Inputs, then use %Q00129 for the Port Alarm Outputs. Also, note that 16 contiguous %I and %Q references are required to accommodate all the Port Alarm flags (in both %I and %Q). Finally, do not allow any other devices or device slots to overlap the selected %I and %Q settings.

If PME is allowed to automatically assign the next available %I and %Q references, there will likely be no alignment between the %I and %Q bits assigned to any given GLM IO-Device. This will work fine but may cause confusion when debugging.

**Figure 26: Assign Starting %I & %Q References for Cyclic I/O Data**



The constituent data content is documented in the following sections:

Slot 1 (of the GLM Switch Device) contains Device Status.

Slot 2 contains Port Status.

Slot 3 contains Port Alarm Settings & Status.

Slot 4 contains MRP Group 1 Status.

Slot 5 contains MRP Group 2 Status.

Slot 6 contains Ring Group 1 Status

Slot 7 contains MRE Group 1 Status

Slot 8 contains MRE Group 2 Status

The Status Flags are discussed in Section 5:, *Diagnostics*.

### 4.3.1 Slot 1: Device Status

Category	Direction	Byte#	Bit#	Name	Description
Device Data (Slot 1)  Input		0	0	Alarm Status	0=No Alarm (ALM Relay Open), 1=Alarm Detected (ALM Relay Closed)
			1	Power 1 Status	0=PWR1 not OK, 1=PWR1 OK
			2	Power 2 Status	0=PWR2 not OK, 1=PWR2 OK
			3	Ring Enabled/Disabled	0=Disabled, 1=Enabled
			4	Ring Status	0=Failure, 1=Normal Condition
			5	Module OK Status	0 is Not OK, 1 is OK
			6	Reserved	
			7	Reserved	

### 4.3.2 Slot 2: Port Status

Category	Direction	Byte#	Bit#	Name	Description
Port Status (Slot 2)	Input	0	0	Port 1 Connection	0=Not Connected, 1=Connected
			1	Port 2 Connection	0=Not Connected, 1=Connected
			2	Port 3 Connection	0=Not Connected, 1=Connected
			3	Port 4 Connection	0=Not Connected, 1=Connected
			4	Port 5 Connection	0=Not Connected, 1=Connected
			5	Port 6 Connection	0=Not Connected, 1=Connected
			6	Port 7 Connection	0=Not Connected, 1=Connected
			7	Port 8 Connection	0=Not Connected, 1=Connected
	Input	1	0	Port 9 Connection	0=Not Connected, 1=Connected
			1	Port 10 Connection	0=Not Connected, 1=Connected
			2	Port 11 Connection <sup>1</sup>	0=Not Connected, 1=Connected
			3	Port 12 Connection <sup>1</sup>	0=Not Connected, 1=Connected
			4	Port 13 Connection <sup>1</sup>	0=Not Connected, 1=Connected
			5	Port 14 Connection <sup>1</sup>	0=Not Connected, 1=Connected
			6	Reserved	
			7	Reserved	

<sup>1</sup> GLM104 only

### 4.3.3 Slot 3: Port Alarm & Port Settings & Status

Category	Direction	Byte#	Bit#	Name	Output Description	Input Description
Port Settings (Slot 3)	Input & Output	0	0	Port 1 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			1	Port 2 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			2	Port 3 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			3	Port 4 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			4	Port 5 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			5	Port 6 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			6	Port 7 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			7	Port 8 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
		2	0	Port 9 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			1	Port 10 Alarm	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			2	Port 11 Alarm <sup>1</sup>	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			3	Port 12 Alarm <sup>1</sup>	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			4	Port 13 Alarm <sup>1</sup>	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			5	Port 14 Alarm <sup>1</sup>	0=Alarm Disabled, 1=Alarm Enabled	0=No Alarm 1=Alarm Condition Detected
			6	Reserved		
			7	Reserved		

**Note:** Bytes 0 and 2 are not contiguous (see next page).

Category	Direction	Byte#	Bit#	Name	Output Description	Input Description
Port Settings (Slot 3) (continued)	Input & Output	1	0	Port 1 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			1	Port 2 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			2	Port 3 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			3	Port 4 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			4	Port 5 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			5	Port 6 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			6	Port 7 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			7	Port 8 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
		3	0	Port 9 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			1	Port 10 Admin	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			2	Port 11 Admin <sup>1</sup>	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			3	Port 12 Admin <sup>1</sup>	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			4	Port 13 Admin <sup>1</sup>	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			5	Port 14 Admin <sup>1</sup>	0=Enable Port, 1=Disable Port	0=Port Enabled 1=Port Disabled
			6	Reserved		
			7	Reserved		

**Note:** Bytes 1 and 3 are not contiguous (see the previous page).

## 4.3.4 Slot 4: MRP Group 1 Status

Category	Direction	Byte#	Bit#	Name	Description
MRP Group 1 (Slot 4)	Input	0	0	MRP Group 1 Mode	0=MRP Disabled, 1=MRP Enabled
			1	MRP Group 1 Role	0=MRP Client, 1=MRP Master
			2	Module OK Status	0 is Not OK, 1 is OK
MRP Group 1 Ports (Slot 4)	Input	1	0	Port 1 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			1	Port 2 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			2	Port 3 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			3	Port 4 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			4	Port 5 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			5	Port 6 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			6	Port 7 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			7	Port 8 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
		2	0	Port 9 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			1	Port 10 MRP-G1 Status	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			2	Port 11 MRP-G1 Status <sup>1</sup>	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			3	Port 12 MRP-G1 Status <sup>1</sup>	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			4	Port 13 MRP-G1 Status <sup>1</sup>	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			5	Port 14 MRP-G1 Status <sup>1</sup>	0=Not MRP-G1 Ring Port 1=MRP-G1 Ring Port
			6	Reserved	
			7	Reserved	

### 4.3.5 Slot 5: MRP Group 2 Status

Category	Direction	Byte#	Bit#	Name	Description
MRP Group 2 (Slot 5)	Input	0	0	MRP Group 2 Mode	0=MRP Disabled, 1=MRP Enabled
			1	MRP Group 2 Role	0=MRP Client, 1=MRP Master
			2	MRP Group 1 Ring Status	0= Open, 1=Closed
MRP Group 2 Ports (Slot 5)	Input	1	0	Port 1 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			1	Port 2 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			2	Port 3 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			3	Port 4 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			4	Port 5 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			5	Port 6 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			6	Port 7 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			7	Port 8 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
		2	0	Port 9 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			1	Port 10 MRP-G2 Status	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			2	Port 11 MRP-G2 Status <sup>1</sup>	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			3	Port 12 MRP-G2 Status <sup>1</sup>	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			4	Port 13 MRP-G2 Status <sup>1</sup>	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			5	Port 14 MRP-G2 Status <sup>1</sup>	0=Not MRP-G2 Ring Port 1=MRP-G2 Ring Port
			6	Reserved	
			7	Reserved	



### 4.3.6 Slot 6: Ring Group 1 Status

Category	Direction	Byte#	Bit#	Name	Description
Ring Group 1 (Slot 6)	Input	0	0	Ring Group 1 Mode	0=Ring Disabled, 1=Ring Enabled
			1	Ring Group 1 Role	0=Ring Slave, 1=Ring Master
			2	Ring Status	0=Failure, 1=Normal Condition
Ring Group 1 Ports (Slot 6)	Input	1	0...3	Ring Port 1 Number	Port ID number (1 thru 14)
			4...6	Reserved	
			7	Port 1 Status	0=Forwarded, 1=Blocked
		2	0...3	Ring Port 2 Number	Port ID number (1 thru 14)
			4...6	Reserved	
			7	Port 2 Status	0=Forwarded, 1=Blocked

### 4.3.7 Slot 7: MRE Group 1 Status

Category	Direction	Byte#	Bit#	Name	Description
MRE Group 1 (Slot 7)	Input	0	0	MRE Group 1 Mode	0=Ring Disabled, 1=Ring Enabled
			1	MRE Group 1 Role	0=Ring Slave, 1=Ring Master
			2	Ring Status	0=Failure, 1=Normal Condition
		1	0...3	Ring Port Number	Port ID number (1 thru 14)
			4...6	Reserved	
			7	Port Status	0=Forwarded, 1=Blocked

### 4.3.8 Slot 8: MRE Group 2 Status

Category	Direction	Byte#	Bit#	Name	Description
MRE Group 2 (Slot 8)	Input	0	0	MRE Group 2 Mode	0=Ring Disabled, 1=Ring Enabled
			1	MRE Group 2 Role	0=Ring Slave, 1=Ring Master
			2	Ring Status	0=Failure, 1=Normal Condition
		1	0...3	Ring Port Number	Port ID number (1 thru 14)
			4...6	Reserved	
			7	Port Status	0=Forwarded, 1=Blocked

**Note:** There are two databases in the switch, one is for a web (runtime) configuration and the other is for a PROFINET configuration. The Ring (index 1), and M-Chain (index 4,5) of the RingV2 configuration are defined by the PME and will be saved to a PROFINET database. The Ring/Coupling (index 2), and Chain (index 3) are configured by a Web server interface and will be saved to a Web database.

When the ring parameters have to be set through the web configuration only Ring/Coupling(index 2), and Chain(index 3) can be used and when the parameters have to be set via the PME application only Ring (index 1), M-Chain(index 4, 5) can be used. The Web configuration can be accessed through any of the browsers as listed below:

Firefox: 31.0 (or later)  
Internet Explorer: 8.0.7601.17514 (or later)  
Opera: 23.0.1522.75 (or later)  
Safari: 7.0.5 (or later)  
Google Chrome:103.0.5060.114 (or later)  
Microsoft Edge:102.0.1245.44 (or later)

Figure 27: RingV2 Configuration

RingV2 Configuration

Index	Mode	Role	Ring Port(s)
1	Enable	Ring(Master)	Forward Port : Port-7 Block Port : Port-9
2	Enable	Coupling(Backup)	Backup Port : Port-10 Port-4
3	Disable	Chain(Member)	Member Port : Port-1 Member Port : Port-2
4	Disable	M-Chain(Head)	Forward Port : Port-5 --
5	Disable	M-Chain(Head)	Forward Port : Port-6 --

Config by Web

Config by PME

## 4.4 PROFINET Acyclic I/O Data

The GLM Switches also support PROFINET Acyclic I/O Data (RTA). Data of this type has been mapped to the sub-slots as indicated in this section and may be retrieved via the assigned %I references.

### 4.4.1 Acyclic Device Data – Subslot 0

Byte	Name	Access	Value	Description
0	Device Status	read-only	0	Not supported
			1	Device OK
			2	Device bootup failed
1	Alarm Status	read-only	0	Not supported
			1	No Alarm
			2	Alarm condition detected
2	Power 1 Status	read-only	0	Not supported
			1	PWR1 Input OK
			2	PWR1 Input not OK
3	Power 2 Status	read-only	0	Not supported
			1	PWR2 Input OK
			2	PWR2 Input not OK
4	Redundant Mode	read-only	0	MRP
			1	RSTP/MSTP <sup>2</sup>
			2	Ring/Coupling/Dual Homing/Chain/Balancing Chain <sup>2</sup>
			3	Non-Redundant
5	Ring-1 Mode (config value)	read-only	0	Not supported
			1	Enabled
			2	Disabled
6	Ring-1 Role	read-only	0	Not supported
			1	Ring Master
			2	Ring Slave
7	Ring-1 State	read-only	0	Not supported
			1	Disabled
			2	Normal
			3	Failed

<sup>2</sup> This feature is not supported by RX3i CPUs.

Byte	Name	Access	Value	Description
8	Ring-2 Mode (config value)	read-only	0	Not supported
			1	Enabled
			2	Disabled
9	Ring-2 Role	read-only	0	Not supported
			1	Ring Master <sup>2</sup>
			2	Ring Slave <sup>2</sup>
			3	Coupling Primary <sup>2</sup>
			4	Coupling Backup <sup>2</sup>
			5	Dual Homing <sup>2</sup>
10	Ring-2 State	read-only	0	Not supported
			1	Disabled
			2	Normal
			3	Failed
11	Ring-3 Mode (config value)	read-only	0	Not supported
			1	Enabled
			2	Disabled
12	Ring-3 Role	read-only	0	Not supported
			1	Chain Head <sup>2</sup>
			2	Chain Tail <sup>2</sup>
			3	Chain Member <sup>2</sup>
			4	Balancing Chain Terminal 1 <sup>2</sup>
			5	Balancing Chain Terminal 2 <sup>2</sup>
			6	Balancing Chain Central Block <sup>2</sup>
			7	Balancing Chain Member <sup>2</sup>
13	Ring-3 State	read-only	0	Not supported
			1	Disabled <sup>2</sup>
			2	Normal <sup>2</sup>
			3	Failed <sup>2</sup>

## 4.4.2 Acyclic Port Data – Subslot 1

Byte	Name	Access	Value	Output Description	Input Description
0	Port Alarm	read-write	0	Do not send alarm	No Port Alarm
			1	Send alarm when port link down	Port Alarm Detected
1	Port Setting State	read-write	0	Not supported	Not supported
			1	Off	Off
			2	On	On
2	Port Link State	read-only	0		Not supported
			1		Link is up
			2		Link is down
3	Port Speed	read-only	0		Unavailable (link down)
			1		10 Mbps
			2		100 Mbps
			3		1 Gbps
4	Port Duplex	read-only	0		Unavailable (link down)
			1		Half
			2		Full
5	Port Auto-negotiation	read-only	0		Unavailable (link down)
			1		Off
			2		On

### 4.4.3 Acyclic MRP Group 1 Data – Subslot 2

Byte	Name	Access	Value	Output Description	Input Description
0	MRP Mode	read-write	0	Disable MRP	MRP Disabled
			1	Enable MRP (Default)	MRP Enabled
1	MRP Role	read-write	0	MRC (Default)	MRC
			1	MRM	MRM
2	Ring Port1 of MRP	read-write	0~7	Assigned Port ID of Ring Port1 (0 corresponds to Port 1, 7 corresponds to Port 8) 0 is the default value.	Port ID
3	Ring Port2 of MRP	read-write	0~7	Assigned Port ID of Ring Port 2 (0 corresponds to Port 1, 7 corresponds to Port 8) 1 is the default value.	Port ID

### 4.4.4 Acyclic MRP Group 2 Data – Subslot 3

Byte	Name	Access	Value	Output Description	Input Description
0	MRP Mode	read-write	0	Disable MRP (Default)	MRP Disabled
			1	Enable MRP	MRP Enabled
1	MRP Role	read-write	0	MRC (Default)	MRC
			1	MRM	MRM
2	Ring Port1 of MRP	read-write	0~7	Assigned Port ID of Ring Port1 (0 corresponds to Port 1, 7 corresponds to Port 8) 2 is the default value.	Port ID
3	Ring Port2 of MRP	read-write	0~7	Assigned Port ID of Ring Port 2 (0 corresponds to Port 1, 7 corresponds to Port 8) 3 is the default value.	Port ID

## 4.4.5 Acyclic Ring Group 1 Data – Subslot 4

Byte	Name	Access	Value	Output Description	Input Description
0	Ring Mode	read-write	0	Disable Ring (Default)	Ring Disabled
			1	Enable Ring	Ring Enabled
1	Ring Role	read-write	0	Slave (Default)	Slave
			1	Master	Master
2	Ring Port1	read-write	1~8	Assigned Port ID of Ring Port1 (1 corresponds to Port 1, 8 corresponds to Port 8) 1 is the default value.	Port ID
3	Ring Port2	read-write	1~8	Assigned Port ID of Ring Port2 (1 corresponds to Port 1, 8 corresponds to Port 8) 2 is the default value.	Port ID

## 4.4.6 Acyclic MRPe Group 1 Data – Subslot 5

Byte	Name	Access	Value	Output Description	Input Description
0	MRPe Mode	read-write	0	Disable MRPe (Default)	MRPe Disabled
			1	Enable MRPe	MRPe Enabled
1	MRPe Role	read-write	0	Slave (Default)	Slave
			1	Master	Master
2	MRPe Port	read-write	1~8	Port ID of MRPe port (1 corresponds to Port 1, 8 corresponds to Port 8) 5 is the default value.	Port ID

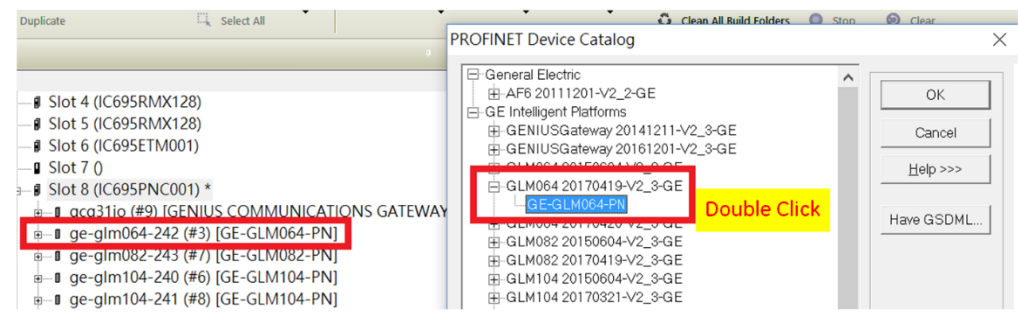
## 4.4.7 Acyclic MRPe Group 2 Data – Subslot 6

Byte	Name	Access	Value	Output Description	Input Description
0	MRPe Mode	read-write	0	Disable MRPe (Default)	MRPe Disabled
			1	Enable MRPe	MRPe Enabled
1	MRPe Role	read-write	0	Slave (Default)	Slave
			1	Master	Master
2	MRPe Port	read-write	1~8	Port ID of MRPe port (1 corresponds to Port 1, 8 corresponds to Port 8) 6 is the default value.	Port ID

## 4.5 Assigning Device Name and IP Address

To communicate with the newly-added IO-Device, it is necessary to provide it with a unique Device Name and a unique IP Address. This is performed using the Discovery and Configuration Protocol Tool (DCP).

Figure 28: Properties of IO-Device





As shown in Figure 28, you will need to drill down to the Properties of the highlighted IO-Device. This is done by double-clicking on the IO-Device of interest. Doing so produces the *Inspector* form, shown in Figure 29.

Figure 29: Inspector Form for IO-Device

The screenshot shows the PACSystems configuration interface. On the left, the 'Hardware Configuration [Primary] \*' tree is expanded to 'Rack 0 (IC695CHS012) \*', showing slots 0 through 8. Slot 8 contains 'ge-glm064-242 (#3) [GE-GLM064-PN]', which is highlighted with a red box. On the right, the 'Inspector' form is open, displaying properties for the selected device. The 'IO Device' section contains the following fields:

IO Device	
Device Number	3
Update Rate (ms)	128
Reference Variable	<None>
Network Identification	
IO LAN	
Device Name	ge-glm064-242
IP Address	192.168.1.242
General	
GSDML	GSDML-V2.3-GE-GLM064-20170419.xml
Device Type	GE-GLM064-PN
Device Access Point ID	GE-GLM064-PN
Group IO References	True

Within the Inspector Form:

- use the *Device Number* field to provide a unique Device Number for this IO-Device,
- use the *Device Name* field to provide a unique Device Name for this IO-Device, and
- use the *IP Address* field to provide a unique IP Address.

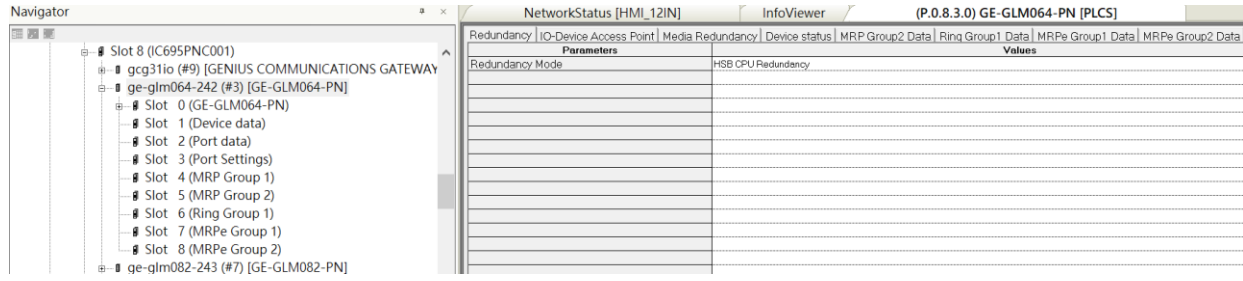
Place the cursor in the corresponding data entry box and key in the desired values.  
Save the PME project when done.

## 4.6 MRP Settings for IO-Devices

Media Redundancy Protocol (MRP) is supported by PACSystems PROFINET Controllers. Refer to the *PACSystems RX3i & RSTi-EP PROFINET I/O Controller Manual*, GFK-2571,

To access the MRP parameters associated with a target IO-Device, display the hardware configuration in PME, then double-click on the IO-Device of interest (Figure 30).

Figure 30: Accessing the MRP Parameters of an IO-Device

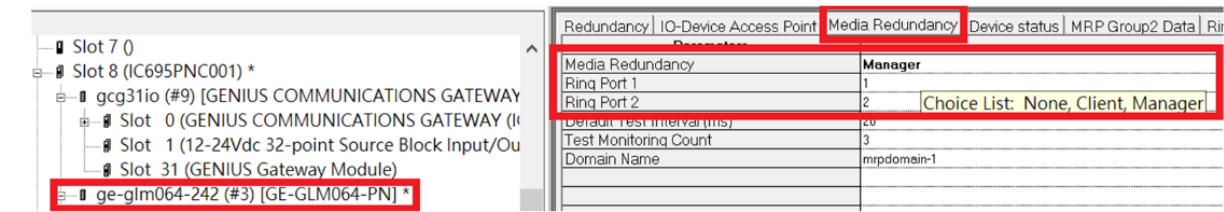


The parameters are displayed in the form at the right (Figure 30).

In the *Media Redundancy* tab (Figure 31), change the *Media Redundancy* field to meet your requirements. The options are “None”, “Client” and “Manager”.

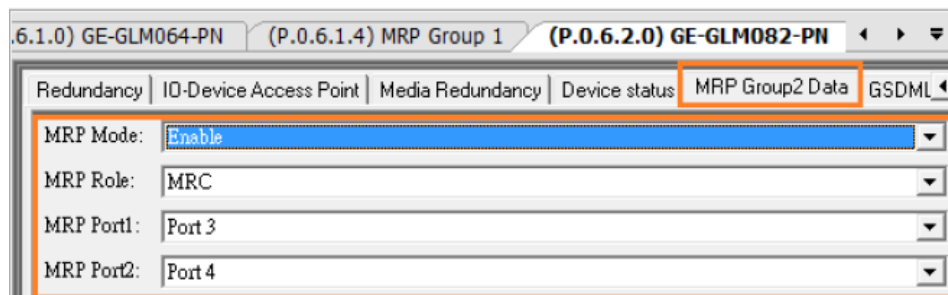
If “Client” or “Manager” is selected, set up or modify the ring ports in the *Media Redundancy* tab (Figure 31).

Figure 31: Set up MRP Ring Ports



PME also permits the user to set up dual MRP in a single IO-Device. The two MRP implementations are independent and use different ports. To modify the parameters of the second group, select the *MRP Group2 Data* tab (Figure 32).

Figure 32: MRP Group2 Data Tab



## 4.7 Download from PME to CPU

Once all the devices have been configured, download the resulting configuration from PME to the host CPU. The CPU will then distribute the configuration elements to its connected devices.

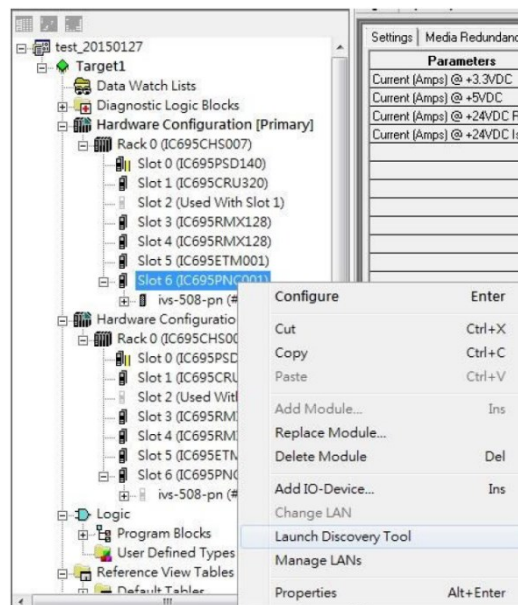
## 4.8 Hot Standby CPU Redundancy Considerations

The Properties of IO-Devices need to be synchronized between the Primary and Secondary CPUs in a Hot Standby CPU Redundancy System. To accomplish this, use the *Mirror to Secondary Hardware* feature. Refer to the *PACSystems Hot Standby CPU Redundancy User Manual*, GFK-2308.

## 4.9 Discovery Tool

If desired, the operator may use the *Launch Discovery Tool* of PME to automatically detect all connected network devices. This operation may only be performed once all network devices have been interconnected and powered up.

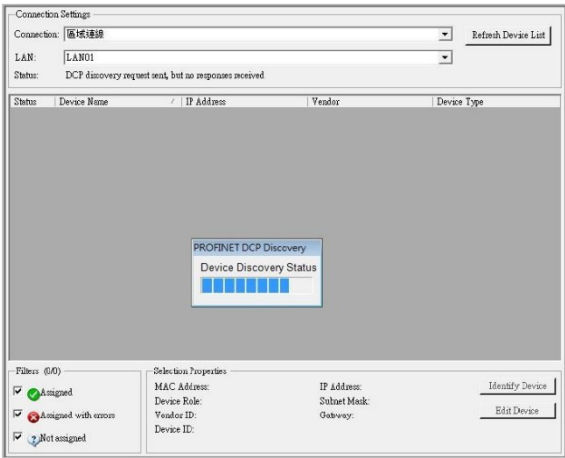
**Figure 33: Launch Discovery Tool**



As shown in Figure 33, select the network controlling device (here the PNC001 in Slot 6 is highlighted). Then right-click and select *Launch Discovery Tool* on the resulting drop-down menu. This initiates a real-time exploration of the connected network (

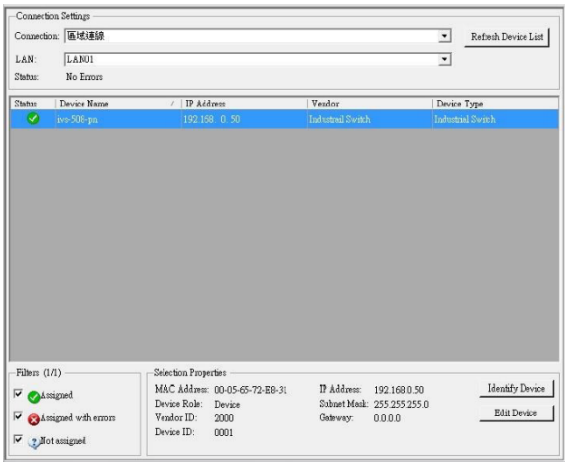
Figure 34).

Figure 34: Discovery Tool in Progress



When the Discovery Tool scan completes, a listing of all connected devices is produced, along with status indications.

Figure 35: Listing of all Detected Devices



If devices are missing due to incorrect cabling or not having been powered up, correct those situations, then click on the *Refresh Device List* button.

## Section 5: Diagnostics

The GLM Switches support one alarm per port, plus an independent alarm for each power input circuit (PWR1 and PWR2), and an Alarm Status bit that tracks the state of the ALM relay. There are also status bits relating to the MRP set-up.

Each of the port alarms (i.e. Slot 3 Settings) may be enabled and disabled, as listed in Section 4.3.3. These alarms may be enabled/disabled by the PME setup. The PLC logic may also dynamically enable and disable these alarms by manipulating the corresponding %Q reference bit.

For details on bit locations and senses, refer to:

Section 4.3.1 for Slot 1: Device Status

Section 4.3.2 for Slot 2: Port Status

Section 4.3.3 for Slot 3: Port Alarm & Port Settings & Status

Section 4.3.4 for Slot 4: MRP Group 1 Status

Section 4.3.5 for Slot 5: MRP Group 2 Status

Section 4.3.6 for Slot 6: Ring Group 1 Status

Section 4.3.7 for Slot 7: MRE Group 1 Status

Section 4.3.8 for Slot 8: MRE Group 2 Status

All input status bits listed in the above sections may be tested by logic in the PLC CPU.

In addition, there is an Alarm Contact (Normally Open) (Figure 9) which may be wired to an external device. The alarm contacts (marked ALM) are located in the middle of the 6-pin terminal strip on the bottom panel. The Alarm relay closes whenever any of the enabled alarms becomes active. Refer also to Section 4.3.1 *Slot 1: Device Status* for the corresponding Alarm Status bit.

The state of the Alarm Relay is indicated on the ALM LED, as documented in Section 3.7, *LED Operation*.

### 5.1.1 Setting up and Sensing Alarms

Use PME to assign bits in the %Q output table to control whether GLM alarms for a target device will be enabled or disabled. These are shown as the Port Alarm Outputs in Figure 36.

The Alarm Enabled bits are contiguous and must be assigned a starting location in %Q on a byte boundary. Figure 36 uses %Q00001 for simplicity, but this starting location can be any multiple of 8, plus 1. For instance, %Q00401 would be another suitable starting location.

To enable or disable an alarm, refer to Section 4.3.3 for Slot 3: Port Alarm & Port Settings & Status.

### Figure 36: GLM Switch Parameters Set in PME

[illegible]

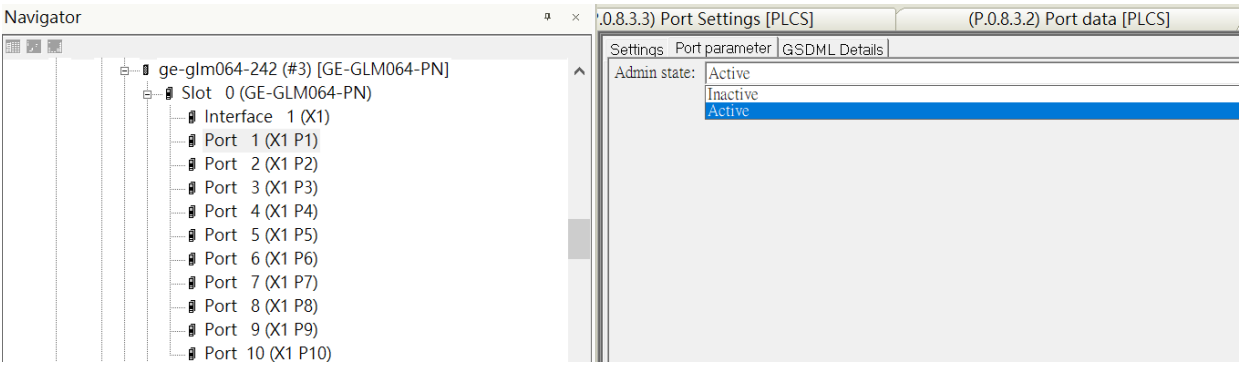
Use PME to assign bits in the %I input table to determine where the PLC may sense the corresponding alarm conditions associated with the target device. These are shown as the Port Alarm Inputs in Figure 36.

The Port Alarm Input bits are contiguous and must be assigned a starting location in %I on a byte boundary. The table above uses %I00129 for simplicity, but this starting location can be any multiple of 8, plus 1. For instance, %I00401 would be another suitable starting location.

When an alarm is present, the corresponding Port Alarm Input bit will register as “1”; when no alarm is present, it will register as “0”. Refer to Section 4.3.3, *Slot 3: Port Alarm & Port Settings & Status* for details.

The Port Admin Input and Port Admin Output are used by the console function to read the Alarm Input senses and enable/disable the alarms as shown in Figure 37. The starting addresses may be assigned to any available non-conflicting %I and %Q starting references. The corresponding starting location can be any multiple of 8, plus 1.

Figure 37: Set Port Alarm Active or Inactive Using PME



### 5.1.2 Power Alarm

As documented in Section 0,



Power Connection, there are two independent power connections, PWR1 and PWR2. In the event one of these is powered up and is capable of energizing the target GLM switch device, it is then possible for that GLM Switch device to sense that the alternate Power Supply Input is within specification, or otherwise. If not, then the corresponding Power Alarm Input is activated.

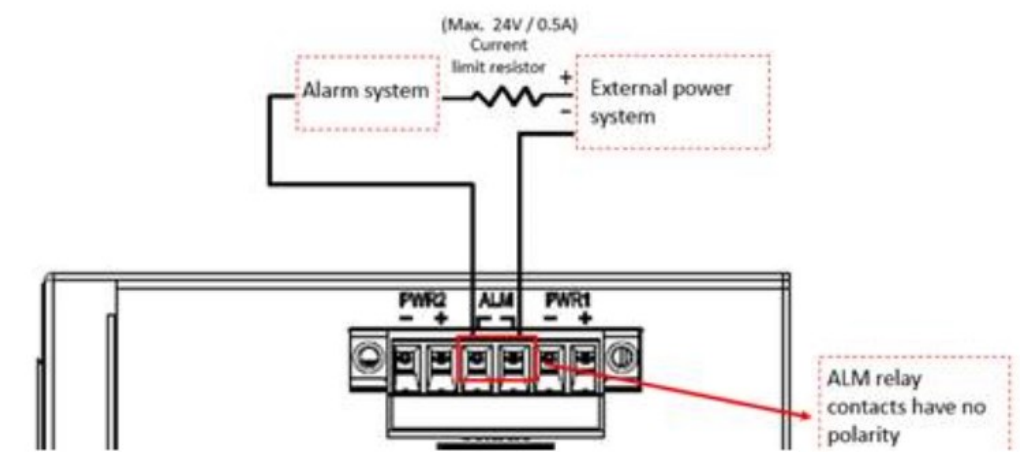
The P1 and P2 LEDs on the front panel indicate the status of the two power supply inputs, PWR1 and PWR2, as shown in Section 3.7, *LED Operation*. The Power Alarms are always enabled.

The Power Alarm Input bits are located as documented in Section 4.3.1, *Slot 1: Device Status*.

## 5.2 External Alarm Circuit

The two ALM contacts in the 6-pin terminal strip located in the bottom panel may be used to drive an external alarm circuit, as diagrammed in Figure 38. The Alarm Relay is Normally Open and closes in the event of an alarm condition. Within the GLM switch, all alarm conditions that have been enabled are OR'd together. Once any of them becomes active, the Alarm Relay closes.

Figure 38: External Alarm Circuit





# Appendix Command Language Interface (CLI)

Command Language Interface (CLI) is the protocol used by the Console. For security reasons, the use of the Console is discouraged. Information is supplied in this appendix in case the user chooses to use this interface.

## -1 Operator Interface

### -1.1 Logon

Access to the Switch is protected by a logon security system. You can log on to the switch with the user name and password. After three failed logon attempts, the system refuses further attempts.

After you log on, the system monitors the interface for periods of inactivity. If the interface is inactive for too long, you are automatically logged off.

The CLI initial user name is **admin** without a password. The user should change the password as soon as possible because the initial password is known to anyone who reads this manual. You can also change the user name or add additional user names. Use the “account add” command to enter a new user identification, password, and authorization level.

### -1.2 Connection Interface

Interface	Parameter
Console	Baud rate: 115200bps, Data bit: 8, Parity: None, Stop bit: 1
Telnet	Port 23
SSH	Port 22 (In Windows, you can run a terminal emulator such as PuTTY)

### -1.3 Login Screen Description

Connecting to GLM Switch Ethernet port (RJ45 Ethernet port)

Key-in the command under Telnet: telnet 192.0.2.1

Login with the default account and password.

Username: admin

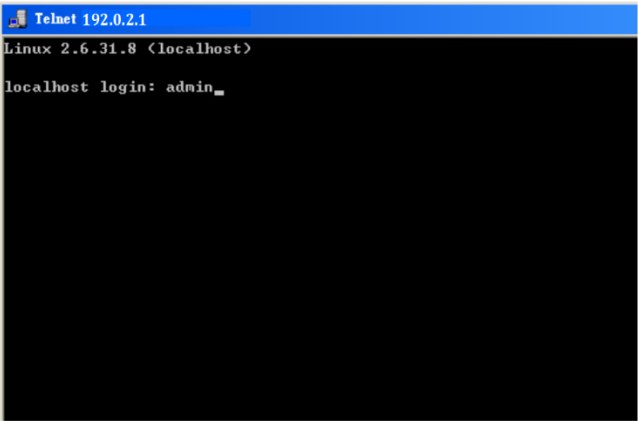
Password: @admin01

Set up a unique Username and Password, per the following constraints:

Figure 39: Login Constraints

Operation	1. Fill Username and Password 2. Click "Sign in"
Field	Description
Username	Login user name. The maximum length is 32. Default: admin
Password	Login user password. The maximum length is 32. Default: @admin01

Figure 40: Telnet Login Screen



## -1.4Execution Modes

The CLI contains several execution modes. Users will see a different set of commands under different execution modes. The following table lists all the execution modes and their purposes. When users enter a certain execution mode, the corresponding mode prompt will be displayed automatically on the screen. The mode prompts of all the execution modes are also listed below.

Mode	Access Level	Prompt
Init Mode	Guest	>
Enable Mode	Guest	#
Config Mode	Guest	(conf)#
Alarm Profile Config Mode	Engineer	(alarm-profile-conf)#
Gigabit Interface Config Mode	Engineer	(gigabit-intf-conf)#
ACL Profile Config Mode	Engineer	(acl-profile-conf)#
scheduler Profile Config Mode	Engineer	(sch-profile-conf)#
Vlan Interface Config Mode	Engineer	(vlan-intf-conf)#
IGMP MVR Profile Config Mode	Engineer	(igmp-mvr-profile-conf)#
IGMP ACL Profile Config Mode	Engineer	(igmp-acl-profile-conf)#
RingV2 Group Config Mode	Engineer	(ring)#
Trunk Group Config Mode	Engineer	(trunk-group-conf)#

## -1.5Getting help

The user can get help by entering a question mark '?' at each position in the command. The displayed result depends on the execution mode and previous input.

## -1.6Terminal Key Function

Following is the list of all the terminal keys and their functions.

ENTER	CTRL-M	Run a CLI config script
-------	--------	-------------------------

TAB	CTRL-I	Tab completion. If the tab is pressed after a non-whitespace character, complete the word before the Tab. If the tab is pressed after a whitespace character, complete the next word.
?		Display available commands If ? is pressed after a non-whitespace character, show possible choices for this word. If ? is pressed after a whitespace character, show possible choices for the next word.
<Up Arrow>	CTRL-P	Up history
<Down Arrow>	CTRL-N	Down history
Home	CTRL-A	Move the cursor to the beginning of the input line
End	CTRL-E	Move the cursor to the end of the input line
<Left Arrow>	CTRL-B	Move the cursor backward
<Right Arrow>	CTRL-F	Move the cursor forward
BACKSPACE	CTRL-H	Erase the character before the cursor

## -1.7 Notation Conventions

The notation conventions for the parameter syntax of each CLI command are as follows:

Parameters enclosed in [ ] are optional.

Parameter values are separated by a vertical bar “|” only when one of the specified values can be used.

Parameter values are enclosed in { } when you must use one of the values specified.

### 5.2.1 Summary of Commands Descriptions

-2.1 Initialize Mode Commands

0 Enable Mode Commands

0 Configure Mode Commands

0 VLAN Mode Commands

- 0      Interface VLAN Mode Commands
- 0      Ring Group Mode Commands
- 2.7    Spanning Tree Configure Commands
- 2.8    sFlow Configure Command
- 2.9    SNMP Configure Command
- 0      Qos Function Command
- 0      IGMP Functional Commands
- 0      MVR Functional Commands
- 2.13   MLD Functional Commands
- 0      Loop-Protection Configure commands
- 2.15   LLDP Configure commands
- 2.16   RFC2544 Testing Configure Commands
- 0      GVRP Configure Commands
- 0      Voice VLAN Configure Commands



## -2 Command Descriptions

### -2.1 Initialize Mode Commands

The commands in this section (except the **enable** command) can be executed under all command modes. These commands are global.

#### .2.1.1 Exit

Description	Exit current mode and quit CLI.
Syntax	exit
Parameter	None

#### .2.1.2 Configure terminal

Description	Enter configuration mode.
Syntax	configure terminal
Parameter	None

#### .2.1.3 Enable

Description	Enter enable mode.
Syntax	enable
Parameter	None

#### .2.1.4 Show terminal

Description	Show CLI environment variables
Syntax	show terminal
Parameter	None

## .2.1.5 Show history

Description	Show command history (Note: commands issued in one execution mode only appear in the history of that execution mode)
Syntax	show history
Parameter	None

## .2.1.6 Show clock

Description	Show current time
Syntax	show clock [detail]
Parameter	None

## .2.1.7 Show clock detail

Description	Show detailed information
Syntax	show clock detail
Parameter	None

# -2.2Enable Mode Commands

All the **show** - - commands in this section can also be executed under any other command mode except Initialize Mode.

## .2.2.1 Configure terminal

Description	Enter configuration mode.
Syntax	configure
Parameter	None

## .2.2.2 Disable

Description	Enter init mode.
Syntax	disable
Parameter	None

## .2.2.3 Show access management

Description	Access management configuration	
Syntax	show access management [ statistics   <access_id_list> ]	
Parameter		
	Name	Description
	statistics	Statistics data
	access_id_list	The ID of access management entry

## .2.2.4 Show access-list

Description	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 ] [ mep ] [ ipmc ] [ ip-source-guard ] [ ip-mgmt ] [ conflicts ] [ switch <switch_list> ]	
Parameter		
	Name	Description
	interface	Select an interface to configure
	ace-status	The local ACEs status
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	v_port_type_list	PORT_LIST, Port list in 1/1-8
	rate-limiter	Rate limiter

	rate_limiter_list	<RateLimiterList : 1~16> Rate limiter ID
	ace	Access list entry
	statistics	Traffic statistics
	ace_list	<AceId : 1~256> ACE ID
	static	The ACEs that are configured by users manually
	loop-protect	The ACEs that are configured by the Loop Protect module
	ipmc	The ACEs that are configured by the IPMC module
	IP-source-guard	The ACEs that are configured by the IP Source Guard module
	dhcp	The ACEs that are configured by the DHCP module
	conflicts	The ACEs that did not get applied to the hardware due to hardware limitations
	arp-inspection	The ACEs that are configured by the ARP Inspection module

## .2.2.5 Show aggregation

Description	Aggregation	
Syntax	show aggregation [ mode ]	
Parameter	Name	Description
	mode	Traffic distribution mode

## .2.2.6 Show alarm

Description	Alarm information	
Syntax	show alarm { history   current }	
Parameter	Name	Description
	current	Show alarm current information

	history	Show alarm history information
--	---------	--------------------------------

## .2.2.7 Show cpu-load

Description	CPU LOAD
Syntax	show cpu-load
Parameter	None

## .2.2.8 Show green-ethernet

Description	Green Ethernet	
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> ] ) ]	
Parameter		
	Name	Description
	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
	short-reach	Shows green ethernet short-reach status for a specific port or ports
	interface	Shows green ethernet status for a specific port or ports
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	port_list	<port_type_list> Port list in 1/1-8

## .2.2.9 Show IP

Description	IP information	
Syntax	show IP	
Parameter		
	Name	Description
	ARP	Address Resolution Protocol
	DHCP	Dynamic Host Configuration Protocol
	HTTP	Hypertext Transfer Protocol
	IGMP	Internet Group Management Protocol
	interface	IP interface status and configuration
	name-server	Domain Name System
	route	Display the current IP routing table
	source	source command
	ssh	Secure Shell
	statistics	Traffic statistics
	verify	verify command

## .2.2.10 Show IPMC

Description	IPMC information	
Syntax	show ipmc profile [ <profile_name> ] [ detail ] show ipmc range [ <entry_name> ]	
Parameter		
	Name	Description
	profile	IPMC profile configuration
	range	A range of IPv4/IPv6 multicast addresses for the profile
	profile_name	<ProfileName : word16> Profile name in 16 char's

	detail	Detailed information about a profile
	entry_name	<EntryName : word16> Range entry name in 16 char's

### .2.2.11 Show IPv6

Description	IPv6 information	
Syntax	show ipv6	
Parameter		
	Name	Description
	interface	Select an interface to configure
	mld	Multicast Listener Discovery
	neighbor	IPv6 neighbors
	route	IPv6 routes
	statistics	Traffic statistics

### .2.2.12 Show LACP

Description	LACP information	
Syntax	show lacp { internal   statistics   system-id   neighbour }	
Parameter		
	Name	Description
	internal	Internal LACP configuration
	neighbour	Neighbour LACP status
	statistics	Internal LACP statistics
	system-id	LACP system-id

## .2.2.13 Show line

Description	Alive line information	
Syntax	show line [ alive ]	
Parameter		
	Name	Description
	alive	Display information about alive lines

## .2.2.14 Show logging

Description	Logging information	
Syntax	show logging <log_id> [ switch <switch_list> ] show logging [ info ] [ warning ] [ error ] [ switch <switch_list> ]	
Parameter		
	Name	Description
	log_id	<logging_id: 1-4294967295> Logging ID
	error	Error
	info	Information
	warning	Warning

## .2.2.15 Show loop-protect

Description	Loop protect information	
Syntax	show loop-protect [ interface ( <port_type> [ <plist> ] ) ]	
Parameter		
	Name	Description
	interface	Interface status and configuration
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port



	plist	<port_type_list> Port list in 1/1-8
--	-------	-------------------------------------

## .2.2.16 Show NTP status

Description	Show SNTP information.
Syntax	show sntp
Parameter	None

## .2.2.17 show users

Description	Show account list.
Syntax	show account
Parameter	None

## .2.2.18 show running-cfg

Description	Show running configuration.
Syntax	show running-cfg
Parameter	None

## .2.2.19 show running-config interface Gigabit

Description	Show port config	
Syntax	show running-config interface ( <port_type> [ <list> ] ) [ all-defaults ]	
Parameter		
	Name	Description
	list	<port_type_list> Port list in 1/1-8
	all-defaults	Include most/all default values

## .2.2.20 show running-config interface VLAN

Description	Show default running configuration.
Syntax	show running-config interface vlan <vlan_list> [ all-defaults ]
Parameter	None

## .2.2.21 Show running-config all-defaults

Description	Show all default setting
Syntax	show running-config [ all-defaults ]
Parameter	None

## .2.2.22 Show running-config feature

Description	Show running config feature	
Syntax	show running-config feature <feature_name> [ all-defaults ]	
Parameter		
	Name	Description
	feature_name	CWORD  Valid words are 'GVRP' 'access' 'access-list' 'aggregation' 'alm_profile' 'arp-inspection' 'auth' 'clock' 'dhcp' 'dhcp-snooping' 'dhcp_server' 'dns' 'dot1x' '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' 'lcp' 'lldp' 'logging' 'loop-protect' 'mac' 'monitor' 'mstp' 'mvr' 'mvr-port' 'ntp' 'phy' 'port' 'port-security' 'pvlan' 'qos' 'rmon' 'snmp' 'source-guard' 'ssh' 'tring_g1' 'tring_g2' 'tring_g3' 'user' 'vlan' 'voice-vlan' 'web-privilege-group-level'
	all-defaults	Include most/all default values

### .2.2.23 Show running-config line

Description	Line information	
Syntax	show running-config line { console   vty } <list> [ all-defaults ]	
Parameter		
	Name	Description
	console	Console
	vty	BY
	list	<range_list> List of console/VTYs
	all-defaults	Include most/all default values

### .2.2.24 Show running-config VLAN

Description	VLAN information	
Syntax	show running-config vlan <list> [ all-defaults ]	
Parameter		
	Name	Description
	list	<vlan_list> List of VLAN numbers
	all-defaults	Include most/all default values

### .2.2.25 Show version

Description	Show firmware hardware and software status update status.
Syntax	show version
Parameter	None

## .2.2.26 Show clock

Description	Show current time.
Syntax	Show clock
Parameter	None

## .2.2.27 Show version

Description	Show version information.
Syntax	show version
Parameter	None

## .2.2.28 Show system inventory

Description	Show system inventory.
Syntax	show system inventory
Parameter	None

## .2.2.29 Show mac address table aging-time

Description	Show aging time for MAC learning table (system-wide).
Syntax	show aging time
Parameter	None

## .2.2.30 Show mac address table

Description	Show MAC learning table.
Syntax	show mac address-table [ conf   static   aging-time   { { learning   count } [ interface <port_type> [ <port_type_list> ] ] }   { address <mac_addr> [ vlan <vlan_id> ] }   vlan <vlan_id>   interface <port_type> [ <port_type_list> ] ]
Parameter	None

## .2.2.31 Show mac address table conf

Description	The user added static mac addresses
Syntax	show mac address-table [ conf   static   aging-time   { { learning   count } [ interface ( <port_type> [ <v_port_type_list> ] ) ] }   { address <v_mac_addr> [ vlan <v_vlan_id> ] }   vlan <v_vlan_id_1>   interface ( <port_type> [ <v_port_type_list_1> ] ) ]
Parameter	None

## .2.2.32 Show mac address table count

Description	Total number of mac addresses	
Syntax	show mac address-table [ conf   static   aging-time   { { learning   count } [ interface ( <port_type> [ <v_port_type_list> ] ) ] }   { address <v_mac_addr> [ vlan <v_vlan_id> ] }   vlan <v_vlan_id_1>   interface ( <port_type> [ <v_port_type_list_1> ] ) ]	
Parameter		
	Name	Description
	None	None

### .2.2.33 Show mac address table learning

Description	Learn/disable/secure stat	
Syntax	show mac address-table [ conf   static   aging-time   { { learning   count } [ interface ( <port_type> [ <v_port_type_list> ] ) } ]   { address <v_mac_addr> [ vlan <v_vlan_id> ] }   vlan <v_vlan_id_1>   interface ( <port_type> [ <v_port_type_list_1> ] ) ]	
Parameter		
	Name	Description
	None	None

### .2.2.34 Show mac address table static

Description	All static mac addresses	
Syntax	show mac address-table [ conf   static   aging-time   { { learning   count } [ interface ( <port_type> [ <v_port_type_list> ] ) } ]   { address <v_mac_addr> [ vlan <v_vlan_id> ] }   vlan <v_vlan_id_1>   interface ( <port_type> [ <v_port_type_list_1> ] ) ]	
Parameter		
	Name	Description
	None	None

### .2.2.35 Show mac address table interface

Description	Show MAC learning table per port.	
Syntax	show mac address-table [ interface <port_type> [ <port_type_list> ] ]	
Parameter		
	Name	Description
	<portNo>	Valid values: 1 ~ 10(GIE5010) or 1 ~ 8(GIE5008) Type: Mandatory

## .2.2.36 Show mac address vlan <vlanid>

Description	Show MAC learning table per VLAN index.	
Syntax	show mac address-table { learning   count } vlan <vlan_id>	
Parameter		
	Name	Description
	<vlanid>	Valid values: 1~4094  Type: Mandatory

## .2.2.37 Show mvr

Description	MVR information	
Syntax	show mvr [ vlan <v_vlan_list>   name <mvr_name> ] [ group-database [ interface ( <port_type> [ <v_port_type_list> ] ) ] [ sfm-information ] ] [ detail ]	
Parameter		
	Name	Description
	vlan	Search by VLAN
	v_vlan_list	<vlan_list> MVR multicast VLAN list
	name	Search by MVR name
	mvr_name	<MvrName : word16> MVR multicast VLAN name
	group-database	Multicast group database from MVR
	interface	Search by port
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	v_port_type_list	PORT_LIST, Port list in 1/1-8
	sfm-information	Including source filter multicast information from MVR
	detail	Detail information/statistics of MVR group database

## .2.2.38 Show fdb static table

Description	Show static MAC forwarding table.
Syntax	show mac address-table static
Parameter	None

## .2.2.39 Show fdbstatic interface gigabit <portNo>

Description	Show static MAC forwarding table per gigabit port.	
Syntax	Show mac address-table [ learning   count ] [ interface <port_type> [ <port_type_list> ] ]	
Parameter		
	Name	Description
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	Valid values: 1 ~ 10 <b>Type:</b> Mandatory

## .2.2.40 Show fdbstatic vlan <vlanid>

Description	Show static MAC forwarding table per VLAN index.	
Syntax	show mac address-table [ learning   count ] vlan <vlanid>	
Parameter		
	Name	Description
	<vlanid>	Valid values: 1 ~ 4094 <b>Type:</b> Mandatory



## .2.2.41 Show interface port <port\_type\_list>

Description	Show interface information per \port.	
Syntax	show interface <port_type> [ <port_type_list> ] status	
Parameter		
	Name	Description
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	<b>Valid values:</b> 1 ~ 10 <b>Type:</b> Mandatory

## .2.2.42 show interface port <portNo> statistics

Description	Show Ethernet counter per gigabit port.	
Syntax	show interface <port_type> [ <port_type_list> ] statistics	
Parameter		
	Name	Description
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	<b>Valid values:</b> 1 ~ 10 <b>Type:</b> Mandatory
	counter	Show Gigabit Ethernet counter.

## .2.2.43 show platform phy

Description	PHYs' information	
Syntax	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	
	show platform phy status [ interface ( <port_type> [ <v_port_type_list> ] ) ]	
Parameter		
	Name	Description

	id	ID
	instance	PHY Instance Information
	status	Status
	interface	Interface
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	v_port_type_list	PORT_LIST, Port list in 1/1-8

## .2.2.44 Show port-security

Description	Port security	
Syntax	show port-security	
Parameter		
	Name	Description
	port	Show MAC Addresses learned by Port Security
	switch	Show Port Security status
	interface	Interface
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	v_port_type_list	PORT_LIST, Port list in 1/1-8

## .2.2.45 Show profile alarm

Description	Profile alarm
Syntax	show profile alarm
Parameter	None

## .2.2.46 Show sflow

Description	Sflow information	
Syntax	<pre>show sflow show sflow statistics [ receiver [ &lt;rcvr_idx_list&gt; ]   samplers [ interface [ &lt;samplers_list&gt; ] ( &lt;port_type&gt; [ &lt;v_port_type_list&gt; ) ] ] ]</pre>	
Parameter		
	Name	Description
	receiver	Show statistics for receiver
	samplers	Show statistics for samplers
	interface	Interface
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	v_port_type_list	<port_type_list> Port list in 1/1-8

## .2.2.47 Show snmp

Description	SNMP information	
Syntax	<pre>show snmp show snmp access [ &lt;group_name&gt; { v1   v2c   v3   any } { auth   noauth   priv } ] show snmp community v3 [ &lt;community&gt; ] show snmp host [ &lt;conf_name&gt; ] [ system ] [ switch ] [ interface ] [ aaa ] show snmp mib context show snmp mib ifmib ifIndex show snmp security-to-group [ { v1   v2c   v3 } &lt;security_name&gt; ] show snmp user [ &lt;username&gt; &lt;engineID&gt; ] show snmp view [ &lt;view_name&gt; &lt;oid_subtree&gt; ]</pre>	
Parameter		
	Name	Description
	access	access configuration

group_name	<GroupName : word32> group name
any	any security model
v1	v1 security model
v2c	v2c security model
v3	v3 security model
auth	authNoPriv Security Level
noauth	noAuthNoPriv Security Level
priv	authPriv Security Level
community	Community
community	<Community : word127> Specify community name
host	Set SNMP host's configurations
conf_name	<ConfName : word32> Name of the host configuration
aaa	AAA event group
interface	Interface event group
switch	Switch event group
system	System event group
mib	MIB(Management Information Base)
context	MIB context
ifmib	IF-MIB
ifIndex	The IfIndex that is defined in IF-MIB
security-to-group	security-to-group configuration
security_name	<SecurityName : word32> security group name
user	User
username	<Username : word32> Security user name
engineID	<Engiedid : word10-32> Security Engine ID
view	MIB view configuration
view_name	<ViewName : word32> MIB view name

	oid_subtree	<OidSubtree : word255> MIB view OID
--	-------------	-------------------------------------

## .2.2.48 Show spanning-tree

Description	System Wide Spanning Tree Setting/Status.	
<b>Syntax</b>	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> ] ) ] } ] } ] }	
<b>Parameter</b>		
	Name	Description
	active	STP active interfaces
	detailed	STP statistics
	interface	Choose port
	MST	Configuration
	summary	STP summary

## .2.2.49 Show switchport forbidden

Description	Lookup VLAN Forbidden port entry	
<b>Syntax</b>	show switchport forbidden [ { vlan <vid> }   { name <name> } ]	
<b>Parameter</b>		
	Name	Description
	VLAN	Show forbidden access for specific VLAN id
	vid	VLAN id
	name	Show forbidden access for specific VLAN name
	name	VLAN name

## .2.2.50 Show VLAN

Description	Show bridge port memberset/status.
Syntax	show VLAN
Parameter	None

### .2.2.51 Show vlan ID

Description	Show bridge port member set/status per VLAN index (1~4094).	
Syntax	show vlan id <vlanid>	
Parameter		
	Name	Description
	<vlanid>	Valid values: 1~4094 <b>Type:</b> Mandatory.

### .2.2.52 Show vlan name

Description	Show bridge port member set/status per VLAN name ( 32 words ).	
Syntax	show vlan name <vword32>	
Parameter		
	Name	Description
	< vword32>	Valid values: 32 words <b>Type:</b> Mandatory.

## .2.2.53 Show vlan brief

Description	VLAN summary information	
Syntax	show vlan [ id <vlan_list>   name <name>   brief ]	
Parameter		
	Name	Description
	id	VLAN status by VLAN id
	vlan_list	<vlan_list> VLAN IDs 1-4095
	name	VLAN status by VLAN name
	name	<vword32> A VLAN name
	brief	VLAN summary information

## .2.2.54 Show vlan ip-subnet

Description	Show VLAN ip-subnet entries	
Syntax	show vlan ip-subnet [ id <subnet_id> ]	
Parameter		
	Name	Description
	id	Show a specific ip-subnet entry
	subnet_id	<1-128> The specific ip-subnet to show

## .2.2.55 Show vlan mac

Description	Show VLAN MAC entries	
Syntax	show vlan mac [ address <mac_addr> ]	
Parameter		
	Name	Description
	address	Show a specific MAC entry
	mac_addr	<mac_ucast> The specific MAC entry to show

## .2.2.56 Show vlan protocol

Description	Protocol-based VLAN status	
Syntax	show vlan protocol [ eth2 { <etype>   arp   ip   ipx   at } ] [ snap { <oui>   rfc-1042   snap-8021h } <pid> ] [ llc <dsap> <ssap> ]	
Parameter		
	Name	Description
	eth2	Ethernet protocol-based VLAN status
	etype	0x600-0xffff> Ether Type(Range: 0x600 - 0xFFFF)
	arp	Ether Type is ARP
	ip	Ether Type is IP
	ipx	Ether Type is IPX
	at	Ether Type is AppleTalk
	llc	LLC-based VLAN status
	dsap	<0x0-0xff> DSAP (Range: 0x00 - 0xFF)
	ssap	<0x0-0xff> SSAP (Range: 0x00 - 0xFF)
	snap	SNAP-based VLAN status
	oui	<0x0-0xffff> SNAP OUI (Range 0x000000 - 0xFFFFF)
	rfc-1042	SNAP OUI is rfc-1042
	snap-8021h	SNAP OUI is 8021h

## .2.2.57 Show vlan status

Description	Show the VLANs configured for each interface	
Syntax	show vlan status [ interface ( <port_type> [ <plist> ] ) ] [ combined   admin   nas   mvr   voice-vlan   mstp   erps   vcl   evc   gvrp   all   conflicts ]	
Parameter		
	Name	Description
	admin	Show the VLANs configured by administrator



	all	Show all VLANs configured
	combined	Show the VLANs configured by a combination
	conflicts	Show VLANs configurations that have conflicts
	gvrp	Show the VLANs configured by GVRP
	interface	Show the VLANs configured for a specific interface(s)
	mstp	Show the VLANs configured by MSTP.
	mvr	Show the VLANs configured by MVR
	nas	Show the VLANs configured by NAS
	vcl	Show the VLANs configured by VCL
	voice-vlan	Show the VLANs configured by Voice VLAN

## .2.2.58 Show qos-queue-mapping

<b>Description</b>	Show CoS queue mapping table.
<b>Syntax</b>	show qos maps
<b>Parameter</b>	None

## .2.2.59 Show interface ports <portNo> priority

<b>Description</b>	Show QoS per gigabit port.	
<b>Syntax</b>	show interface <port_type> [ <port_type_list> ] statistics { priority [ <0~7> ] }	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	priority [ <0~7> ]	Valid values:0 ~ 7 <b>Type:</b> Mandatory
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	Valid values:0 ~ 10 <b>Type:</b> Mandatory

## .2.2.60 Show qos

Description	Show scheduler profile table.
Syntax	show queue-scheduler profile
Parameter	None

## .2.2.61 Show queue-shaper

Description	Show queue shaper information.
Syntax	show queue-shaper
Parameter	None

## .2.2.62 Show port-shaper

Description	Show port shaper information.
Syntax	show port-shaper
Parameter	None

## .2.2.63 Show pvlan [ <pvlan\_list> ]

Description	PVLAN ID	
Syntax	show pvlan [ <pvlan_list> ]	
Parameter		
	Name	Description
	pvlan_list	PVLAN ID to show the configuration for

## .2.2.64 Show pvlan isolation [ interface <port\_type> [ <port\_type\_list> ] ]

Description	Show all port isolation information.	
Syntax	show pvlan isolation [ interface <port_type> [ <port_type_list> ] ]	
Parameter	Name	Description
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	Valid values: 1 ~ 10  Type: Mandatory

## .2.2.65 Show interface gigabit <portNo> port-isolation

Description	Show isolation information per gigabit port.	
Syntax	show pvlan isolation [ interface <port_type> [ <port_type_list> ] ]	
Parameter		
	Name	Description
	<portNo>	Valid values: 1 ~ 10  Type: Mandatory

## .2.2.66 Show interface gigabit <portNo> storm-control

Description	Show storm control information per gigabit port.	
Syntax	show interface gigabit <portNo> storm-control	
Parameter		
	Name	Description
	<port_type>	Port type in Fast, Giga or Tengiga ethernet
	<portNo>	Valid values: 1 ~ 10  Type: Mandatory

## .2.2.67 Show qos interface

Description	QoS interface information	
Syntax	show qos [ { interface [ ( <port_type> [ <port> ] ) ] }	
Parameter		
	Name	Description
	interface	Interface
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	port	PORT_LIST, Port list in 1/1-8

## .2.2.68 Show qos maps

Description	MAPS	
Syntax	show qos maps { maps [ dscp-cos ] [ dscp-ingress-translation ] [ dscp-classify ] [ cos-dscp ] [ dscp-egress-translation ] }	
Parameter		
	Name	Description
	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

## .2.2.69 Show qos qce

Description	QCE	
Syntax	show qos { qce [ <qce> ] }	
Parameter		
	Name	Description
	qce	<Id : 1-256> QCE ID

## .2.2.70 Show qos storm {unknown-uc | unknown-mc | broadcast}

Description	Show storm control information by VLAN.	
Syntax	show vlan unknown-uc show vlan unknown-mc show vlan broadcast	
Parameter		
	Name	Description
	unknown-uc	Show unknown unicast storm control information by VLAN. <b>Type:</b> Mandatory
	unknown-mc	Show unknown multicast storm-control information by VLAN. <b>Type:</b> Mandatory
	broadcast	Show broadcast storm control information by VLAN. <b>Type:</b> Mandatory

## .2.2.71 Show port-mirror

Description	Show port mirror information.
Syntax	show port-mirror
Parameter	None

## .2.2.72 Show ringv2

<b>Description</b>	Show ring protect information
<b>Syntax</b>	show ring
<b>Parameter</b>	None

## .2.2.73 Show rmon

<b>Description</b>		
<b>Syntax</b>	show rmon alarm [ <id_list> ] show rmon event [ <id_list> ] show rmon history [ <id_list> ] show rmon statistics [ <id_list> ]	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	alarm	Display the RMON alarm table
	event	Display the RMON event table
	history	Display the RMON history table
	statistics	Display the RMON statistics table
	id_list	<1~65535>, Statistics entry list

## .2.2.74 Show interface gigabit <portNo>

Description	Show interface gigaport information	
Syntax	show interface gigabit <portNo>	
Parameter		
	Name	Description
	<portNo>	Gigabit port. Valid values: 1 ~ 10 <b>Type:</b> Mandatory

## .2.2.75 Show ext-tpid

Description	Show TPID for the VLAN Tag
Syntax	show ext-tpid
Parameter	None

## .2.2.76 Show interface vlan

Description	Show VLAN interface information of all VLANs.
Syntax	show interface vlan
Parameter	None

## .2.2.77 Show interface vlan <vlanid>

Description	Show VLAN interface information of specified VLAN.	
Syntax	show interface vlan <vlanid>	
Parameter		
	Name	Description
	<vlanid>	VLAN ID.  Valid values: 1 ~ 4094  <b>Type:</b> Mandatory

## .2.2.78 Show protocol-VLAN

Description	Show protocol-based VLAN information for all entries.
Syntax	show protocol-vlan
Parameter	None

## .2.2.79 Show interface gigabit <portNo> vlan

Description	Show vlan information per port	
Syntax	show interface gigabit <portNo> vlan	
Parameter		
	Name	Description
	<portNo>	Gigabit port.  Valid values: 1 ~ 10  <b>Type:</b> Mandatory



## .2.2.80 Show vlan-trans

Description	Show VLAN translation table for all
Syntax	show vlan-trans
Parameter	None

## .2.2.81 Show multicast-fdb

Description	Show IGMP group membership table
Syntax	show multicast-fdb
Parameter	None

## .2.2.82 Show dot1x

Description	Show dot1x information.
Syntax	show dot1x
Parameter	None

## .2.2.83 Show dot1x status

Description	Show dot1x stats.
Syntax	show dot1x status [ interface <port_type> [ <port_type_list> ] ] [ brief ]
Parameter	None

## .2.2.84 Show rfc2544 profile [ <word32> ]

Description	show rfc2544 profile name	
Syntax	show rfc2544 profile [ <word32> ]	
Parameter		
	Name	Description
	<word32>	rfc2544 profile name

## .2.2.85 Show voice

Description	Vlan for voice traffic	
Syntax	show voice vlan [ oui <oui>   interface ( <port_type> [ <port_list> ] ) ]	
Parameter		
	Name	Description
	vlan	Vlan for voice traffic
	oui	OUI configuration
	oui	OUI value
	interface	Select an interface to configure
	port_type	GigabitEthernet, 1 Gigabit Ethernet Port
	port_list	<port_type_list> Port list in 1/1-8

## .2.2.86 Show web

Description	Web privilege	
Syntax	show web privilege group [ <group_name> ] level	
Parameter		
	Name	Description
	privilege	Web privilege
	group	Web privilege grou
	group_name	CWORD  Valid words are 'Aggregation' 'DHCP' 'Debug' 'Dhcp_Client' 'Diagnostics' 'EEE' 'Green_Ethernet' 'IP2' 'IPMC_Snooping' 'LACP' 'LLDP' 'Loop_Protect' 'MAC_Table' 'MVR' 'Maintenance' 'Mirroring' 'NTP' 'Ports' 'Private_VLANs' 'QoS' 'RPC' 'Security' 'Spanning_Tree' 'System' 'Timer' 'VCL' 'VLANs' 'Voice_VLAN' 'XXRP' 'sFlow'
	level	Web privilege group level

## -2.3Configure Mode Commands

Commands that can be executed under Configure Mode.

### .2.3.1 interface gigabit <portNo>

Description	Gigabit Ethernet interface. (enter gigabit interface mode)	
Syntax	interface gigabit <portNo>	
Parameter		
	Name	Description
	<portNo>	Valid values: 1 ~ 10  Type: Mandatory

## .2.3.2 Interface vlan <vlanid>

Description	Vlan Ethernet interface (enter mode of interface vlan)	
Syntax	interface vlan <vlanid>	
Parameter		
	Name	Description
	<vlanid>	Valid values: 1 ~ 4094  Type: Mandatory

## .2.3.3 aaa

Description	Authentication	
Syntax	aaa authentication	
Parameter		
	Name	Description
	authentication	Authentication

## .2.3.4 access

Description	Management configuration	
Syntax	access management	
Parameter		
	Name	Description
	management	Access management configuration

## .2.3.5 access-list

Description	Enter Acl Profile Config Mode	
Syntax	profile acl	
Parameter	Name	Description
	<vlanid>	Valid values: 1 ~ 4094 <b>Type:</b> Mandatory
	None	

## .2.3.6 aggregation mode

Description	Traffic distribution mode	
Syntax	aggregation mode { dmac   ip   port   smac }	
Parameter	Name	Description
	dmac	Destination MAC affects the distribution
	ip	IP address affects the distribution
	port	IP port affects the distribution
	smac	Source MAC affects the distribution

## .2.3.7 alarm history clear

Description	Clear alarm history	
Syntax	alarm history clear	
Parameter	Name	Description

## .2.3.8 banner

Description	Banner control	
Syntax	banner { LINE   exec   login   motd }	
Parameter		
	Name	Description
	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

## .2.3.9 default access-list rate-limiter

Description	Rate limiter	
Syntax	default access-list rate-limiter [ <rate_limiter_list> ]	
Parameter		
	Name	Description
	RateLimiterId : 1-16	Rate limiter ID

## .2.3.10 profile sch

Description	Enter Scheduling Profile Config Mode
Syntax	profile sch
Parameter	None

### .2.3.11 ntp server <1-5> ip-address <ip>

Description	Set NTP server address.	
Syntax	ntp server <1-5> ip-address { <ipv4_ucast>   <ipv6_ucast>   <hostname> }	
Parameter		
	Name	Description
	<1-5>	index number
	<ipv4> <ipv6 >	<b>Type:</b> Mandatory
	<hostname>	Server name

### .2.3.12 clock timezone

Description	Set time zone.	
Syntax	clock timezone <word16> <-23-23> [ <0-59> ]	
Parameter		
	Name	Description
	< word16>	<b>Valid values:</b> please see <a href="#">'list timezone'</a> <b>Type:</b> Mandatory
	default	Set time zone to default (GMT/UTC). <b>Type:</b> Mandatory

### .2.3.13 clock summer-time set [start-time] [end-time]

Description	Set date/time.	
Syntax	clock summer-time <word16> date [ <1-12> <1-31> <2000-2097> <hhmm> <1-12> <1-31> <2000-2097> <hhmm> [ <1-1440> ] ]	
Parameter		
	Name	Description
	< word16>	<b>Valid values:</b> please see <a href="#">'list timezone'</a> <b>Type:</b> Mandatory
	<day>	<b>Valid values:</b> 1 ~ 31 <b>Type:</b> Mandatory
	<month>	<b>Valid values:</b> 1 ~ 12 <b>Type:</b> Mandatory
	<year>	<b>Valid values:</b> 2000-2097 <b>Type:</b> Mandatory
	<minute>	<b>Valid values:</b> 0 ~ 59 <b>Type:</b> Mandatory
	<second>	<b>Valid values:</b> 0 ~ 59 <b>Type:</b> Optional

### .2.3.14 account add <username>

Description	Add an account.	
Syntax	username <word31> privilege <0-15> password encrypted <word4-44>	
Parameter		
	Name	Description
	< word31>	<b>Valid values:</b> 1 ~ 31 characters <b>Type:</b> Mandatory
	<0-15>	<b>Valid values:</b> 0 ~ 15 <b>Type:</b> Mandatory
	< word4-44>	<b>Valid values:</b> 4-44 characters <b>Type:</b> Mandatory



### .2.3.15 account delete <username>

Description	Delete an account.	
Syntax	no username <word31>	
Parameter		
	Name	Description
	< word31>	<b>Valid values:</b> 1 ~ 31 characters <b>Type:</b> Mandatory

### .2.3.16 syslog {enable | disable}

Description	Disable or enable syslog service.
Syntax	logging on no logging on
Parameter	None

### .2.3.17 Configuration save and replace

Description	Save and install configuration	
Syntax	copy { startup-config   running-config   <Filename> } { startup-config   running-config   < Filename > } [ syntax-check ]	
Parameter		
	Name	Description
	running-config	Currently running configuration
	startup-config	Startup configuration
	syntax-check	Perform syntax check on source configuration
	Filename	File in FLASH or on TFTP server

## .2.3.18 clearipigmp snoopingstatistics

Description	clear ipigmpsnoopingstatisti	
Syntax	clear ipigmp snooping [ vlan<vlan_list> ] statistics	
Parameter		
	Name	Description
	vlan_list	VLAN list.

## .2.3.19 clear logging

Description	clear logging	
Syntax	clear logging [ info ] [ warning ] [ error ] [ switch <switch_list> ]	
Parameter		
	Name	Description
	info	Information
	warning	Warning
	error	Error
	Switch list	List of switch ID, ex, 1,3-5,6

## .2.3.20 clear mac address-table

Description	clear mac address-table
Syntax	clear mac address-table
Parameter	

## .2.3.21 debug

Description	Set prompt for testing	
Syntax	debug prompt	
Parameter		
	Name	Description
	<word>	Word for prompt in 32 char's

## .2.3.22 delete

Description	Delete one file in flash: file system	
Syntax	delete <word>	
Parameter		
	Name	Description
	<word>	Name of file to delete

## .2.3.23 dir

Description	Directory of all files in flash: file system	
Syntax	dir	
Parameter		

### .2.3.24 do

Description	To run exec commands in config mode	
Syntax	do <line>	
Parameter		
	Name	Description
	<line>	Exec Command

### .2.3.25 duplex

Description	Set duplex mode	
Syntax	duplex { half   full   auto [ half   full ] }	
Parameter		
	Name	Description
	half	Forced half-duplex.
	full	Forced full-duplex.
	auto	Auto-negotiation of duplex mode.
	[ half   full ]	Advertise half /full duplex.

### .2.3.26 editing

Description	Enable command line editing
Syntax	editing
Parameter	

## .2.3.27 firmware

Description	Firmware swap and upgrade	
Syntax	firmware { swap   upgrade }	
Parameter		
	Name	Description
	swap	Swap between Active and Alternate firmware image
	upgrade	Firmware upgrade

## .2.3.28 flowcontrol

Description	Enable/Disable flow control.	
Syntax	flowcontrol { on   off }	
Parameter		
	Name	Description
	on	Enable flow control.
	off	Disable flow control.

## .2.3.29 frame-sizes

Description	Select the frame sizes that the enabled tests will loop through	
Syntax	frame-sizes { [ 64 ] [ 128 ] [ 256 ] [ 512 ] [ 1024 ] [ 1280 ] [ 1518 ] [ 2000 ] [ 9600 ] }	
Parameter		
	Name	Description
	64	Enable testing with 64-byte TST PDUs
	128	Enable testing with 128-byte TST PDUs
	256	Enable testing with 256-byte TST PDUs
	512	Enable testing with 512-byte TST PDUs

	1024	Enable testing with 1024-byte TST PDUs
	1280	Enable testing with 1280-byte TST PDUs
	1518	Enable testing with 1518-byte TST PDUs
	2000	Enable testing with 2000-byte TST PDUs
	9600	Enable testing with 9600-byte TST PDUs

### .2.3.30 green-etherneteee

Description	Powering down of PHYs when there is no traffic.	
Syntax	green-etherneteee	
Parameter		

### .2.3.31 green-etherneteee optimize-for-power

Description	Set if EEE shall be optimized for least power consumption (else optimized for least traffic latency).	
Syntax	green-etherneteee optimize-for-power	
Parameter		

### .2.3.32 green-etherneteee urgent-queues

Description	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.	
Syntax	green-etherneteee urgent-queues [ <range_list> ]	
Parameter		
	Name	Description
	range_list	EEE Interface.

.2.3.33    help

Description	Description of the interactive help system
Syntax	help
Parameter	

## .2.3.34 iparp inspection

Description	iparp inspection
Syntax	iparp inspection
Parameter	

## .2.3.35 Ip arp inspection translate

Description	IP ARP inspection entry interface configuration	
Syntax	ip arp inspection translate [ interface <port_type><port_type_id><vlan_id><mac_ucast><ipv4_ucast> ]	
Parameter	Name	Description
	port_type	Port type in Fast, Giga or Tengigaethernet
	port_type_id	Port ID in the format of switch-no/port-no
	vlan_id	Select a VLAN id to configure
	mac_ucast	Select a MAC address to configure
	ipv4_ucast	Select an IP Address to configure

## .2.3.36 Ip arp inspection entry

Description	arp inspection entry interface config	
Syntax	ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var> <mac_var> <ipv4_var>	
Parameter	Name	Description
	port_type	Port type in Fast, Giga or Tengigaethernet
	in_port_type_id	Port ID in the format of switch-no/port-no
	vlan_var	Select a VLAN id to configure
	mac_var	Select a MAC address to configure
	ipv4_var	Select an IP Address to configure



### .2.3.37 ip arp inspection vlan

Description	IP ARP inspection vlan setting	
Syntax	ip arp inspection vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	arp inspection vlan list

### .2.3.38 ip dns proxy

Description	IP DNS proxy service
Syntax	ipdns proxy
Parameter	

### .2.3.39 ip http secure-redirect

Description	IP http secure-redirect
Syntax	ip http secure-redirect
Parameter	

### .2.3.40 ip http secure-server

Description	IP Secure HTTP web server
Syntax	ip http secure-server
Parameter	

### .2.3.41 ip source binding interface

Description	IP source binding entry interface configuration	
Syntax	Ip source binding interface <port_type> <port_type_id> <vlan_id> <ipv4_ucast> <mac_ucast>	
Parameter		
	Name	Description

	port_type	Port type in Fast, Giga or Tenggigaethernet
	port_type_id	Port ID in the format of switch-no/port-no
	vlan_id	Select a VLAN id to configure
	ipv4_ucast	Select an IP Address to configure
	mac_ucast	Select a MAC address to configure

### .2.3.42 ip ssh

Description	IP Secure Shell
Syntax	ipssh
Parameter	

### .2.3.43 ip name-server

Description	IP name server	
Syntax	ip name-server { <v_ipv4_ucast>   dhcp [ interface vlan <v_vlan_id> ] }	
Parameter		
	Name	Description
	v_ipv4_ucast	A valid IPv4 unicast address
	dhcp	Dynamic Host Configuration Protocol
	v_vlan_id	VLAN identifier(s): VID

### .2.3.44 ip route

Description	IP Route	
Syntax	ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw>	
Parameter		
	Name	Description
	v_ipv4_addr	Network
	v_ipv4_netmask	Netmask
	v_ipv4_gw	Gateway

## .2.3.45 ip routing

Description	IP routing
Syntax	ip routing
Parameter	

## .2.3.46 ip verify

Description	IP verify	
Syntax	ip verify [source] [translate]	
Parameter		
	Name	Description
	source	verify source
	translate	ip verify source translate all entries

## .2.3.47 ipmc profile

Description	IPMC profile configuration
Syntax	ipmc profile
Parameter	

## .2.3.48 ipmc range

Description	A range of IPv4/IPv6 multicast addresses for the profile	
Syntax	ipmc range <word16> [ <ipv4_mcast> [ <ipv4_mcast> ]   <ipv6_mcast> [ <ipv6_mcast> ] ]	
Parameter		
	Name	Description
	word16	Range entry name in 16 char's
	ipv4_mcast	Valid IPv4 multicast address
	ipv4_mcast	Valid IPv4 multicast address that is not less than start address

	ipv6_mcast	Valid IPv6 multicast address
	ipv6_mcast	Valid IPv6 multicast address that is not less than start address

## .2.3.49 LACP

Description	LACP system priority	
Syntax	lacp system-priority <v_1_to_65535>	
Parameter		
	Name	Description
	system-priority	System priority
	<v_1_to_65535>	Priority value, lower means higher priority

## .2.3.50 line

Description	Console terminal control	
Syntax	line { <0~16>   console 0   vty <0~15> }	
Parameter		
	Name	Description
	<0~16>	List of line numbers
	console	Console terminal line
	vtty	Virtual terminal

## .2.3.51 login host

Description	Domain name and IP address	
Syntax	logging host { <v_ipv4_ucast>   <v_word45> }	
Parameter		
	Name	Description
	hostname	Domain name of the log server
	ipv4_ucast	IP address of the log server

### .2.3.52 login level

Description	Log level	
Syntax	logging level { info   warning   error }	
Parameter		
	Name	Description
	error	Error
	info	Information
	warning	Warning

### .2.3.53 login on

Description	Log on
Syntax	logging on
Parameter	

### .2.3.54 logout

Description	System logout
Syntax	logout
Parameter	

### .2.3.55 mac address-table aging-time

Description	MAC table entries/configuration	
Syntax	mac address-table aging-time <v_0_10_to_1000000>	
Parameter		
	Name	Description
	<v_0_10_to_1000000>	Aging time in seconds, 0 disables aging

## .2.3.56 mac address-table static

Description	MAC table entries/configuration	
Syntax	mac address-table static <v_mac_addr> vlan <v_vlan_id> interface ( <port_type> [ <v_port_type_list> ] )	
Parameter		
	Name	Description
	<v_mac_addr>	48 bit MAC address
	v_vlan_id	VLAN IDs 1-4095
	port_type	Select an interface to configure
	v_port_type_list	Port list

## .2.3.57 more

Description	File in FLASH or on TFTP server
Syntax	more <Path>
Parameter	

## .2.3.58 no

Description	Function disable	
Syntax	no { debug   port-securit   terminal }	
Parameter		
	Name	Description
	debug	Debugging functions
	port-securit	Port security (psec limit)
	terminal	Set terminal line parameters

## .2.3.59 ping

Description	The ping function	
Syntax	ping { ip   ipv6 }	
Parameter		
	Name	Description
	ip	IP (ICMP) echo
	ipv6	IPv6 (ICMPv6) echo

## .2.3.60 port-security

Description	Port security	
Syntax	port-security [aging] [time <v_10_to_10000000>]	
Parameter		
	Name	Description
	aging	Enable/disable port security aging
	time	Time in seconds between checking for activity on learned MAC addresses
	v_10_to_10000000	<10-10000000> seconds

## .2.3.61 privilege

Description		
Syntax	privilege { exec   configure   config-vlan   line   interface   if-vlan   ipmc-profile   snmps-host   stp-aggr   dhcp-pool   rfc2544-profile } level <privilege> <cmd>	
Parameter		
	Name	Description
	config-vlan	VLAN Configuration Mode
	configure	Global configuration mod
	dhcp-pool	DHCP Pool Configuration Mode
	exec	Exec mode

	if-vlan	VLAN Interface Mode
	interface	Port List Interface Mode
	ipmc-profile	IPMC Profile Mode
	line	Line configuration mode
	rfc2544-profile	RFC2544 Profile Mode
	snmps-host	SNMP Server Host Mode
	stp-aggr	STP Aggregation Mode

### .2.3.62 reload

Description	System or configuration reset	
Syntax	reload { cold   default }	
Parameter		
	Name	Description
	cold	Reload cold
	defaults	Reload defaults without rebooting

### .2.3.63 rmon

Description	RMON	
Syntax	rmon {alarm   event}	
Parameter		
	Name	Description
	alarm	Configure an RMON alarm
	event	Configure an RMON event



## .2.3.64 rmon alarm

Description	RMON Alarm	
Syntax	rmon alarm <id> <oid_str> <interval> { absolute   delta } rising-threshold <rising_threshold> [ <rising_event_id> ] falling-threshold <falling_threshold> [ <falling_event_id> ] [ [ rising   falling   both ] ]	
Parameter		
	Name	Description
	id	Alarm entry ID
	ifInDiscards	The number of inbound packets that are discarded even if 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 broadcast and multicast packets delivered to a higher-layer protocol
	ifInOctets	The total number of octets received on the interface, including framing characters
	ifInUcastPkts	The number of unicast packets delivered to a higher-layer protocol
	ifInUnknownProtos	The number of the inbound packets that were discarded because of the unknown or un-support protocol
	ifOutDiscards	The number of outbound packets that are discarded event the packets are normal
	ifOutErrors	The number of outbound packets that could not be transmitted because of errors
	ifOutNUcastPkts	The number of broadcast and multicast packets that request to transmit
	ifOutOctets	The number of octets transmitted out of the interface, including framing characters
	ifOutUcastPkts	The number of unicast packets that request to transmit
	interval	Sample interval
	absolute	Test each sample directly
	delta	Test delta between samples
	rising_threshold	<-2147483648-2147483647> rising threshold value

	rising_event_id	<0-65535> Event to fire on rising threshold crossing
	falling_threshold	<-2147483648-2147483647> falling threshold value
	falling_event_id	<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

### .2.3.65 rmon alarm

Description	RMON Event	
Syntax	rmon event <id> [ log ] [ trap <community> ] [ [ description <description> ] ]	
Parameter		
	Name	Description
	description	Specify a description of the event
	log	Generate RMON log when the event fires
	trap	Generate SNMP trap when the event fires

### .2.3.66 terminal

Description	Terminal control	
Syntax	terminal { editing   exec-timeout   help   history   length   width }	
Parameter		
	Name	Description
	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 the number of lines on a screen
	width	Set the width of the display terminal

### .2.3.67 vlan <vlanid>

Description	Configure VLAN.	
Syntax	vlan <vlanid>	
Parameter		
	Name	Description
	<vlanid>	Create an empty VLAN index. <b>Valid values:</b> 1 ~ 4094  <b>Type:</b> Mandatory

### .2.3.68 vlan <vlanid> <name>

Description	Configure VLAN's name.	
Syntax	vlan <vlanid> <name>	
Parameter		
	Name	Description
	<vlanid>	Create an empty VLAN index. <b>Valid values:</b> 1 ~ 4094  <b>Type:</b> Mandatory
	<name>	VLAN Name (0~31)  String Size:0~31  <b>Type:</b> Mandatory

### .2.3.69 vlan disable <vlanid>

Description	Delete VLAN memberset/setting.	
Syntax	vlan disable <vlanid>	
Parameter		
	Name	Description
	<vlanid>	Valid values: 1 ~ 4094  <b>Type:</b> Mandatory

### .2.3.70 aging <time>

Description	Configure aging time for a bridge port.	
Syntax	aging <time>	
Parameter		
	Name	Description
	<time>	Valid values: 10 ~ 1000000 (seconds) Type: Mandatory

### .2.3.71 jumboframe {enable | disable}

Description	Set jumbo frame settings.	
Syntax	jumboframe {enable   disable}	
Parameter		
	Name	Description
	enable	Enable jumbo frame.
	disable	Disable jumbo frame.

### .2.3.72 jumboframe mtu <value>

Description	MTU size.	
Syntax	jumboframe mtu <value>	
Parameter		
	Name	Description
	<value>	Range. Valid values: 1536~9000 (bytes) Type: Mandatory

### .2.3.73 media-type

Description	Configure media-type	
Syntax	media-type { rj45   sfp   dual }	
Parameter		
	Name	Description
	rj45	rj45 interface (copper interface).
	sfp	sfp interface (fiber interface).
	dual	Dual media interface (cu & fiber interface).

### .2.3.74 monitor destination interface

Description	The destination port. That is the port that trafficked should be mirrored to.	
Syntax	monitor destination interface <port_type> <port_type_id>	
Parameter		
	Name	Description
	<port_type>	Port type
	<port_type_id>	Port Number

### .2.3.75 monitor source interface

Description	Mirror Interface traffic	
Syntax	monitor source [ { interface ( <port_type> [ <v_port_type_list> ] ) } ]	
Parameter		
	Name	Description
	port_type	1 Gigabit Ethernet Port
	v_port_type_lis	Port list

## .2.3.76 monitor source cpu

Description	Mirror Interface traffic	
Syntax	monitor source { cpu [ <cpu_switch_range> ] } { both   rx   tx }	
Parameter		
	Name	Description
	both	Setting source port to both will mirror both ingress and egress traffic
	rx	Setting source port to rx will mirror ingress traffic
	tx	Setting source port to tx will mirror egress traffic

## .2.3.77 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 { 10g   2500   1000   100   10   auto [ [ 10 ] [ 100 ] [ 1000 ] ] }	
Parameter		
	Name	Description
	1000	1Gbps
	100	100Mbps
	10	10Mbps
	auto	Auto-negotiation
	[ 10 ]	10Mbps
	[ 100 ]	100Mbps
	[ 1000 ]	1Gbps

## .2.3.78 traps

Description	trap event configuration	
Syntax	traps [ aaa authentication ] [ system [ coldstart ] [ warmstart ] ] [ switch [ stp ] [ rmon ] ]	
Parameter		
	Name	Description
	aaa authentication	AAA authentication fail event
	cold start	Cold start event
	warm start	Warm start event
	stp	STP event
	rmon	RMON event

## .2.3.79 upnp

Description	Set UPnP's configurations
Syntax	upnp
Parameter	

## .2.3.80 upnp advertising-duration

Description	Set UPnP's advertising duration	
Syntax	upnp advertising-duration <100-86400>	
Parameter		
	Name	Description
	100-86400	advertising duration

## .2.3.81 upnp ttl

Description	Set UPnP's TTL value	
Syntax	upnp ttl <1-255>	
Parameter		
	Name	Description
	1-255	TTL value

## .2.3.82 username

Description	User account	
Syntax	username <username> privilege <priv> password encrypted <encry_password> username <username> privilege <priv> password none username <username> privilege <priv> password unencrypted <password>	
Parameter		
	Name	Description
	username	<Username : word31> User name allows letters, numbers and underscores
	privilege	Set user privilege level
	priv	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



## .2.3.83 web

Description		
Syntax	web privilege group <group_name> level { [ cro <cro> ] [ crw <crw> ] [ sro <sro> ] [ srw <srw> ] } * 1	
Parameter		
	Name	Description
	privilege	Web privilege
	group	Web privilege group
	group_name	Valid words are 'Aggregation' 'DHCP' 'Debug' 'Dhcp_Client' 'Diagnostics' 'EEE' 'Green_Ethernet' 'IP2' 'IPMC_Snooping' 'LACP' 'LLDP' 'Loop_Protect' 'MAC_Table' 'MVR' 'Maintenance' 'Mirroring' 'NTP' 'Ports' 'Private_VLANs' 'QoS' 'RPC' 'Security' 'Spanning_Tree' 'System' 'Timer' 'VCL' 'VLANs' 'Voice_VLAN' 'XXRP' '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
	cro	<Cro : 0-15>
	crw	<Crw : 0-15>
	sro	<Sro : 0-15>
	srw	<Srw : 0-15>

## .2.3.84 flow-control {enable | disable}

Description	Enable/Disable flow-control.	
Syntax	flow-control {enable   disable}	
Parameter		
	Name	Description
	enable	Enable flow-control.
	disable	Disable flow-control.

## .2.3.85 speed

Description	Configure gigabit Ethernet speed and Copper/SFP for gigabit port 7~8. (port1~6 Only supports copper, no SFP) (port 9, 10 only support auto)	
Syntax	speed {auto   full-1000mbps   full-100mbps   full-10mbps   half-100mbps   half-10mbps}	
Parameter		
	Name	Description
	auto	Auto-negotiation.
	full-1000mbps	Set 1000Mbps full duplexing.
	full-100mbps	Set 100Mbps full duplexing.
	full-10mbps	Set 10Mbps full duplexing.
	half-100mbps	Set 100Mbps half duplexing.
	half-10mbps	Set 10Mbps half duplexing.

## .2.3.86 port {enable/disable}

Description	Set interface gigabit port enable or disable.	
Syntax	port {enable/disable}	
Parameter		
	Name	Description
	disable	Turn off gigabit port.
	enable	Turn off gigabit port.

## .2.3.87 Date/Time

Description	Set device date and time	
Syntax	clock datetime <2000-2037> <1-12> <1-31> <0-23> <0-59> <0-59>	
Parameter		
	Name	Description
	<2000-2037>	year
	<1-12>	month
	<1-31>	Date
	<0-23>	Hour
	<0-59>	minute
	<0-59>	Second

## -2.4VLAN Mode Commands

### .2.4.1 vlan

Description	VLAN commands	
Syntax	vlan <vlan_list>	
Parameter		
	Name	Description
	vlan_lis	ISL VLAN IDs 1 ~ 4095

### .2.4.2 vlan ether type s-custom-port

Description	Vlan Ether type for custom S-ports configuration	
Syntax	vlan ether type s-custom-port <0x0600-0xffff>	
Parameter		
	Name	Description
	0x0600-0xffff	Ether type (Range: 0x0600-0xffff)

### .2.4.3 vlan protocol

Description		
Syntax	vlan protocol { { eth2 { <0x600-0xffff>   arp   ip   ipx   at } }   { snap { <0x0-0xfffff>   rfc_1042   snap_8021h } <0x0-0xffff> }   { llc <0x0-0xff> <0x0-0xff> } } group <word16>	
Parameter		
	Name	Description
	0x600-0xffff	Ether Type(Range: 0x600 - 0xFFFF)
	arp	Ether Type is ARP
	ip	Ether Type is IP
	ipx	Ether Type is IPX
	at	Ether Type is AppleTalk

	0x0-0xffffffff	SNAP OUI (Range 0x000000 - 0xffffffff)
	rfc_1042	SNAP OUI is rfc_1042
	snap_8021h	SNAP OUI is 8021h
	0x0-0xffff	PID (Range: 0x0 - 0xffff)
	0x0-0xff	DSAP (Range: 0x00 - 0xff)
	0x0-0xff	SSAP (Range: 0x00 - 0xff)
	word16	Group Name (Range: 1 - 16 characters)

## .2.4.4 vlan-trunking

<b>Description</b>	<b>Change whether trunking of unknown VLANs is enabled</b>
<b>Syntax</b>	vlan-trunking
<b>Parameter</b>	

## .2.4.5 switchport access vlan

<b>Description</b>	<b>Set switch access mode of the interface</b>	
<b>Syntax</b>	switchport access vlan <vlan_id>	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	vlan_id	VLAN ID of the VLAN when this port is in access mode

## .2.4.6 switchport forbidden vlan

<b>Description</b>	<b>Adds or removes forbidden VLANs from the current list of forbidden VLANs</b>	
<b>Syntax</b>	switchport forbidden vlan { add   remove } <vlan_list>	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	add	Add to existing list.
	remove	Remove from existing list.
	vlan_list	VLAN IDs

## .2.4.7 switchport hybrid acceptable-frame-type

Description	Set acceptable frame type on a port	
Syntax	switchport hybrid acceptable-frame-type { all   tagged   untagged }	
Parameter		
	Name	Description
	all	Allow all frames
	tagged	Allow only tagged frames
	untagged	Allow only untagged frames

## .2.4.8 switchport hybrid allowed vlan

Description	Set allowed VLAN characteristics when interface is in hybrid mode	
Syntax	switchport hybrid allowed vlan { all   none   [ add   remove   except ] <vlan_list> }	
Parameter		
	Name	Description
	all	All VLANs
	none	No VLANs
	add	Add VLANs to the current list
	remove	Remove VLANs from the current list
	except	All VLANs except the following
	vlan_list	VLAN IDs of the allowed VLANs when this port is in hybrid mode

## .2.4.9 switchport hybrid egress-tag

Description	Egress VLAN tagging configuration	
Syntax	switchport hybrid egress-tag { none   all [ except-native ] }	
Parameter		
	Name	Description
	none	No egress tagging
	all	Tag all frames
	except-native	Tag all frames except frames classified to native VLAN of the hybrid port

## .2.4.10 switchport hybrid ingress-filtering

Description	VLAN Ingress filter configuration
Syntax	switchport hybrid ingress-filtering
Parameter	

## .2.4.11 switchport mode

Description	Set switching mode	
Syntax	switchport mode { access   trunk   hybrid }	
Parameter		
	Name	Description
	access	Set mode to ACCESS unconditionally
	trunk	Set mode to TRUNK unconditionally
	hybrid	Set mode to HYBRID unconditionally

## .2.4.12 switchport trunk allowed vlan

Description	Set allowed VLAN characteristics when interface is in trunk mode	
Syntax	switchport trunk allowed vlan { all   none   [ add   remove   except ] <vlan_list> }	
Parameter		
	Name	Description
	all	All VLANs
	none	No VLANs
	add	Add VLANs to the current list
	remove	Remove VLANs from the current list
	except	All VLANs except the following
	vlan_list	VLAN IDs of the allowed VLANs when this port is in trunk mode

## .2.4.13 switchport vlan protocol group

Description	Protocol-based VLAN group commands	
Syntax	switchport vlan protocol group <word16> vlan <vlan_id>	
Parameter		
	Name	Description
	word16	Group Name (Range: 1 - 16 characters)
	vlan_id	VLAN ID required for the group to VLAN mapping (Range: 1-4095)



## -2.5Interface VLAN Mode Commands

### .2.5.1 interface

Description	Interface configuration	
Syntax	interface <port_type> [ <port_type_list> ]	
Parameter		
	Name	Description
	port_type	Port type in Fast, Giga or Tengigaethernet
	port_type_list	List of Port ID, ex, 1/1,3-5;2/2-4,6

### .2.5.2 interface vlan

Description	VLAN interface configurations	
Syntax	interface vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	List of VLAN interface numbers, 1~4095

### .2.5.3 ip address

Description	IPv4 address configurations	
Syntax	ip address { { <ipv4_addr><ipv4_netmask> }   { dhcp [ fallback <ipv4_addr><ipv4_netmask> [ timeout <uint> ] ] } }	
Parameter		
	Name	Description
	ipv4_addr	IP address
	ipv4_netmask	IP netmask
	dhcp	Enable DHCP

	fallback	DHCP fallback settings
	ipv4_addr	DHCP fallback address
	ipv4_netmask	DHCP fallback netmask
	timeout	DHCP fallback timeout
	uint	DHCP fallback timeout in seconds

## .2.5.4 ip name-server

Description	Interface Internet Protocol config commands Domain Name System	
Syntax	ip name-server { <ipv4_ucast>   dhcp [ interface vlan<vlan_id> ] }	
Parameter		
	Name	Description
	ipv4_ucast	A valid IPv4 unicast address
	vlan_id	VLAN identifier(s): VID

## .2.5.5 ip dhcp excluded-address

Description	Prevent DHCP from assigning certain addresses	
Syntax	ip dhcp excluded-address <low_ip> [ <high_ip> ]	
Parameter		
	Name	Description
	low_ip	Low IP address
	high_ip	High IP address

## .2.5.6 ip dhcp pool

Description	Pool name in 32 characters
Syntax	ip dhcp pool <pool_name>
Parameter	

## .2.5.7 ip dhcp server

Description	DHCP Server
Syntax	ip dhcp server
Parameter	

## .2.5.8 ip dhcp relay

Description	DHCP relay agent configuration
Syntax	ipdhcp relay
Parameter	

## .2.5.9 ip dhcp relay information option

Description	IP DHCP relay information option (Option 82)
Syntax	ipdhcp relay information option
Parameter	

## .2.5.10 ip dhcp retry interface vlan

Description	Restart the DHCP query process	
Syntax	ipdhcp retry interface vlan<vlan_id>	
Parameter	Name	Description
	vlan_id	Vlan ID

## .2.5.11 ip dhcp snooping

Description	IP DHCP snooping
Syntax	ipdhcp snooping
Parameter	

## .2.5.12 ip helper-address

Description	DHCP relay server	
Syntax	ip helper-address <v_ipv4_ucast>	
Parameter		
	Name	Description
	ip : ipv4_ucast	IP address of the DHCP relay server

### .2.5.13 ipv6 address

Description	Configure the IPv6 address of an interface	
Syntax	ipv6 address <ipv6_subnet>	
Parameter		
	Name	Description
	ipv6_subnet	IPv6 prefix x:x::y/z

### .2.5.14 ipv6mtu

Description	IPv6 Maximum transmission unit	
Syntax	ipv6 mtu<1280-1500>	
Parameter		
	Name	Description
	1280-1500	MTU value in bytes

## -2.6RingV2 Group Mode Commands

### .2.6.1 ringv2 protect

Description	To configure ring protection.	
Syntax	ring protect	
Parameter		
	Name	Description
	group1	Configure ring protection v2 group1
	group2	Configure ring protection v2 group2
	group3	Configure ring protection v2 group3

### .2.6.2 guard-time

Description	Set guard time	
Syntax	guard-time { <ringGuardTimerDef> }	
Parameter		
	Name	Description
	ringGuardTimerDef	<10-3600>, unit: second. Default is 10 seconds

### .2.6.3 mode

Description	Enable/Disable ring group	
Syntax	mode { disable   enable }	
Parameter		
	Name	Description
	disable	Set the specified Ring group to Disabled
	enable	Set the specified Ring group to Enabled

## .2.6.4 node1 interface GigabitEthernet <portNo>}

Description	Set interface of ring protection node	
Syntax	node1 interface GigabitEthernet <portNo>	
Parameter		
	Name	Description
	<portNo>	Valid values: 1 ~ max port index.

## .2.6.5 node2 interface GigabitEthernet <portNo>}

Description	Set interface of ring protection node	
Syntax	Node2 interface GigabitEthernet <portNo>	
Parameter		
	Name	Description
	<portNo>	Valid values: 1 ~ max port index.

## .2.6.6 role

Description	Set role for group	
Syntax	role { ring-master   ring-slave   coupling-primary   coupling-backup   dual-homing   chain-head   chain-tail   chain-member   b-chain-terminal-1   b-chain-terminal-2   b-chain-central-block   b-chain-member }	
Parameter		
	Name	Description
	ring-master	Set role to ring master
	ring-slave	Set role to ring slave
	coupling-primary	Set role to coupling primary
	coupling-backup	Set role to coupling backup
	dual-homing	Set role to dual-homing
	chain-head	Set role to chain head

	chain-member	Set role to chain member
	chain-tail	Set role to chain tail
	b-chain-central-block	Set role to balancing chain central block
	b-chain-member	Set role to balancing chain member
	b-chain-terminal-1	Set role to balancing chain terminal 1
	b-chain-terminal-2	Set role to balancing chain terminal 2

## -2.7 Spanning Tree Commands

### .2.7.1 spanning-tree

Description	Enable/disable STP on this interface	
Syntax	spanning-tree	
Parameter		
	Name	Description

### .2.7.2 spanning-tree aggregation

Description	Spanning Tree protocol	
Syntax	spanning-tree aggregation	
Parameter		
	Name	Description

### .2.7.3 spanning-tree auto-edge

Description	Auto-detect edge status	
Syntax	spanning-tree auto-edge	
Parameter		
	Name	Description

### .2.7.4 spanning-tree bpdu-guard

Description	Enable/disable BPDU guard	
Syntax	spanning-tree bpdu-guard	
Parameter		
	Name	Description

### .2.7.5 spanning-tree edge

Description	Edge port spanning-tree STP Bridge	
Syntax	spanning-tree edge	
Parameter		
	Name	Description



## .2.7.6 spanning-tree edge bpd-filter

Description	Enable BPDU filter (stop BPDU tx/rx)	
Syntax	spanning-tree edge bpd-filter	
Parameter		
	Name	Description

## .2.7.7 spanning-tree mode

Description	Mode STP protocol mode stp 802.1D Spanning Tree rstp Rapid Spanning Tree (802.1w) mstp Multiple Spanning Tree (802.1s)	
Syntax	spanning-tree mode { stp   rstp   mstp }	
Parameter		
	Name	Description
	stp	802.1D Spanning Tree
	rstp	Rapid Spanning Tree (802.1w)
	mstp	Multiple Spanning Tree (802.1s)

## .2.7.8 spanning-tree mst cost

Description	STP bridge instance STP Cost of this port	
Syntax	spanning-tree mst <0-7> cost { <1-200000000>   auto }	
Parameter		
	Name	Description
	<0-7>	instance 0-7 (CIST=0, MST2=1...)
	<1-200000000>	STP Cost of this port

## .2.7.9 spanning-tree mst port-priority

Description	port-priority	
Syntax	spanning-tree mst <0-7> port-priority <0-240>	
Parameter		
	Name	Description
	<0-7>	instance 0-7 (CIST=0, MST2=1...)
	<0-240>	STP priority of this port

## .2.7.10 spanning-tree mst priority

Description	Priority of the instance Range in seconds	
Syntax	spanning-tree mst <0-7> priority <0-61440>	
Parameter		
	Name	Description
	<0-7>	instance 0-7 (CIST=0, MST2=1...)
	<0-61440>	Priority of the instance

## .2.7.11 spanning-tree mst vlan

Description	VLAN keyword	
Syntax	spanning-tree mst <0-7> vlan <vlan_list>	
Parameter		
	Name	Description
	<0-7>	instance 0-7 (CIST=0, MST2=1...)
	<vlan_list>	Range of VLANs

## .2.7.12 spanning-tree mst forward-time

Description	forward-time Delay between port states	
Syntax	spanning-tree mst forward-time <4-30>	
Parameter		
	Name	Description
	<4-30>	Delay between port states

## .2.7.13 spanning-tree mst max-age

Description	Max bridge age before timeout.	
Syntax	spanning-tree mst max-age <6-40> [ forward-time <4-30> ]	
Parameter		
	Name	Description
	<6-40>	Max bridge age before timeout
	<4-30>	forward-time

## .2.7.14 spanning-tree mst max-hops

Description	MSTP bridge max hop count	
Syntax	spanning-tree mst max-hops <6-40>	
Parameter		
	Name	Description
	<6-40>	MSTP bridge max hop count

## .2.7.15 spanning-tree mst name

Description	Name of the bridge Revision Revision keyword	
Syntax	spanning-tree mst name <word32> revision <0-65535>	
Parameter		
	Name	Description
	<word32>	Name of the bridge
	<0-65535>	Revision keyword

## .2.7.16 spanning-tree mst <instance>

Description	instance 0-7 (CIST=0, MST2=1...)	
Syntax	spanning-tree mst <instance> priority <prio> spanning-tree mst <instance> vlan <v_vlan_list>	
Parameter		
	Name	Description
	instance	<Instance : 0-7> instance 0-7 (CIST=0, MST2=1...)
	priority	Priority of the instance
	vlan	VLAN keyword
	prio	<Prio : 0-61440> Range in seconds
	v_vlan_list	<vlan_list> Range of VLANs

## .2.7.17 spanning-tree recovery

Description	Recovery	
Syntax	spanning-tree recovery interval <interval>	
Parameter		
	Name	Description
	interval	The interval
	interval	Interval : 30-86400> Range in seconds

## .2.7.18 spanning-tree transmit

Description	Transmit	
Syntax	spanning-tree transmit hold-count <holdcount>	
Parameter		
	Name	Description
	hold-count	Max number of transmit BPDUs per sec
	holdcount	<Holdcount : 1-10> 1-10 per sec, 6 is default

## -2.8sFlow Configure Commands

### .2.8.1 sflow

Description	Enables/disables flow sampling on this port.	
Syntax	sflow [ <range_list> ]	
Parameter		
	Name	Description
	< range_list >	Sampler instance

## .2.8.2 sflow agent-ip

<b>Description</b>	The agent IP address is used as the agent address in UDP datagrams. Defaults to IPv4 loopback address.	
<b>Syntax</b>	sflow agent-ip { ipv4 <ipv4_addr>   ipv6 <ipv6_addr> }	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	< ipv4_addr >	Ipv4 address
	< ipv6_addr >	ipv6 address

## .2.8.3 sflow collector-address

<b>Description</b>	Sflow runtime, see sflow_ici_functions	
<b>Syntax</b>	sflow collector-address [ receiver <range_list> ] [ <word> ]	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	< range_list >	Sampler instance

## .2.8.4 sflow max-datagram-size

<b>Description</b>	Statistics flow Maximum datagram size.	
<b>Syntax</b>	sflow max-datagram-size [ receiver <range_list> ] <200-1468>	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	<range_list>	receiver list
	<200-1468>	packet byte

## .2.8.5 sflow max-sampling-size

Description	Specifies the maximum number of bytes to transmit per flow sample.	
Syntax	sflow max-sampling-size [ sampler <range_list> ] [ <14-200> ]	
Parameter		
	Name	Description
	< range_list >	Sampler instance
	<200-1468>	packet byte

## .2.8.6 sflow collector-port

Description	Collector UDP port	
Syntax	sflow collector-port [ receiver <rcvr_idx_list> ] <collector_port>	
Parameter		
	Name	Description
	collector_port	<Collector Port : 1-65535> Port number

## .2.8.7 sflow sampling-rate

Description	Specifies the statistical sampling rate. The sample rate is specified as N to sample 1/Nth of the packets in the monitored flows. There are no restrictions on the value, but the switch will adjust it to the closest possible sampling rate.	
Syntax	sflow sampling-rate [ sampler <range_list> ] [ <1-4294967295> ]	
Parameter		
	Name	Description
	< range_list >	Sampler instance
	<1-4294967295>	Sampling rate

## .2.8.8 sflow timeout

Description	Receiver timeout is 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 configurations are reset to defaults.	
Syntax	sflow timeout [ receiver <range_list> ] <0-2147483647>	
Parameter		
	Name	Description
	< range_list >	Sampler instance
	<0-2147483647>	Number of seconds.

## -2.9SNMP Configure Commands

### .2.9.1 snmp-server

Description	Enable SNMP server	
Syntax	snmp-server	
Parameter		
	Name	Description

### .2.9.2 snmp-server access

Description	snmp-server access configuration	
Syntax	snmp-server access < group name > model { v1   v2c   v3   any } level { auth   noauth   priv } [ read <word255> ] [ write <word255> ]	
Parameter		
	Name	Description
	< group name >	32 words
	< v1   v2c   v3   any >	V1~v3 security model
	< level >	security level
	{ auth   noauth   priv }	authNoPriv Security Level
		noAuthNoPriv Security Level



		authPriv Security Level
	read	specify a read view for the group
	<word255>	read view name

### .2.9.3 snmp-server community v2c

<b>Description</b>	<b>Set the SNMP v2c community</b>	
<b>Syntax</b>	snmp-server community v2c <word127> [ ro   rw ]	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	< word127 >	Community word
	< ro >	Read only
	<rw>	Read write

### .2.9.4 snmp-server community v3

<b>Description</b>	<b>S Set the SNMP v3 community</b>	
<b>Syntax</b>	snmp-server community v3 <word127> [ <ipv4_addr> <ipv4_netmask> ]	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>
	< word127 >	Community word
	< ipv4_addr >	IPv4 address
	<ipv4_netmask>	IPv4 netmask

### .2.9.5 snmp-server host

<b>Description</b>	<b>Set SNMP server's configurations</b>	
<b>Syntax</b>	snmp-server host <word32>	
<b>Parameter</b>		
	<b>Name</b>	<b>Description</b>

	< word32 >	Name of the host configuration
--	------------	--------------------------------

## .2.9.6 snmp-server host traps

Description	Set SNMP host's configurations	
Syntax	snmp-server host < Name of the host configuration > traps [ linkup ] [ linkdown ] [ lldp ]	
Parameter		
	Name	Description
	< Name of the host configuration >	Name of the host configuration
	<200-1468>	packet byte
	[ linkup ]	Link up event
	[ linkdown ]	Link down event
	[ lldp ]	LLDP event

## .2.9.7 snmp-server trap

Description	Set SNMP server's configurations	
Syntax	snmp-server trap	
Parameter		
	Name	Description

## .2.9.8 snmp-server user

Description	Set the SNMPv3 user's configurations	
Syntax	snmp-server user <Username> engine-id <Engine ID octet string> [ { md5 <word8-32>   sha <word8-40> } [ priv { des   aes } <word8-32> ] ]	
Parameter		
	Name	Description
	<Username >	32 words
	<Engine ID octet string>	word10-32
	MD5	Set MD5 protocol

	sha	Set SHA protocol
	<word8-40>	SHA password
	priv	Set Privacy
	{ des   aes }	Set DES/AES protocol
	<word8-32>	Set privacy password

## .2.9.9 snmp-server version

Description	Set the SNMP server's version	
Syntax	snmp-server version { v1   v2c   v3 }	
Parameter		
	Name	Description
	{ v1   v2c   v3 }	SNMP v1,v2c,v3

## .2.9.10 snmp-server view

Description	Snmp MIB view configuration	
Syntax	snmp-server view <word32> <word255> { include   exclude }	
Parameter		
	Name	Description
	< word32 >	MIB view name
	< word255>	MIB view OID
	{ include   exclude }	Included/Excluded type from the view

## .2.9.11 SNMP trap receive ipv6 host

Description	host configuration	
Syntax	host <ipv6_ucast> [ <1-65535> ] [ traps   informs ]	
Parameter		
	Name	Description
	ipv6_ucast	IP address of SNMP trap host
	1-65535	UDP port of the trap messages
	traps	Send Trap messages to this host
	informs	Send Inform messages to this host

## .2.9.12 snmp-server contac

Description	SNMP server contact	
Syntax	snmp-server contact <v_line255>	
Parameter		
	Name	Description
	v_line255	<line255> contact string

## .2.9.13 snmp-server engine-id

Description	SNMP server engine ID	
Syntax	snmp-server engine-id local <engineID>	
Parameter		
	Name	Description
	local	Set SNMP local engine ID
	engineID	<Engineid : word10-32> local engine ID

## .2.9.14 snmp-server location

Description	SNMP server location	
Syntax	snmp-server location <v_line255>	
Parameter		
	Name	Description
	v_line255	<line255> location string

## .2.9.15 snmp-server security-to-group

Description	SNMP server security	
Syntax	snmp-server security-to-group model { v1   v2c   v3 } name <security_name> group <group_name>	
Parameter		
	Name	Description
	model	security model
	v1	v1 security model
	v2c	v2c security model
	v3	v3 security model
	name	security user
	security_name	<SecurityName : word32> security user name
	group	security group
	group_name	<GroupName : word32> security group name

## .2.9.16 SNMP trap receive ipv4 host

Description	host configuration	
Syntax	host { <ipv4_ucast>   <hostname> } [ <1-65535> ] [ traps   informs ]	
Parameter		
	Name	Description
	ipv4_ucast	IP address of SNMP trap host
	hostname	hostname of SNMP trap host
	1-65535	UDP port of the trap messages
	traps	Send Trap messages to this host
	informs	Send Inform messages to this host

## -2.10Qos Function Commands

### .2.10.1 qos qce

Description	QCE setting	
Syntax	qos qce { <Id : 1-256>   refresh   update }	
Parameter		
	Name	Description
	<Id : 1-256>	QCE ID
	refresh	Refresh QCE tables in hardware
	update	Update an existing QCE

## .2.10.2 qos storm

Description	QoS storm	
Syntax	qos storm { unicast   multicast   broadcast } { { <rate> [ kfps ] }   { 1024 kfps } }	
Parameter		
	Name	Description
	broadcast	Police broadcast frames
	multicast	Police multicast frames
	unicast	Police unicast frames
	<rate>	1024, Rate is 1024 kfps <Rate : 1,2,4,8,16,32,64,128,256,512> Policer rate (default fps)

## .2.10.3 qos cos

Description	Class of service configuration	
Syntax	qos cos <0-7>	
Parameter		
	Name	Description
	<0-7>	Specific class of service

## .2.10.4 qos dscp-classify

Description	Set qos dscp-classify.	
Syntax	qos dscp-classify { zero   selected   any }	
Parameter		
	Name	Description

## .2.10.5 qos dscp-remark

Description	Set qos dscp-remark	
Syntax	qos dscp-remark { rewrite   remap   remap-dp }	
Parameter		
	Name	Description

## .2.10.6 qos dscp-translate

Description	Enable qos dscp-translate mode
Syntax	qos dscp-translate

## .2.10.7 qos map cos-dscp

Description		Configure cos mapping to dscptable
Syntax		qos map cos-dscp <0~7> dpl <0~1> dscp [ <0-63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } }
Parameter	Name	Description
	<0~7>	Cos level
	<0~1>	Specific drop precedence level
	<0-63>	Dscp level
	be	Default PHB(DSCP 0) for best effort traffic
	af11~13	Assured Forwarding PHB 11~13(DSCP 10,12,14)
	af22~23	Assured Forwarding PHB 22~23(DSCP 20,22)
	af31~33	Assured Forwarding PHB 31~33(DSCP 26,28,30)
	Af41~43	Assured Forwarding PHB 41~43(DSCP 34,36,38)
	cs1~7	Class Selector PHB CS1~7 precedence 1~7(DSCP 8*(cs value))
	ef	Expedited Forwarding PHB(DSCP 46)
	va	Voice Admit PHB(DSCP 44)



## .2.10.8 qos map cos-dscp

Description	Configure dscp mapping to cos table	
Syntax Parameter	qos map dscp-cos { <0~63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } } cos <0-7> dpl <dpl>	
	Name	Description
	<0~7>	Cos level
	<0-63>	Dscp level
	be	Default PHB(DSCP 0) for best effort traffic
	af11~13	Assured Forwarding PHB 11~13(DSCP 10,12,14)
	af22~23	Assured Forwarding PHB 22~23(DSCP 20,22)
	af31~33	Assured Forwarding PHB 31~33(DSCP 26,28,30)
	Af41~43	Assured Forwarding PHB 41~43(DSCP 34,36,38)
	cs1~7	Class Selector PHB CS1~7 precedence 1~7(DSCP 8*(cs value))
	ef	Expedited Forwarding PHB(DSCP 46)
	va	Voice Admit PHB(DSCP 44)
	<0~1>	Specific drop precedence level

## .2.10.9 qos map dscp-egress-translation

Description	Configure dscp egress-translation
Syntax Parameter	qos map dscp-egress-translation { <0~63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } } <0~1> to { <0-63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } }

	Name	Description
	<0~7>	Cos level
	<0-63>	Dscp level
	be	Default PHB(DSCP 0) for best effort traffic
	af11~13	Assured Forwarding PHB 11~13(DSCP 10,12,14)
	af22~23	Assured Forwarding PHB 22~23(DSCP 20,22)
	af31~33	Assured Forwarding PHB 31~33(DSCP 26,28,30)
	Af41~43	Assured Forwarding PHB 41~43(DSCP 34,36,38)
	cs1~7	Class Selector PHB CS1~7 precedence 1~7(DSCP 8*(cs value))
	ef	Expedited Forwarding PHB(DSCP 46)
	va	Voice Admit PHB(DSCP 44)
	<0~1>	Specific drop precedence level

## .2.10.10 qos map dscp-ingress-translation

Description	Configure dscp ingress-translation	
<b>Syntax</b>	qos map dscp-ingress-translation { <0~63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } } to { <0-63>   { be   af11   af12   af13   af21   af22   af23   af31   af32   af33   af41   af42   af43   cs1   cs2   cs3   cs4   cs5   cs6   cs7   ef   va } }	
<b>Parameter</b>		
	Name	Description
	<0~7>	Cos level
	<0-63>	Dscp level
	be	Default PHB(DSCP 0) for best effort traffic
	af11~13	Assured Forwarding PHB 11~13(DSCP 10,12,14)
	af22~23	Assured Forwarding PHB 22~23(DSCP 20,22)
	af31~33	Assured Forwarding PHB 31~33(DSCP 26,28,30)
	Af41~43	Assured Forwarding PHB 41~43(DSCP 34,36,38)

	cs1~7	Class Selector PHB CS1~7 precedence 1~7(DSCP 8*(cs value))
	ef	Expedited Forwarding PHB(DSCP 46)
	va	Voice Admit PHB(DSCP 44)
	<0~1>	Specific drop precedence level

### .2.10.11 qos policer

Description	Configure qos policer	
Syntax	qos policer <unit> [ fps ] [ flowcontrol ]	
Parameter		
	Name	Description
	< unit >	Traffic meter
	< fps >	Frame rate
	[ flowcontrol ]	Enable flowcontrol mode

### .2.10.12 qos wrr

Description	Specifies qos wrr mode	
Syntax	qos wrr <1-100> <1-100> <1-100> <1-100> <1-100> <1-100>	
Parameter		
	Name	Description
	<1-100>	every level proportion

### .2.10.13 qos queue-shaper

Description	Configure queue-shaper command	
Syntax	qos queue-shaper queue <0~7> <uint> [ excess ]	
Parameter		
	Name	Description
	<1-100>	every level proportion

	<unit>	Traffic meter
	[ excess ]	Agree the shaper could be excess or not

## .2.10.14 qos queue-policer

Description	Configure queue-policer command	
Syntax	qos queue-policer queue <0~7> <uint>	
Parameter		
	Name	Description
	<0~7>	Queue number
	<uint>	Traffic meter

## .2.10.15 qos shaper <unit>

Description	Configure qos shaper command	
Syntax	qos shaper <uint>	
Parameter		
	Name	Description
	<1-100>	every level proportion
	<unit>	Traffic meter

## -2.11 IGMP Functional Commands

### .2.11.1 ip igmp host-proxy [ leave-proxy ]

Description	IGMP proxy for leave configuration	
Syntax	ipigmp host-proxy [ leave-proxy ]	
Parameter		
	Name	Description
	leave-proxy	IGMP proxy for leave

### .2.11.2 ip igmp snooping

Description	Snooping igmp
Syntax	ipigmp snooping
Parameter	

### .2.11.3 ip igmp snooping immediate-leave

Description	IP IGMP snooping immediate leave configuration
Syntax	ipigmp snooping immediate-leave
Parameter	

### .2.11.4 ip igmp snooping last-member-query-interval

Description	IP IGMP snooping Last Member Query Interval in tenths of seconds	
Syntax	ipigmp snooping last-member-query-interval <0-31744>	
Parameter		
	Name	Description
	0-31744	0 - 31744 tenths of seconds

## .2.11.5 ip igmp snooping max-groups

Description	IGMP group throttling configuration	
Syntax	ipigmp snooping max-groups <1-10>	
Parameter		
	Name	Description
	1-10	Maximum number of IGMP group registration

## .2.11.6 ip igmp snooping mrouter

Description	IPIGMP snooping Multicast router port configuration	
Syntax	ipigmp snooping mrouter	
Parameter		

## .2.11.7 ip igmp snooping querier

Description	IP IGMP querier configuration	
Syntax	ipigmp snooping querier { election   address <ipv4_ucast> }	
Parameter		
	Name	Description
	election	Act as an IGMP Querier to join Querier-Election
	address	IGMP Querier address configuration
	ipv4_ucast	A valid IPv4 unicast address

## .2.11.8 ip igmp snooping query-interval

Description	IP IGMP snooping Query-Interval in seconds	
Syntax	Ip igmp snooping query-interval <1-31744>	
Parameter		
	Name	Description
	1-317	1 - 31744 seconds

## .2.11.9 ip igmp snooping vlan

Description	ipigmp snooping vlan IDs	
Syntax	ipigmp snooping vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	VLAN identifier(s): VID

## .2.11.10 ip igmp ssm-range

Description	SSM range	
Syntax	ip igmp ssm-range <v_ipv4_mcast> <ipv4_prefix_length>	
Parameter		
	Name	Description
	v_ipv4_mcast	Valid IPv4 multicast address
	ipv4_prefix_length	Length

## .2.11.11 ip igmp unknown-flooding

Description	IP IGMP flooding unregistered IPv4 multicast traffic	
Syntax	ipigmp unknown-flooding	
Parameter		

## .2.11.12 clear ip igmp snooping statistics

Description	clear ip igmp snooping statistics	
Syntax	clear ip igmp snooping [ vlan<vlan_list> ] statistics	
Parameter		
	Name	Description
	vlan_list	VLAN list.

## -2.12MVR Functional Commands

### .2.12.1 mvr

Description	Multicast VLAN Registration configuration	
Syntax	mvr	
Parameter		
	Name	Description

### .2.12.2 mvr immediate-leave

Description	mvr immediate leave configuration	
Syntax	mvr immediate-leave	
Parameter		
	Name	Description

### .2.12.3 mvr name channel

Description	Multicast VLAN name and channel configuration	
Syntax	mvr name <word16> channel <word16>	
Parameter		
	Name	Description
	name <word16>	MVR multicast VLAN name
	channel <word16>	Profile name in 16 char's



## .2.12.4 mvr frame priority

Description	Multicast VLAN interface CoS priority	
Syntax	mvr name <word16> frame priority <0-7>	
Parameter		
	Name	Description
	name <word16>	MVR multicast VLAN name
	priority <0-7>	CoS priority ranges from 0 to 7

## .2.12.5 mvr name <word16> frame tagged

Description	MVR control frame in TX, Tagged IGMP/MLD frames will be sent	
Syntax	mvr name <word16> frame tagged	
Parameter		
	Name	Description
	name <word16>	MVR multicast VLAN name

## .2.12.6 mvr name <word16> igmp-address <ipv4\_ucast>

Description	MVR address configuration used in IGMP	
Syntax	mvr name <word16> igmp-address <ipv4_ucast>	
Parameter		
	Name	Description
	name <word16>	MVR multicast VLAN name
	<ipv4_ucast>	A valid IPv4 unicast address

## .2.12.7 mvr name <word16> last-member-query-interval <0-31744>

Description	Configure last Member Query Interval in tenths of seconds	
Syntax	mvr name <word16> last-member-query-interval <0-31744>	
Parameter		
	Name	Description
	name <word16>	MVR multicast VLAN name
	<0-31744>	0 - 31744 tenths of seconds

## .2.12.8 mvr name <word16> mode

Description	Dynamic MVR operation mode	
Syntax	mvr name <word16> mode { dynamic   compatible }	
Parameter		
	Name	Description
	dynamic	Dynamic MVR operation mode
	compatible	Compatible MVR operation mode

## .2.12.9 mvr name <word16> type

Description	MVR port role configuration	
Syntax	mvr name <word16> type { source   receiver }	
Parameter		
	Name	Description
	source	MVR source port
	receiver	MVR receiver port

## .2.12.10 mvr vlan

Description	Multicast VLAN Registration configuration	
Syntax	mvr vlan <vlan_list> [ name <word16> ]	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	name <word16>	MVR multicast VLAN name in 16 char's

## .2.12.11 mvr vlan <vlan\_list> channel

Description	MVR channel configuration	
Syntax	mvr vlan <vlan_list> channel <word16>	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	channel <word16>	MVR multicast channel name in 16 char's

## .2.12.12 mvr vlan <vlan\_list> frame priority

Description	Interface CoS priority	
Syntax	mvr vlan <vlan_list> frame priority <0-7>	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	<0-7>	CoS priority ranges from 0 to 7

### .2.12.13 mvr vlan <vlan\_list> frame tagged

Description	Set tagged IGMP/MLD frames will be sent	
Syntax	mvr vlan <vlan_list> frame tagged	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list

### .2.12.14 mvr vlan <vlan\_list> igmp-address

Description	Set tagged IGMP/MLD frames will be sent	
Syntax	mvr vlan <vlan_list> igmp-address <ipv4_ucast>	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	<ipv4_ucast>	A valid IPv4 unicast address for IGMP

### .2.12.15 mvr vlan <vlan\_list> mode

Description	Dynamic MVR vlan operation mode	
Syntax	mvr vlan <vlan_list> mode { dynamic   compatible }	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	dynamic	Dynamic MVR operation mode
	compatible	Compatible MVR operation mode

## .2.12.16 mvr vlan <vlan\_list> type

Description	MVR vlan role configuration	
Syntax	mvr vlan <vlan_list> type { source   receiver }	
Parameter		
	Name	Description
	< vlan_list >	MVR multicast VLAN list
	source	MVR source port
	receiver	MVR receiver port

## -2.13MLD Functional Commands

### .2.13.1 ipv6 mld host-proxy

Description	IPv6 MLD proxy configuration	
Syntax	ipv6 mld host-proxy [ leave-proxy ]	
Parameter		
	Name	Description
	leave-proxy	MLD proxy for leave configuration

### .2.13.2 ipv6 mld snooping

Description	ipv6 mld snooping	
Syntax	ipv6 mld snooping	
Parameter		

### .2.13.3 ipv6 mld snooping compatibility

Description	IPv6 MLD snooping compatibility configuration	
Syntax	ipv6 mld snooping compatibility { auto   v1   v2 }	
Parameter		
	Name	Description
	auto	Compatible with MLDv1/MLDv2
	v1	Forced MLDv1
	v2	Forced MLDv2

### .2.13.4 ipv6 mld snooping immediate-leave

Description	IPv6 MLD snooping immediate-leave configuration
Syntax	ipv6 mld snooping immediate-leave
Parameter	

### .2.13.5 ipv6 mld snooping last-member-query-interval

Description	ipv6 mld snooping last member query interval in tenths of seconds	
Syntax	ipv6 mld snooping last-member-query-interval <0-31744>	
Parameter		
	Name	Description
	0-31744	0 - 31744 tenths of seconds

### .2.13.6 ipv6 mld snooping max-groups

Description	IPv6 MLD group throttling configuration	
Syntax	ipv6 mld snooping max-groups <1-10>	
Parameter		
	Name	Description
	1-10	Maximum number of MLD group registration

## .2.13.7 ipv6 mld snooping mrouter

Description	ipv6 mld snooping multicast router port configuration
Syntax	ipv6 mld snooping mrouter
Parameter	

## .2.13.8 ipv6 mld snooping query-interval

Description	IPv6 MLD snooping query interval in seconds	
Syntax	ipv6 mld snooping query-interval <1-31744>	
Parameter		
	Name	Description
	1-31744	1 - 31744 seconds

## .2.13.9 ipv6 mld snooping query-max-response-time

Description	IPv6 MLD snooping querymaxresponse interval in tenths of seconds	
Syntax	ipv6 mld snooping query-max-response-time <0-31744>	
Parameter		
	Name	Description
	0-31744	0 - 31744 tenths of seconds

## .2.13.10 ipv6 mld snooping vlan

Description	ipv6 mld snooping vlan	
Syntax	ipv6 mld snooping vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	VLAN identifier(s): VID

## .2.13.11 ipv6 mld ssm-range

Description	SSM range	
Syntax	ipv6 mld ssm-range <v_ipv6_mcast> <ipv6_prefix_length>	
Parameter		
	Name	Description
	v_ipv6_mcast	Valid IPv6 multicast address
	ipv6_prefix_length	length

## .2.13.12 ipv6 mld unknown-flooding

Description	Flooding unregistered IPv6 multicast traffic
Syntax	ipv6 mld unknown-flooding
Parameter	

## .2.13.13 ipv6 route

Description	IPv6 Route	
Syntax	ipv6 route <v_ipv6_subnet> { <v_ipv6_ucast>   interface vlan <v_vlan_id> <v_ipv6_addr> }	
Parameter		
	Name	Description
	v_ipv6_subnet	IPv6 prefix x:x::y/z
	v_ipv6_ucast	The IP address of the DHCP relay server
	v_vlan_id	VLAN ID
	v_ipv6_addr	IP address



## -2.14 Loop-Protection Configure Commands

### .2.14.1 loop-protect

Description	Loop protection configuration on port
b	loop-protect
Parameter	

### .2.14.2 loop-protect action

Description	Loop protection configuration on port	
Syntax	loop-protect action [ [ shutdown ] [ log ]	
Parameter		
	Name	Description
	shutdown	Shutdown port
	log	Generate log

### .2.14.3 loop-protect shutdown-time

Description	Loop protection shutdown time interval	
Syntax	loop-protect shutdown-time <0-604800>	
Parameter		
	Name	Description
	0-604800	Shutdown time in second

## .2.14.4 loop-protect transmit-time

Description	Loop protection transmits time interval	
Syntax	loop-protect transmit-time <1-10>	
Parameter		
	Name	Description
	1-10	Transmit time in second

## .2.14.5 loop-protect tx-mode

Description	Loop protection actively generate PDUs	
Syntax	loop-protect tx-mode	
Parameter		

## -2.15LLDP Configure Commands

### .2.15.1 lldp holdtime

Description	Sets LLDP hold time (The neighbor switch will discarded the LLDP information after \"hold time\" multiplied with \"timer\" seconds ).	
Syntax	lldp holdtime <2-10>	
Parameter		
	Name	Description
	<2-10>	Holdtime 2-10 seconds

## .2.15.2 lldp med

Description	LLDP MED	
Syntax	See Description	
Parameter		
	Name	Description
	datum	Datum (geodetic system) type
		nad83-mlw      Mean lower low water datum 1983
		nad83-navd88      North American vertical datum 1983
		wgs84      World Geodetic System 1984
	fast	Number of times to repeat LLDP frame transmission at fast start  <v_1_to_10> : <1-10>
	location-tlv	LLDP-MED Location Type Length Value parameter
		altitude      Altitude parameter
		civic-addr      Civic address information and postal information
		elin-addr      Emergency Location Identification Number, (e.g. E911 and others), such as defined by TIA or NENA.
		latitude      Latitude parameter
		longitude      Longitude parameter
	media-vlan-policy	Use the media-vlan-policy to create a policy, which can be assigned to an interface  <Index : 0-31> : Policy id for the policy which is created

### .2.15.3 lldp receive

Description	Enable/Disable decoding of received LLDP frames.
Syntax	lldp receive

### .2.15.4 lldp reinit <1-10>

Description	LLDP tx reinitialization delay in seconds.	
Syntax	lldp reinit <1-10>	
Parameter		
	Name	Description
	<1-10>	Reinitialization delay time

### .2.15.5 lldp timer <5-32768>

Description	Sets LLDP TX interval (The time between each LLDP frame transmitted in seconds).	
Syntax	lldp timer <5-32768>	
Parameter		
	Name	Description
	<5-32768>	5-32768 seconds.

### .2.15.6 lldp tlv-select

Description	Which optional TLVs to transmit.	
Syntax	lldp tlv-select { management-address   port-description   system-capabilities   system-description   system-name }	
Parameter		
	Name	Description
	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.

### .2.15.7 lldp transmission-delay

Description	Sets LLDP transmission-delay. LLDP transmission delay (the amount of time that the transmission of LLDP frames will delayed after LLDP configuration has changed) in seconds.)	
Syntax	lldp transmission-delay <1-8192>	
Parameter		
	Name	Description
	<1-8192>	transmission-delay seconds

### .2.15.8 lldp transmit

Description	Enable/Disabled transmsion of LLDP frames.
Syntax	lldp transmit
Parameter	

## -2.16RFC2544 Testing Configure Commands

### .2.16.1 rfc2544 profile <word32>

Description	RFC2544 profile configuration	
Syntax	rfc2544 profile <word32>	
Parameter		
	Name	Description
	<word32>	Profile name up to 32 characters long

## .2.16.2 rfc2544 rename profile

Description	Rename an existing profile	
Syntax	rfc2544 rename profile <word32> <word32>	
Parameter		
	Name	Description
	profile <word32>	Old profile name
	<word32>	New profile name

## .2.16.3 rfc2544 save <word32> <word>

Description	Save a report to a file on a TFTP server	
Syntax	rfc2544 save <word32> <word>	
Parameter		
	Name	Description
	<word32>	Name of existing report to save
	<word>	TFTP server URL on the form tftp://server[:port]/path-to-file

## .2.16.4 rfc2544 start <word32> profile <word32> [ desc <line128> ]

Description	Start execution of a pre-configured profile	
Syntax	rfc2544 start <word32> profile <word32> [ desc <line128> ]	
Parameter		
	Name	Description
	start <word32>	Unique name of resulting report
	profile <word32>	Name of existing profile to execute
	desc <line128>	Description that will appear in the report

## .2.16.5 rfc2544 stop <word32>

Description	Stop execution of an ongoing test	
Syntax	rfc2544 stop <word32>	
Parameter		
	Name	Description
	<word32>	Report name to stop execution of

## .2.16.6 show rfc2544 profile [ <word32> ]

Description	show rfc2544 profile name	
Syntax	show rfc2544 profile [ <word32> ]	
Parameter		
	Name	Description
	<word32>	rfc2544 profile name

## -2.17GVRP Configure Commands

### .2.17.1 gvrp

Description	Enable GVRP on port(s)
Syntax	gvrp
Parameter	

## .2.17.2 gvrpjoin request vlan

Description	Emit a Join-Request for test purpose	
Syntax	gvrp join-request vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	List of VLANs

## .2.17.3 gvrpleave request vlan

Description	Emit a leave-Request for test purpose	
Syntax	gvrp leave-request vlan<vlan_list>	
Parameter		
	Name	Description
	vlan_list	List of VLANs

## .2.17.4 gvrp max-vlans

Description	gvrpmaximum number of VLANs	
Syntax	gvrp max-vlans<1-4095>	
Parameter		
	Name	Description
	<1-4095>	A valid range is from 1-4095.



## .2.17.5 gvrp time { [ join-time <1-20> ] [ leave-time <60-300> ] [ leave-all-time <1000-50> ] }

Description	Set gvrp time	
Syntax	gvrp time { [ join-time <1-20> ] [ leave-time <60-300> ] [ leave-all-time <1000-5000> ] }	
Parameter		
	Name	Description
	1-20	join timer, available from 1 to 20
	60-300	leave timer, available from 60 to 300
	1000-5000	leaveall timer, available from 1000 to 5000

## -2.18Voice VLAN Configure Commands

### .2.18.1 voice vlan

Description	Vlan for Voice appliance attributes
Syntax	voice vlan
Parameter	

### .2.18.2 voice vlan aging-time

Description	Set secure learning aging time for voice traffic	
Syntax	voice vlan aging-time <10-10000000>	
Parameter		
	Name	Description
	10-10000000	Aging time, 10-10000000 seconds

## .2.18.3 voice vlan class

Description	Set voice traffic class	
Syntax	voice vlan class { <0-7>   low   normal   medium   high }	
Parameter		
	Name	Description
	0-7	Traffic class value
	low	Traffic class low (0)
	normal	Traffic class normal (1)
	medium	Traffic class medium (2)
	high	Traffic class high (3)

## .2.18.4 voice vlan oui

Description	Set voice traffic OUI configuration	
Syntax	voice vlan oui <oui> [ description <line32> ]	
Parameter		
	Name	Description
	oui	OUI value
	description	Set description for the OUI
	line32	Description line

## .2.18.5 voice vlan vid

Description	Set voice VLAN ID	
Syntax	voice vlan vid <vlan_id>	
Parameter		
	Name	Description
	<vlan_id>	VLAN ID, 1-4095

## -2.19 Profile Alarm Commands

### .2.19.1 profile alarm

Description	Profile alarm
Syntax	profile alarm
Parameter	

### .2.19.2 alarm

Description	Set alarm content	
Syntax	alarm <alarmId> { mask   unmask   major   minor }	
Parameter	101 ~ 108: GE-1 ~ 8 Port link down	
	Name	Description
	alarmId	151: set Power alarm
	mask	Set alarm as mask, it means event will not be sent a notification
	unmask	Set alarm as un-mask, it means event will be sent a notification
	major	Set alarm level as major
	minor	Set alarm level as minor

## Appendix A Supported Ethernet Commands

The following Ethernet Commands may be used:

```
show running-config
```

```
# show interface GigabitEthernet 1/* status
```

Interface	Mode	Speed & Duplex	Flow Control	Max Frame	Excessive	Link
GigabitEthernet	1/1	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/2	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/3	enabled Auto	disabled	9600	Discard	1Gfdx
GigabitEthernet	1/4	enabled Auto	disabled	9600	Discard	100fdx
GigabitEthernet	1/5	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/6	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/7	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/8	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/9	enabled Auto	disabled	9600	Discard	Down
GigabitEthernet	1/10	enabled Auto	disabled	9600	Discard	Down

```
# show version
```

show interface GigabitEthernet 1/\* statistics

**GigabitEthernet 1/1 Statistics:**

Rx Packets:	0	Tx Packets:	0
Rx Octets:	0	Tx Octets:	0
Rx Unicast:	0	Tx Unicast:	0
Rx Multicast:	0	Tx Multicast:	0
Rx Broadcast:	0	Tx Broadcast:	0
Rx Pause:	0	Tx Pause:	0

Rx 64:	0	Tx 64:	0
Rx 65-127:	0	Tx 65-127:	0
Rx 128-255:	0	Tx 128-255:	0
Rx 256-511:	0	Tx 256-511:	0
Rx 512-1023:	0	Tx 512-1023:	0
Rx 1024-1526:	0	Tx 1024-1526:	0
Rx 1527- :	0	Tx 1527- :	0

Rx Priority 0:	0	Tx Priority 0:	0
Rx Priority 1:	0	Tx Priority 1:	0
Rx Priority 2:	0	Tx Priority 2:	0
Rx Priority 3:	0	Tx Priority 3:	0
Rx Priority 4:	0	Tx Priority 4:	0
Rx Priority 5:	0	Tx Priority 5:	0
Rx Priority 6:	0	Tx Priority 6:	0
Rx Priority 7:	0	Tx Priority 7:	0

Rx Drops:	0	Tx Drops:	0
Rx CRC/Alignment:	0	Tx Late/Exc. Coll.:	0
Rx Undersize:	0		
Rx Oversize:	0		
Rx Fragments:	0		
Rx Jabbers:	0		
Rx Filtered:	0		

**GigabitEthernet 1/2 Statistics:**

Rx Packets:	10662497	Tx Packets:	1312
Rx Octets:	14336340302	Tx Octets:	87717
Rx Unicast:	230	Tx Unicast:	212
Rx Multicast:	10547013	Tx Multicast:	1096
Rx Broadcast:	115254	Tx Broadcast:	4
Rx Pause:	0	Tx Pause:	0

Rx 64:	103730	Tx 64:	1244
Rx 65-127:	25778	Tx 65-127:	30
Rx 128-255:	8672	Tx 128-255:	36
Rx 256-511:	2711	Tx 256-511:	2
Rx 512-1023:	7086	Tx 512-1023:	0

```
Rx 1024-1526:      10514520  Tx 1024-1526:      0
Rx 1527-      :           0   Tx 1527-      :           0
```

```
Rx Priority 0:      10662497  Tx Priority 0:      0
show mac address-table
```

```
show ringv2
```

```
show profinet mrp
```

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