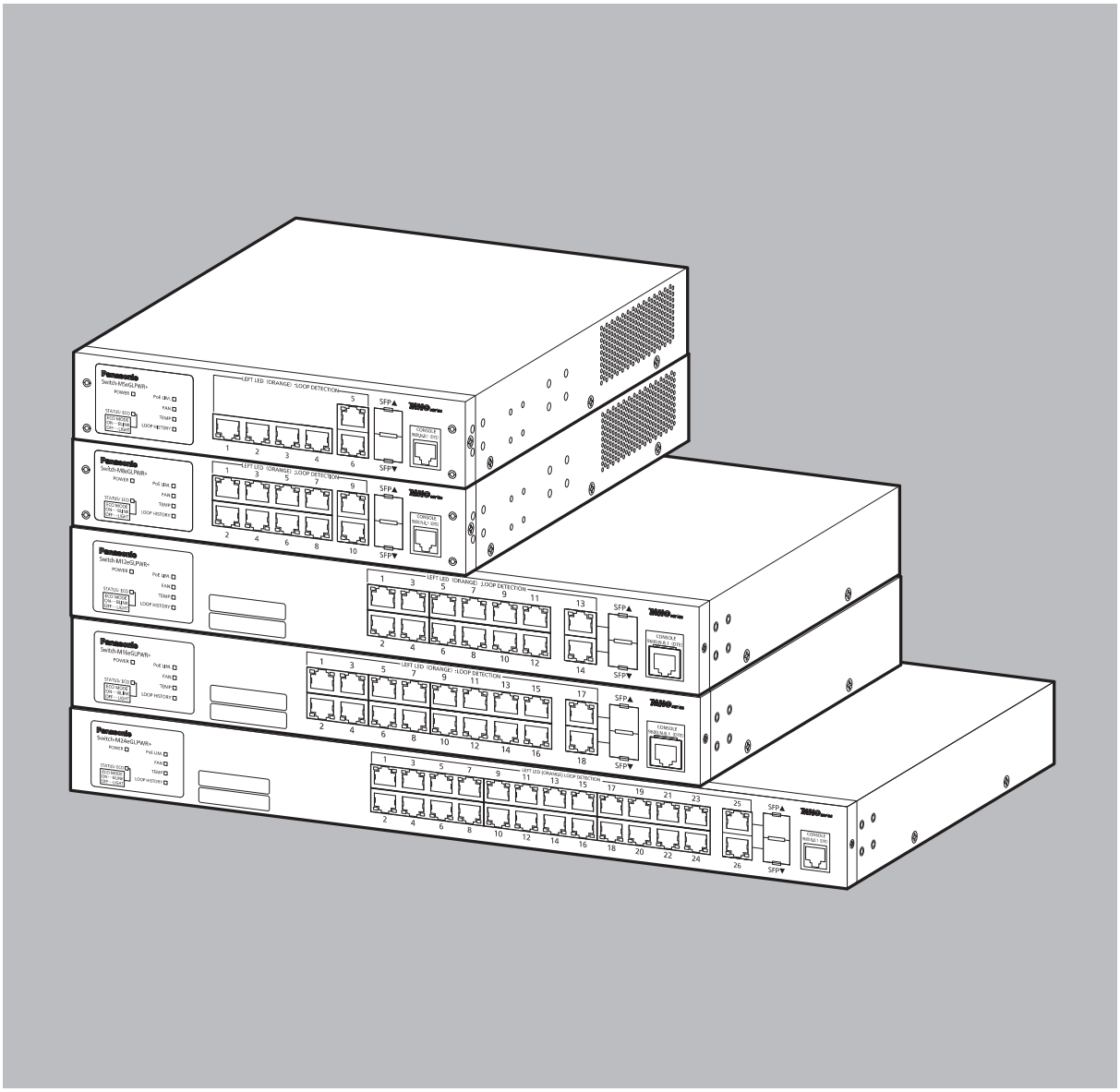
Panasonic

Operation Manual for CLI

Layer 2 Switching Hub

Model Number: PN28058/PN28088 /PN28128/PN28168/PN28248

- Thank you for purchasing our product.
- This manual provides important information about safe and proper operations of this switch.
- Please read "Important Safety Instructions" on pages 3 to 5 before use.
- For target model names and numbers, refer to the next page.
- Under all circumstances, customer disassembling of this switch voids the warranty.



The target model for this Operation Manual is as follows.

Model name	Model number	Firmware version
Switch-M5eGLPWR+	PN28058-ID PN28058-TH PN28058-MY PN28058-SG	2.0.0.00 and higher
Switch-M8eGLPWR+	PN28088-ID PN28088-TH PN28088-MY PN28088-SG	2.0.0.00 and higher
Switch-M12eGLPWR+	PN28128-ID PN28128-TH PN28128-MY PN28128-SG	2.0.0.00 and higher
Switch-M16eGLPWR+	PN28168-ID PN28168-TH PN28168-MY PN28168-SG	2.0.0.00 and higher
Switch-M24eGLPWR+	PN28248-ID PN28248-TH PN28248-MY PN28248-SG	2.0.0.00 and higher

Important Safety Instructions

Please Follow the Instructions

This chapter contains important safety instructions for preventing bodily injury and/or property damage. You are required to follow them.

■Severity of bodily injury and/or property damage, which could result from incorrect use of the switch, are explained below.

⚠WARNING	This symbol indicates a potential hazard that could result in serious injury or death.
⚠ CAUTION	This symbol indicates safety instructions. Deviation from these instructions could lead to bodily injury and/or property damage.

■The following symbols are used to classify and describe the type of instructions to be observed.

⊘	This symbol is used to alert users to what they must not do.
❗	This symbol is used to alert users to what they must do.

⚠WARNING

⊘

●Do not use power other than AC 100-240 V.
Deviation could lead to fire, electric shock, and/or equipment failure.

●Do not handle the power cord with wet hand.
Deviation could lead to electric shock and/or equipment failure.

●Do not handle this switch and connection cables during a thunderstorm.
Deviation could lead to electric shock.

●Do not disassemble and/or modify this Switching Hub.
Deviation could lead to fire, electric shock, and/or equipment failure.

●Do not damage the power cord. Do not bend too tightly, stretch, twist, bundle with other cord, pinch, put under a heavy object, and/or heat it.
Damaged the cord could lead to fire, short, and/or electric shock.

●Do not put foreign objects (such as metal or combustibles) into the opening (such as twisted pair port, console port, SFP expansion slot), and do not drop them inside the Switching Hub.
Deviation could lead to fire, electric shock, and/or equipment failure.

●Do not connect equipment other than 10BASE-T/100BASE-TX/1000BASE-T to a twisted pair port.
Deviation could lead to fire, electric shock, and/or equipment failure.

⚠WARNING	
	●Do not please this Switching Hub in harsh environment(such as near water, high humid, and/or high dust). Deviation could lead to fire, electric shock, and/or equipment failure. ●Do not place this Switching Hub under direct sunlight and/or high temperature. Deviation could lead to high internal temperature and fire. ●Do not install this Switching Hub at a location with continuous vibration or strong shock, or at an unstable location. The switch may fall off, leading to injury and/or equipment failure. ●Do not connect any cable other than our optional console cable. Deviation could lead to fire, electric shock, and/or equipment failure. ●Do not put this switch into fire. Deviation could lead to explosion and/or fire. ●Do not use the supplied power cord for anything other than this product. Deviation could lead to fire, electric shock, and/or equipment failure. ●Do not insert any modules other than the optional SFP modules (PN54021K/PN54023K) into the SFP extension slot. Deviation could lead to fire, electric shock, and/or equipment failure. For the latest information about compatible SFP extension modules, check our website.

⚠WARNING

●Use the bundled power cord (AC 100 - 240V specifications).
Deviation could lead to electric shock, malfunction, and/or equipment failure.The warranty does not cover any problems resulting from the use of any power cord other than the one supplied.

●Unplug the power cord in case of equipment failure.
Deviation such as keeping connected for a long time could lead to fire.

●Connect this Switching Hub to ground.
Deviation could lead to electric shock, malfunction, and/or equipment failure.

●Connect the power cord firmly to the power port.
Deviation could lead to electric fire, shock, and/or malfunction.

●Unplug the power cord if the Status/ECO LED (Status/ECO mode), TEMP LED (temperature sensor), blinks in orange (system fault).
Deviation, such as keeping connected for a long time, could lead to fire.

●When this Switching Hub is installed on wall surface, mount it firmly so as not to drop dwon because of weight of the main body andconnection cable.
Deviation could lead to injury and/or equipment failure.

●Up to two Switching Hubs can be connected by using the connection brackets and connection bracket screws included with the optional PN71052 19-inchrack mount brackets (for two units). Attach the connection brackets to the connection bracket screw holes on the front and back panels to securely fix the Switching Hubs before installation
If the Switching Hubs are not fixed securely, they may fall, leading to injury and/or equipment failure.

●To connect a power receiving equipment supporting IEEE802.3at to this Switching Hub, use a cable rated Cat5e or higher.
Using other cables may result in heat generation, ignition, and/or equipment failure.

Basic Instructions for the Use of This Product

●For inspection and/or repair, consult the retailer.

●Use commercial power supply from a wall socket, which is close and easily accessible to this Switching Hub.

●Unplug the power cord when installing or moving this Switching Hub.

●Unplug the power cord when cleaning this Switching Hub.

●Use this Switching Hub within the specifications. Deviation could lead to malfunction.

●When installing this Switching Hub using rubber feet (with built-in magnets), confirm that it does not move or fall down due to weight of cables.

●When connecting a cable, hold the Switching Hub firmly.

●If you install this Switching Hub at a high place, securely fix it on the wall with screws.

●If you install this Switching Hub at a high place with magnets alone, it may fall, leading to injury or failure of this Switching Hub.

●Do not put a floppy disk or a magnetic card near the rubber feet (with built-in magnets). Otherwise, recorded content may be lost.

●After installing this Switching Hub on an OA desk, do not move either without dismounting it. Otherwise, the desk surface may be damaged.

●Do not touch the metal terminal of the RJ45 connector, the modular plug of connected twisted pair cable. Do not place charged objects in the proximity of them. Static electricity could lead to equipment failure.

●Do not put the modular plug of the connected twisted pair cable on objects that can carry static charge, such as carpet. Do not place it in the proximity. Static electricity could lead to equipment failure.

●Do not put a strong shock, including dropping, to this Switching Hub. Deviation could lead to equipment failure.

●Before connecting a console cable to the console port, discharge static electricity, for example by touching metal appliance (do not discharge by touching this Switching Hub).

●Do not store and/or use this Switching Hub in the environment with the characteristics listed below.(Store and/or use this Switching Hub in the environment in accordance with the specification.)
- High humidity. Possible spilled liquid (water).
- Dusty. Possible static charge (such as carpet).
- Under direct sunlight.
- Possible condensation. High/low temperature exceeding the specifications environment.
- Strong vibration and/or strong shock.

●Please use this Switching Hub in places where the ambient temperature is in the range from 0 to 50 degrees C.

●Failure to satisfy the conditions above may result in a fire, electric shock, equipment failure, and/or malfunction. Such events are not covered by the warranty. Do not block the ventilator of the Switching Hub. Blocked ventilator induces the heat accumulation inside, causing equipment failure and/or malfunction. If used at a temperature out of the operating temperature range, the protection equipment becomes activated and PoE power supply stops.

●When using two Switching Hubs, do not stack them. When you place them side by side, allow for a space of 20 mm or more between them. This space is not necessary if you use PN71052 connection brackets.

●Operation is not guaranteed if a module other than the optional SFP extension modules (PN54021K/PN54023K) is inserted into the SFP extension slot. For the latest information about compatible SFP extension modules, check our website.

●When stacking Switching Hubs, leave a minimum of 20 mm space between them.

1. Panasonic will not be liable for any damage resulting from the operation not in accordance with this operation manual, or loss of communications, which may or may not be caused by failure and/or malfunction of this device.
2. The contents described in this document may be changed without prior notice.
3. For any questions, please contact your dealer.

* Brands and product names in this document are trademarks or registered trademarks of their respective holders.

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1. Command Hierarchy

There are four hierarchical levels in the command hierarchy.

(1) User mode:
The User mode is the mode right after login. Only limited operations are available.

(2) Privileged mode:
The Privileged mode allows to check the status of this switch and manipulate the configuration file.

(3) Global configuration mode:
The Global configuration mode allows general configuration of this switch.

(4) Interface configuration mode
The Interface configuration mode allows detailed configuration of this switch, such as for each port or VLAN.

Fig. 1-1 Command hierarchy

enable command

- The enable command enables to move from User mode to Privileged mode.

M8eGLPWR+> ····· User mode
M8eGLPWR+> enable ····· User mode
⇒ Privileged mode
M8eGLPWR+# ····· Privileged mode
M8elGPWR+# disable ····· Privileged mode
⇒ User mode
M8eLGPWR+> ····· User mode

disable command

- The disable command enables to return from Privileged mode to User mode.

M8eLGPWR+# ····· Privileged mode
M8eLGPWR+# disable ····· Privileged mode
⇒ User mode
M8eLGPWR+> ····· User mode

configure command

- The configure command enables to move from Privileged mode to Global configuration mode.

M8eGLPWR+# ····· Privileged mode
M8eGLPWR+# configure ····· Privileged mode
⇒ Global configuration mode
M8eGLPWR+(config)# ····· Global configuration mode

interface command

- The interface command enables to move from Global configuration mode to Interface configuration mode.

M8eGLPWR+(config)# ····· Global configuration mode
M8eGLPWR+(config)# interface vlan1 Global configuration mode
⇒ Interface
configuration mode (vlan1)
M8eGLPWR+(config-if)# exit ····· Interface configuration mode
⇒ Global configuration mode
M8eGLPWR+(config)# interface gigabitethernet0/1
····· Global configuration mode
⇒ Interface
configuration mode (interface1)
M8eGLPWR+(config-if)# ····· Interface configuration mode
M8eGLPWR+(config)# ····· Global configuration mode

exit command

- The exit command enables to return to the previous mode.

M8eGLPWR+(config-if)# exit ····· Interface configuration mode
⇒ Global configuration mode
M8eGLPWR+(config)# exit ····· Global configuration mode
⇒ Privileged mode
M8eGLPWR+# exit ····· Privileged mode
⇒ User mode
M8eGLPWR+> ····· User mode

end command

- The end command enables to move from configuration modes to Privileged mode.

M8eGLPWR+(config-if)# end ····· Interface configuration mode
⇒ Privileged mode
M8eGLPWR+# config
M8eGLPWR+(config)# end ····· Global configuration mode
⇒ Privileged mode

? command

- Entering a question mark (?) in each mode displays executable elements in the mode.

```
M8eGLPWR+> ?
 enable - Turn on privileged mode command
 exit   - Exit current mode and down to previous mode
 logout - To logout from the CLI shell
 ping   - Send ICMP ECHO_REQUEST to network hosts
M8eGLPWR+>
```

Fig. 1-2 ? Command

Re-entry assist

- Entering the up arrow key displays a command that was entered immediately before.

Candidate assist command

- Entering a command followed by a question mark (?) displays candidates of succeeding arguments.

```
M8eGLPWR+# configure
M8eGLPWR+(config)# ip address
 A.B.C.D - IP address (e.g. 10.0.0.1)
M8eGLPWR+(config)# ip address
```

Fig. 1-3 Candidate assist command

Command autocomplete

For command and argument entries, when a word can be uniquely identified after typing the first few letters, you can omit the remaining letters.

[Autocomplete examples]

- enable → en
- show running-config → sh ru

[Example when autocomplete does not work]

- co → Typing "co" does not run autocomplete because there are two candidates "configure" and "copy."

Meanings of symbols in descriptions are as follows:

< >	:	Required - Make sure to enter this item.
{ | }	:	Choice - Select and enter either one.
[ ]	:	Optional - Enter as necessary.

2. Displaying Basic Information

Enter "show sys-info" in "Privileged mode" to view the basic information of this switch as shown in **Fig. 2-1**.

Basic information display command

Privileged mode	show sys-info

```
M8eGLPWR+# show sys-info

System up for              : xxxday(s), xxhr(s), xxmin(s), xxsec(s)
Boot / Runtime Code Version: x.x.x.xx / x.x.x.xx
Hardware Information
  Version                  : Version1
  CPU Utilization          : xx.xx %
  DRAM / Flash Size        : 64MB / 8MB
  DRAM User Area Size      : Free: xxxxxxxx bytes / Total: xxxxxxxx bytes
  System Temperature       : CPU/xx ,System/xx degree(s) Celsius

Administration Information
  Switch Name              :
  Switch Location          :
  Switch Contact           :

System Address Information
  MAC Address              : xx:xx:xx:xx:xx:xx
  IP Address               : 0.0.0.0
  Subnet Mask              : 0.0.0.0
  Default Gateway          : 0.0.0.0
  DHCP Mode                : Disabled

M8eGLPWR+#
```

Fig. 2-1 Displaying basic information (show sys-info)

3. Basic Switch Configuration

3.1. System Administration Configuration

Configure the host name, installation location and contact information in "Global configuration mode." Confirm the configuration information by entering "show sys-info" in "Privileged mode."

Host name configuration command

Global configuration mode	hostname <hostname>

Host name delete command

Global configuration mode	no hostname

Installation location configuration command

Global configuration mode	snmp-server location <server location>

Installation location delete command

Global configuration mode	no snmp-server location

Contact information configuration command

Global configuration mode	snmp-server contact <server contact>

Contact information delete command

Global configuration mode	no snmp-server contact

Basic information display command

Privileged mode	show sys-info

Note: When configuring a host name containing a space, enter it embracing with double quotation marks (" ").
Example: hostname "Switch 1"

Example: Configuration example of the host name as PoESW-1, installation location as Office-2F, and contact information as Manager

```
M8eGLPWR+>
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# hostname PoESW-1
PoESW-1(config)# snmp-server location Office-2F
PoESW-1(config)# snmp-server contact Manager
PoESW-1(config)# end
PoESW-1# show sys-info

 System up for              : 000day(s), 00hr(s), 00min(s), 00sec(s)
 Boot / Runtime Code Version: x.x.x.xx / x.x.x.xx
 Hardware Information
   Version                  : Version1
   CPU Utilization          : xx.xx %
   DRAM / Flash Size        : 64MB / 8MB
   DRAM User Area Size      : Free: xxxxxxxx bytes / Total: xxxxxxxx bytes
   System Temperature       : CPU/xx ,System/xx degree(s) Celsius

 Administration Information
   Switch Name              : PoESW-1
   Switch Location          : Office-2F
   Switch Contact           : Manager

 System Address Information
   MAC Address              : xx:xx:xx:xx:xx:xx
   IP Address               : 192.168.0.1
   Subnet Mask              : 255.255.255.0
   Default Gateway          : 192.168.1.254
   DHCP Mode                : Disabled

PoESW-1#
```

Fig. 3-1 Display of the host name, installation location and contact information configuration (show sys-info)

3.2. IP Address Configuration

Configure the IP address settings of this switch in "Interface configuration mode." Confirm the configuration information by entering "show ip conf" in "Privileged mode."

IP address configuration command

Global configuration mode	ip address <ip-address> <mask> [<default-gateway>]

Default gateway configuration command

Global configuration mode	ip default-gateway <ip-address>

DHCP client configuration command

Global configuration mode	ip address dhcp

DHCP address reacquisition command

Global configuration mode	ip address renew

DHCP client configuration disable command

Global configuration mode	no ip address dhcp

IP address display command

Privileged mode	show ip conf

Example 1: Configuration example of IP address as 192.168.0.1, subnet mask as 255.255.255.0, and default gateway as 192.168.0.254

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# ip address 192.168.0.1 255.255.255.0
M8eGLPWR+(config)# ip default-gateway 192.168.0.254
M8eGLPWR+(config)# end
M8eGLPWR+# show ip conf

 MAC Address      : xx:xx:xx:xx:xx:xx
 IP Address       : 192.168.0.1
 Subnet Mask      : 255.255.255.0
 Default Gateway  : 192.168.0.254
 DHCP Mode        : Disabled

M8eGLPWR+#
```

Fig. 3-2 Display of the IP address configuration (show ip conf)

Example 2. Configuration example of DHCP client

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# ip address dhcp
M8eGLPWR+(config)# end
M8eGLPWR+# show ip conf

 MAC Address      : xx:xx:xx:xx:xx:xx
 IP Address       : 0.0.0.0
 Subnet Mask      : 0.0.0.0
 Default Gateway  : 0.0.0.0
 DHCP Mode        : Enabled

M8eGLPWR+#
```

Fig. 3-3 Display of the DHCP client and IP address configuration (show ip conf)

Note: Unless you configure these settings, you cannot use the SNMP management functions and remotely connect to the switch via Telnet, SSH or the web management function. Be sure to configure. If you are unsure of the settings, consult the network administrator. Any IP addresses on the local network must be unique, and no duplication is allowed. In addition, you need to set the subnet mask and the default gateway, which are the same for other devices on the same subnet using this switch.

3.3. SNMP Configuration

Configure the SNMP agent setting in "Global configuration mode." Confirm the configuration information by entering "show snmp" in "Privileged mode."

SNMP enable command

Global configuration mode	snmp-server agent

SNMP disable command

Global configuration mode	no snmp-server agent

SNMP administration (read only or read/write configuration) command

Global configuration mode	snmp-server community <index> <community> {RO|RW} [<ip>]

SNMP administration configuration delete command

Global configuration mode	no snmp-server community <index>

SNMP trap (type, IP address, community name) configuration command

Global configuration mode	snmp-server host <index> type {v1|v2} <ip> trap <community>

SNMP trap configuration delete command

Global configuration mode	no snmp-server host <index>

SNMP trap (authentication failure) configuration command

Global configuration mode	snmp-server enable traps snmp authentication

SNMP trap (authentication failure) delete command

Global configuration mode	no snmp-server enable traps snmp authentication

SNMP trap (link-down port) configuration command

Global configuration mode	snmp-server enable traps linkupdown <1-2 or 1,2,3 or 1,2,3-5>

SNMP trap (link-down port) delete command

Global configuration mode	no snmp-server enable traps linkupdown <1-2 or 1,2,3 or 1,2,3-5> }

SNMP trap (PoE supply operation) configuration command

Global configuration mode	snmp-server enable traps poe

SNMP trap (PoE supply operation) delete command

Global configuration mode	no snmp-server enable traps poe

SNMP trap (FAN error detection) configuration command

Global configuration mode	snmp-server enable traps fan-fail

SNMP trap (FAN error detection) delete command

Global configuration mode	no snmp-server enable traps fan-fail

SNMP trap (temperature detection) enable command

Global configuration mode	snmp-server enable traps temperature-control

SNMP trap (temperature detection) disable command

Global configuration mode	no snmp-server enable traps temperature-control

SNMP trap (temperature detection) temperature configuration command

Global configuration mode	snmp-server enable traps temperature-threshold < temperature >

SNMP trap (ddm) enable command

Global configuration mode	snmp-server enable traps ddm

SNMP trap (ddm) disable command

Global configuration mode	no snmp-server enable traps ddm

SNMP display command

Privileged mode	show snmp

Example 1: Configuration example of SNMP agent, SNMP manager, trap receiver, and various traps

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# snmp-server agent
M8eGLPWR+(config)# snmp-server community 1 private rw 192.168.1.200
M8eGLPWR+(config)# snmp-server community 2 public ro 192.168.1.200
M8eGLPWR+(config)# snmp-server host 1 type v1 192.168.1.200 trap public
M8eGLPWR+(config)# snmp-server enable traps snmp authentication
M8eGLPWR+(config)# snmp-server enable traps linkupdown 1-10
M8eGLPWR+(config)# snmp-server enable traps poe
M8eGLPWR+(config)# snmp-server enable traps fan-fail
M8eGLPWR+(config)# snmp-server enable traps temperature-control
M8eGLPWR+(config)# snmp-server enable traps temperature-threshold 39
M8eGLPWR+(config)# end
M8eGLPWR+#
```

Fig. 3-4 SNMP configuration

```
M8eGLPWR+# show  snmp

 SNMP Agent: Enabled

 SNMP Manager List:
  No.   Status    Privilege     IP Address         Community
 ----  --------  -----------  ---------------  ----------------------------
   1   Enabled    Read-Write    192.168.1.200      private
   2   Enabled    Read-Only     192.168.1.200      public
   3   Disabled   Read-Only     0.0.0.0
   4   Disabled   Read-Only     0.0.0.0
   5   Disabled   Read-Only     0.0.0.0
   6   Disabled   Read-Only     0.0.0.0
   7   Disabled   Read-Only     0.0.0.0
   8   Disabled   Read-Only     0.0.0.0
   9   Disabled   Read-Only     0.0.0.0
  10   Disabled   Read-Only     0.0.0.0

 Trap Receiver List:
  No.   Status       Type       IP Address         Community
 ----  --------  -----------  ---------------  ----------------------------
   1   Enabled    v1            192.168.1.200      public
   2   Disabled   v1            0.0.0.0
   3   Disabled   v1            0.0.0.0
   4   Disabled   v1            0.0.0.0
   5   Disabled   v1            0.0.0.0
   6   Disabled   v1            0.0.0.0
   7   Disabled   v1            0.0.0.0
   8   Disabled   v1            0.0.0.0
   9   Disabled   v1            0.0.0.0
  10   Disabled   v1            0.0.0.0

 Individual Trap
 SNMP Authentication Failure  : Enabled
 Enable Link Up/Down Port     : 1-10
 PoE Trap Control             : Enabled
 Temperature Trap Control     : Enabled
 Temperature Threshold        : 39 degree(s) Celsius
 FAN Failure                  : Enabled


M8eGLPWR+#
```

Fig. 3-5 Display of the SNMP configuration
(show snmp)

3.4. Port Configuration

Configure port settings in "Interface configuration mode." Confirm the configuration information by entering "show interface info" in "Privileged mode."

Port status enable command

Interface configuration mode	no shutdown

Port status disable command

Interface configuration mode	shutdown

Port mode configuration command

Interface configuration mode	speed-duplex { auto | {10|100}-half | {10|100}-full }

Flow control enable command

Interface configuration mode	flow-control

Flow control disable command

Interface configuration mode	no flow-control

Port name configuration command

Interface configuration mode	name < string>

Auto MDI enable command

Interface configuration mode	mdix auto

Auto MDI disable command

Interface configuration mode	no mdix auto

Jumbo frame enable command

Interface configuration mode	jumbo

Jumbo frame disable command

Interface configuration mode	no jumbo

EAP frame forwarding enable command

Interface configuration mode	eap-forward

IEEE802.3az (EEE) enable command

Interface configuration mode	line eee

IEEE802.3az (EEE) disable command

Interface configuration mode	no line eee

EAP frame forwarding disable command

Interface configuration mode	no eap-forward

MNO series power saving mode configuration command

Interface configuration mode	line power-saving {disable | full | half}

Port information display command

Privileged mode	show interface info

Extension port information display command

Privileged mode	show interface name

MNO series power saving mode display command

Privileged mode	show line configuration

Module information display command

Interface configuration mode	getport

Example 1: Configuration example of port speed and flow control

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# interface gi0/1
M8eGLPWR+(config-if)# speed-duplex 100-full
M8eGLPWR+(config-if)# flow-control
M8eGLPWR+(config-if)# end
M8eGLPWR+# show interface info

 Port  Trunk      Type      Admin     Link      Mode       Flow Ctrl  Auto-MDI
 ----  -----  ----------  --------  ----  ------------  ---------  --------
   1    ---      1000T     Enabled   Up    100-FDx       Enabled    Disabled
   2    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   3    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   4    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   5    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   6    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   7    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   8    ---      1000T     Enabled   Down  Auto          Disabled   Disabled
   9    ---      1000T     Enabled   Down  Auto          Disabled   Enabled
  10    ---      1000T     Enabled   Down  Auto          Disabled   Enabled

M8eGLPWR+#
```

Fig. 3-6 Display of the port information (show interface info)

Example 2: Configuration example of port name, jumbo frame, and EAP packet

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# jumbo
M8eGLPWR+(config)# interface gi0/1
M8eGLPWR+(config-if)# name Gi0/1
M8eGLPWR+(config-if)# eap-forward
M8eGLPWR+(config-if)# end
M8eGLPWR+# show interface name

 Global Jumbo Status: Enabled
 Port  Trunk      Type      Link     Port Name       EAP Pkt FW
 ----  -----  ----------  ----  ---------------   ------------
   1    ---      1000T     Down  Gi0/1              Enabled
   2    ---      1000T     Down  Port_2             Disabled
   3    ---      1000T     Down  Port_3             Disabled
   4    ---      1000T     Down  Port_4             Disabled
   5    ---      1000T     Down  Port_5             Disabled
   6    ---      1000T     Down  Port_6             Disabled
   7    ---      1000T     Down  Port_2             Disabled
   8    ---      1000T     Down  Port_3             Disabled
   9    ---      1000T     Down  Port_4             Disabled
  10    ---      1000T     Down  Port_5             Disabled

M8eGLPWR+#
```

Fig. 3-7 Display of the port names (show interface name)

Example 3: Configuration example of MNO series power saving mode

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# interface gi0/1
M8eGLPWR+(config-if)# line power-saving disable
M8eGLPWR+(config-if)# end
M8eGLPWR+# show line configuration


 Port   Link    Trunk   Type      Mode        Power-Saving   EEE(802.3az)
 ----  ------   -----  ------  -----------   ------------   ------------
   1    Down     ---    1000T   Auto          Disabled       Enabled
   2    Down     ---    1000T   Auto          Half           Enabled
   3    Down     ---    1000T   Auto          Half           Enabled
   4    Down     ---    1000T   Auto          Half           Enabled
   5    Down     ---    1000T   Auto          Half           Enabled
   6    Down     ---    1000T   Auto          Half           Enabled
   7    Down     ---    1000T   Auto          Half           Enabled
   8    Down     ---    1000T   Auto          Half           Enabled
   9    Down     ---    1000T   Auto          Half           Enabled
  10    Down     ---    1000T   Auto          Half           Enabled

M8eGLPWR+#
```

Fig. 3-8 Display of the MNO series power saving mode (show line configuration)

3.5. Access Condition Configuration

Configure access conditions to the switch in "Global configuration mode." Confirm the configuration information by entering "show terminal length" in "Privileged mode."

Console timeout configuration command

Global configuration mode	console inactivity-timer <minutes>

Console configuration display command

Privileged mode	show console

Telnet server timeout configuration command

Global configuration mode	telnet-server inactivity-timer <minutes>

Telnet server enable command

Global configuration mode	telnet-server enable

Telnet server disable command

Global configuration mode	no telnet-server enable

Web server enable command

Global configuration mode	ip http server

Web server disable command

Global configuration mode	no ip http server

Accept telnet accsess device configration command

Global configuration mode	telnet-server <entry> <ip-address> <mask>

Telnet server configration display command

Privileged mode	show telnet-server

SSH server enable command

Global configuration mode	crypto key generate rsa

SSH server disable command

Global configuration mode	crypto key zeroize rsa

SSH server timeout configration command

Global configuration mode	ip ssh time-out <minutes>

SSH server authentication timeout configration command

Global configuration mode	ip ssh authentication-timeout <seconds>

SSH server authentication retries count configration command

Global configuration mode	ip ssh authentication-retries <retries>

SSH server configration display command

Privileged mode	show ip ssh

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# console inactivity-timer 10
M8eGLPWR+(config)# end
M8eGLPWR+# show console

 Console UI Idle Timeout: 10 Min.

 Console
---------
 Active

M8eGLPWR+# configure
M8eGLPWR+(config)# telnet-server inactivity-timer 10
M8eGLPWR+(config)# telnet-server 1 192.168.0.100 255.255.255.255
M8eGLPWR+(config)# telnet-server access-limitation enable
M8eGLPWR+(config)# end
M8eGLPWR+# show telnet-server

 Telnet UI Idle Timeout: 10 Min.

 Telnet Server
---------------
 Enabled

 Telnet Access Limitation :   Enabled

 No.      IP Address         Subnet Mask
 ---   ---------------     ---------------
  1    192.168.0.100       255.255.255.255
  2     <empty>              <empty>
  3     <empty>              <empty>
  4     <empty>              <empty>
  5     <empty>              <empty>

M8eGLPWR+#
```

Fig. 3-9 Display of the console and Telnet server configuration
(show console)
(show telnet-server)

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# crypto key generate rsa
M8eGLPWR+(config)# ip ssh time-out 1
M8eGLPWR+(config)# ip ssh authentication-timeout 60
M8eGLPWR+(config)# end
M8eGLPWR+# show ip ssh

 SSH UI Idle Timeout:          1 Min.
 SSH Auth. Idle Timeout:       60 Sec.
 SSH Auth. Retries Time:       5
 SSH Server:                   Enabled(SSH)
 SSH Server key:               Key exists.

M8eGLPWR+#
```

Fig. 3-10 Display of the SSH server configuration (show ip ssh)

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# ip http server

 Web server is Enabled now

M8eGLPWR+(config)# end
M8eGLPWR+# show ip http server

 Web Server
------------
 Enabled

M8eGLPWR+#
```

Fig. 3-11 Display of the web server configuration (show ip http server)

SNMP enable command

Global configuration mode	snmp-server agent

SNMP disable command

Global configuration mode	no snmp-server agent

User name and password configuration command

Global configuration mode	username <new username>
* After entering the user name, enter the old password and the new password (twice.)	

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# username mno
Enter old password: *******
Enter new password: ***
Enter new password again: ***
M8eGLPWR+(config)#
```

Fig. 3-12 User name and password configuration

On-screen line numbers display command

Privileged mode	show terminal length

On-screen line numbers configuration command

Global configuration mode	terminal length <LENGTH>

Example: Set Terminal Length to 0 (the number of lines to be displayed on a screen at once is set to unlimited)

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# terminal length 0
M8eGLPWR+(config)# end
M8eGLPWR+# show terminal length

 Terminal Length: none

M8eGLPWR+#
```

Fig. 3-13 Display of the Terminal Length configuration information (show terminal length)

3.6. MAC Address Table Display and Registration Configuration

Configuration of the forwarding database (FDB: a list where MAC addresses required for FDB packet translation are memorized/recorded is done in "Global Configuration Mode." The content of FDB is displayed in "Privileged Mode." In addition, static MAC addresses can be added or deleted.

Aging time configuration command

Global configuration mode	mac-address-table aging-time <seconds>

FDB entry (static) configuration command

Global configuration mode	mac-address-table static <MAC address> <interface> vlan <vlan-id>

FDB entry (static) delete command

Global configuration mode	no mac-address-table static <MAC address> vlan <vlan-id>

MAC Learning enable command

Interface configuration mode	mac-learning

MAC Learning disable command

Interface configuration mode	no mac-learning

FDB (static) display command

Privileged mode	show mac-address-table static

FDB (by MAC) display command

Privileged mode	show mac-address-table mac

FDB (by interface) display command

Privileged mode	show mac-address-table interface <interface>

FDB (by VLAN) display command

Privileged mode	show mac-address-table vlan <vlan-id>

FDB (multicast) display command

Privileged mode	show mac-address-table multicast

MAC address automatic learning display command

Privileged mode	show mac-address-table mac-learning

Aging time display command

Privileged mode	show mac-address-table aging-time

```
M8eGLPWR+> enable
M8eGLPWR+# show mac-address-table static

    MAC Address       Port    VLAN ID
 -----------------   ------   -------
 00:00:00:00:00:01      1         1

M8eGLPWR+# show mac-address-table mac

    MAC Address       Port
 -----------------    ----
 00:00:00:00:00:01     1
 xx:xx:xx:xx:xx:xx     CPU

M8eGLPWR+#
M8eGLPWR+# show mac-address-table interface fa0/1

    MAC Address       Port
 -----------------    ----
 00:00:00:00:00:01     1

M8eGLPWR+# show mac-address-table multicast

 VLAN ID  Group MAC address  Group members
 -------  -----------------  ------------------------------------------------------

M8eGLPWR+#
```

Fig. 3-14 Reference to MAC Address Table
(show mac-address-table static)
(show mac-address-table mac)
(show mac-address-table interface <interface>)
(show mac-address-table vlan <vlan-id>)
(show mac-address-table multicast)

3.7. SNTP Configuration

Configure time synchronization by SNTP in"Global configuration mode." Confirm the configuration information by entering "show sntp" in "Privileged mode."

SNTP server IP address configuration command

Global configuration mode	sntp server <ip-address>

SNTP time acquisition interval configuration command

Global configuration mode	sntp poll-interval <min>

SNTP daylight-saving enable command

Global configuration mode	sntp daylight-saving

SNTP daylight-saving disable command

Global configuration mode	no sntp daylight-saving

SNTP time zone configuration command

Global configuration mode	sntp timezone [<location> / NULL to see time zones]

SNTP configuration information display command

Privileged mode	show sntp

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# sntp server 192.168.0.100
M8eGLPWR+(config)# end
M8eGLPWR+# show sntp

 Time ( HH:MM:SS )      : 01:37:57
 Date ( YYYY/MM/DD )    : 2001/01/01      Monday

 SNTP Server IP         : 192.168.0.100
 SNTP Polling Interval  : 1440 Min
 Time Zone              : (GMT+09:00) Osaka,Sapporo,Tokyo
 Daylight Saving        : N/A

M8eGLPWR+#
```

Fig. 3-15 Display of the SNTP configuration (show sntp)

3.8. ARP Table Display and Registration Configuration

Display and configure the ARP table in "Global configuration mode."

ARP aging time configuration command

Global configuration mode	arp timeout <value>

ARP (static) configuration command

Global configuration mode	arp <ip-address> <MAC address>

ARP (by MAC) display command

Privileged mode	show arp sort MAC

ARP (by IP) display command

Privileged mode	show arp sort IP

ARP (static) display command

Privileged mode	show arp sort type-static

ARP (dynamic) display command

Privileged mode	show arp sort type-dynamic

```
M8eGLPWR+> enable
M8eGLPWR+# show arp sort ip

 Sorting Method  : By IP
 ARP Age Timeout : 7200  seconds

   IP Address      Hardware Address     Type
 ---------------   ------------------   -------
 192.168.1.1       00:00:00:00:00:01    Static

M8eGLPWR+#
```

Fig. 3-16 Display of ARP table
(show arp sort ip)

3.9. LLDP Configuration

Configure LLDP in "Global configuration mode" or "Interface configuration mode." Confirm the configuration information by entering "show lldp status" in "Privileged mode."

LLDP enable command

Global configuration mode	lldp enable

LLDP disable command

Global configuration mode	no lldp enable

LLDP transmission configuration command

Interface configuration mode	lldp admin-status { both | rx-only | tx-only | disable }

LLDP transmission TLV enable command

Interface configuration mode	lldp tx-tlv { port-desc | sys-name | sys-desc | sys-cap | mgmt-addr }

LLDP transmission TLV disable command

Interface configuration mode	no lldp tx-tlv { port-desc | sys-name | sys-desc | sys-cap | mgmt-addr }

LLDP configuration display command

Privileged mode	show lldp status

LLDP Neighbor table display command

Privileged mode	show lldp neighbors

LLDP agent details display command

Privileged mode	show lldp neighbors detail

```
M8eGLPWR+> enable
M8eGLPWR+# show lldp status

 LLDP Status : Enabled

 Port  Admin Status  Port Desc  Sys Name  Sys Desc  Sys Cap   Mgmt Addr
 ----  ------------  ---------  --------  --------  --------  ---------
   1   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   2   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   3   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   4   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   5   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   6   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   7   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   8   Both          Disabled   Disabled  Disabled  Disabled  Disabled
   9   Both          Disabled   Disabled  Disabled  Disabled  Disabled
  10   Both          Disabled   Disabled  Disabled  Disabled  Disabled

M8eGLPWR+#
```

Fig. 3-17 Display of LLDP configuration
(show lldp status)

```
M8eGLPWR+> enable
M8eGLPWR+# show lldp neighbors

 Total Neighbors:   1
  No     Chassis ID          Port ID       Mgmt IP Address  Port
 ---  ------------------  ------------------  ---------------  ----
   1  xx:xx:xx:xx:xx:xx  xx:xx:xx:xx:xx:xx  0.0.0.0            1

M8eGLPWR+# show lldp neighbors detail

 Index             : 1
 Local Port        : 1
 Discovered Time   : 000day(s), 00hr(s), 00min(s), 00sec(s)
 Last Update Time  : 000day(s), 00hr(s), 00min(s), 00sec(s)
 ChassisId         : xx:xx:xx:xx:xx:xx (MAC Address)
 PortId            : xx:xx:xx:xx:xx:xx (MAC Address)
 System Name       :
 System Capability : x / x (Supported / Enabled)
                     (O:Other  R:Repeater  B:Bridge W:WLAN Access Point
                      r:Router T:Telephone D:DOCSIS cable device S:Station Only)
 Port Description  :
 System Description:

M8eGLPWR+#
```

Fig. 3-18 Display of LLDP Neighbor table and LLDP agent detail information
(show lldp neighbor)
(show lldp neighbor detail)

4. Advanced Switch Configuration

4.1. VLAN Configuration

Configure VLAN in "Global configuration mode" or "Interface configuration mode." Confirm the configuration information by entering "show vlan all" in "Privileged mode."

VLAN creation configuration command

Global configuration mode	interface vlan<vlan-id>

VLAN delete command

Global configuration mode	no interface vlan<vlan-id>

Internet Mansion configuration command

Global configuration mode	internet mansion <port-list>

Internet Mansion configuration disable command

Global configuration mode	no internet mansion

VLAN name configuration command

Interface configuration mode	name <name>

Command to set the management VLAN

Interface configuration mode	management

Command to delete the management VLAN

Interface configuration mode	no management

VLAN member configuration command

Interface configuration mode	member <1-2 or 1,2,3 or 1,2,3-5>

PVID configuration command

Interface configuration mode	pvid <vlan-id>

Frame type configuration command

Interface configuration mode	frame-type { all|tag-only }

VLAN configuration information display command

Privileged mode	show vlan {all | <vlan-id>}

VLAN port configuration display command

Privileged mode	show vlan-by-port

PVID display command

Privileged mode	show vlan port

Note: When configuring a VLAN name containing a space, enter it embracing with double quotation marks (" ").
Example: name "VLAN 1"

```
M8eGLPWR+> enable
M8eGLPWR+# show vlan all

 Internet Mansion : Disabled               Uplink :
 Total VLANs : 3

VLAN      Name                           Type    Mgmt     Ports
---- ------------------------------ --------- ---- ----------------------------
   1                                 Permanent  UP  Gi1, Gi2, Gi3, Gi4, Gi5
                                                    Gi6, Gi7, Gi8, Gi9, Gi10

  10                                 Static    DOWN Gi1, Gi2

  20                                 Static    DOWN Gi3, Gi4

M8eGLPWR+#

M8eGLPWR+# show vlan 1

 VLAN ID           : 1
 VLAN Name         :
 Management Status : UP
 Port Members      : 5-10
 Untagged Ports    : 5-10

M8eGLPWR+#
```

Fig. 4-1 Display of the VLAN configuration
(show vlan all)
(show vlan 1)

```
M8eGLPWR+> enable
M8eGLPWR+# show vlan-by-port

  Port     VLAN ID
 ------  ------------------------------------------------------------------
    1    10
    2    10
    3    20
    4    20
    5    1
    6    1
    7    1
    8    1
    9    1
   10    1

M8eGLPWR+#
```

Fig. 4-2 Display of the port VLAN configuration
(show vlan-by-port)

4.2. Link Aggregation Configuration

Configure the link aggregation in "Global configuration mode" or "Interface configuration mode."

Link aggregation configuration command

Global configuration mode	lacp <LACP-key> <1-2 or 1,2,3 or 1,2,3-5> {Active | Passive | Manual}

Link aggregation configuration delete command

Global configuration mode	no lacp <LACP-key>

LACP system priority configuration command

Global configuration mode	lacp system-priority <priority-value>

LACP port priority configuration command

Interface configuration mode	lacp port-priority <priority-value>

LACP configuration information display command

Privileged mode	show lacp

LACP key display command

Privileged mode	show lacp [<la-key>]

```
M8eGLPWR+> enable
M8eGLPWR+# show lacp
 System Priority  : 1

  Key    Mode      Member Port List
 ----- -------- --------------------------------------------------------------
     1  Active  1-2

M8eGLPWR+# show lacp 1

 System Priority :   1
 System ID       :   xx:xx:xx:xx:xx:xx
 Key             :   1
 Aggregator  Pri         Attached Port List
 ---------- ----- --------------------------------
     1         1  1
     2         1  2

M8eGLPWR+
```

Fig. 4-3 Display of the link aggregation
(show lacp)
(show lacp 1)

4.3. Port Monitoring Configuration

Configure port monitoring settings in "Interface configuration mode." Confirm the configuration information by entering "show monitor" in "Privileged mode."

Port monitoring configuration command

Interface configuration mode	port monitor <monitored port> direction {rx|tx|both}

Port monitoring configuration disable command

Interface configuration mode	no port monitor

Monitoring configuration information display command

Privileged mode	show monitor

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# int gi0/9
M8eGLPWR+(config-if)# port monitor 1-8 direction both
M8eGLPWR+(config-if)# end
M8eGLPWR+# show monitor

 Port monitor status  : Enabled
 Monitoring direction : Both
 Monitoring port      : 9
 Monitored port       : 1-8

M8eGLPWR+#
```

Fig. 4-4 Monitoring configuration display command (show monitor)

4.4. Spanning Tree Configuration

Configure the spanning tree in "Global configuration mode" or "Interface configuration mode."

Spanning tree enable command

Global configuration mode	spanning-tree rst enable

Spanning tree disable command

Global configuration mode	no spanning-tree rst enable

Spanning tree priority configuration command

Global configuration mode	spanning-tree rst priority <0x0000-0xF000>

Spanning tree version selection configuration command

Global configuration mode	spanning-tree rst version {stpCompatible|rstp}

Spanning tree max-age configuration command

Global configuration mode	spanning-tree rst max-age <seconds>

Spanning tree hello time configuration command

Global configuration mode	spanning-tree rst hello-time <seconds>

Spanning tree forward-delay configuration command

Global configuration mode	spanning-tree rst forward-time <seconds>

Spanning tree port status configuration command

Interface configuration mode	spanning-tree rst shutdown

Spanning tree port priority configuration command

Interface configuration mode	spanning-tree rst port-priority <0-240>

Spanning tree cost configuration command

Interface configuration mode	spanning-tree rst cost <1-200000000>

Spanning tree port initialization configuration command

Interface configuration mode	spanning-tree rst init-migration

Spanning tree edge-port configuration command

Interface configuration mode	spanning-tree rst edgeport

Spanning tree point-to-point configuration command

Interface configuration mode	spanning-tree rst point-to-point {forcetrue|force-false|auto}

Spanning tree configuration display command

Privileged mode	show spanning-tree rst config

Spanning tree interface configuration display command

Privileged mode	show spanning-tree rst interface <port-list>

```
M8eGLPWR+> enable
M8eGLPWR+# show spanning-tree rst config

 Global RSTP Status: Enabled           Protocol Version    : RSTP
 Root Port         : 0                 Time Since Topology Change :    0 Sec.
 Root Path Cost    : 0                 Topology Change Count     : 0
 Designated Root   : 8000 xxxxxxxxxxxx Bridge ID           : 8000 xxxxxxxxxxxx
 Hello Time        : 2 Sec.            Bridge Hello Time   : 2 Sec.
 Maximum Age       : 20 Sec.           Bridge Maximum Age  : 20 Sec.
 Forward Delay     : 15 Sec.           Bridge Forward Delay: 15 Sec.

M8eGLPWR+# show spanning-tree rst interface 1
  Port          : 1                   STP Status    : Enabled
  Link          : Down                Trunk         : -
  Admin/OperEdge: False/False         Admin/OperPtoP: Auto /False
  Migration     : Init.
  Port State    : Discarding          Port Priority : 128
  Port Role     : Disabled            Port Path Cost: 200000(A)
  Desig. Root   : 0000 000000000000   Desig. Cost   : 0
  Desig. Bridge : 0000 000000000000   Desig. Port   : 00 00
  Regional Root : 0000 000000000000   Regional Cost : 0

M8eGLPWR+#
```

Fig. 4-5 Display of STP configuration information
(show spanning-tree rst config)
(show spanning-tree rst interface 1)

4.5. QoS (Quality of Service) Configuration

Configure QoS settings in "Global configuration mode." Display the basic information by entering "show mls qos" in "Privileged mode."

QoS enable command

Global configuration mode	mls qos

QoS disable command

Global configuration mode	no mls qos

DiffServ enable command

Global configuration mode	mls diffserv

DiffServ disable command

Global configuration mode	no mls diffserv

QoS scheduling method configuration command

Global configuration mode	qos method {strict | wrr}

CoS traffic class mapping configuration command

Global configuration mode	priority-queue cos-map <traffic class> <priority>

WRR traffic class mapping configuration command

Global configuration mode	wrr-queue priority-queue <traffic class> <weight>

DiffServ mapping configuration command

Global configuration mode	priority-queue diffserv-map <DSCP> <priority>

QoS configuration display command

Privileged mode	show mls qos

DiffServ configuration display command

Privileged mode	show mls diffserv

CoS traffic class mapping configuration display command

Privileged mode	show priority-queue cos-map

DiffServ configuration display command

Privileged mode	show priority-queue diffserv-map

QoS scheduling method and weighted round-robin configuration display command

Privileged mode	show qos method

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# mls qos
M8eGLPWR+(config)# end
M8eGLPWR+# show mls qos

Quality of Service Status: Enabled

M8eGLPWR+# show priority-queue cos-map

 Priority    Traffic Class
 --------    -------------
    0              0
    1              0
    2              1
    3              1
    4              2
    5              2
    6              3                        0: Lowest
    7              3                        3: Highest

M8eGLPWR+#
```

Fig. 4-6 Display of the QoS configuration
(show mls qos)
(show priority-queue cos-map)

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# priority-queue diffserv-map 63 3
M8eGLPWR+(config)# priority-queue diffserv-map 62 3
M8eGLPWR+(config)# priority-queue diffserv-map 0 1
M8eGLPWR+(config)# mls diffserv
M8eGLPWR+(config)# end
M8eGLPWR+# show mls diffServ

Diffserv Status: Enabled

M8eGLPWR+# show priority-queue diffserv-map

 Diffserv Status : Enabled                                  0 : Lowest  3 : Highest
 DSCP  Priority  DSCP  Priority  DSCP  Priority  DSCP  Priority  DSCP  Priority
 ----- --------  ----- --------  ----- --------  ----- --------  ----- --------
   0       1       13       0       26       0       39       0       52       0
   1       0       14       0       27       0       40       0       53       0
   2       0       15       0       28       0       41       0       54       0
   3       0       16       0       29       0       42       0       55       0
   4       0       17       0       30       0       43       0       56       0
   5       0       18       0       31       0       44       0       57       0
   6       0       19       0       32       0       45       0       58       0
   7       0       20       0       33       0       46       0       59       0
   8       0       21       0       34       0       47       0       60       0
   9       0       22       0       35       0       48       0       61       0
  10       0       23       0       36       0       49       0       62       3
  11       0       24       0       37       0       50       0       63       3
  12       0       25       0       38       0       51       0


M8eGLPWR+#
```

Fig. 4-7 Display of the DiffServ configuration
(show mls diffserv)
(show priority-queue diffserv-map)

4.6. Bandwidth Control Configuration

Configure bandwidth control settings in "Interface configuration mode." Display the basic information by entering "show egress-rate-limit" in "Privileged mode."

Bandwidth control configuration command

Interface configuration mode	egress-rate-limit [<unit(1Mbps/unit)>]

Bandwidth control enable command

Interface configuration mode	egress-rate-limit

Bandwidth control disable command

Interface configuration mode	no egress-rate-limit

Bandwidth control display command

Privileged mode	show egress-rate-limit

.

```
M8eGLPWR+> enable
M8eGLPWR+# show egress-rate-limit
  Port          Bandwidth       Status
  ---------     ------------    ---------
  1             1000            disabled
  2             1000            disabled
  3             1000            disabled
  4             1000            disabled
  5             1000            disabled
  6             1000            disabled
  7             1000            disabled
  8             1000            disabled
  9             1000            disabled
  10            1000            disabled

M8eGLPWR+#
```

Fig. 4-8 Execution example of the bandwidth control configuration and information display command

4.7. IEEE802.1X Port-Based Authentication Configuration

Configure IEEE802.1X in "Global configuration mode" and "Interface configuration mode." Display the basic information by entering "show dot1x <1-2 or 1,2,3 or 1,2,3-5>" in "Privileged mode."

NAS ID configuration command

Global configuration mode	dot1x nas-id <NASID>

NAS ID delete command

Global configuration mode	no dot1x nas-id

Authentication status initialization command

Interface configuration mode	dot1x init

Maximum resend count configuration command

Interface configuration mode	dot1x max-req <value>

Authentication operation configuration command

Interface configuration mode	dot1x port-control {auto | force-authorized | force-unauthorized}

Local re-authentication interval configuration and enable command

Interface configuration mode	dot1x re-auth-timer local

Re-authentication status initialization command

Interface configuration mode	dot1x re-authenticate

Re-authentication enable command

Interface configuration mode	dot1x re-authentication

Re-authentication disable command

Interface configuration mode	no dot1x re-authentication

Waiting time configuration command after authentication fails

Interface configuration mode	dot1x timeout quiet-period <seconds>

Re-authentication interval configuration command

Interface configuration mode	dot1x timeout re-authperiod <seconds>

Authentication server timeout configuration command

Interface configuration mode	dot1x timeout server <seconds>

Supplicant timeout configuration command

Interface configuration mode	dot1x timeout supp-timeout <seconds>

Interval configuration command for sending authentication request

Interface configuration mode	dot1x timeout tx-period <seconds>

Authentication configuration display command

Privileged mode	show dot1x <port-list>

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config-if)# interface gi0/2
M8eGLPWR+(config-if)# dot1x port-control auto
M8eGLPWR+(config-if)# dot1x re-authentication
M8eGLPWR+(config-if)# dot1x re-auth-timer local
M8eGLPWR+(config-if)# end
M8eGLPWR+# show dot1x 1-2

 NAS ID                          : Nas1
 Port No                         : 1
 Port Status                     : Authorized
 Port Control                    : Force Authorized
 Transmission Period             : 30    seconds
 Supplicant Timeout              : 30    seconds
 Server Timeout                  : 30    seconds
 Maximum Request                 : 2
 Quiet Period                    : 60    seconds
 Re-authentication Period        : 3600  seconds
 Re-authentication Status        : Disabled

 Port No                         : 2
 Port Status                     : Unauthorized
 Port Control                    : Auto
 Transmission Period             : 30    seconds
 Supplicant Timeout              : 30    seconds
 Server Timeout                  : 30    seconds
 Maximum Request                 : 2
 Quiet Period                    : 60    seconds
 Re-authentication Period        : 3600  seconds
 Re-authentication Status        : Enabled_Local

M8eGLPWR+#
```

Fig. 4-9 Display for IEEE802.1X authentication configuration (show dot1x 1-2)

4.8. IGMP Snooping Configuration

Configure IGMP snooping in "Global configuration mode" and "Interface configuration mode."

IGMP snooping enable command

Global configuration mode	ip igmp snooping enable

IGMP snooping disable command

Global configuration mode	no ip igmp snooping enable

IGMP snooping aging time configuration command

Global configuration mode	ip igmp snooping aging-time {router|host} <sec>

Multicast filtering enable command

Global configuration mode	ip multicast filtering enable

Multicast filtering disable command

Global configuration mode	no ip multicast filtering enable

Leave packet delay time configuration command

Global configuration mode	ip igmp snooping leave-delay-time <value>

Router port configuration command

Global configuration mode	ip igmp snooping mrouter interface <interface name>

Router port delete command

Global configuration mode	no ip igmp snooping mrouter interface <interface name>

Router port learning method configuration command

Global configuration mode	ip igmp snooping mrouter learn {igmp | dvmrp | pim-dvmrp | both}

Interval configuration command for sending IGMP snooping

Global configuration mode	ip igmp snooping report-forward-interval <sec>

Router port static configuration command

Global configuration mode	ip igmp snooping vlan <vlan-id> static <MAC address> interface <interface name>

Router port delete command

Global configuration mode	no ip igmp snooping vlan <vlan-id> static <MAC address> interface <interface name>

VLAN filter configuration command

Global configuration mode	ip igmp snooping vlan-filter vlan <vlan-id>

VLAN filter delete command

Global configuration mode	no ip igmp snooping vlan-filter vlan <vlan-id>

IGMP snooping leave mode configuration command

Interface configuration mode	ip igmp snooping immediate-leave

IGMP snooping leave mode delete command

Interface configuration mode	no ip igmp snooping immediate-leave

IGMP snooping configuration display command

Privileged mode	show ip igmp snooping conf

IGMP snooping leave mode configuration display command

Privileged mode	show ip igmp snooping mrouter

IGMP snooping router port display command

Privileged mode	show ip igmp snooping mrouter

IGMP snooping VLAN filter configuration display command

Privileged mode	show ip igmp snooping vlan-filter-table

Note: If the VLAN function is disabled when you enable the IGMP snooping function, VLAN is automatically changed to enabled. In that case, VLAN1 is created as an enabled management VLAN and all port PVIDs are set to 1.

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# ip igmp snooping enable
M8eGLPWR+(config)# ip multicast filtering enable
M8eGLPWR+(config)# ip igmp snooping mrouter learn igmp
M8eGLPWR+(config)# ip igmp snooping vlan-filter vlan 1
M8eGLPWR+(config)# end
M8eGLPWR+# show ip igmp snooping conf

 IGMP Snooping Status      : Enabled
 Multicast Filtering Status: Enabled
 Host Port Age-Out Time    : 260 sec
 Router Port Age-Out Time  : 125 sec
 Report Forward Interval   : 5 sec

M8eGLPWR+# show ip igmp snooping mrouter

 Dynamic Detection: IGMP Query

 VLAN ID  Port List
 -------  ------------------------------------------------------------------------

M8eGLPWR+# show ip igmp snooping vlan-filter-table

 VLAN ID     Status
 -------  -------------
       1     Filtered

M8eGLPWR+#
```

Fig. 4-10 IGMP snooping configuration display command
(show ip igmp snooping conf)
(show ip igmp snooping mrouter)
(show ip igmp snooping vlan-filter-table)

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# interface fa0/1
M8eGLPWR+(config-if)# ip igmp snooping immediate-leave
M8eGLPWR+(config-if)# end
M8eGLPWR+# show ip igmp snooping leave-mode

 Leave Delay Time : 5 sec

  Port       Mode
 ------  ------------
    1    Immediate
    2       Normal
    3       Normal
    4       Normal
    5       Normal
    6       Normal
    7       Normal
    8       Normal
    9       Normal
   10       Normal

M8eGLPWR+#
```

Fig. 4-11 Leave mode display command
(show ip igmp snooping leave-mode)

4.9. PoE Power Supply Function Configuration

Configure PoE in "Global configuration mode" and "Interface configuration mode."

Configuration command for a supply method in case of overload

Global configuration mode	peth disconnection-method {next-port | low-priority}

PoE supply capacity threshold configuration command for SNMP trap sendout

Global configuration mode	peth usage-threshold <percent>

PoE port enable command

Interface configuration mode	no peth shutdown

PoE port disable command

Interface configuration mode	peth shutdown

Upper supply limit configuration command

Interface configuration mode	peth limit { auto | <3000-30000> }

Supply priority configuration command

Interface configuration mode	peth priority {critical | high | low}

PoE port configuration display command

Privileged mode	show peth-port

PoE configuration display command

Privileged mode	show peth-conf

```
M8eGLPWR+> enable
M8eGLPWR+# show peth-conf
 Power Budget :                          124W
 Power Consumption :                     0W
 Power Usage Threshold For Sending Trap:  50 %
 Power Management Method :  Deny next port connection, regardless of priority

 M8eGLPWR+# show peth-port
 No.  Admin Sche.  Status Layer Class Prio.    Limit(mW)  Pow.(mW) Vol.(V) Cur.(mA)
 ---  ----- -----  ------ ----- ----- ------ ----------- -------- ------- --------
  1   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  2   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  3   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  4   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  5   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  6   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  7   Up    -     NotPwr   -     -   Low           Auto        0       0        0
  8   Up    -     NotPwr   -     -   Low           Auto        0       0        0

M8eGLPWR+#
```

Fig. 4-12 Display of PoE configuration information
(show peth-conf)
(show peth-port)

Fig. 4-13

4.9.1. PoE Scheduler Configuration

Configure PoE scheduler settings in "Global configuration mode."

PoE scheduler enable command

Global configuration mode	peth schedule enable

PoE scheduler disable command

Global configuration mode	no peth schedule enable

Port list configuration command

Global configuration mode	peth schedule portlist <Index> member <port-list>

Date list configuration command

Global configuration mode	peth schedule datelist <Index> year <year> name <name> datelist <date>

Date list date add command

Global configuration mode	peth schedule datelist <Index> add <date>

Date list date delete command

Global configuration mode	peth schedule datelist <Index> delete <date>

Date list delete command

Global configuration mode	no peth schedule datelist <Index>

Monthly schedule configuration command

Global configuration mode	peth schedule <index> name <name> monthly date <date> time <time> portlist <Index>

Weekly schedule configuration command

Global configuration mode	peth schedule <index> name <name> weekly <weekdays> time <time> portlist <Index>

Daily schedule configuration command

Global configuration mode	peth schedule <index> name <name> daily time <time> portlist <Index>

Date list schedule configuration command

Global configuration mode	peth schedule <index> name <name> datelist <Index> time <time> portlist <Index

Schedule enable command

Global configuration mode	peth schedule <index> enable

Schedule disable command

Global configuration mode	peth schedule <index> disable

Schedule display command

Privileged mode	show peth schedule

Detailed schedule configuration display command

Privileged mode	show peth schedule information <index>

Specified port schedule display command

Privileged mode	show peth schedule configuration-by-port <port-number>

Port list display command

Privileged mode	show peth schedule portlist

Date list display command

Privileged mode	show peth schedule datelist <datelist Index>

Date list schedule configuration display command

Privileged mode	show peth schedule datelist configuration

.

```
S24GPWR# show peth schedule
PoE Schedule Global Status    : Enabled
Sorting Method                : By Index
PoE Schedule:                                    Total Entries : 6
Index Name              Class.   Port List Action Status   Next Execution Time
----- ----------------- -------- --------- ------ -------- -------------------
    1 Daily-OFF         Daily           1 OFF    Enabled  2014/06/24 20:00
    2 Daily-ON          Daily           1 ON     Enabled  2014/06/25 07:00
    3 Sat,Sun-OFF/ON    Weekly          1 OFF/ON Enabled  2014/06/28 01:00
    4 10,20-OFF/ON      Monthly         1 OFF/ON Enabled  2014/07/10 01:00
    5 Holiday-OFF       DateList        1 OFF    Enabled  2014/07/21 00:00
    6 Holiday-ON        DateList        1 OFF/ON Enabled  2014/07/21 23:59
```

Fig. 4-14 Display of PoE schedule configuration (show peth schedule)

```
S24GPWR# show peth schedule information 1

Detailed Schedule Information :
-----------------------------------------------
Schedule Index              : 1
Schedule Name               : Daily-OFF
Schedule Classifier         : Daily
Year                        : -
Date                        : -
Date List Index             : -
Time                        : 20:00
Port List Index             : 1
PoE Action                  : OFF
```

Fig. 4-15 Display of Detailed PoE schedule configuration (show peth schedule information 1)

```
S24GPWR# show peth schedule configuration-by-port 1
Selected Port Number : 1

PoE Schedule:                                          Total Entries : 6
Index  Class.    Date                                    Time    Action  Status
-----  -------   --------------------------------------  -----   ------  --------
    1  Daily     -                                       20:00   OFF     Enabled

    2  Daily     -                                       07:00   ON      Enabled

    3  Weekly    Sat, Sun                                01:00   OFF/ON  Enabled

    4  Monthly   10,20                                   01:00   OFF/ON  Enabled

    5  Datelist  Datelist 1                              00:00   OFF     Enabled

    6  Datelist  Datelist 1                              23:59   OFF/ON  Enabled
```

Fig. 4-16 Display of PoE schedule for the specified port (show peth schedule configuration-by-port 1)

```
S24GPWR# show peth schedule portlist
Port List :                          Total Entries : 1
Index      Port List
------     ------------------------------------------------------------------
     1     1-24
```

Fig. 4-17 Display of the port list configuration (show peth schedule portlist)

```
S24GPWR# show peth schedule datelist 1
Date List Index : 1      Year : 2014

Date:
Month    Day
------   ------------------------------------------------------------------
     1   1,13
     2   11
     3   21
     4   29
     5   3-6
     6
     7   21
     8
     9   15,23
    10   13
    11   3,24
    12   23
```

Fig. 4-18 Display of the date list configuration
(show peth schedule datelist 1)

```
S24GPWR# show peth schedule datelist configuration
Total Entries : 2
 Index   Date List    Year    Time    Act.   Status
 -----   ---------    ----    -----   -----  -------
     5           1    2014    00:00   OFF    Enabled
     6           1    2014    23:59   OFF/ON Enabled
```

Fig. 4-19 Display of date list schedule configuration
(show peth schedule datelist configuration)

4.10. Storm Control Configuration

Configure storm control settings in "Interface configuration mode." Confirm the configuration information by entering "show storm-control" in "Privileged mode."

Storm control (broadcast) enable command

Interface configuration mode	storm-control broadcast

Storm control (broadcast) disable command

Interface configuration mode	no storm-control broadcast

Storm control (multicast) enable command

Interface configuration mode	storm-control multicast

Storm control (multicast) disable command

Interface configuration mode	no storm-control multicast

Storm control (unknown address unicast) enable command

Interface configuration mode	storm-control unicast

Storm control (unknown address unicast) disable command

Interface configuration mode	no storm-control unicast

Threshold value configuration command

Interface configuration mode	storm-control threshold <0-262143>

Storm control configuration display command

Privileged mode	show storm-control

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# interface gi0/1
M8eGLPWR+(config-if)# storm-control broadcast
M8eGLPWR+(config-if)# storm-control multicast
M8eGLPWR+(config-if)# storm-control threshold 80
M8eGLPWR+(config-if)# end
M8eGLPWR+# show storm-control


 Port Storm Control Setting:
  No.       DLF       Broadcast   Multicast   Threshold
 ----   ---------   ---------   ---------   ---------
    1     Disabled    Enabled     Enabled      80
    2     Disabled    Disabled    Disabled     1
    3     Disabled    Disabled    Disabled     1
    4     Disabled    Disabled    Disabled     1
    5     Disabled    Disabled    Disabled     1
    6     Disabled    Disabled    Disabled     1
    7     Disabled    Disabled    Disabled     1
    8     Disabled    Disabled    Disabled     1
    9     Disabled    Disabled    Disabled     1
   10     Disabled    Disabled    Disabled     1

M8eGLPWR+#
```

Fig. 4-20 Display of storm control configuration (show storm-control)

4.11. Ring Protocol Configuration

Configure the ring protocol in "Ring configuration mode." Display the basic information by entering "show rrp status <Domain Name>" in "Privileged mode."

Ring protocol enable command

Global configuration mode	enable rrp status

Ring protocol disable command

Global configuration mode	no enable rrp status

RRP domain creation configuration command

Global configuration mode	rrp domain <Domain Name>

RRP domain delete command

Global configuration mode	no rrp domain <Domain Name>

Ring control mode configuration command

Ring configuration mode	rrp type {master | transit}

Control VLAN configuration command

Ring configuration mode	control vlan<vlan-id>

Data VLAN configuration command

Ring configuration mode	data vlan<vlan-id>

Primary port configuration command

Ring configuration mode	primary port <port number>

Secondary port configuration command

Ring configuration mode	secondary port <port number>

Health check timeout configuration command

Ring configuration mode	fail-period <seconds>

Health check interval configuration command

Ring configuration mode	polling-interval <seconds>

Ring protocol configuration display command

Privileged mode	show rrp status <Domain Name>

Note: The ring protocol function and the Internet Mansion mode cannot be used simultaneously.

Note: Disable the Loop detection and blocking function in advance for a port configuring the ring protocol.

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# rrp domain ring-1
M8eGLPWR+(config-rrp)# rrp type master
M8eGLPWR+(config-rrp)# primary port 9
M8eGLPWR+(config-rrp)# secondary port 10
M8eGLPWR+(config-rrp)# control vlan1000
M8eGLPWR+(config-rrp)# data vlan1
M8eGLPWR+(config-rrp)# rrp type master
M8eGLPWR+(config-rrp)# exit
M8eGLPWR+(config)# enable rrp status
M8eGLPWR+(config)# end
M8eGLPWR+# show rrp status ring-1

 RRP Domain Name      : ring-1
 RRP Node Type        : Master
 RRP Ring Status      : Failed

 Primary Port         : 9
 Primary Port Status  : Down
 Primary Port Role    : Upstream

 Secondary Port       : 10
 Secondary Port Status: Down
 Secondary Port Role  : Downstream

 Polling Interval     : 1
 Fail Period          : 2

 Control VLAN         : 1000
 Data VLAN            : 1

M8eGLPWR+#
```

Fig. 4-21 Ring protocol configuration display command (show rrp status)

4.12.2. Loop Detection and Blocking Configuration

Enable or disable the Loop detection and blocking function and configure the auto-recovery setting in "Interface configuration mode." Confirm the loop history by entering "show line loopback history" in "Privileged mode."

Loop detection and blocking function enable command

Configuration mode	line loopback enable

Loop detection and blocking function disable command

Interface configuration mode	no line loopback

Loop detection and blocking history delete command

Configuration mode	line loopback history clear

Loop detection and blocking function enable command

Interface configuration mode	line loopback

Loop detection and blocking mode configure command

Interface configuration mode	line loopback mode <block l shutdown>

Auto-recovery function enable command

Interface configuration mode	line loopback shutdown <sec>

Auto-recovery function disable command

Interface configuration mode	no line loopback shutdown

Loop detection and blocking configuration display command

Privileged mode	show line loopback configuration

Loop detection and blocking history display command

Privileged mode	show line loopback history

```
M8eGLPWR+> enable
M8eGLPWR+# configuration
M8eGLPWR+(config)# line loopback enable
M8eGLPWR+(config)# interface gi0/1
M8eGLPWR+(config-if)# line loopback
M8eGLPWR+(config-if)# end
M8eGLPWR+# show line loopback configuration

 Global Loop Detection Status: Enabled
 Port  Trunk  Link     State       Loop Detect    Mode  Recovery  Recovery Time
 ----  -----  ----  -----------  -------------  ------ --------- -------------
   1    ---   Up    Forwarding    Enabled       Block   Enabled        60
   2    ---   Down  Forwarding    Enabled       Block   Enabled        60
   3    ---   Down  Forwarding    Enabled       Block   Enabled        60
   4    ---   Down  Forwarding    Enabled       Block   Enabled        60
   5    ---   Down  Forwarding    Enabled       Block   Enabled        60
   6    ---   Down  Forwarding    Enabled       Block   Enabled        60
   7    ---   Down  Forwarding    Enabled       Block   Enabled        60
   8    ---   Down  Forwarding    Enabled       Block   Enabled        60
   9    ---   Down  Forwarding    Disabled      Block   Enabled        60
  10    ---   Down  Forwarding    Disabled      Block   Enabled        60

M8eGLPWR+#
```

Fig. 4-22 Display of the loop detection and blocking configuration (line loopback)
(show line loopback configuration)

```
M5eGiLPWR+> enable
M5eGiLPWR+# show line loopback history

 Entry  Time(YYYY/MM/DD HH:MM:SS)                    Event
 -----  ------------------------ ------------------------------------------
    1   2001/01/01 00:00:33      The loop detected between port 1 and 6
    2   2001/01/01 00:01:33      Port 1 auto recovery

M5eGiLPWR+#
```

Fig. 4-23 Execution example of the loop history display command (line loopback)

Note: The loop detection function uses a special frame. When a loop detection frame is detected on a port on which the Loop detection and blocking function is disabled, the sender port is blocked.
For details on loop history messages, refer to Chapter 11, "System Logs."

4.13. Displaying and Configuring SFP module status check function

View the system log in "Privileged mode" and configure the SFP module status check function setting in "Interface configuration mode".

SFP module status display command

Privileged mode	show ddm port <port-list>n

Rx-power upper threshold (alarm) configuration command

Interface configuration mode	ddm limit rx-power high-alarm {auto | <value>}

Rx-power upper threshold (warning) configuration command

Interface configuration mode	ddm limit rx-power high-warning {auto | <value>}

Rx-power lower threshold (alarm) configuration command

Interface configuration mode	ddm limit rx-power low-alarm {auto | <value>}

Rx-power lower threshold (warning) configuration command

Interface configuration mode	ddm limit rx-power low-warning {auto | <value>}

Tx-power upper threshold (alarm) configuration command

Interface configuration mode	ddm limit tx-power high-alarm {auto | <value>}

Tx-power upper threshold (warning) configuration command

Interface configuration mode	ddm limit tx-power high-warning {auto | <value>}

Tx-power lower threshold (alarm) configuration command

Interface configuration mode	ddm limit tx-power low-alarm {auto | <value>}

Tx-power lower threshold (warning) configuration command

Interface configuration mode	ddm limit tx-power low-warning {auto | <value>}

Temperature upper threshold (alarm) configuration command

Interface configuration mode	ddm limit temp high-alarm {auto | <value>}

Temperature upper threshold (warning) configuration command

Interface configuration mode	ddm limit temp high-warning {auto | <value>}

Temperature lower threshold (alarm) configuration command

Interface configuration mode	ddm limit temp low-alarm {auto | <value>}

Temperature lower threshold (warning) configuration command

Interface configuration mode	ddm limit temp low-warning {auto | <value>}

Voltage upper threshold (alarm) configuration command

Interface configuration mode	ddm limit voltage high-alarm {auto | <value>}

Voltage upper threshold (warning) configuration command

Interface configuration mode	ddm limit voltage high-warning {auto | <value>}

Voltage lower threshold (alarm) configuration command

Interface configuration mode	ddm limit voltage low-alarm {auto | <value>}

Voltage lower threshold (warning) configuration command

Interface configuration mode	ddm limit voltage low-warning {auto | <value>}

Current upper threshold (alarm) configuration command

Interface configuration mode	ddm limit bias high-alarm {auto | <value>}

Current upper threshold (warning) configuration command

Interface configuration mode	ddm limit bias high-warning {auto | <value>}

Current lower threshold (alarm) configuration command

Interface configuration mode	ddm limit bias low-alarm {auto | <value>}

Current lower threshold (warning) configuration command

Interface configuration mode	ddm limit bias low-warning {auto | <value>}

```
M8eGLPWR+> enable
M8eGLPWR+# show ddm port

 Limit trap status       : Disabled

 SFP Port Number         : 09
 Vendor Name             : MNO series
 Vendor Product Number   : PN54023
 Vendor Serial Number    : xxxxxxxxxxx
 Transceiver Type        : 1000BASE-LX

               RX Power     TX Power     Temp         Voltage      Bias Current
               (dBm)        (dBm)        (deg. C)     (V)          (mA)
               ------------ ------------ ------------ ------------ ------------
 Status         -18.5387      -0.7925      37.3646      3.2652       16.6640
 High Alarm       1.9357(A)    2.0758(A)   85.0000(A)   3.4560(A)   62.9760(A)
 High Warning     0.9844(A)    1.0721(A)   80.0000(A)   3.3792(A)   58.3680(A)
 Low Alarm        0.0000(A)   -3.8764(A)   -5.0000(A)   3.1232(A)    1.0240(A)
 Low Warning      0.0000(A)   -2.9073(A)    5.0000(A)   3.2000(A)    6.1440(A)

M8eGLPWR+
```

図 4-24 Displaying SFP module status (show ddm port)

5. Displaying Statistic Information

Display the packet counter statistic information in "Privileged mode."

Statistic information (traffic) display command

Privileged mode	show interface counters <interface port> {since-reset | since-up}

Statistic information (error) display command

Privileged mode	show interface counters errors <interface port>

```
M8eGLPWR+# show interface counters gi0/1

Elapsed Time Since System Reset: 000:01:51:06

Total RX Bytes    Total RX Pkts    Good Broadcast    Good Multicast
        438319              915               132                 7

  64-Byte Pkts      65-127 Pkts      128-255 Pkts
           817              650                22


  256-511 Pkts    512-1023 Pkts    Over 1024 Pkts
            10              745                 0

M8eGLPWR+# show interface counters errors gi0/1

Elapsed Time Since System Reset: 000:01:51:11

 CRC/Align Errors    Undersize Pkts    Oversize Pkts
                0                 0                0

        Fragments           Jabbers       Collisions
                0                 0                0

M8eGLPWR+#
```

Fig. 5-1 Displaying statistic information
(show interface counters fa0/1 sinde-up)
(show interface counters errors fa0/1)

6. Transferring Configuration Files

You can transfer the configuration information of the switch to the TFTP server or obtain the information from the TFTP server in "Privileged mode."

Configuration file upload command

Privileged mode	copy running-config tftp <ip-address> <filename>

Configuration file download command

Privileged mode	copy tftp <ip-address> <filename> running-config

```
M8eGLPWR+# copy running-config tftp 192.168.1.1 M8eGLPWR+.cfg
Please wait a minute.

 510 bytes data transferred!
```

Fig. 6-1 Uploading a configuration file
(copy tftp 192.168.1.2 M8eGLPWR+.cfg)

7. Firmware Upgrade

You can upgrade the firmware version of the switch in "Privileged mode."

Firmware upgrade execution command

Privileged mode	copy tftp <ip-address> <filename> image

```
M8eGLPWR+> enable
M8eGLPWR+# copy tftp 192.168.1.1 PN28088_NEW.rom image

 Downloading Image From Remote Server. (Press CTRL-C to quit downloading)
 Receive    134233 bytes
```

Fig. 7-1 Firmware upgrade
(copy tftp 192.168.1.2 PN28088-NEW.rom)

8. Reboot

You can reboot the switch in "Privileged mode." As a runtime option, select the reboot type from normal, restore to factory default settings, and restore to factory default settings except IP address.

Reboot command

Privileged mode	reboot {normal | default | default-except-IP}

```
M8eGLPWR+> enable
M8eGLPWR+# reboot normal
 Are you sure to reboot the system? (Y/N) y

Memory test....OK

Decompressing...OK
System database initialization ... OK

MAC unit 0: SOC registers test ... Passed
MAC unit 0: PHY registers test ... Passed
MAC unit 0: PHY loopback test .... Passed
Temperature sensor test .......... Passed
PoE test ......................... Passed

Checking Image Bank Integrity ........ OK

Booting system
Decompressing...OK

Initializing ..........

Completing initialization...
```

Fig. 8-1 Reboot screen

9. Exception Handler

Configure reboot types and execute reboot in "Global configuration mode."

Exception handler enable command

Global configuration mode	exception-handler enable

Exception handler disable command

Global configuration mode	no exception-handler enable

Exception handler configuration command

Global configuration mode	exception-handler mode { debug-message | system-reboot | both }

Exception handler configuration display command

Privileged mode	show exception-handler

```
M8eGLPWR+> enable
M8eGLPWR+# configure
M8eGLPWR+(config)# exception-handler enable
M8eGLPWR+(config)# exception-handler mode both
M8eGLPWR+(config)# end
M8eGLPWR+# show exception-handler

 Exception Handler:            Enabled
 Exception Handler Mode:       Debug Message & System Reboot

M8eGLPWR+#
```

Fig. 9-1 Display of the exception handler configuration

10. Ping Execution

Ping can be used to verify communications.

Ping command

All modes	ping <ip-address>

Ping (number of echo requests) command

All modes	ping <ip-address> [-n <count>]

Ping (timeout) command

All modes	ping <ip-address> [-w <timeout(sec)>]

```
M8eGLPWR+> ping 192.168.1.1

Type Ctrl-C to abort.

Reply Received From :    192.168.1.1, TimeTaken : 8 ms
Reply Received From :    192.168.1.1, TimeTaken : 9 ms
Reply Received From :    192.168.1.1, TimeTaken : 7 ms

--- 192.168.1.1 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss

M8eGLPWR+> enable
M8eGLPWR+# ping 192.168.1.1

Type Ctrl-C to abort.

Reply Received From :    192.168.1.1, TimeTaken : 10 ms
Reply Received From :    192.168.1.1, TimeTaken : 7 ms
Reply Received From :    192.168.1.1, TimeTaken : 7 ms

--- 192.168.1.1 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss

M8eGLPWR+# configure
M8eGLPWR+(config)# ping 192.168.1.1

Type Ctrl-C to abort.

Reply Received From :    192.168.1.1, TimeTaken : 10 ms
Reply Received From :    192.168.1.1, TimeTaken : 9 ms
Reply Received From :    192.168.1.1, TimeTaken : 6 ms

--- 192.168.1.1 Ping Statistics ---
3 Packets Transmitted, 3 Packets Received, 0% Packets Loss
```

Fig. 10-1 Ping execution
(ping 192.168.1.1)

11. Displaying and Configuring the System Log

View the system log in "Privileged mode" and configure the system log setting in "Global configuration mode."

System log display command

Privileged mode	show syslog [conf | tail <1-1024>]

System log clear command

Global configuration mode	syslog clear

System log enable command

Global configuration mode	syslog enable

System log disable command

Global configuration mode	no syslog enable

System log server enable command

Global configuration mode	syslog server enable <index>

System log server disable command

Global configuration mode	no syslog server enable <index>

System log server IP address configuration command

Global configuration mode	syslog server-ip <index> <ip-address>

System log additional information configuration command

Global configuration mode	syslog header-info <index> {IP | None | SysName}

System log Facility configuration command

Global configuration mode	syslog facility <index> <Facility>

System Log enable command(Link Up/Down)

Global configuration mode	log enable linkupdown

System Log disable command(Link Up/Down)

Global configuration mode	no log enable linkupdown

System Log enable command(PoE On/Off)

Global configuration mode	log enable poe-onoff

System Log disable command(PoE On/Off)

Global configuration mode	no log enable poe-onoff

System log configuration display command

Privileged mode	show log configuration

```
M8eGLPWR+# show syslog

 Entry  Time(YYYY/MM/DD HH:MM:SS)                    Event
 -----  -------------------------   ------------------------------------------
    1   2001/01/01 00:00:29         Reboot: Factory Default
    2   2001/01/01 00:05:47         Login from console
    3   2001/01/01 00:06:16         Configuration changed
    4   2001/01/01 00:00:24         Switch start
    5   2001/01/01 00:00:56         Login from console
    6   2001/01/01 00:01:03         Set IP address <192.168.0.1>
    7   2001/01/01 00:02:25         Runtime code changes
    8   2001/01/01 00:03:33         Reboot: Normal
    9   2001/01/01 00:00:23         Switch start
   10   2001/01/01 00:01:48         Login from console
   11   2001/01/01 00:02:24         Configuration changed
   12   2001/01/01 00:00:23         Switch start
   13   2001/01/01 00:00:31         Login from console
   14   2001/01/01 00:00:37         Set IP address <192.168.0.1>
   15   2001/01/01 00:02:15         Runtime code changes
   16   2001/01/01 00:03:23         Reboot: Normal

M8eGLPWR+# show syslog conf
 Syslog Transmission: Disabled

 Syslog Server List
  No.      Status        IP Address       Facility     Include
 ----  -----------   ---------------    ----------    ------------------
   1   Disabled      0.0.0.0            Facility0
   2   Disabled      0.0.0.0            Facility0
M8eGLPWR+#
```

Fig. 11-1 Display of the system log and the system log configuration (show syslog) (show syslog conf)

12. Saving Configuration Information

Save the configuration information in "Privileged mode."

Configuration save command

Privileged mode	copy running-config startup-config

```
M8eGLPWR+> enable
M8eGLPWR+# copy running-config startup-config
Please wait a minute.

 Save current state to startup config successfully!!

M8eGLPWR+#
```

Fig. 12-1 Saving the configuration information
(copy running-config startup-config)

13. Displaying Configuration Information

View the configuration information in "Privileged mode."

Configuration information display command

Privileged mode	show running-config

Saved configuration information display command

Privileged mode	show startup-config

```
M8eGLPWR+> enable
M8eGLPWR+# show running-config
Building Configuration...
Current Configuration:
! -- start of configuration --
! -- Software Version : x.x.x.xx --
!
enable
config
!
ip address 192.168.0.1 255.255.255.0
ip default-gateway 192.168.0.254
!
spanning-tree rst version rstp
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface GigabitEthernet0/3
!
interface GigabitEthernet0/4
!
interface GigabitEthernet0/5
!
interface GigabitEthernet0/6
!
interface GigabitEthernet0/7
!
interface GigabitEthernet0/8
!
interface GigabitEthernet0/9
!
interface GigabitEthernet0/10
!
interface vlan1
member 1-10
exit
!
! -- end of configuration --
M8eGLPWR+#
```

Fig. 13-1 Displaying configuration information (show running-config)

14. Obtaining Technical Support Information

Technical support information can be obtained in the "Privileged mode." This information is useful if obtained in advance before inquiry.
Because the display content is very long, we recommend to set terminal length to "0" in advance.

Technical support information display command

Privileged mode	show tech

Appendix.A. Specifications

Refer to "Operation Manual for Menu Interface" for your switching hub to read the specifications.

Appendix.A.Easy IP Address Setup Function

The following are points to note when using the easy IP address setup function.

[Known compatible software]
Panasonic Corporation "Easy IP Setup" V3.01/V4.00/V4.24R00
Panasonic System Networks Co., Ltd. "Easy Config" Ver3.10R00
Panasonic Eco Solutions Networks Co., Ltd. "ZEQUOASSIST" Ver. 2.0.3.0

[User-settable items]
* IP address, subnet mask, and default gateway
* System name
  * This item can be configured only with the software "Easy Config."
    In the software, the item is displayed as "Camera name."

[Restrictions]
* The time for accepting setting changes is limited to 20 minutes after power-on to ensure security.
  However, you can change settings regardless of the time limit if the IP address, subnet mask, default gateway, user name, and password values are set to factory defaults.
  * Even after the time limit is reached, you can check the current settings displayed in a list.
* The following function of the software "Easy Config" cannot be used.
  - "Auto setup function"

*Please contact your manufacturer for information about network cameras.

Appendix.A.Troubleshooting

If you find any problems, please take the following steps to check.

◆ LED

■ The POWER LED (Power) is not lit.

- ● Check if the power cord is disconnected. Please confirm that the power cord is securely connected to the power port
- ● Is the Switching Hub being used at a temperature between 0 and 50 ℃ ?Use the Switching Hub in its operating temperature range.

Note: If used at a temperature out of the operating temperature range, the protection equipment becomes activated and PoE power supply stops.The default operating temperature range is 0 to 50 ℃ .

■ The Port LED is not lit in Status mode.

- ● Is the cable correctly connected to the target port?
- ● Is the cable appropriate to use?
- ● Is the terminal connected to the relevant port conforming with 10BASE-T,100BASE-TX, or 1000BASE-T standerd?
- ● Auto-negotiation may have feiled.Check the port settings of this Switching Hub or the terminal settings.

■ The Port LED (Left) lights in failed.

Check the port settings of this Switching Hub or the terminal settings.

■ LOOP HISTORY LED Blinks in orange.

- ● This is no notify that there is a port in which a loop is occurring, or has been removedwithin 3days.

◆ Communications are slow.

- ● Are the communication speed and mode settings correct? If the proper communication mode signal cannot be obtained, apply half-duplex mode. Please reconfirm autonegotiation setting.
- ● Is not the utillization ratio of the network to which this Switching Hub is connected too high? Try separating this Switching Hub from the network.

◆ Communications fail.

- ● Is the link-up correct? If embedded saving mode is set to Full, change the setting to Half or Disabled.
- ● Is the Port LED (right) lit in orange? If the Port LED (right) lit in orange, the port is shut down by the loop detection function. Eliminate the loop connection of the device connected to the port first, and then wait longer than the time required for automatic recovery from the shutdown by the loop detection function, or release the port shutdown from the setting screen.

Appendix.A.After-sales Service

1. Warranty card
   A warranty card is included in the operating instructions (paper) provided with this switch. Be sure to confirm that the date of purchase, dealer (company) name, etc., have been entered in the warranty card and then receive it from the shop. Read it carefully, and then keep it in a safe place. The warranty period is one year from the date of purchase.

2. Repair request
   If a problem is not solved even after taking the steps shown in the "Trouble-shooting" section in this manual, please use the Memo shown on the next page and make a repair request with the following information to your dealer.
   - Product name
   - Model number
   - Product serial number (an 11-digit number attached on the back of the product.)
   - Firmware version (The number after "Ver." labeled on the unit package)
   - Problem status (Please give as concrete information as possible.)
   - Within the warranty period:
     Repair service will be provided in accordance with the conditions stipulated in the warranty card.
     Please bring your product and warranty card in your dealer.
   - After the warranty period expires:
     If our check determines that your product is repairable, a chargeable repair service is available upon your request.
     Please contact your dealer.

3. Inquiries about after-sales service and the product
   Contact contact your dealer, or call/fax the following number.

Memo (Fill in for future reference)

<table>
<tr><td rowspan="2">Date of purchase</td><td colspan="6" rowspan="2"></td><td>Product name</td><td colspan="3">Switch-M</td></tr>
<tr><td>Model No.</td><td colspan="3">PN28</td></tr>
<tr><td rowspan="2">Firmware version (*)</td><td colspan="3">Boot Code</td><td colspan="7"></td></tr>
<tr><td colspan="3">Runtime Code</td><td colspan="7"></td></tr>
<tr><td rowspan="2">Serial No.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="10">(11 alphanumeric characters labeled on the product)</td></tr>
<tr><td>Shop/
Sales company</td><td colspan="10">Tel</td></tr>
<tr><td>Customer service contact</td><td colspan="10">Tel</td></tr>
</table>

(* You can check the version on the screen described in section 4.4 of the Operation Manual – Menu Interface.)

Panasonic Eco Solutions Networks Co., Ltd.
2-12-7, Higashi-Shimbashi, Minato-ku, Tokyo Japan, 105-0021
URL: http://panasonic.co.jp/es/pesnw/english/

P0115-4019