# Panasonic®

| Operation Manual |
| For CLI Screens |

Layer 2 Switching Hub

Model Number: PN23129A
PN23169A
PN23249A

- Thank you for purchasing our product.
- This manual provides important information about safe and proper operations of this Switching Hub.
- Please read the **"Important Safety Instructions"** on pages 3 to 5.
- Any problems or damage resulting from disassembly of this Switching Hub by customers are not covered by the warranty.
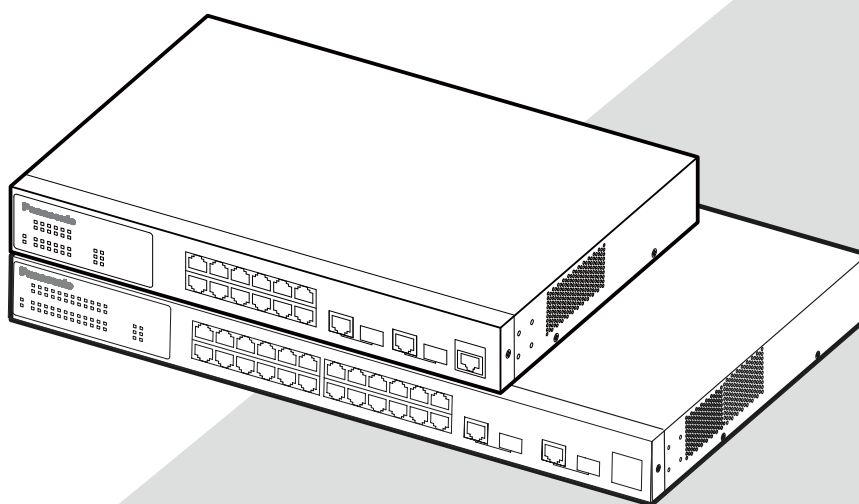
This operation manual is applicable to the following Switching Hubs:

Product name	Model No.
Switch-M12PWR	PN23129A
Switch-M16PWR	PN23169A
Switch-M24PWR	PN23249A

Important Safety 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 Switching Hub, 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 - 240V.** 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 Switching Hub 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 and combustible) into the opening (such as twisted pair port, console port, SFP extension slot), and/or do not drop them into the inside of 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 twisted pair port.** Deviation could lead to fire, electric shock, and/or equipment failure. • **Do not place 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.

⚠WARNING

- **Do not place this Switching Hub under direct sun light and/or high temperature.**
  Deviation could lead to high internal temperature and fire.

- **Do not install this Switching Hub at the location with continuous vibration or strong shock, or at the unstable location**
  Deviation could lead to injury and/or equipment failure.

- **Do not install any module other than our optional SFP module to SFP extension slot.**
  Deviation could lead to fire, electric shock, 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 Switching Hub 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.

⚠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 LED (Self-diagnosis), TEMP LED (temperature sensor), or FAN LED (fan 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 down because of weight of the main body and connection cable.**

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⚠CAUTION

❗	• Handle the Switching Hub carefully so that fingers or hands may not be damaged by twisted pair port, SFP extension slot, console port, or power cord hook block.

Important Requests on Protection from Lightning Strike

- If you connect a network camera, a wireless access point, or other devices that can be affected by a lightning strike (in particular, devices installed outdoors) to the twisted pair port of this Switching Hub, a lightning surge current/voltage may be conducted to this Switching Hub through the twisted pair cable, leading to malfunction. If you connect such a device, it is strongly recommended that you install a surge protective device (SPD) on the twisted pair port side of this Switching Hub.

- A lightning surge current/voltage may be conducted to this Switching Hub through the power supply or ground wire connected to the power port, leading to

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.

- Do not touch the metal terminal of the RJ45 connector, the modular plug of connected twisted pair cable, or the metal terminal of the SFP extension slot. 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 place where ambient temperature is from 0 to 40 degrees C.
  For Switch-M12PWR:
  When the total power supply is 140W or less, please use the Switching Hub in place where ambient temperature is from 0 to 45 degrees C.
  When the total power supply is 110W or less, please use the Switching Hub in place where ambient temperature is from 0 to 50 degrees C.

  For Switch-M16PWR:
  When you set the fan speed to High, please use the Switching Hub in place where ambient temperature is from 0 to 50 degrees C.
  You can also use it in the ambient temperature range from 0 to 50 degrees C if you set the fan speed to Mid (factory default) and control the total power supply to 110 W or below.

For Switch-M24PWR:
When the total power supply is 145W or less, please use the Switching Hub in place where ambient temperature is from 0 to 45 degrees C.
When the total power supply is 130W or less, please use the Switching Hub in place where ambient temperature is from 0 to 50 degrees C.

Failure to meet the above conditions may result in fire, electric shock, breakdown, and/or malfunction. Please take notice because such cases are out of guarantee.
Additionally, do not cover the bent hole of this Switching Hub.
Deviation could lead to high internal temperature, equipment failure and/or malfunction.

- 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 (excluding Switch-M24PWR).

- 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 the 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 question, please contact the retailer where you purchased the product.

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

Table of Contents

1. Command Hierarchy

There are four hierarchical levels in command hierarchy.
1. User mode
2. Privileged mode
3. Global configuration mode
4. Interface configuration mode

```
M24PWR> enable
M24PWR# config
M24PWR(config)# interface fa0/1
M24PWR(config-if)# exit
M24PWR(config)# interface vlan1
M24PWR(config-if)# exit
M24PWR(config)# exit
M24PWR#
```
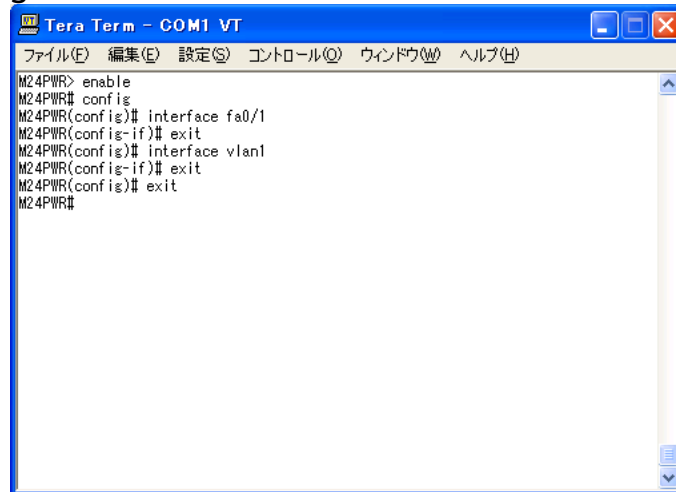
Fig. 1-1 Command hierarchy

[enable command]
• The enable command enables to move from User mode to Privileged mode.
M24PWR> ································User mode
M24PWR> enable ·······················User mode
　　　　　　　　　　　　　　　　→ Privileged mode
M24PWR# ·······························Privileged mode
M24PWR# disable ·······················Privileged mode
　　　　　　　　　　　　　　　　→ User mode
M24PWR> ································User mode

[disable command]
• The disable command enables to return from Privileged mode to User mode.
M24PWR# ·······························Privileged mode
M24PWR# disable ·······················Privileged mode
　　　　　　　　　　　　　　　　→ User mode
M24PWR> ································User mode

[config command]

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

M24PWR# ······························Privileged mode
M24PWR# config ························Privileged mode
→ Global configuration mode
M24PWR(config)#························Global configuration mode

[interface command]

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

M24PWR(config)#························Global configuration mode
M24PWR(config)# interface vlan1 ··········Global configuration mode
→ Interface configuration mode (vlan1)
M24PWR(config-if)# exit ·················Interface configuration mode
→ Global configuration mode
M24PWR(config)# interface fastethernet0/1 ··Global configuration mode
→ Interface configuration mode (interface1)
M24PWR(config-if)# ·····················Interface configuration mode
M24PWR(config)#························Global configuration mode

[exit command]

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

M24PWR(config-if)# exit ·················Interface configuration mode
→ Global configuration mode
M24PWR(config)# exit ···················Global configuration mode
→ Privileged mode
M24PWR# exit ··························Privileged mode
→ User mode
M24PWR> ·····························User mode

[end command]

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

M24PWR(config-if)# end ·················Interface configuration mode
→ Privileged mode
M24PWR# config
M24PWR(config)# end ···················Global configuration mode
→ Privileged mode

[? command]
• Entering a question mark (?) in each mode displays executable elements in the mode.
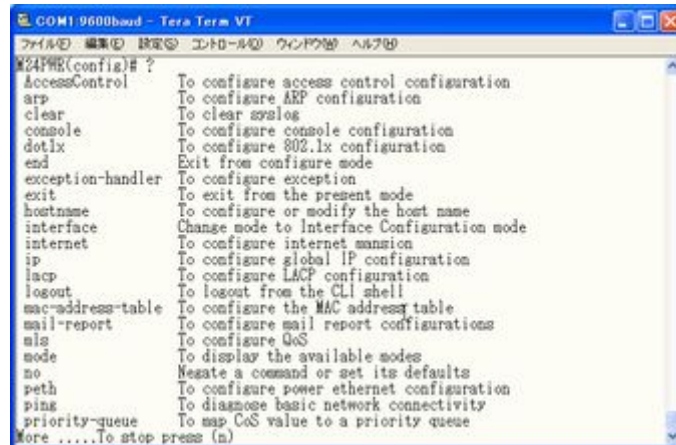
Fig. 1-2 ? command

[Re-entry assist]
• Entering the up arrow key displays a command that was entered immediately before.
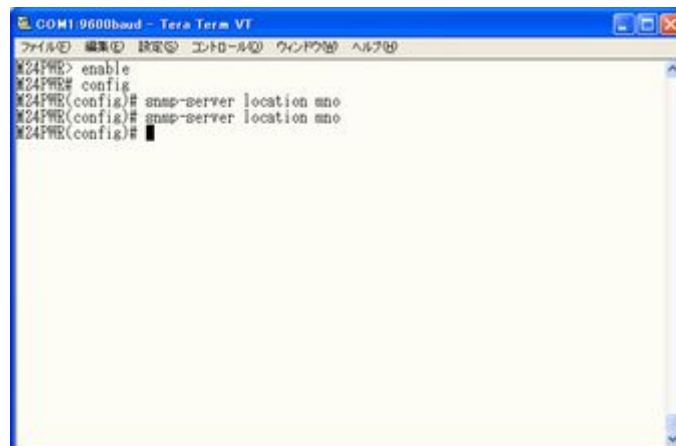
Fig. 1-3 Re-entry assist command

[Candidate assist command]

• Entering a command followed by a question mark (?) displays candidates of succeeding command.
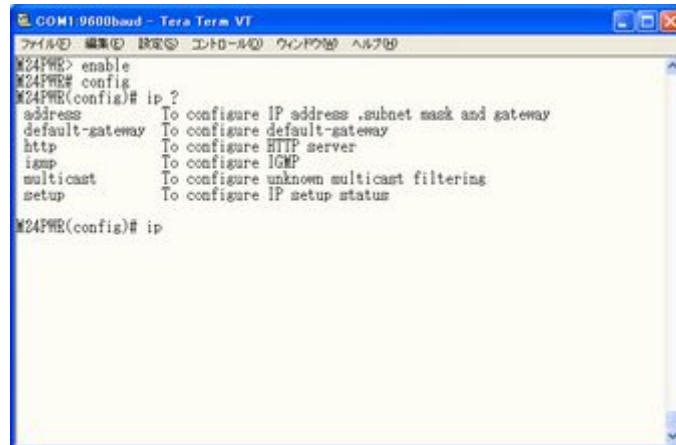
Fig. 1-4 Candidate assist command

[Comment]

• Lines that begin with an exclamation mark (!) are ignored and regarded as comments.

This document describes how to use the commands that can be used in this switch. Meanings of symbols in description are as follows:
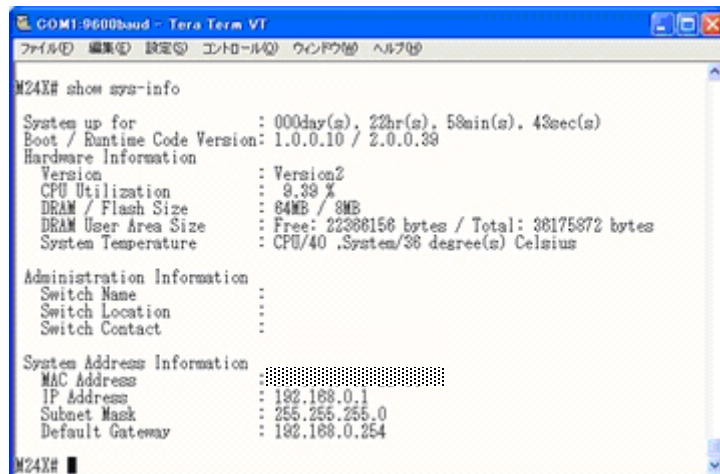
      <   >:   Essential element – Make sure to enter this element.

      { | }: Choice – Select and input either one.

      [   ]:   Option – Enter as required.

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

Fig. 2-1 Display of the basic information
(show sys-info)

3. Basic Switch Configuration
3.1. System Administration Configuration

Configure the administrator's 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>

Delete command

Global configuration mode	no hostname

Installation location configuration command

Global configuration mode	snmp-server location <server location>

Delete command

Global configuration mode	no snmp-server location

Contact information configuration command

Global configuration mode	snmp-server contact <server contact>

Delete command
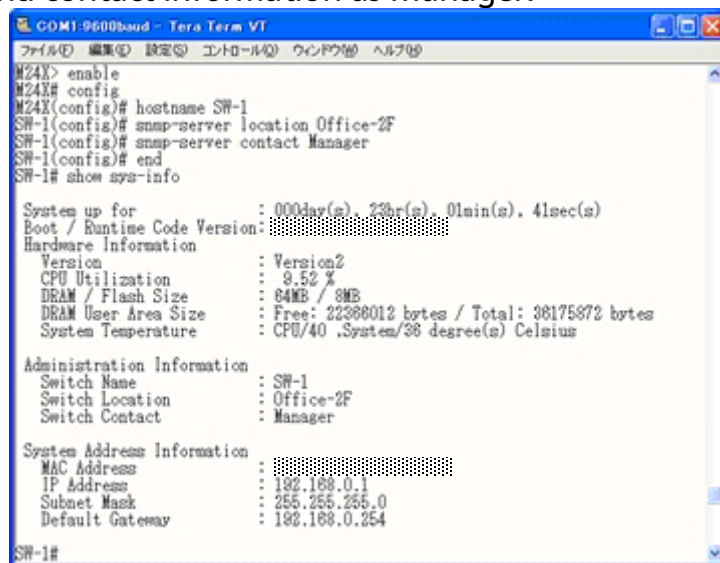
Global configuration mode	no snmp-server contact

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"

ex. Configuration example of host name as SW-1, installation location as Office-2F, and contact information as Manager.


```
COM1:9600baud - Tera Term VT
ファイル(F) 編集(E) 設定(S) コントロール(O) ウィンドウ(W) ヘルプ(H)

M24X> enable
M24X# config
M24X(config)# hostname SW-1
SW-1(config)# snmp-server location Office-2F
SW-1(config)# snmp-server contact Manager
SW-1(config)# end
SW-1# show sys-info

System up for             : 000day(s), 23hr(s), 01min(s), 41sec(s)
Boot / Runtime Code Version:
Hardware Information
  Version                 : Version2
  CPU Utilization         : 9.52 %
  DRAM / Flash Size       : 64MB / 8MB
  DRAM User Area Size     : Free: 22366012 bytes / Total: 36175872 bytes
  System Temperature      : CPU/40 ,System/36 degree(s) Celsius

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

System Address Information
  MAC Address             :
  IP Address              : 192.168.0.1
  Subnet Mask             : 255.255.255.0
  Default Gateway         : 192.168.0.254

SW-1#
```

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

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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
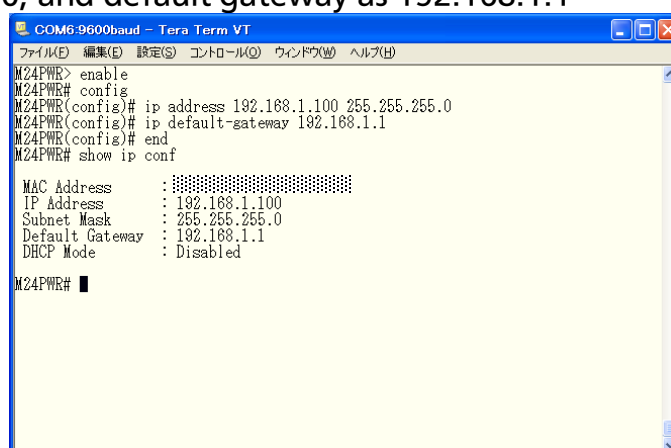
DHCP client configuration disable command

Global configuration mode	no ip address dhcp

IP address display command

Privileged mode	show ip conf

ex1. Configuration example of IP address as 192.168.1.100, subnet mask as
255.255.255.0, and default gateway as 192.168.1.1

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

ex2. Configuration example of DHCP client

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

Note: The above items must be set in order to enable a remote connection by
SNMP control function, Telnet, SSH, or Japanese WEB control function. If
you don't know items to be configured, please consult with your 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 configuration) delete command

Global configuration mode	no snmp-server enable traps snmp authentication

SNMP trap (linkdown port configuration) command

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

SNMP trap (linkdown port configuration) 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 operation configuration) command

Global configuration mode	snmp-server enable traps poe

SNMP trap (PoE operation configuration) 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 configuration) 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 display command

Privileged mode	show snmp

ex1. Configuration example of SNMP agent, SNMP manager, trap receiver, and
various traps.

Fig. 3-4 Configuration of SNMP

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

3.4. Port Configuration

Display each port's status and configure the setting 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 packet transfer enable command

Interface configuration mode	eap-forward

EAP packet transfer disable command

Interface configuration mode	no eap-forward

Port information display command

Privileged mode	show interface info

Port name display command

Privileged mode	show interface name

Module information display command

Interface configuration mode	getport

ex1. Configuration example of port speed and flow control.

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

ex2. Configuration example of port name, jumbo frame and EAP packet.

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

3.5. System Security Configuration

Configure access conditions to this switch for configuration and administration in "Global configuration 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

Telnet access limitation enable command

Global configuration mode	telnet-server access-limitation enable

Telnet access limitation disable command

Global configuration mode	no telnet-server access-limitation enable

Telnet access permitted device configuration command

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

Telnet server configuration display command

Privileged mode	show telnet-server

Web server enable command

Global configuration mode	ip http server

Web server disable command

Global configuration mode	no ip http server

Fig. 3-8 Display of console configuration (show console)
and telnet server configuration (show telnet-server)

Fig. 3-9 Display of the SSH server configuration (show ip ssh)

Fig. 3-10 Display of the Web server configuration (show ip http server)

SNMP enable command

Global configuration mode	snmp-server agent
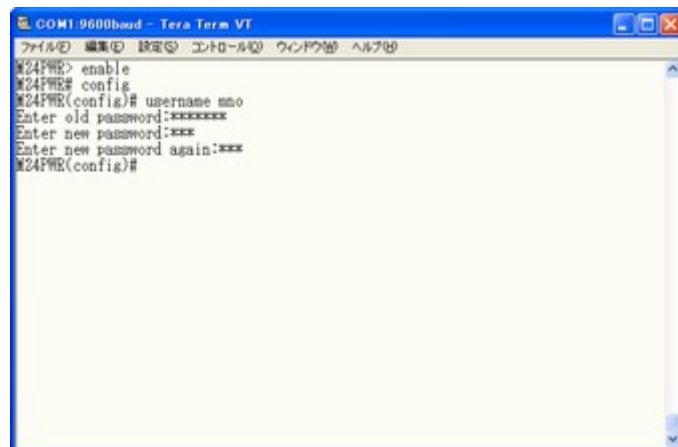
SNMP disable command

Global configuration mode	no snmp-server agent

Username and password configuration command

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

Fig. 3-11 Configuration of the username and password
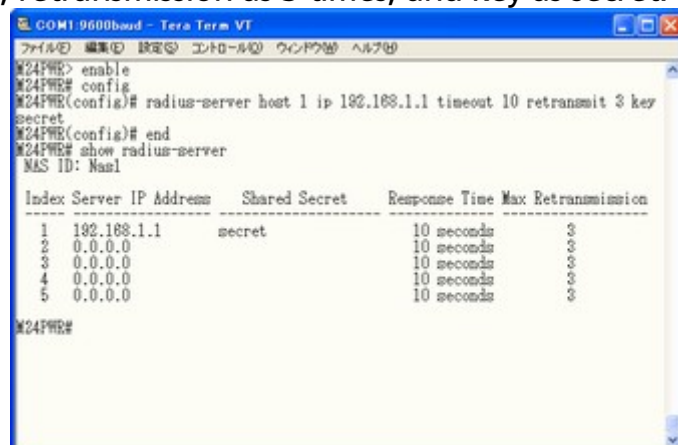
RADIUS server configuration command

Global configuration mode	radius-server host <index> ip <ip-address> [timeout <sec(s)>][retransmit <retries>] [key <string>]

RADIUS server configuration display command

Privileged mode	show radius-server

ex. Configuration example of RADIUS server's IP address as 192.168.1.1, timeout as 10 seconds, retransmission as 3 times, and key as secret.

Fig. 3-12 Display of the RADIUS server configuration (show radius-server)

IP setup interface configuration enable command
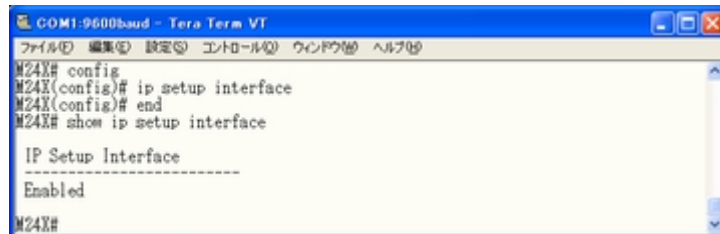
Global configuration mode	ip setup interface

IP setup interface configuration disable command

Global configuration mode	no ip setup interface

IP setup interface configuration display command

Privileged mode	show ip setup interface

Fig. 3-14 Display of the IP setup interface configuration (show ip setup interface)
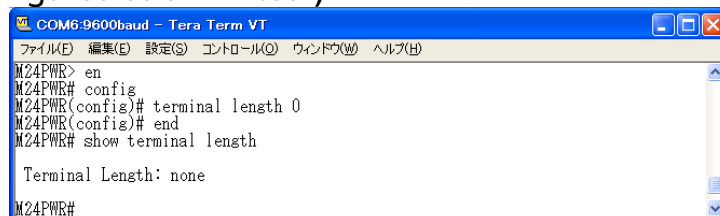
On-screen line numbers display command

Privileged mode	show terminal length

On-screen line numbers configuration command

Global configuration mode	terminal length <LENGTH>

ex. Configuration of Terminal Length as 0 (Line numbers to be displayed on a screen is configured as unlimited.)

Fig. 3-15 Display of the Terminal Length configuration (show terminal length)

3.6. Displaying MAC Address Table

Configure the forwarding database (FDB: a list in which MAC address required for transferring packets is learned and recorded) in "Global configuration mode." The content of FDB is displayed in "Privileged mode." Also, you can add or delete a static MAC address.

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 delete command

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

MAC learning enable command

Interface Global configuration mode	mac-learning

MAC learning disable command

Interface Global 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 learning display command

Privileged mode	show mac-address-table multicast

Aging time display command

Privileged mode	show mac-address-table mac-learning

Fig. 3-15 Display of the 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. Time Configuration

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

Time configuration command

Global configuration mode	sntp clocktime <date> <time>

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

Fig. 3-16 Display of the SNTP configuration
(show sntp)

3.8. ARP Configuration

View 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

4. Advanced Switch Configuration
4.1. VLAN Configuration

Configure the VLAN setting in "Global configuration mode" or "Interface configuration mode."

VLAN creation configuration command

Global configuration mode	interface vlan<vlan-id>

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

GVRP global enable command

Global configuration mode	gvrp

GVRP global disable command

Global configuration mode	no gvrp

VLAN name configuration command

Interface configuration mode	name <name>

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>

GVRP forbidden command

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

GVRP port status enable command

Interface configuration mode	gvrp

GVRP port status disable command

Interface configuration mode	no gvrp

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"

Fig. 4-1 Display of the VLAN configuration
(show vlan {all | <vlan-id>}

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

4.2. Link Aggregation Configuration

Configure the link aggregation setting 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>]

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

4.3. Port Monitoring Configuration
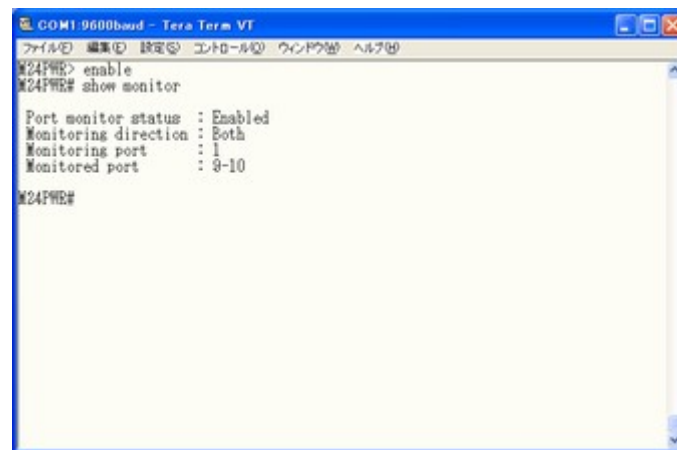
Configure the port monitoring setting in "Interface configuration mode." Confirm the configuration information by entering "show monitor" in "Privileged mode."

Port monitoring configuration command

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

Monitoring configuration information display command

Privileged mode	show monitor

Fig. 4-4 Display of the monitoring configuration
(show monitor)

4.4. Spanning Tree Configuration

Configure the spanning tree setting in "Global configuration mode" or "Interface configuration mode."
When "stpCompatible" or "rstp" is selected for the spanning-tree rst version, the configuration command is represented as "spanning-tree rst xxx"; when "mstp" selected, the command is represented as "spanning-tree mst xxx."

[spanning-tree rst command]
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 select 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 BPDU guard recovery enable command

Global configuration mode	spanning-tree rst bpdu-recovery enable

Spanning Tree BPDU guard recovery disable command

Global configuration mode	no spanning-tree rst bpdu-recovery enable

Spanning Tree BPDU guard recovery time configuration command

Global configuration mode	spanning-tree rst bpdu-recovery timer <seconds>

Spanning Tree port status disable command

Interface configuration mode	spanning-tree rst shutdown

Spanning Tree port status enable command

Interface configuration mode	no 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 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|forcefalse|auto}

Spanning Tree BPDU guard enable command

Interface configuration mode	spanning-tree rst bpdu-guard

Spanning Tree BPDU guard disable command

Interface configuration mode	no spanning-tree rst bpdu-guard

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>

Spanning Tree BPDU guard recovery configuration display command

Privileged mode	show spanning-tree rst bpdu-recovery

[spanning-tree mst command]
Spanning Tree enable command

Global configuration mode	spanning-tree mst enable

Spanning Tree disable command

Global configuration mode	no spanning-tree mst enable

Spanning Tree priority configuration command

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

Spanning Tree version select command

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

Spanning Tree max-age configuration command

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

Spanning Tree hello time configuration command

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

Spanning Tree forward-delay configuration command

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

Spanning Tree BPDU guard recovery enable command

Global configuration mode	spanning-tree mst bpdu-recovery enable

Spanning Tree BPDU guard recovery disable command

Global configuration mode	no spanning-tree mst bpdu-recovery enable

Spanning Tree BPDU guard recovery time configuration command

Global configuration mode	spanning-tree mst bpdu-recovery timer <seconds>

Spanning Tree MST instance priority configuration command

Global configuration mode	spanning-tree mst <1-64> priority <0x0000-0xF000>

Spanning Tree MST instance VLAN configuration command

Global configuration mode	spanning-tree mst <1-64> vlan <vlan-id>

Spanning Tree MST instance VLAN delete command

Global configuration mode	no spanning-tree mst <1-64> vlan <vlan-id>

Spanning Tree max hop count configuration command

Global configuration mode	spanning-tree mst max-hops <6-40>

Spanning Tree MST structure name configuration command

Global configuration mode	spanning-tree mst name <name>

Spanning Tree MST revision level configuration command

Global configuration mode	spanning-tree mst revision <0-65535>

Spanning Tree port status disable command

Interface configuration mode	spanning-tree mst shutdown

Spanning Tree port status enable command

Interface configuration mode	no spanning-tree mst shutdown

Spanning Tree port priority configuration command

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

Spanning Tree cost configuration command

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

Spanning Tree port initialization command

Interface configuration mode	spanning-tree mst init-migration

Spanning Tree edge-port configuration command

Interface configuration mode	spanning-tree mst edgeport

Spanning Tree point-to-point configuration command

Interface configuration mode	spanning-tree mst point-to-point {forcetrue|forcefalse|auto}

Spanning Tree BPDU guard enable command

Interface configuration mode	spanning-tree mst bpdu-guard

Spanning Tree BPDU guard disable command

Interface configuration mode	no spanning-tree mst bpdu-guard

Spanning Tree MST instance port path cost configuration command

Interface configuration mode	spanning-tree mst <1-64> cost <1-200000000>

Spanning Tree MST instance port priority configuration command

Interface configuration mode	spanning-tree mst <1-64> priority <0-240>

Spanning Tree MST instance port status disable command

Interface configuration mode	spanning-tree mst <1-64> shutdown

Spanning Tree MST instance port status enable command

Interface configuration mode	no spanning-tree mst <1-64> shutdown

Spanning Tree MST configuration display command

Privileged mode	show spanning-tree mst configuration

Spanning Tree MST instance configuration display command

Privileged mode	show spanning-tree mst <1-64>

Spanning Tree MST instance port configuration display command

Privileged mode	show spanning-tree mst <1-64> interface <port-list>

Spanning Tree CIST configuration display command
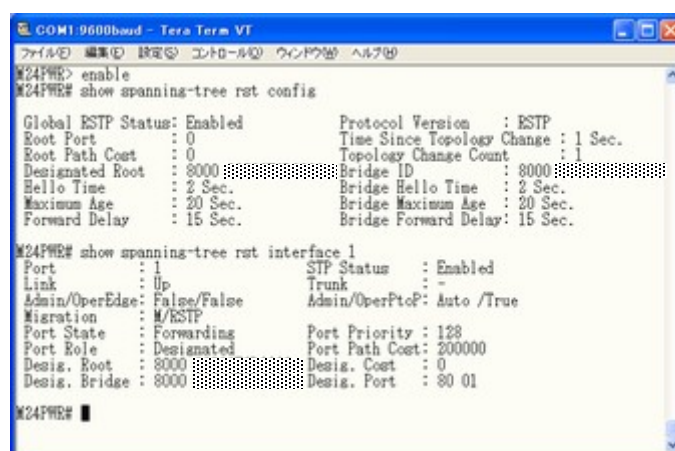
Privileged mode	show spanning-tree mst cist configuration

Spanning Tree CIST interface configuration display command

Privileged mode	show spanning-tree mst cist interface <port-list>

Spanning Tree BPDU guard recovery configuration display command

Privileged mode	show spanning-tree mst bpdu-recovery

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

Fig. 4-6 Display of the STP configuration
(show spanning-tree mst configuration)
(show spanning-tree mst 1)

Fig. 4-7 Display of the STP configuration
(show spanning-tree mst cist configuration)
(show spanning-tree mst cist interface 1)

4.5. Access Control Configuration

Configure the access control in "Global configuration mode."

Class configuration command

Global configuration mode	accesscontrol classifier <id> [src-mac <MAC>][dst-mac <MAC>] [src-net <ip-mask>][dst-net <ip-mask>] [src-port <layer4-port-list>][dst-port <layer4-port-list>] [vlan-id <vid>] [dot1p-priority <priority>] [dscp <value>] [protocol <pro-num>][icmp-type<0-18>] [TCP-syn-flag{true/false}

Class delete command

Global configuration mode	no accesscontrol classifier <index>

In-Profile configuration command

Global configuration mode	accesscontrol inprofile <index> {deny	permit { dscp <value>	precedence <value>| cos <value>}}

In-Profile delete command

Global configuration mode	no accesscontrol inprofile <index>

Out-Profile configuration command

Global configuration mode	accesscontrol outprofile <index> committed-rate <unit> burst-size <volume> {deny	permit [dscp<value>]}

Out-Profile delete command

Global configuration mode	no accesscontrol outprofile <index>

Port list configuration command

Global configuration mode	accesscontrol portlist <port-list-index> <1-2 or 1,2,3 or 1,2,3-5>

Port list delete command

Global configuration mode	no accesscontrol portlist

Policy configuration command

Global configuration mode	accesscontrol policy <index> portlist <index> classifier <index> policy-sequence <value> [inprofile <index>][outprofile <index>]

Policy enable command

Global configuration mode	accesscontrol policy <index> enable

Policy disable command

Global configuration mode	no accesscontrol policy <index> enable

Policy delete command

Global configuration mode	no accesscontrol policy <index>

Class configuration display command

Privileged mode	show accesscontrol classifier {all	<classifier-number>}

Fig. 4-8 Display of the class and the class group configurations
(show accesscontrol classifier all)
(show accesscontrol classifier 1)

In-Profile configuration display command

Privileged mode	show accesscontrol inprofile

Out-Profile configuration display command

Privileged mode	show accesscontrol outprofile

Fig. 4-9 Display of the In-Profile and the Out-Profile configurations
(show accesscontrol inprofile)
(show accesscontrol outprofile)

Port list configuration display command

Privileged mode	show accesscontrol portlist

Policy configuration display command

Privileged mode	show accesscontrol policy {all	<policy-number>}

Policy sequence configuration display command

Privileged mode	show accesscontrol policy-sequence port <port num> sort {policy-index	sequence}

Fig. 4-10 Display of the port list and policy configuration
(show accesscontrol portlist)
(show accesscontrol policy 1)

4.6. QoS (Quality of Service) Configuration

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

QoS enable configuration command

Global configuration mode	mls qos

QoS disable configuration command

Global configuration mode	no mls qos

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 <traffic class> <weight>

QoS configuration display command

Privileged mode	show mls qos

CoS traffic class mapping configuration display command

Privileged mode	show priority-queue cos-map

QoS scheduling method, weighted round-robin weight configuration display command

Privileged mode	show qos method

Fig. 4-11 Display of the QoS configuration
(show mls qos)
(show priority-queue cos-map)

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Fig. 4-12 Display of the QoS configuration
(show mls qos)
(show qos method)

4.7. Bandwidth Control Configuration

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

Bandwidth control enable command

Interface configuration mode	egress-rate-limit

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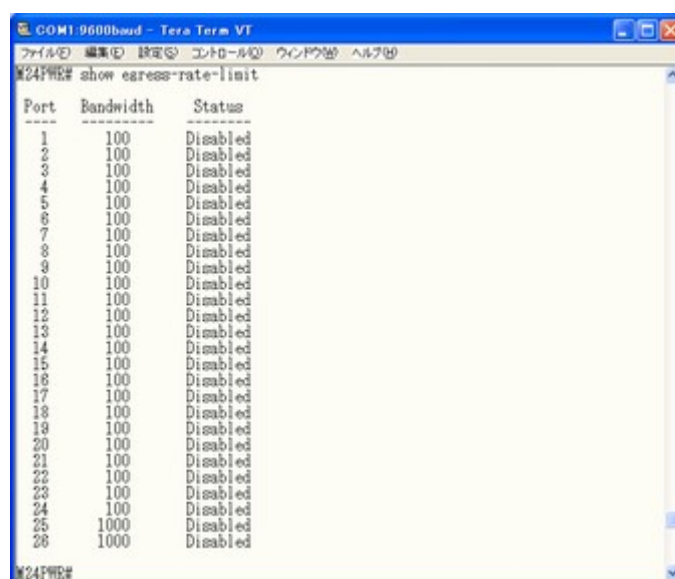
Interface configuration mode	egress-rate-limit [<unit(1Mbps/unit)>]

Bandwidth control disable command

Interface configuration mode	no egress-rate-limit

Bandwidth control display command

Privileged mode	show egress-rate-limit

Fig. 4-13 Display of the bandwidth control configuration
(show egress-rate-limit)

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4.8. IEEE802.1X Authentication Function Configuration

Configure the IEEE802.1X port-based and MAC-based authentication in "Global configuration mode" and "Interface configuration mode." Confirm 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 <Port based mode, MAC based mode>

Global configuration mode	dot1x nas-id <NASID>

Authentication operation configuration command <Port based mode>

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

Periodical re-authentication enable command <Port based mode>

Interface configuration mode	dot1x re-authentication

Periodical re-authentication disable command <Port based mode>

Interface configuration mode	no dot1x re-authentication

Re-authentication interval configuration command <Port based mode, MAC based mode>

Interface configuration mode	dot1x timeout re-authperiod <1-65535>

Client timeout configuration command <Port based mode, MAC based mode>

Interface configuration mode	dot1x timeout supp-timeout <1-65535>

Authentication server timeout configuration command <Port based mode, MAC based mode>

Interface configuration mode	dot1x timeout server <1-65535>

Waiting time configuration command after authentication fails <Port based mode, MAC based mode>

Interface configuration mode	dot1x timeout quiet-period <1-65535>

Request interval configuration command for resending authentication <Port based mode, MAC based mode>

Interface configuration mode	dot1x timeout tx-period <1-65535>

Maximum retry times configuration command for resending authentication <Port based mode, MAC based mode>

Interface configuration mode	dot1x max-req <1-10>

Re-authentication status initialization command <Port based mode>

Interface configuration mode	dot1x re-authenticate

Authentication status initialization command <Port based mode>

Interface configuration mode	dot1x init

Control direction configuration command for authentication requests <Port based mode, MAC based mode>

Interface configuration mode	dot1x control-direction {both | in}

Supplicant numbers configuration command <Port based mode>

Interface configuration mode	dot1x supplicant-num <1-512>

Authentication mode switching command <Port based mode, MAC based mode>

Interface configuration mode	dot1x port-auth-mode {port-based | mac-based}

Authentication status initialization command <MAC based mode>

Interface configuration mode	dot1x mac-based init [<MAC address>]

Re-authentication status initialization command <MAC based mode>

Interface configuration mode	dot1x mac-based re-authenticate [<MAC address>]

Periodical re-authentication enable command <MAC based mode>

Interface configuration mode	dot1x mac-based re-authentication [<MAC address>]

Periodical re-authentication disable command <MAC based mode>

Interface configuration mode	no dot1x mac-based re-authentication [<MAC address>]

EAP-request enable command <MAC based mode>

Interface configuration mode	dot1x eap-request

EAP-request disable command <MAC based mode>

Interface configuration mode	no dot1x eap-request

Guest access configuration command

Interface configuration mode	dot1x guest-vlan <vlan-id>

Default VLAN configuration command

Interface configuration mode	dot1x default-vlan <vlan-id>

Authentication VLAN configuration command <Port based mode>

Interface configuration mode	dot1x dynamic-vlan

Guest access application condition configuration command <Port based mode>

Interface configuration mode	dot1x guest-access {timeout	both	auth-fail}

Force authorized MAC address configuration command

Global configuration mode	dot1x forceAuthorized MAC <MAC address> mask-bit <mask-len> auth-mode {authorized	unauthorized} portlist <1-2 or 1,2,3 or 1,2,3-5>

Authentication information display command <Port based mode, MAC based mode>

Privileged mode	show dot1x {port-based <1-2 or 1,2,3 or 1,2,3-5>	mac-based <port num>}

Force authorized MAC address configuration display command

Privileged mode	show dot1x forceAuthorized-MAC {all	single <MAC address>}

Guest access, Default VLAN configuration display command

Privileged mode	show dot1x guest-default-vlan

IEEE802.1X statistics display command

Privileged mode	show dot1x statistics <port num> {since-reset	since-up}

Fig. 4-14 Display of the IEEE802.1X authentication configuration
(show dot1x port-based 1-2)

4.9. IGMP Snooping Configuration

Configure the IGMP snooping setting 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>

IGMP snooping transmission interval configuration command

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

Multicast filtering enable command

Global configuration mode	ip multicast filtering enable

Multicast filtering disable command

Global configuration mode	no ip multicast filtering enable

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 multicast routing configuration command

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

IGMP snooping multicast interface configuration command

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

IGMP snooping multicast interface delete command

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

IGMP snooping static configuration command

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

IGMP snooping static configuration delete command

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

Leave delay time configuration command

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

IGMP snooping querier enable command

Global configuration mode	ip igmp snooping querier enable

IGMP snooping querier disable command

Global configuration mode	no ip igmp snooping querier enable

IGMP query version configuration command

Global configuration mode	ip igmp snooping querier version {1	2}

Query transmission interval configuration command

Global configuration mode	ip igmp snooping querier query-interval <sec>

Query response time configuration command

Global configuration mode	ip igmp snooping querier max-response-time <sec>

Querier timeout configuration command

Global configuration mode	ip igmp snooping querier timer-expiry <sec>

TCN query transmission times configuration command

Global configuration mode	ip igmp snooping querier tcn query-count <count>

TCN query transmission interval configuration command

Global configuration mode	ip igmp snooping querier tcn query-interval <sec>

IGMP snooping leave configuration command

Interface configuration mode	ip igmp snooping immediate-leave

IGMP snooping leave configuration 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 multicast configuration display command

Privileged mode	show ip igmp snooping mrouter

IGMP snooping VLAN filter table configuration display command

Privileged mode	show ip igmp snooping vlan-filter-table

IGMP snooping querier configuration display command

Privileged mode	show ip igmp snooping querier

Fig. 4-15 Display of the IGMP snooping configuration
(show ip igmp snooping conf)
(show ip igmp snooping mrouter)
(show ip igmp snooping vlan-filter-table)

Fig. 4-16 Display of the leave mode
(show ip igmp snooping leave-mode)

4.10. PoE (Power Supply Function) Configuration

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

SNMP trap sending PoE threshold value configuration command

Global configuration mode	peth usage-threshold <percent>

Management method configuration command

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

Fan control command (* only for Switch-M16PWR)

Global configuration mode	fanspeed {min	low	mid	high}

PoE port enable command

Interface configuration mode	no peth shutdown

PoE port disable command

Interface configuration mode	peth shutdown

PoE port configuration command

Interface configuration mode	peth limit <value>

PoE configuration command
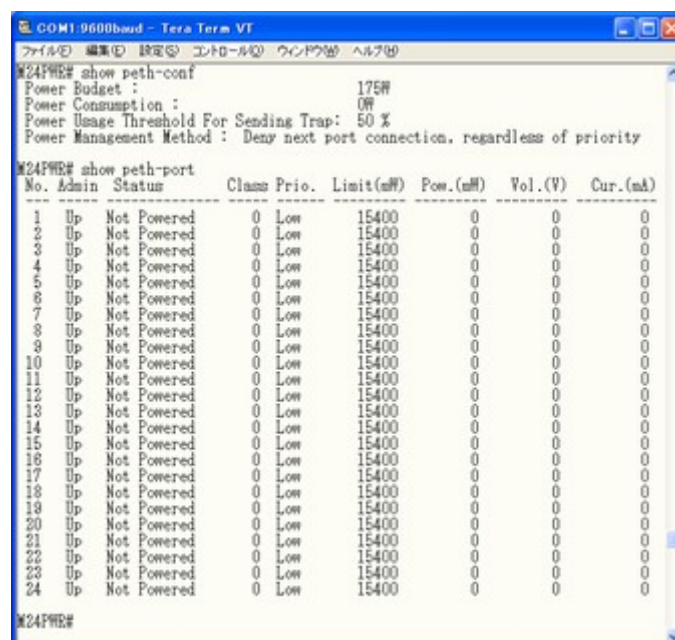
Interface configuration mode	peth priority {critical	high	low}

PoE port configuration display command

Privileged mode	show peth-port

PoE configuration display command

Privileged mode	show peth-conf

Fig. 4-17 Display of the PoE/PoE port configuration
(show peth-conf)
(show peth-port)

4.11. Storm Control Configuration

Configure the storm control in "Interface configuration mode." Confirm the basic 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 (unicast) enable command

Interface configuration mode	storm-control unicast

Storm control (unicast) disable command
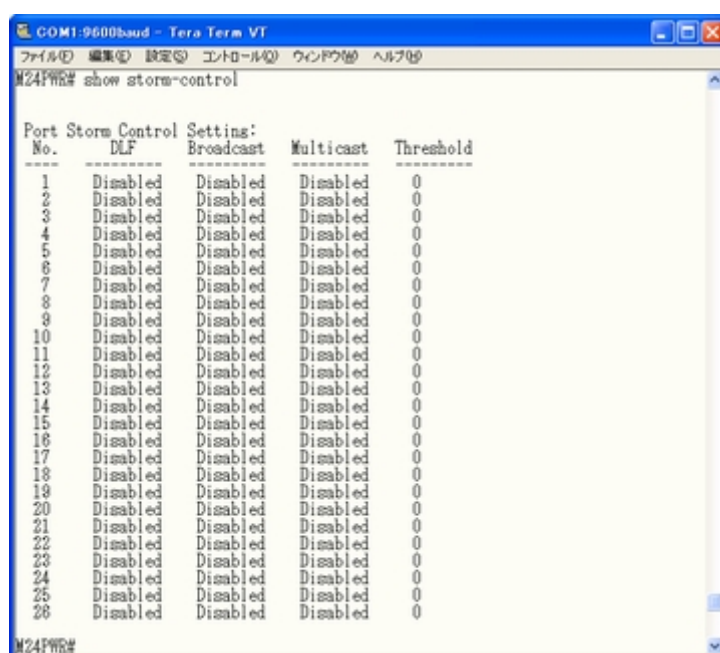
Interface configuration mode	no storm-control unicast

Threshold value configuration command

Interface configuration mode	storm-control threshold <threshold value>

Storm control configuration display command

Privileged mode	show storm-control

Fig. 4-18 Display of the storm control configuration
(show storm-control)

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4.12. Ring Protocol Configuration

Configure the ring protocol in "Ring configuration mode." Confirm 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>

Role 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>

Fail-period configuration command

Ring configuration mode	fail-period <seconds>

Polling-interval configuration command

Ring configuration mode	polling-interval <seconds>

Ring protocol configuration display command

Privileged mode	show rrp status [Domain Name]

Fig. 4-19 Ring protocol configuration display command
(show rrp status)
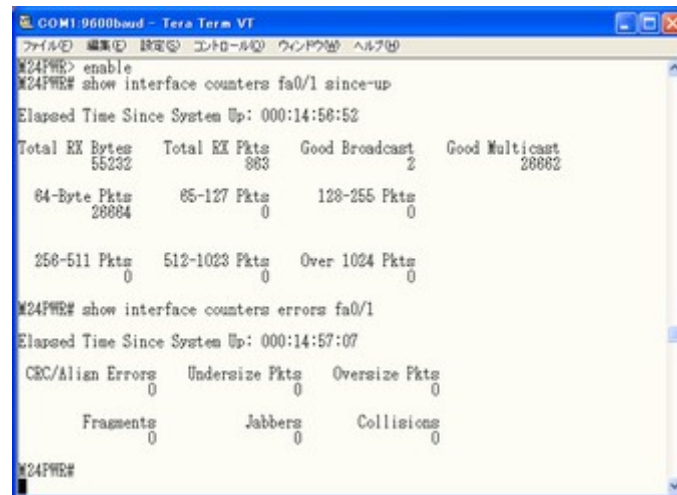
5. Displaying Statistic Information

View the statistic information of this switch 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>

Fig. 5-1 Display of the statistic information
(show interface counters fa0/1 since-up)
(show interface counters errors fa0/1)

6. Firmware Upgrade and Downloading/Uploading Configuration File

Upgrade the firmware version and download/upload the configuration file in "Privileged mode."

Upgrade command

Privileged mode	copy tftp <ip-address> <filename> image
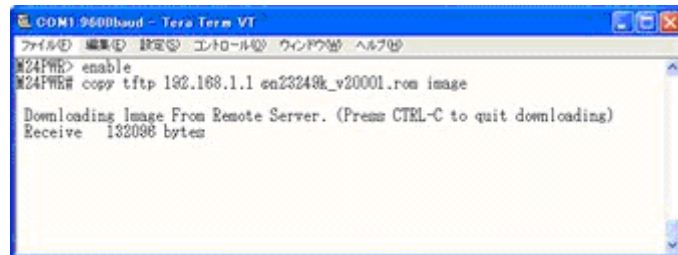
Fig. 6-1 Upgrading
(copy tftp 192.168.1.1 pn23249k_v20001.rom image)

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

7. Reboot

Reboot the switch in "Privileged mode."

Reboot command

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

Fig. 7-1 Reboot screen

8. Ping Execution
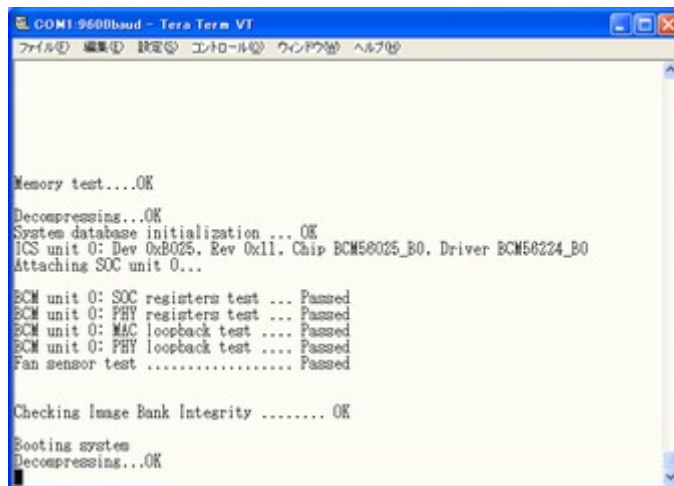
Ping can be used in all modes.

Ping command
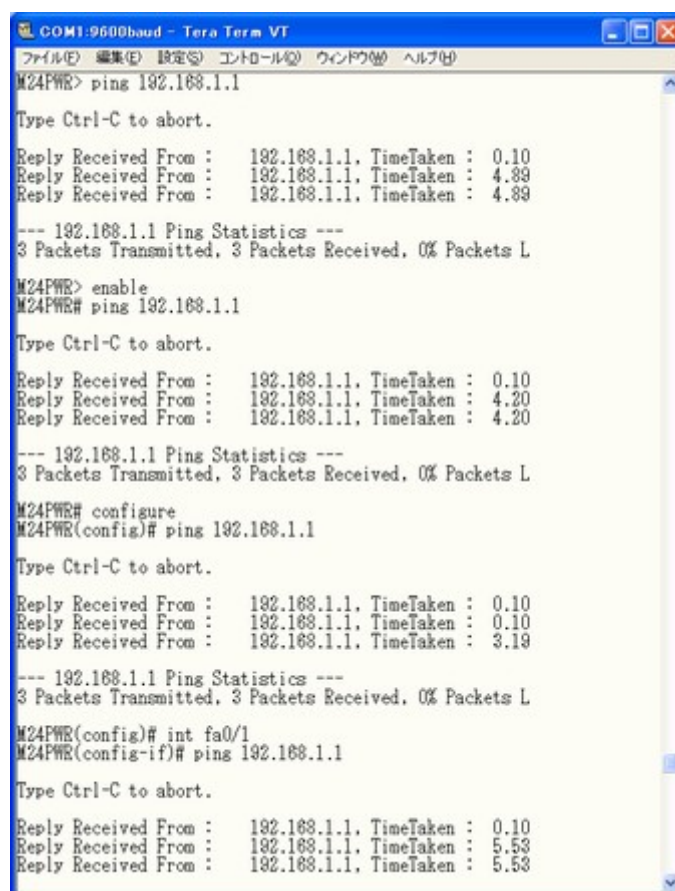
All modes	ping <ip-address>

Ping (number of echo requests) command

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

Ping (timeout) command

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

Fig. 8-1 Ping execution
(ping 192.168.1.1)

9. Displaying System Log
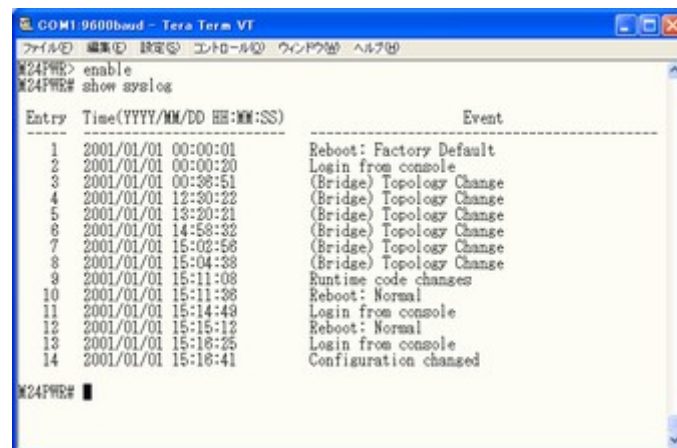
View the system log in "Privileged mode."

System log display command

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

System log clear command

Global configuration mode	syslog clear

Fig. 9-1 Display of the system log
(show sys-log)

9.1. System Log Configuration

Configure the system log setting in "Global configuration mode."

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

Global configuration mode	show log configuration
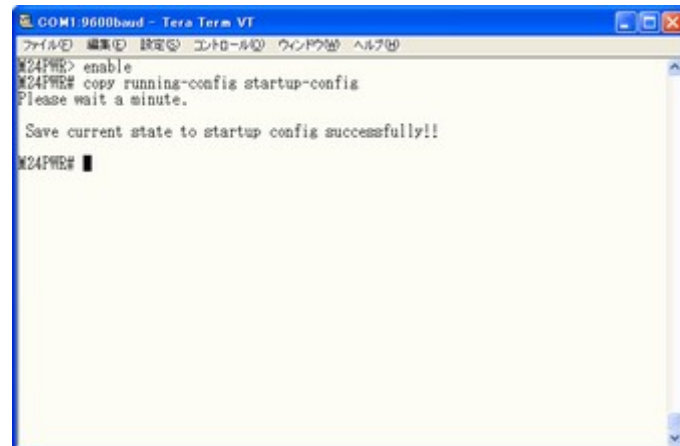
Fig. 9-2 Configuration of the system log.
(log enable linkupdown)
(log enable poe-onoff)

10. Saving Configuration Information

Save the configuration information in "Privileged mode."

Configuration save command

Privileged mode	copy running-config startup-config

Fig. 10-1 Saving the configuration information

11. Displaying Configuration Information
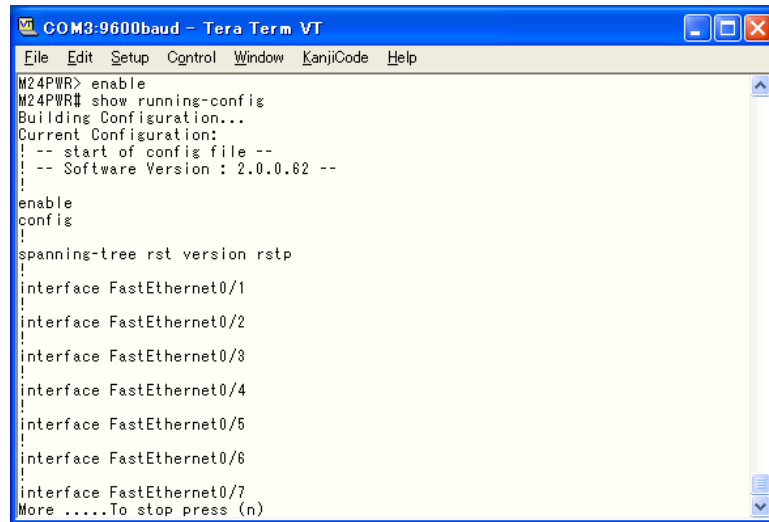
View the configuration information in "Privileged mode."

Configuration information display command

Privileged mode	show running-config

Saved configuration information display command

Privileged mode	show startup-config

Fig. 11-1 Display of the configuration information
(show running-config)

Appendix A. Specifications

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

Appendix B. Procedures for Console Port Configuration using Windows HyperTerminal

Connect a Windows-based PC to this switch with a console cable and follow the procedures shown below to activate HyperTerminal.
(If your PC is using Windows Vista or later, you need to install a terminal emulator first.)

(1) On Windows, click Start on Task Bar > All Programs > Accessories > Communications > HyperTerminal.
(2) The Connection Description window opens. Enter a name (e.g. Switch), choose an icon, and click OK.
(3) The Connect To window opens. Click on the pull-down menu of the Connect Using field, choose **COM1**, and click OK.
   Note that the above setting applies to cases where the console cable is connected to COM1.
(4) At the COM1 Properties window, click on the pull-down menu of the Bits per second field, and choose **9600**.
(5) Click on the pull-down menu of the Flow control field, choose **None**, and click OK.
(6) Click File in the main menu of HyperTerminal and choose Properties.
(7) The <name> Properties window appears (<name>: the name you entered in step 2 is indicated). Click the Settings tab and click on the pull-down menu of the Emulation field. In the list, choose **VT100** and click OK.
(8) Configure this switch in accordance with chapter 4 of the Operation Manual — Menu Screens.
(9) After completing the configuration, click File in the main menu of HyperTerminal and Exit. Click Yes when asked if you want to disconnect the terminal. Then click Yes when asked if you want to save the session for HyperTerminal configuration.
(10) A file named "<name>.ht" (<name>: the name you entered in step 2 is indicated) is created in the HyperTerminal window.

From the next session, you can activate HyperTerminal by double-clicking "<name>.ht" and configure this switch by following step 8.

Appendix C.   Easy IP Address Setup Function

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

[Known compatible software]
Panasonic Eco Solutions Networks Co., Ltd. "Support Tool" Ver.1.2.0.1
Panasonic Corporation "Easy IP Address Setup Software" V3.01/V4.00/V4.24R00
Panasonic System Networks Co., Ltd. "Easy Configurator" V3.10R00

[User-settable items]
• IP address, subnet mask and default gateway
• System name
  * Settable with only the software of Panasonic System Networks Co., Ltd.
     The software shows "Camera name."
• If you use this function for configuration, "Enabled" is automatically displayed
  in the Web Server Status.

[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 the factory
  defaults.
  * You can check the current settings because the list is displayed even after the
     time limit elapses.
• The following function of the software of Panasonic System Networks Co., Ltd.
  is not supported.
  - Auto setup function

* Please contact each manufacturer for information about network cameras.

Troubleshooting

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

1. LED indicators

The power LED (PWR) 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 operated at temperature in the range from 0 to 40 degrees C? Ensure that the operating temperature is within the specified range.

The LINK/ACT. LED (Link/Activity) is not lit.
- 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 standard?
- Auto-negotiation may have failed.
  Set the port of this Switching Hub or the terminal to half-duplex mode.

2. Communications are slow.
- Are the communication speed and mode settings correct?
  If the communication mode signal cannot be properly obtained, apply half-duplex mode. Switch the communication mode of the connection target to half-duplex mode. Do not fix the communication mode of the connected terminal to full-duplex mode.
- Is the utilization ratio of the network to which this Switching Hub is connected too high?
  Try separating this Switching Hub from the network.

3. Communications fail.
- Is the link-up correct?
  If embedded power saving mode is set to Full, change the setting to Half or Disabled.

4. PoE power supply is impossible.
  * Power is not supplied to a Powered Device.
  - If you use an STP cable, PoE power supply may not be possible depending on the installation environment. In such cases, use a UTP cable.
  - Is a CAT5e or better straight cable (RJ45-8/8) used?
  - Is the cable connected to the port 1–16 that supports PoE power supply?
  - Ensure that either the port alone or the entire equipment is not overloaded.
  - Is the Powered Device connected to the port compliant with the IEEE802.3af standard or IEEE802.3 at Type 1 (15.4W) standard?

  * When the power supply is suddenly shut off:
  - It is likely that a PoE-powered device in use has different power consumption in normal operation and standby states. Please confirm PoE LED.

After-sales Service

1. Warranty card

A warranty card is provided with this Switching Hub. Be sure to confirm that the date of purchase, shop (company) name, etc., have been entered in the warranty card and then receive it from the shop. 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 "Troubleshooting" section in this manual, please use the Memo shown on the next page and make a repair request with the following information to the shop where you purchased this Switching Hub.

◆ **Product name**
◆ **Model No.**
◆ **Product serial No.** (11 alphanumeric characters labeled on 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 the shop where you purchased it.
● 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 the shop where you purchased the product.

3. Inquiries about after-sales service and the product

Contact the shop where you purchased the product or call/fax the following number.

Memo (Fill in for future reference)

Date of purchase		Product name	Switch-M
		Model No.	PN23
Firmware version (*)	Boot Code		
	Runtime Code		
Serial No.			
	(11 alphanumeric characters labeled on the product)		
Shop/Sales company	Tel:		
Customer service contact	Tel:		

(* You can check the version on the screen described in section 4.5 of the Operation Manual — Menu Screens.)