
PRIMEQUEST

GSWB USER'S MANUAL

FOR SAFE OPERATION

This manual contains important information regarding the use and handling of this product. Read this manual thoroughly. Pay special attention to the section "[NOTE ON SAFETY](#)" Use the product according to the instructions and information available in this manual. Keep this manual handy for further reference.

Fujitsu makes every effort to prevent users and bystanders from being injured or from suffering damage to their property. Use the product according to this manual.

ABOUT THIS PRODUCT

This product is designed and manufactured for use in standard applications such as office work, personal device, household appliance, and general industrial applications. This product is not intended for use in nuclear-reactor control systems, aeronautical and space systems, air traffic control systems, mass transportation control systems, medical devices for life support, missile launch control systems or other specialized uses in which extremely high levels of reliability are required, the required levels of safety cannot be guaranteed, or a failure or operational error could be life-threatening or could cause physical injury (referred to hereafter as "high-risk" use). You shall not use this product without securing the sufficient safety required for high-risk use. If you wish to use this product for high-risk use, please consult with sales representatives in charge before such use.

RADIO FREQUENCY INTERFERENCE STATEMENT

The following notice is for EU users only.

WARNING: This is a product which meets Class A of EN55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The following notice is for USA users only.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Laser standards.

This equipment includes Class 1 laser products and complies with FDA Radiation Performance Standards, 21 CFR 1040.10 and 1040.11, and the International Laser Safety Standards IEC60825-1: 2001.

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Revision History

(1/3)

	Date	Revised section (Added/ Deleted/ Altered) (Note)	Details
01	2006-02-20	—	—
02	2006-04-17	<p>Section 4.1 (Altered)</p> <p>Section 4.1.1 (Added)</p> <p>Section 4.8.4 (Altered)</p> <p>Section 5.3.2.3 (Added)</p> <p>Section 5.3.3.2 (Altered)</p> <p>Section 5.3.10.1 (Altered)</p>	<ul style="list-style-type: none"> • The Web-UI and CLI have been added to Figure 4.1 to distinguish them from each other in operations. • A description about use of the Web-UI and CLI has been added to distinguish between the Web-UI and the CLI. • An explanation of "Error input / Error output" has been added to Table 4.60, "Displayed and setting items in the [Port Statistics] window." • An addition was made to (6), "Error Messages." • In (5), "Examples," the explanations of "Error input" and "Error output" have been modified. • In (5), "Examples," the explanation of "Receive FCS (CRC) Error Packet" in "Ten Gigabit Ethernet" has been modified.

	Date	Revised section (Added/ Deleted/ Altered) (Note)	Details
03	2006-08-07	Entire manual (Altered)	<ul style="list-style-type: none"> • The names of the main units have been changed to PRIMEQUEST without model names throughout the manual. • Manual titles have been modified.
		Preface (Altered)	<ul style="list-style-type: none"> • "TERMS AND CONDITIONS" has been modified.
		Section 1.1 (Added)	<ul style="list-style-type: none"> • The GSWB mounting position has been added.
		Section 1.4.1 (Added)	<ul style="list-style-type: none"> • A description about the temporary flooding of already learned frames has been added.
		Section 3.2.4 (Added)	<ul style="list-style-type: none"> • A part of text that recommends backing up GSWB configuration definition information has been added.
		Section 4.6.5 (Added)	<ul style="list-style-type: none"> • A part of text that recommends backing up GSWB configuration definition information has been added.
		Section 4.11.3 (Altered)	<ul style="list-style-type: none"> • The explanation of the bpdu filter in Table 4.74 has been modified.

	Date	Revised section (Added/ Deleted/ Altered) (Note)	Details
03	2006-08-07	Section 6.6 (Added)	<ul style="list-style-type: none"> • A list of error messages displayed on the screen has been added.
04	2007-03-05	Entire manual (Altered) Section 6.3 (Added)	<ul style="list-style-type: none"> • Error correction • Error log added
05	2007-08-31	Section 6.3 (Added)	<ul style="list-style-type: none"> • Error log added
09	2008-03-10		<ul style="list-style-type: none"> • Correction of description according to addition of PRIMEQUEST 580A/540A/520A

Note: In this table, the revised section is indicated by its section number in the current edition.

An asterisk (*) indicates a section in the previous edition.

Preface

This manual describes conditions and points for consideration, and provides essential notes regarding installation and operation of the GSWB, which is a PRIMEQUEST (pedestal type) option.

Hereafter in this manual, PRIMEQUEST (pedestal type) is referred to as PRIMEQUEST.

The manual is intended for system administrators. Read the manual together with the reference manuals cited in it.

This section explains

- [Structure and Contents of This Manual](#)
- [Other Reference Manuals](#)
- [Text Conventions](#)
- [Syntax of the Command Line Interface \(CLI\)](#)
- [Environmental Requirements for Using This Product](#)
- [Conventions for Alert Messages](#)
- [Reader Feedback](#)

Structure and Contents of This Manual

This manual is organized as described below.

[CHAPTER 1 Business LAN Management by GSWB](#)

Describes network system construction with the GSWB and management mechanism.

[CHAPTER 2 GSWB Setup](#)

Describes how to initialize the GSWB.

[CHAPTER 3 Network Management and Operation](#)

Explains how to manage and operate a network using the GSWB.

[CHAPTER 4 Web-UI Operations](#)

Provides a list of menus and describes the windows and use of the MMB Web-UI for GSWB operations.

[CHAPTER 5 CLI Operations](#)

Describes use of the CLI for GSWB operations.

[CHAPTER 6 GSWB Messages](#)

Lists GSWB messages and describes how to read these messages.

[Appendix A List of Default Values](#)

Provides lists of default values for the GSWB (Gigabit Switch Board).

[Appendix B Status Confirmation from LED](#)

Describes the LED displays on the GSWB.

[Glossary](#)

Explains the terms used in this manual.

[Index](#)

Describes keywords and corresponding reference page numbers.

Other Reference Manuals

The following manuals are provided for reference:

- a) PDF manuals included on the *PRIMEQUEST Manuals* CD-ROM disk (C122-E013-C2)

Title	Description	Manual code
<i>PRIMEQUEST 580A/540A/580/540/480/440 System Design Guide</i>	Explains requirements, considerations, and notes on the system operation design of the <i>PRIMEQUEST 580A/540A/580/540/480/440</i> .	C122-B001EN
<i>PRIMEQUEST 580A/540A/580/540/480/440 Installation Planning Manual</i>	Explains specifications and requirements for installation sites that are applicable to the installation of the <i>PRIMEQUEST 580A/540A/580/540/480/440</i> .	C122-H001EN
<i>PRIMEQUEST 500A/500/400 Series Installation Manual</i>	Explains the setup of the PRIMEQUEST, including the preparation for the installation, initial settings, and software installation.	C122-E001EN
<i>PRIMEQUEST 580A/540A/520A/500/400 Series Reference Manual: Basic Operation/GUI/Commands</i>	Explains operations, setup methods, and the system management method that are required for the system operation of the PRIMEQUEST. The explanation covers basic operations and functions of the MMB, PSA, and EFL.	C122-E003EN
<i>PRIMEQUEST 500A/500/400 Series Reference Manual: Tools/Operation Information</i>	Explains system maintenance, Hot Plug, REMCS, and LEDs and other information required for system operation. Also, the manual provides supplementary information such as information on the physical locations of components.	C122-E074EN
<i>PRIMEQUEST 500A/500/400 Series Reference Manual: Messages/Logs</i>	Explains measures to be taken against problems that occur during operation and describes various types of messages.	C122-E004EN
<i>SPARC Enterprise/PRIMEQUEST Common Installation Planning Manual</i>	Explains basic information and policy on installation planning and facilities planning that are required for the installation of the SPARC Enterprise series and <i>PRIMEQUEST series</i> .	C120-H007EN

- b) Printed Manual

For the printed manual (sold separately), contact your certified service engineer.

- *PRIMEQUEST 500A/500/400 Series Installation Manual* (C122-E001EN)

Text Conventions

This manual uses the following fonts and symbols to express specific types of information.

Fonts/symbols	Meaning	Example
<i>Italic</i>	Indicates names of manuals.	See the <i>PRIMEQUEST 580A/540A/580/540/480/440 System Design Guide</i> .
" "	Indicates names of chapters, sections, items, buttons, or menus.	See Chapter 1, "Business LAN Management by GSWB."
[]	Indicates window names, window button names, tab names, and dropdown menu selections.	Click the [OK] button.

Syntax of the Command Line Interface (CLI)

The command syntax is described below.

Command syntax

The command syntax is as follows:

- A variable that requires input of a value must be enclosed in < >.
- An optional element must be enclosed in [].
- A group of options for an optional keyword must be enclosed in [] and delimited by |.
- A group of options for a mandatory keyword must be enclosed in { } and delimited by |.



The command syntax is shown in a frame such as this one.

Environmental Requirements for Using This Product

This product is a computer which is intended to be used in a computer room. For details on the operational environment, see the *PRIMEQUEST 580A/540A/580/540/480/440 Installation Planning Manual* (C122-H001EN).

Conventions for Alert Messages

This manual uses the following conventions to show alert messages. An alert message consists of an alert signal and alert statements.

 WARNING	This indicates a hazardous situation that <i>could result in serious personal injury</i> if the user does not perform the procedure correctly.
 CAUTION	This indicates a hazardous situation that <i>could result in minor or moderate personal injury</i> if the user does not perform the procedure correctly. This signal also indicates that damage to the product or other property <i>may</i> occur if the user does not perform the procedure correctly.
IMPORTANT	This indicates information that could help the user to use the product more effectively.

Alert messages in the text

In the text, alert messages are indented to distinguish them from regular text. A wider space precedes and follows the message to show where the message begins and ends.

WARNING

Certain tasks in this manual should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause electric shock, injury, or fire.

- Installation and reinstallation of all components, and initial settings
- Removal of front, rear, or side covers
- Mounting/de-mounting of optional internal devices
- Plugging or unplugging of external interface cards
- Maintenance and inspections (repairing, and regular diagnosis and maintenance)

Reader Feedback

- In this manual, it is assumed that two BMMs (optional products) can be connected to a single IO Unit; this is reflected both in the explanations and in the figures included in this manual. At present, however, the PRIMEQUEST series supports only connection to one BMM (BMM#0) per IO Unit.
- In this manual, the term BP (BackPlane) used in descriptions for the PRIMEQUEST series actually stands for MP (MidPlane).
- The screen images in this manual may be different from the actual screen images.
- If you find any errors or unclear statements in this manual, please fill in the "Reader's Comment Form" sheet at the back of this manual and forward it to the address indicated at the bottom of the sheet.
- This manual is subject to revision without prior notice.
- The PDF version of this manual is best viewed in Adobe® Reader® with a magnification of 100% and Single Page for the page layout.

NOTE ON SAFETY

Important Alert Messages

This manual provides the following important alert signals:



This indicates a hazardous situation that could result in minor or moderate personal injury if the user does not perform the procedure correctly. This signal also indicates that damage to the product or other property may occur if the user does not perform the procedure correctly.

Task	Warning	Page
Normal operation	Malfunction MMB Web-UI supports the following browsers. Note that if other browsers are used, the Web-UI window may not be displayed correctly. <ul style="list-style-type: none">● Microsoft® IE (Internet Explorer) v5.5 (SP2) or later● Netscape v7.02 or later	P.4-2

Product Handling

Maintenance

WARNING

Certain tasks in this manual should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause electric shock, injury, or fire.

- Installation and reinstallation of all components, and initial settings
- Removal of front, rear, or side covers
- Mounting/de-mounting of optional internal devices
- Plugging or unplugging of external interface cards
- Maintenance and inspections (repairing, and regular diagnosis and maintenance)

CAUTION

The following tasks regarding this product and the optional products provided from Fujitsu should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause malfunction.

- Unpacking optional adapters and such packages delivered to the users

Remodeling/Rebuilding

CAUTION

Do not make mechanical or electrical modifications to the equipment. Using this product after modifying or overhauling may cause unexpected injury or damage to the property, the user, or bystanders.

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CHAPTER 1 Business LAN Management by GSWB

1.1 GSWB Overview

The gigabit switch board (GSWB) is a option product of PRIMEQUEST 580A/540A/580/540/480/440 and works as a switching hub compatible with Gigabit Ethernet or 10Gigabit Ethernet. With the GSWB, PRIMEQUEST 580A/540A/580/540/480/440 systems can be used in building effective network infrastructures.

The GSWB can be operated from the MMB Web-UI for centralized and simple operation.

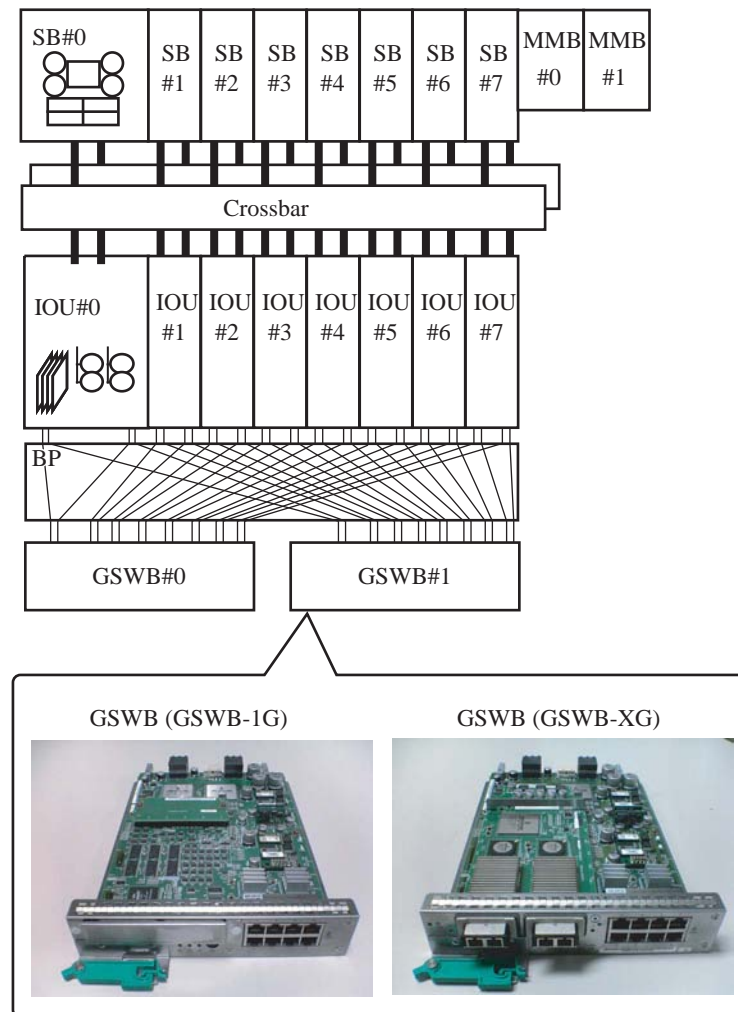


Figure 1.1 GSWB

The built-in LAN switching hub in the cabinet provides the following advantages:

- **Cabling on board**
Since no cable is required for connecting an external LAN switch hub (wireless), the time necessary for cable connection and management can be reduced. This also can prevent mistaken cable connections.
- **Centralized management**
Centralized management of GSWB status monitoring (for failure occurrences) and GSWB control can be implemented from the MMB Web-UI.
- **Virtual LAN (VLAN)**
A single GSWB port can be shared by multiple groups, and each group can function as an independent logical network.
Remarks: If VLAN is used, the spanning tree protocol (STP) function must be set to off.

The gigabit switch board (GSWB) is an optional product that uses dedicated CPUs and memory to provide frame repeating and related functions in the data link layer (Layer 2). A PRIMEQUEST 580A/540A/580/540/480/440 main unit can accommodate up to two GSWBs. The GSWB contains GSWB firmware that controls the GSWB. The GSWB firmware can be set up and operated via MMB firmware.

These firmware programs can be used to construct and manage a business LAN (user LAN) used by a business system.

- External view

Figure 1.2 and Figure 1.3 show the GSWB-1G and GSWB-XG.

GSWB

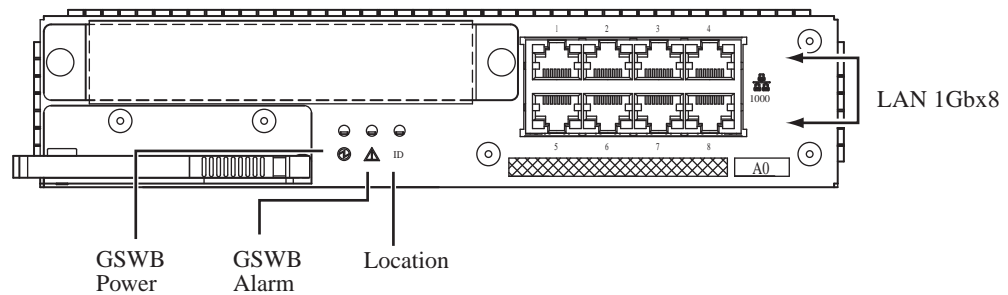


Figure 1.2 GSWB-1G

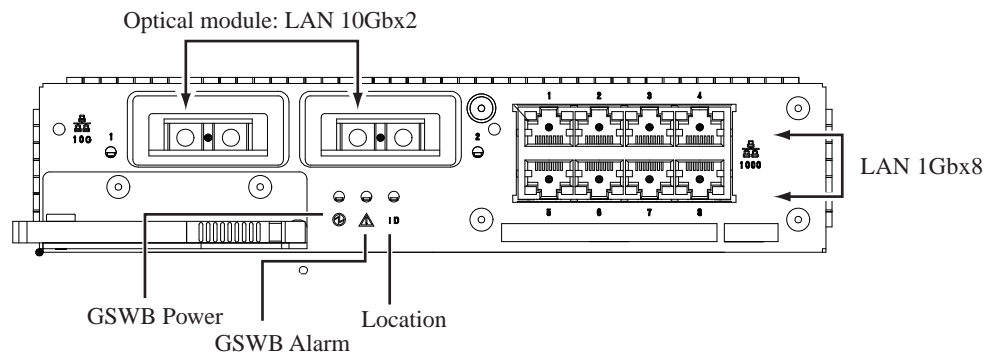


Figure 1.3 GSWB-XG

- Mounting position

An example of the GSWB mounting position is shown below. GSWB is mounted at GSWB#0 or GSWB#1.

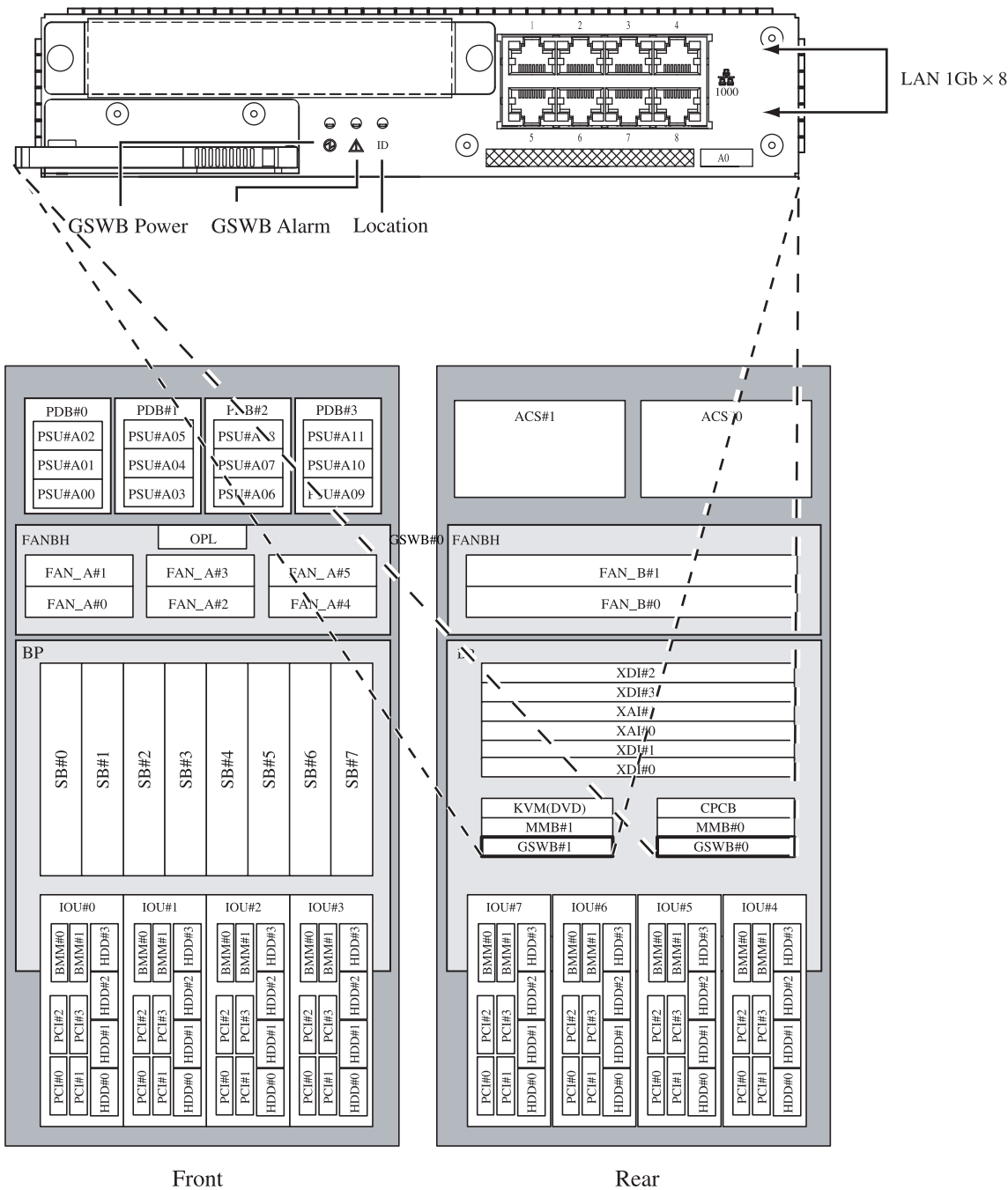


Figure 1.4 GSWB mounting position

1.2 GSWB Specifications

The specifications of GSWB main functions are listed below.

Table 1.1 List of provided main functions

Item	Description			Remarks
Interface	Front	1000 BASE-T	8 ports	Only GSWB-XG is supported.
		10GBASE-LR	2 ports	
	Backplane	1000 BASE-T	16 ports	
Auto-negotiation	Front only 1000 BASE-T is supported			Full duplex/half duplex, 10/100/1000 Mbps
LAN protocol	IPv4			IPv6 is not supported.
LAN swtiching mode	Store and forward			
Buffer size	1 MB/DEV			
Forwarding rate	10/100/1000	32 Mpps		
Flow control	PAUSE frame		Full duplex	
	Back pressure		Half duplex	
Number of address tables	Up to 16 K MAC address			
BOOTP/DHCP	RFC951/RFC1541			Client function Setting a unit IP address
Layer 3 protocol	Unsupported			A unit IP address can be set.
Routing protocol	Unsupported			The default gateway can be specified.
VLAN function	IEEE802.1Q VLAN tag Port-based VLAN Up to 4094 VLAN ID			
CoS function	IEEE802.1p Priority with four steps (maximum)			Priority control function
Port trunking function	IEEE802.3ad			Link aggregation function
Spanning tree function	IEEE802.1D			Supported by software control
IGMP snooping	IGMPv1 (RFC1112) IGMPv2 (RFC2236)			Supported by software control
Jumbo frame	Up to 9020 byte (9 K)			
Rate control function	Broadcast/multicast/DLF storm control			
Network management function	SNMP v1, v2c, v3/RMON Port mirroring			

Item	Description	Remarks
Operation management function	Local console, IPMI, Telnet, SSH, ping, traceroute, tftp, multiple access rights, connection timeout	
Log function	elog, llog, mlog, tlog	
Private LAN function	Backplane: 100BASE-TX × 2	For communication with MMBs

1.2.1 Communication function support list

The communication function support list for a business LAN is shown below.

Table 1.2 Communication-related function support list

Function	Business LAN
Unit MAC address	1
Unit IP address	1
Number of L2 address entries	16 K
Flow control	Y
Auto-sense/auto-negotiation	Y
Port trunking	Y
Port mirror	Y
VLAN function	Y
IGMP snooping	Y
CoS function	Y
Rate control function	Y
STP	Y
Jumbo frame	Y
Connection timeout	Y
SNMP/MIB/RMON	Y
Telnet, SSH	Y
BOOTP/DHCP client	Y
TFTP client	Y
IP/TCP/UDP/ARP/ICMP	Y
Diagnosis command (ping, traceroute, and others)	Y
IPMI	N
NTP client	Y

Y = Supported, N = Unsupported

1.3 Main GSWB Functions

The main GSWB functions are shown in the ♦ GSWB box included in the main PRIMEQUEST functions shown in [Figure 1.5](#).

This section describes the GSWB functions.

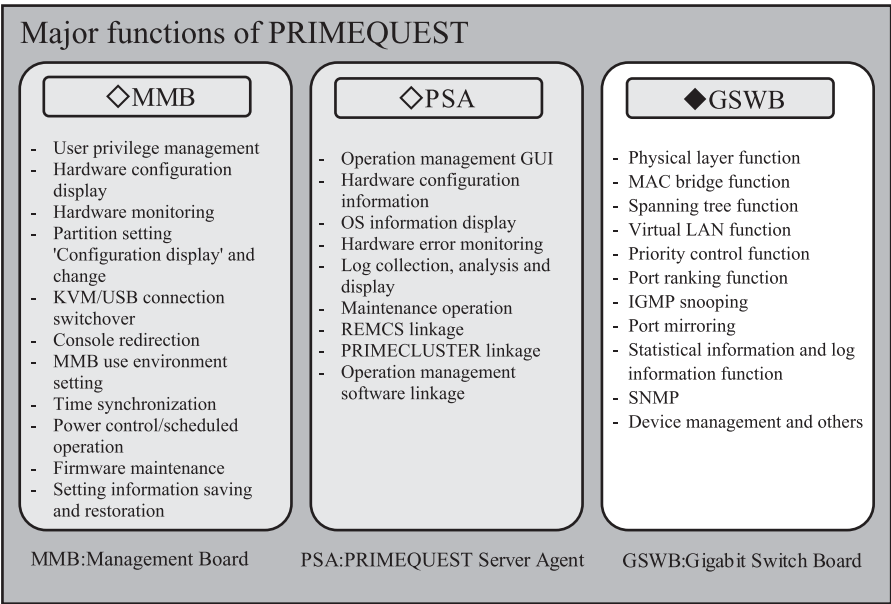


Figure 1.5 Main PRIMEQUEST functions

1.3.1 Physical layer functions

1.3.1.1 Function overview

A GSWB-G, which is a layer 2 LAN switch blade, has 16 Gigabit Ethernet ports on the Backplane side and eight Gigabit Ethernet ports on the Front side.

Table 1.3 Interface overview

LAN type	Location	Interface	Number of ports	Connector	Remarks
Business LAN	Front	1000BASE-T	8	RJ-45	
		10G BASE-LR	2	SC	Only GSWB-XG is supported.
	BackPlane	SerDes	16	-	

1.3.1.2 Interface standard

Business LAN 1000BASE-T (front side)

- Complies with IEEE802.3ab. (1000BASE-T)
- Complies with IEEE802.3x. (10/100 BASE-TX)
- Twisted-pair cable (category 5 UTP, category 5 enhanced (1000BASE-T only))
- Connector type RJ-45
- Transmission distance Up to 100 m
- Transmission speed 1 Gbps (1000BASE-T), 100 Mbps (100BASE-TX), 10 Mbps (10BASE-T)

Business LAN 10GBASE-LR (front side)

- Supports only GSWB XG
- Complies with IEEE802.3ae
- Optical fibre type (single-mode), fibre core diameter of 10 um
- Connector type SC double fibre optic connector
- Transmission distance Up to 10 km
- Transmission speed 10.3125 Gbps

Note: Do not remove the optical module when the GSWB power is on.

Business LAN SerDes (BackPlane side)

- Complies with IEEE802.3ab.
- Connector type HS-3 connector
- Transmission distance -
- Transmission speed 1 Gbps (fixed)

1.3.1.3 Details of the functions

Details of the GSWB-supported functions are described below.

Maximum frame length of transmittable frame

The maximum frame length (size from MAC DA to FCS) of a frame that this unit can transmit is listed below.

Table 1.4 Maximum frame length of transmittable frame

LAN type	Location	Interface	Jumbo frame setting	Maximum frame length (*1)	
				Without VLAN-Tag	With VLAN-Tag
Business LAN	Front side	1000BASE-T	Invalid	1516 bytes	1520 bytes
			Valid	9016 bytes	9020 bytes
		10G BASE-LR	Invalid	1520 bytes	
			Valid	9020 bytes	
	BackPlane side	SerDes	Invalid	1516 bytes	1520 bytes
			Valid	9016 bytes	9020 bytes

*1 Excluding FCS (4 bytes).

Supported communication mode

The communication modes that the communication interfaces of this unit support are listed below.

Table 1.5 Supported communication modes

LAN type	Location	Interface	Communication mode
Business LAN	Front side	1000 BASE-T	Full-duplex/half-duplex communication
		10G BASE-LR	Full-duplex communication
	BackPlane side	SerDes	Full-duplex communication

Auto-sense and auto-negotiation functions

The auto-sense and auto-negotiation functions are available. Auto-sense is a function for the port itself, for detecting the speed of a connected unit. Auto-negotiation, which is a protocol between two units stipulated in IEEE802.3u, sets the communication speed, the communication mode (full duplex or half duplex), and whether to use the flow control function. If units, both of which have the auto-negotiation function, are connected to each other, the common mode is determined in accordance with the priority stipulated in IEEE802.3u.

- Interface support

The table below lists whether interfaces have the auto-negotiation function.

Table 1.6 Interface support for auto-negotiation

LAN type	Location	Interface	Auto-negotiation function	Remarks
Business LAN	Front	1000 BASE-T	Y	
		10G BASE-T	N	Only GSWB-XG is supported.
	BackPlane	SerDes	N	Communication speed: 1 Gbps (fixed) Communication mode: Full duplex (fixed)

Y: Supported

N: Unsupported

- Setting priority

The table below lists the setting priority for auto-negotiation.

Table 1.7 Auto-negotiation priority

Priority	Communication speed	Communication mode
1	1 Gbps	Full duplex
2		Half duplex
3	100 Mbps	Full duplex
4		Half duplex
5	10 Mbps	Full duplex
6		Half duplex

- auto-MDI/MDI-X function

The auto-MDI/MDI-X function is provided as a function of automatic negotiation. When the automatic negotiation function is enabled, the auto-MDI/MDI-X function is also enabled.

Flow control function

If the network load increases, the amount of input data may exceed the throughput of the unit, and data may overflow from buffer memory. Therefore, when buffer memory approaches full status, a receiving unit instructs the sending unit to wait for a certain amount of time before sending the next data item. This can free buffer memory and prevent the occurrence of data overflow. This type of traffic control mechanism is referred to as flow control. Flow control varies depending on the communication mode of a port. If a port uses half-duplex mode, a receiving unit sends a collision (back pressure) to cause the sending unit to wait (enter standby mode) before transmitting again. If a port uses the full-duplex mode, a receiving unit sends a PAUSE frame in accordance with the IEEE802.3u standard to cause the sending unit to wait (enter standby mode) before transmitting again.

- Support interface

The following table lists whether interfaces have the flow control function.

Table 1.8 Interface support for flow control

LAN type	Location	Interface	Flow control function	
			Back pressure	PAUSE frame
Business LAN	Front	1000 BASE-T	Y	Y
		10G BASE-LR	N	Y
	BackPlane	SerDes	N	Y

Y: Supported, N: Unsupported

- Support functions

- Back pressure

Back pressure is a method for retaining transmission of a sender by generating a dummy collision. Back pressure can be specified for half-duplex communication.

- PAUSE frame function

The PAUSE frame function sends a PAUSE frame using the MAC control mechanism.

A PAUSE frame can be specified for full-duplex communication and supports the following three modes.

- Two-way control (Symmetric)
- One-way control (Asymmetric: accept)
- One-way control (Asymmetric: transmit)

- Restrictions

The restriction list for communication speeds and communication modes is shown below.

Table 1.9 Flow control and restriction list

	Communication speed	Communication mode	
		Half duplex	Full duplex
Back pressure	10 bps	Y	N
	100 bps	Y	N
	1000 bps	Y	N
	10G bps	N	-
PAUSE function	10 bps	N	Y
	100 bps	N	Y
	1000 bps	N	Y
	10G bps	-	Y

Y: Supported, N: Unsupported

Remarks: Both functions cannot be executed at the same time.

Jumbo frame function

The GSWB supports the jumbo frame function.

A frame size that exceeds 1514 bytes, which is the maximum frame size according to the Ethernet standard, is referred to as a jumbo frame. It is expected that enabling jumbo frames will increase the throughput, because this allows increasing the size of data items that can be transferred at the same time, and reducing the number of times data is transferred.

- Interface support

The table below lists whether interfaces have the jumbo frame function.

Table 1.10 Interface support for jumbo frames

LAN type	Location	Interface	Jumbo frame function
Business LAN	Front	1000 BASE-T	Y
		10G BASE-LR	Y
	BackPlane	SerDes	Y

Y: Supported

- Supported functions

- A jumbo frame (expansion frame) supports a maximum transmission unit (MTU) size of up to 9 KB.
- The allowable range is between 1514 and 9020 bytes.
- The function can be set to enabled or disabled only for the entire unit; this function cannot be specified on a per-port basis.

- Restrictions

- When the jumbo frame is set, the frame size of all units on communication lines needs to be matched.

Rate control function

The GSWB supports the rate control function.

The rate control function protects packets against network failures caused by storms.

With respect to packets for broadcast, multicast, and Destination Lookup Failure (DLF), it is possible to discard frames greater than or equal to a threshold value on a PPS basis for each port.

- Interface support

The following table lists whether interfaces have rate control.

Table 1.11 Interface support for rate control

LAN type	Location	Interface	Rate control function
Business LAN	Front	1000 BASE-T	Y
		10G BASE-LR	N
	BackPlane	SerDes	Y

Y: Supported

N: Unsupported

1.3.2 MAC bridge function

A GSWB supports the MAC bridge function complying with IEEE802.1D.

The MAC bridge function relays frames between MAC sublayers in transmission lines that differ up to Media Access Control (MAC). The MAC layer is a lower sublayer of the data link layer. The following functions are also supported as related functions.

- Address learning function

The function for learning MAC addresses is supported. This function automatically learns, for filtering and forwarding execution purposes, which bridge port each terminal is connected to. A learning table stores the correspondence of MAC addresses and ports.

- Age-out function

The information on MAC addresses and ports registered in a learning table is deleted if the information is not referenced for a certain amount of time. This function allows more effective use of the learning table. The user can set the aging time.

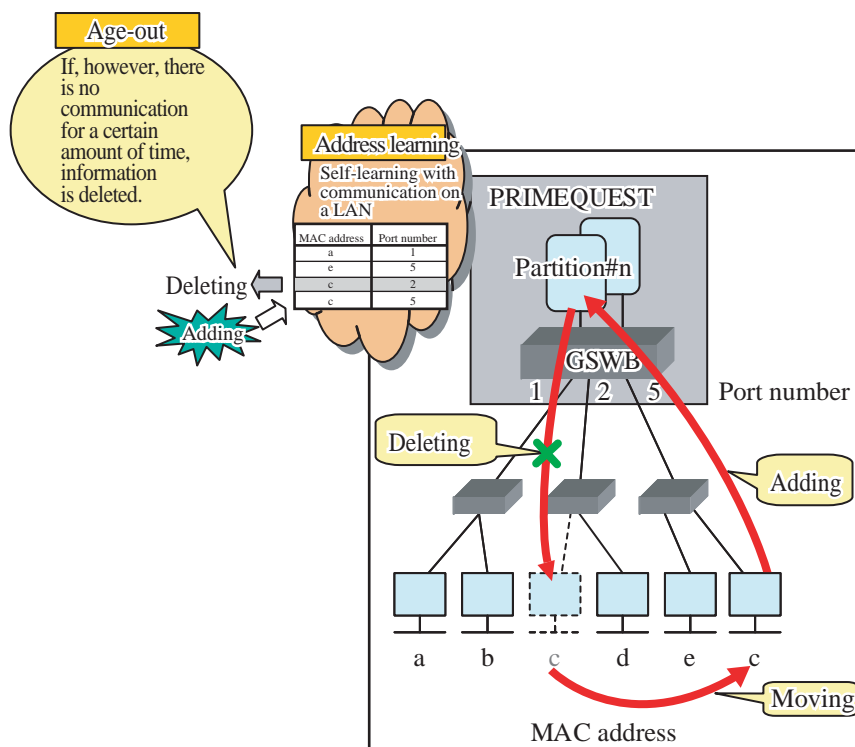


Figure 1.6 Address learning and age-out

1.3.3 Spanning tree function

This function determines the dynamic relay path of a bridge relay as stipulated in IEEE802.1D.

This function is used when a bridge network that has multiple paths between two points is created.

The spanning tree protocol automatically constructs tree-formed logical paths (spanning tree) including all switches based on message exchanges between switches. If a physical loop exists, loop configuration can be avoided because ports that do not form a tree are automatically blocked. A redundancy function, which re-computes the tree and switches to a new path automatically whenever one part of a path is blocked due to a failure, is also provided.

Figure 1.7 shows the difference in the system depending on whether this function is enabled or disabled.

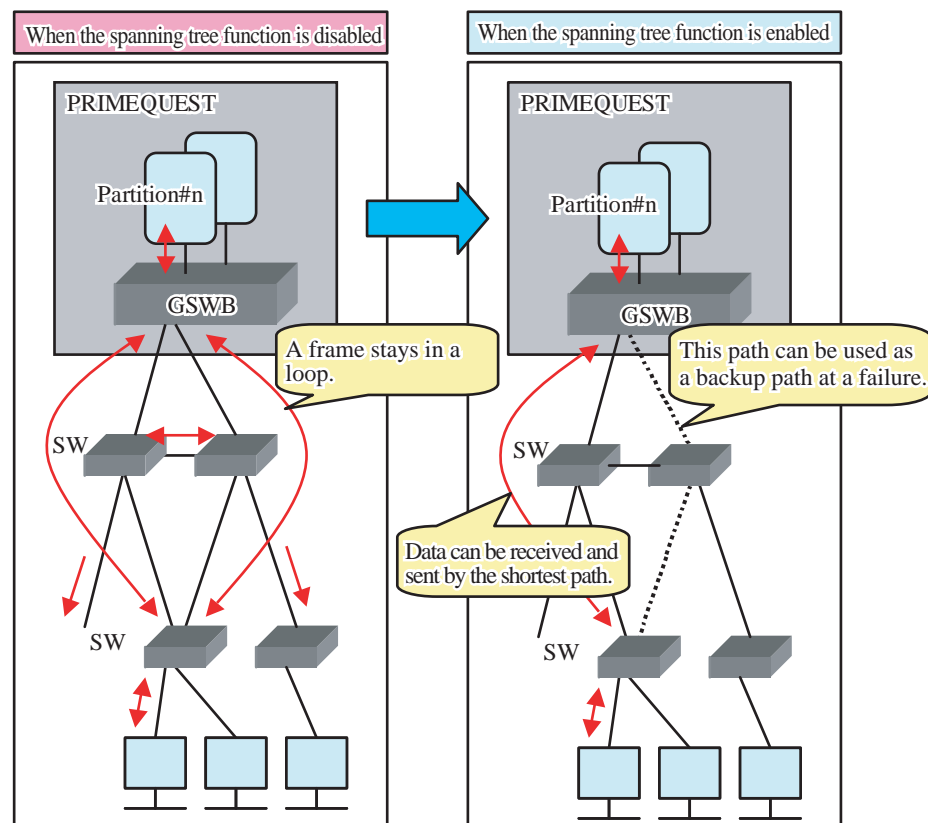


Figure 1.7 Spanning tree function

1.3.4 VLAN function

The GSWB provides a VLAN function complying with IEEE802.1Q.

A virtual LAN (VLAN) is a system that enables setting up a logical network configuration in contrast to a conventional system that depends on a physical network configuration.

The GSWB implements the VLAN function by using the group identification methods referred to as the port method and the tag method. The port method identifies groups on a per-port basis. The tag method identifies which VLAN a frame belongs to by adding additional information referred to as a tag to the frames.

- Port method

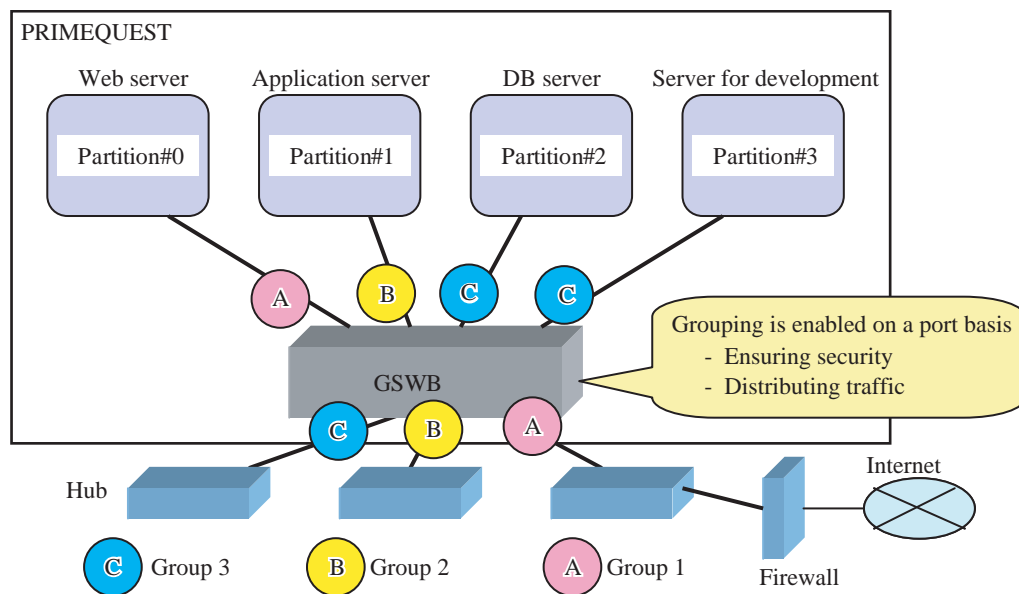


Figure 1.8 Port method

- Tag method

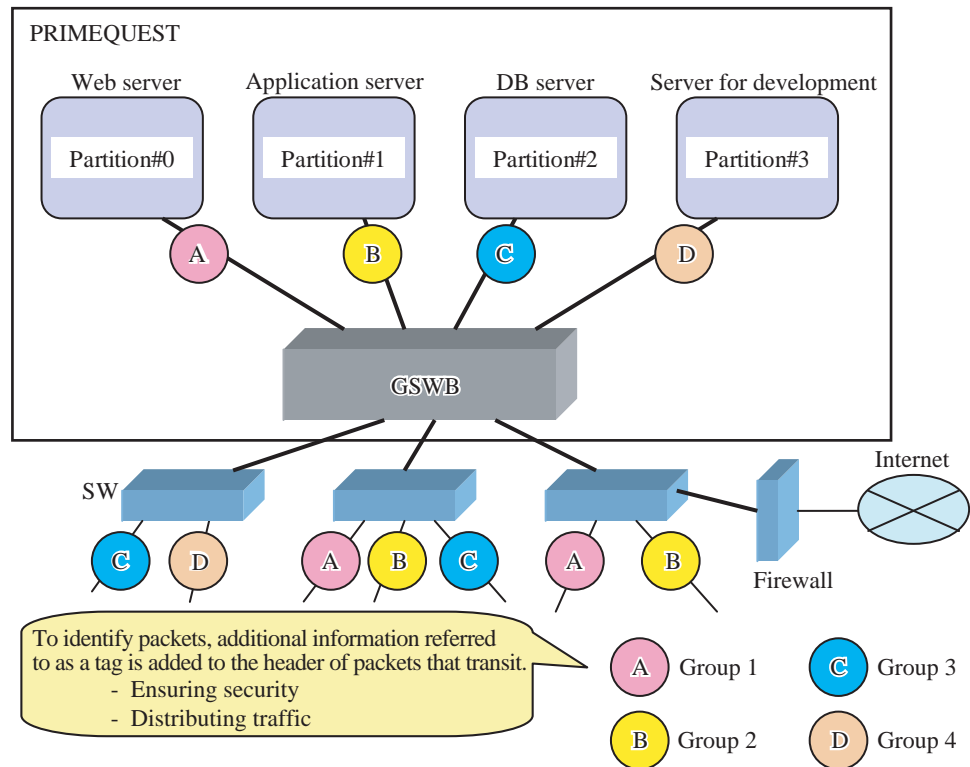


Figure 1.9 Tag method

Remarks: To use the tag method to configure a VLAN, the VLAN function must be supported by not only the GSWB but also switches.

Configuring a VLAN means configuring multiple logical switch networks, with switch communication enclosed within a single VLAN. A router is required for communication between VLANs.

- How transmission and reception are handled depends on the port setting statuses and frame types
- The table below lists how transmission and reception are handled depending on the port setting statuses and frame types. Suitable attention is required when setting up a VLAN.

Table 1.12 How transmission and receiving are handled depending on port setting statuses and frame types

Port status Frame type		Port VLAN		Tag VLAN		PVID (at tag VLAN)	
		UP	DOWN	UP	DOWN	UP	DOWN
With a receive VLAN tag	The same VLAN ID as port specification	Unavailable (discard)	-	Available	-	Available	-
	VLAN ID different from port specification	Unavailable (discard)	-	Unavailable (discard)	-	Unavailable (discard)	-
Without a receive VLAN tag		Available	-	Unavailable (discard)	-	Available (*1)	-
With a transmission VLAN tag	The same VLAN ID as port specification	Unavailable	-	Available	-	Unavailable	-
	VLAN ID different from port specification	Unavailable	-	Unavailable	-	Unavailable	-
Without a transmission VLAN tag		Available	-	Unavailable	-	Available (*2)	

Remark 1: If the port is down, all transmission and reception is impossible.

Remark 2: The port VLAN ID (PVID) identifies the VLAN to be allocated when an interface belonging to a tag VLAN receives a frame without a tag.
The specified PVID is valid only for an interface running on a tag VLAN.

- *1 If a tag VLAN is specified for the interface, a frame without a VLAN tag, as indicated by PVID, can be received.
- *2 If a tag VLAN is specified for the interface, a frame without a VLAN tag, as indicated by PVID, can be transmitted.

1.3.5 Priority control function

This function performs priority processing of traffic.

Class of Service (CoS) is information stored in a field in the VLAN tag of a MAC frame. CoS is standardized by a standard, and indicates the priority of frames.

Based on this value, priority can be controlled as shown in Figure 1.10. If a receive frame does not have a VLAN tag, the priority complies with the default priority of a receive port. The priority can be changed.

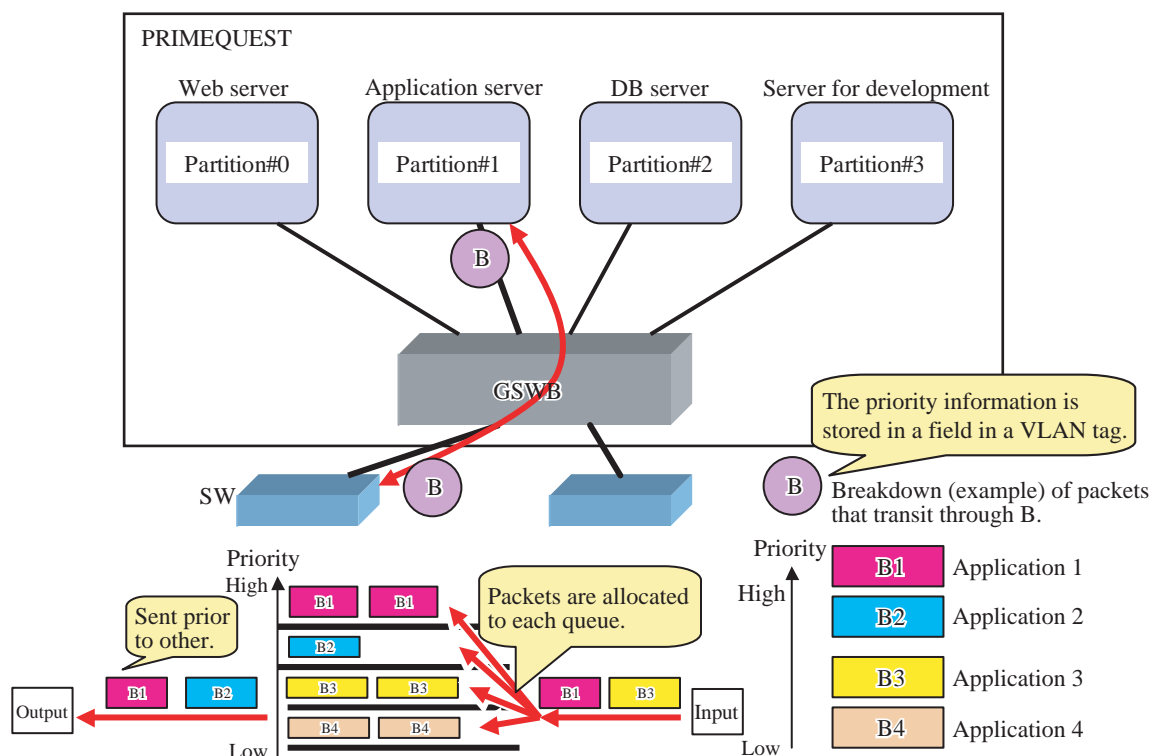


Figure 1.10 Priority control function

1.3.6 Port trunking function

This function binds multiple ports to handle them like a single port.

As shown in Figure 1.11, this function groups two or more ports, makes them operate as a single port, and allocates an IP address to the grouped port.

This function has two major advantages. One advantage is that distributing the load among the ports grouped enables the use of a bandwidth comprising the total of the bandwidth of all individual ports.

The other is that if one of the ports grouped fails, this function detects the failure and uses the remaining ports to continue communication.

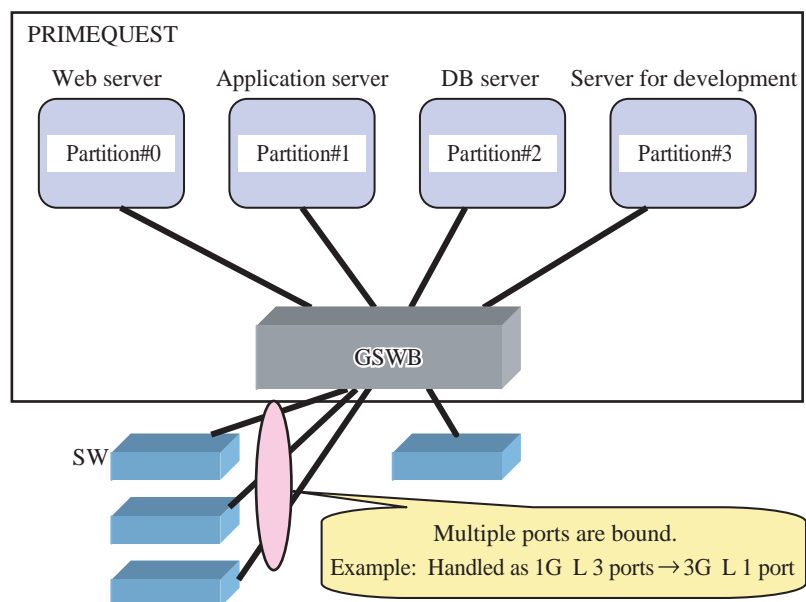


Figure 1.11 Port trunking function

1.3.7 IGMP snooping

This function monitors whether to join a multicast group.

Internet Group Management Protocol (IGMP) snooping is a filtering function to relay multicast data only to the required switch port. As shown in Figure 1.12, a switch that does not support IGMP snooping broadcasts multicast stream to all ports. For a switch that supports IGMP snooping, destinations to which specific multicast data is relayed can be restricted to a specific switch port. The GSWB can enable or disable this function.

IGMP snooping prevents multicast data from being broadcast, thereby optimizing the network.

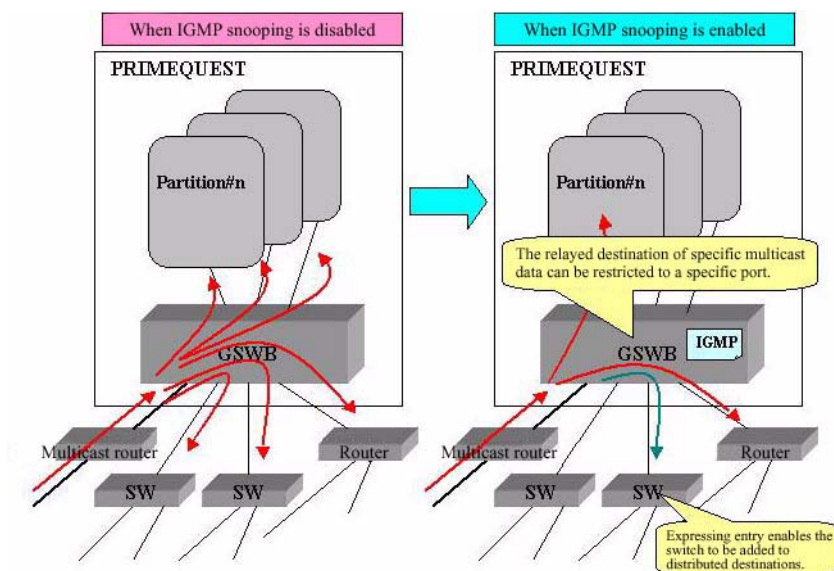


Figure 1.12 IGMP snooping

1.3.8 Port mirroring

This function mirrors the replication of frames that transit on the specified port to another port.

Specify a port as a mirror port, and another port as a port to be monitored. The replication of frames that transit on the monitored port is passed to the mirror port. However, note that the following restrictions apply.

Restrictions

- Multiple mirror ports cannot be created at the same time. Multiple ports to be monitored can be created at the same time, however.
- A port set as the mirror port does not work as a normal switch port.

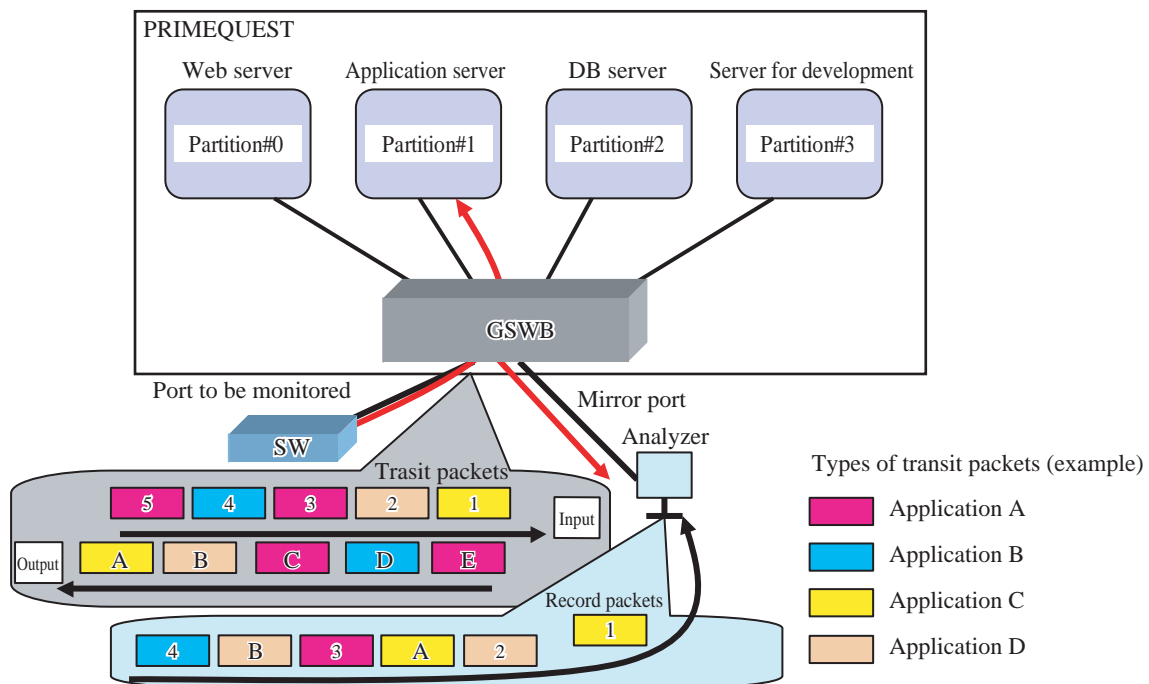


Figure 1.13 Port mirroring

1.3.9 Statistical information and log information function

This function displays statistical information and log information.

As statistical information, it is possible to display the number of transmitted and received frames and the number of error frames of the entire unit or for each port.

As log information, the following items can be displayed.

- **elog (Error log)**
When an abort occurs due to an abnormality, abort processing is started and the log is archived. The log is displayed.
- **tlog (Trap log)**
A trap that SNMP agent reports to SNMP manager is archived as a log. The log is displayed.
- **llog (Line log)**
The Linkup/Linkdown log of a switch port is archived. The log is displayed.
- **mlog (Message log)**
Messages that programs output as needed is archived as a log. The log is displayed.

1.3.10 SNMP

Simple Network Management Protocol (SNMP) supports the agent functions in v1, v2c, and v3.

SNMP can implement read (Get) and write (Set) targeting agent unit information or MIB information in response to an inquiry from an SNMP manager belonging to a community to which access right is given. SNMP also can report a trap message for an event occurring in the unit to the specified SNMP manager.

SNMP supports the following Management Information Bases (MIBs).

- MIBStandard MIB (complying with RFC1213)
- Ether Like MIBTransmit/receive error information of Ethernet (complying with RFC1643)
- Bridge MIBObjects related to bridges (complying with RFC1493)
- Remote network monitoring (RMON).....Statistical information on traffic.
Event notification, log information
(complying with RFC1757)
- Original MIB.....GSWB original

1.3.11 Managing units and others

The GSWB provides operating management functions and maintenance functions in its function as a server.

The main functions are as follows:

- Telnet functions
Remote log-in functions
- Secure Shell (SSH) functions
The functions (server/client functions) for improving security at remote log-in are supported.
- TFTP function
The client function for transmitting files from remote units are supported for maintenance management purposes.
- Network Time Protocol (NTP) functions
The client functions for setting a standard time are supported.
- Lightweight Directory Access Protocol (LDAP) functions
The client functions for managing passwords for login, telnet, SSH, and ftp in a centralized manner are provided.
- Firmware update function
This function is for updating GSWB firmware.
- Download/upload function for configuration definition files
These functions are for implementing save and restore of the specified configuration definition file.

1.4 Notes on System Design

1.4.1 Learning table

The GSWB has the switching function, which creates a learning table for automatically recording connection information indicating which port is connected to which IO Unit port.

The age-out function deletes the old connection information when ports are moved such as because of a partition reconfiguration. Upon receipt of polling data from the GSWB, the function also automatically finds the relevant port to implement communication.

Age-out of learning table

- Symptom

When a bridge relay is used, age-out of the learning table is performed at a different time from the setting.

- Cause

A gap between the MAC address learning timing and learning table monitoring timing causes a time shift between the specified aging time and actual age-out time.

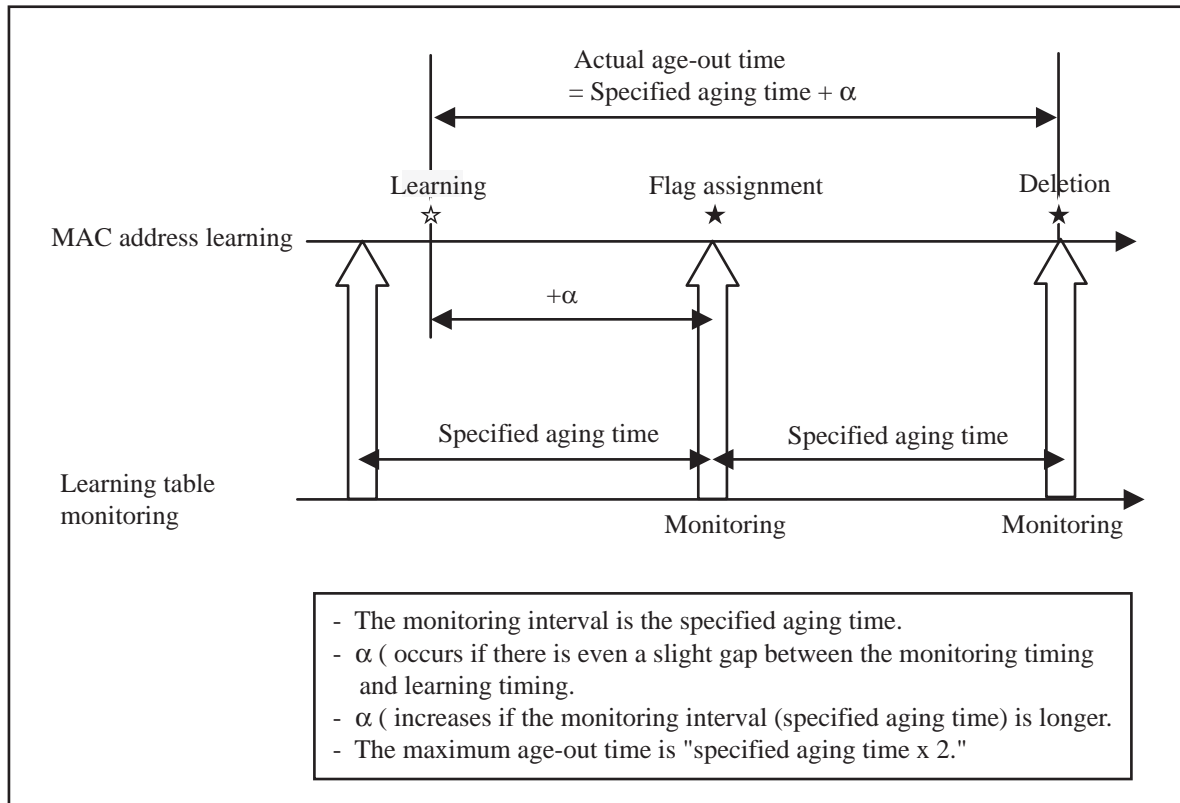


Figure 1.14 Age-out of learning table

Entry deletion from the learning table

An entry is deleted from the learning table when one of the following conditions is met.

Table 1.13 Conditions under which an entry is deleted from the learning table

Item	Deletion conditions
Deletion of an entry	Age-out of aging timer
	When a frame, which was sent from the relevant MAC address, has been received from a port other than an already learned port, due to terminal movement.
Deletion of an entry learned at a port	A link-down has occurred.
	The port is set to Disable.
	The port has been added to the channel-group.
Deletion of all entries from the learning table	The device has been reset.
	VLAN has been changed or deleted.
	VLAN mode has been changed.
	"Clear bridge" has been issued by a command.
	STB reconstruction has begun.

Temporary flooding of already learned frames

A MAC learning table exists on each chip in the GSWB. Note, therefore, that an already learned frame may be flooded temporarily if the following conditions are met:

- (1) When a frame whose source MAC address is MAC-A is received from port a, MAC-A is learned in the MAC learning tables of both chips #1 and #2.

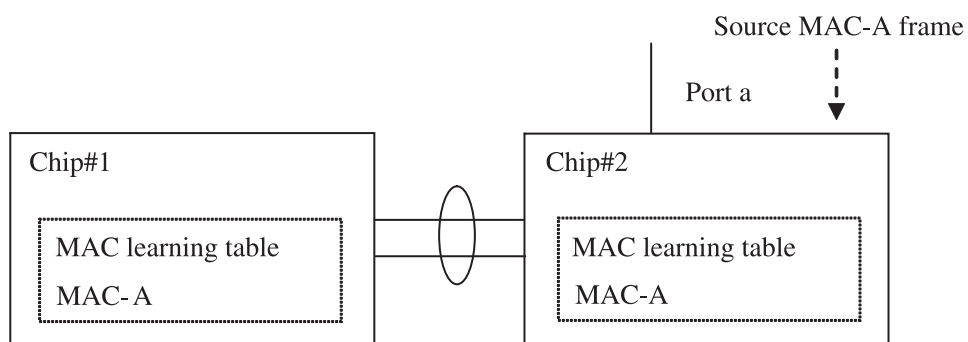


Figure 1.15 Temporary flooding of a learned frame (1)

- (2) If the frame whose source MAC address is MAC-A is transferred to only port b of chip#2, the frame does not flow to chip#1 and therefore MAC-A is deleted from the MAC learning table of chip#1.

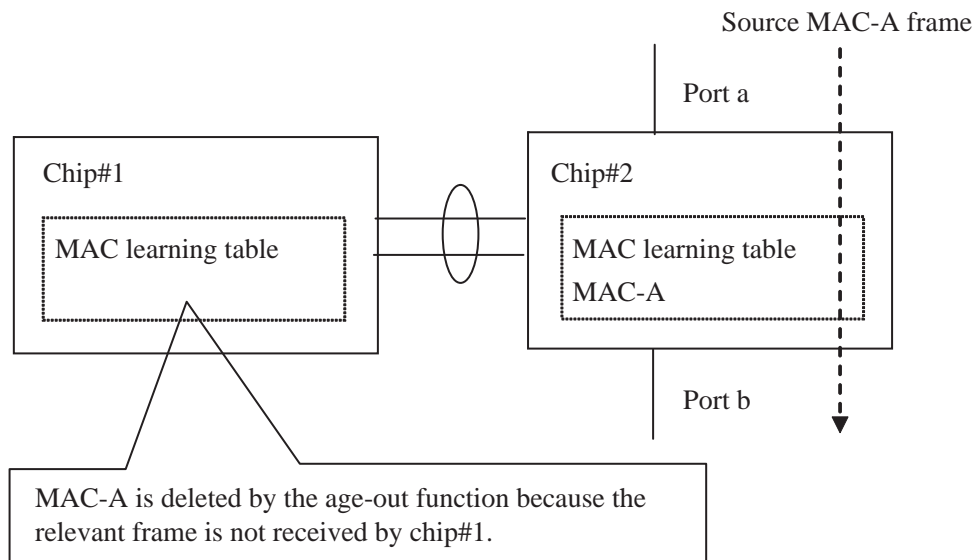


Figure 1.16 Temporary flooding of a learned frame (2)

- (3) If a frame whose source MAC address is MAC-A is received at port c of chip#1 under the above condition, the relevant frame is flooded to all ports of chip#1 because MAC-A is not registered in the MAC learning table of chip#1.

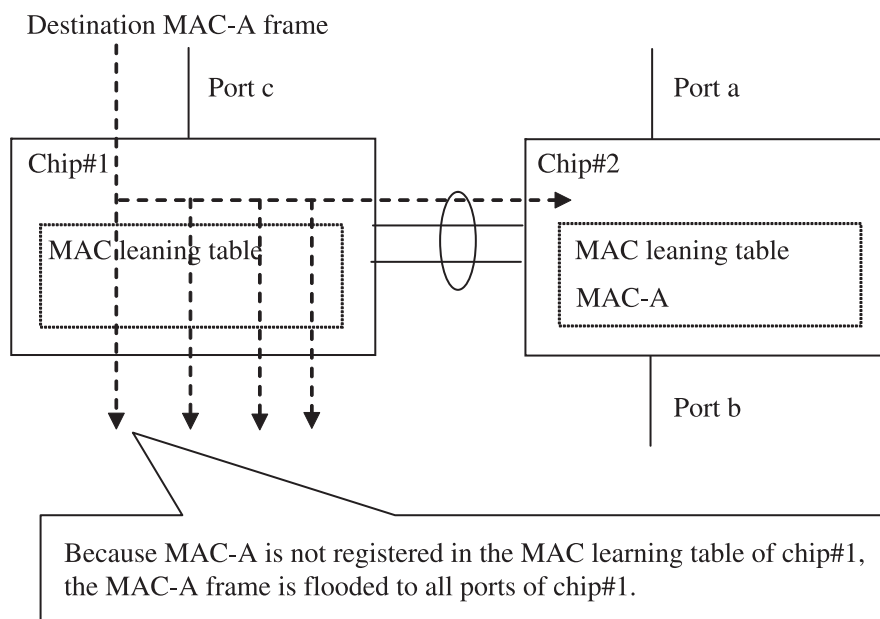


Figure 1.17 Temporary flooding of a learned frame (3)

- (4) However, the condition in (3) is temporary because MAC learning table synchronization works between chip#1 and chip#2 in the GSWB.

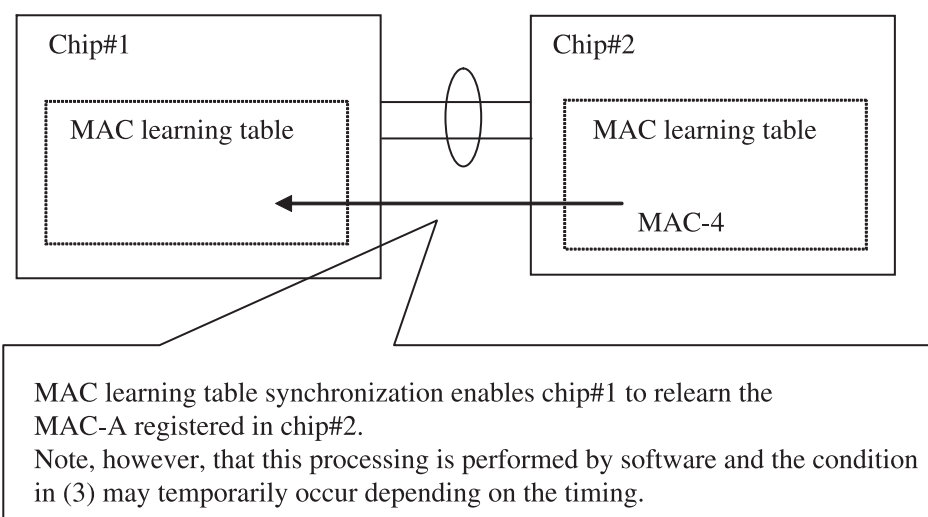


Figure 1.18 Temporary flooding of a learned frame (4)

1.4.2 Relay-inhibited frame

A relay-inhibited frame is a frame that IEEE802.1D specifies to not be relayed. Some examples are the Bridge Protocol Data Unit (BPDU) and PAUSE frames.

The following explains the processing to be performed when the GSWB receives these relay-inhibited frames.

PAUSE frame

When the flow control is active, the PAUSE frame is processed. When the flow control is inactive, the PAUSE frame is abandoned.

BPDU frame

The BPDU frame is relayed when STP as a device is set to Disable and the BPDU filter is set to Enable. The BPDU frame is processed or abandoned in other cases.

Table 1.14 Handling of BPDU and PAUSE frames according to the STP setting conditions

STP	Device	Enable				Disable			
	Port	Enable		Disable		-			
	BPDU filter	-				Enable		Disable	
Flow control		ON	OFF	ON	OFF	ON	OFF	ON	OFF
PAUSE		Proces- sed	Aban- doned	Proces- sed	Aban- doned	Proces- sed	Aban- doned	Proces- sed	Aban- doned
BPDU		Processed		Abandoned		Relayed		Abandoned	

Addition of a VLAN Tag to BPDU

When STP is set to Enable, a VLAN Tag is not attached to the BPDU that is output.

When BPDU is relayed, it is relayed in the original form. When a VLAN Tag is attached to the original form, it is relayed with a VLAN Tag. When a VLAN Tag is not attached to the original form, it is relayed without a VLAN Tag.

Table 1.15 Addition of a VLAN Tag to BPDU

STP	BPDU filter	Source BPDU	Output port VLAN setting	Output BPDU
Enable	Setting disabled	Without a VLAN Tag	Port VLAN	Without a VLAN Tag
			Tag-VLAN	
		With a VLAN Tag	Port VLAN	
			Tag-VLAN	
Disable	OFF	Without a VLAN Tag	Port VLAN	Without a VLAN Tag
			Tag-VLAN	
		With a VLAN Tag	Port VLAN	With a VLAN Tag The Tag is the same as that of the source BPDU.
			Tag-VLAN	
	ON	Without a VLAN Tag	Port VLAN	No BPDU is output.
			Tag-VLAN	
		With a VLAN Tag	Port VLAN	
			Tag-VLAN	

1.4.3 Port mirroring

Mirroring of CPU-sent frame

- Symptom

In a certain configuration, a frame sent from the CPU cannot be mirrored.

- Cause

Frames sent from the CPU cannot be copied across chips.

Table 1.16 CPU-send frame mirroring enabled/disabled

Mirror port (destination)	Monitored port (source)			
	IOU 0 0 - 3 1 GigabitEthernet0/3-0/4 GigabitEthernet 0/7-0/8	IOU 4 0-7 1 GigabitEthernet 0/1-0/2 GigabitEthernet 0/5-0/6	TenGigabitEth enet 1/1	TenGigabitEth enet 1/2
IOU 0 0-3 1 GigabitEthernet 0/3-0/4 GigabitEthernet 0/7-0/8	Enabled	Disabled	Disabled	Disabled
IOU 4 0-7 1 GigabitEthernet 0/1-0/2 GigabitEthernet 0/5-0/6	Disabled	Enabled	Disabled	Disabled
TenGigabitEthernet 1/1	Disabled	Disabled	-	Disabled
TenGigabitEthernet 1/2	Disabled	Disabled	Disabled	-

VLAN Tag of mirroring frame

This section explains the VLAN Tag of the mirroring frame.

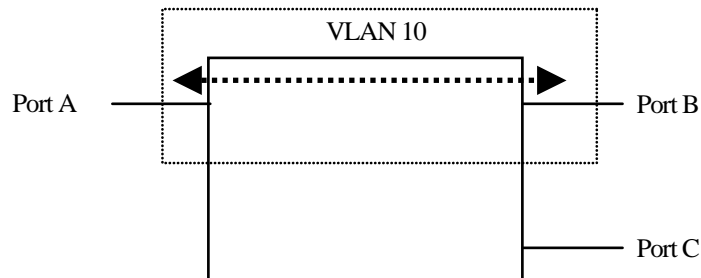


Figure 1.19 VLAN Tag of mirroring frame

Monitored port: Port B transmission/reception

Mirror port: Port C

Frames are transferred between ports A and B.

Ports A and B belong to the same VLAN (VLAN 10).

Port A and B are set so that they send frames without a VLAN Tag.

(VLAN 10 is set as native in access or trunk mode.)

- Transfer from port A to port B when the transmitting port is mirrored

The following explains how the frame sent from port C is handled when a frame is transferred from port A to port B.

Table 1.17 VLAN Tag of mirroring frame (transfer from port A to port B)

Port A	Port B	Port C
Receiving a frame without a tag	Sending a frame without a tag	Frame without a tag
Receiving a frame with a VLAN 10 tag	Sending a frame without a tag	Frame with a VLAN 10 tag (*1)

*1 A frame without a tag is sent from the monitored port (port B) but a frame with a tag is mirrored to the mirror port (port C).

- Transfer from port B to port A when the receiving port is mirrored

The following explains how the frame tag sent from port C is handled when a frame is transferred from port B to port A.

Table 1.18 VLAN Tag of mirroring frame (transfer from port B to port A)

Port B	Port A	Port C
Receiving a frame without a tag	Sending a frame without a tag	Frame without a tag
Receiving a frame with a VLAN 10 tag	Sending a frame without a tag	Frame with a VLAN 10 tag
Receiving a non-affiliated VLAN frame	No transmission	Non-affiliated VLAN frame (*2)

*2 Because the frame is abandoned at the monitored port (port B), it is not transferred to port A but is mirrored to the mirror port (port C).

1.4.4 Notes on the Speed/Duplex setting of the interface

This section provides notes on the Speed/Duplex setting of the interface.

Table 1.19 Notes on the Speed/Duplex setting of the interface

Speed/ Duplex setting		Setting of opposed port					
		auto(1G) -	100Mbps FULL	100Mbps HALF	10Mbps FULL	10Mbps HALF	auto(100M)
1	auto -	Linkup 1Gbps FULL	Linkup 100Mbps HALF (*1)	Linkup 100Mbps HALF	Linkup 10Mbps HALF (*1)	Linkup 10Mbps HALF	Linkup 100Mbps FULL
2	100Mbps FULL	-	Linkup 100Mbps FULL	-	-	-	-
3	100Mbps HALF	-	-	Linkup 100Mbps HALF	-	-	-
4	10Mbps FULL	-	-	-	Linkup 10Mbps FULL	-	-
5	10Mbps HALF	-	-	-	-	Linkup 10Mbps HALF	-

*1 One is set to auto-negotiation and the other is set to fixed.

Regardless of the Duplex setting on the fixed setting side, Duplex on the auto-negotiation side becomes HALF. Always set Duplex on the fixed setting side to HALF.

1.4.5 Flow control

Flow control setting

IEEE802.3x flow control is supported for full duplex communication, and backpressure flow control is supported for half-duplex communication.

Note, however, that IEEE802.3x flow control operates differently depending on the result of the auto-negotiation.

Table 1.20 Flow control setting

Flow control setting		Flow control setting of opposite port		Interface Speed setting	
				Fixed (10/100)	Auto-negotiation
Receive	ON	Send	ON	Enabled	Result of auto-negotiation
			OFF	Disabled	Disabled
	OFF		ON		
			OFF		
Send	ON	Receive	ON	Enabled	Result of auto-negotiation
			OFF	Disabled	Disabled
	OFF		ON		
			OFF		

Notes on using flow control

Note that enabling the flow control may affect the transfer of other ports because the flow control is also performed between GSWB internal chips.

In the sample configuration shown below, the transfer from IOU 0 0 to GigabitEthernet 0/6 enables flow control and then a PAUSE frame is sent from BCM5692 #1 to BCM5692 #0 to restrict the transfer from BCM5692 #0 to BCM5692 #1. Enabling the flow control thus affects the transfer from IOU 3 1 to IOU 4 0.

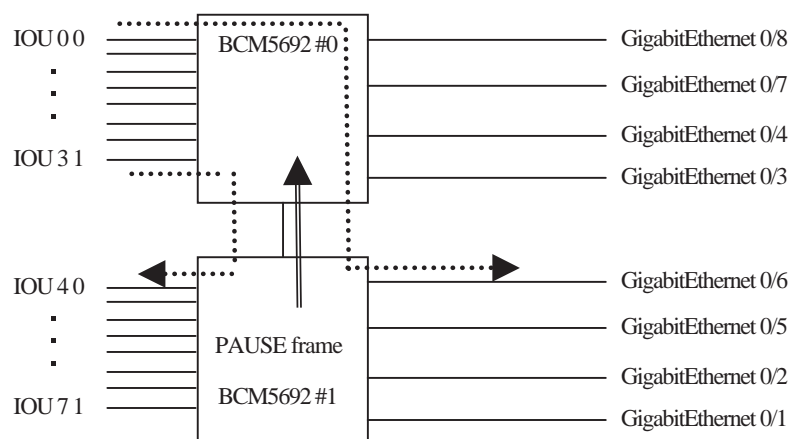


Figure 1.20 Example of flow control

1.4.6 LinkAggregation load distribution

Load distribution algorithm

A key is created from the address (MAC address or IP address) of a send frame. Based on the key and the number of ports that make up LinkAggregation, a modulo calculation is performed and the transfer destination port is determined using the result of the modulo calculation.

A key is created according to the load distribution method as shown below.

Table 1.21 Load distribution algorithm

No.	Load distribution method	Key
1	Source MAC address	3 low-order bits of source MAC address
2	Destination MAC address	3 low-order bits of destination MAC address
3	Combination of source and destination MAC addresses	3 low-order bits of exclusive-OR of source and destination MAC addresses
4	Source IP address	3 low-order bits of source IP address
5	Destination IP address	3 low-order bits of destination IP address
6	Combination of source and destination IP addresses	3 low-order bits of exclusive-OR of source and destination IP addresses

Example of load distribution

- Port configuration: Ports 1, 2, and 3 constitute LinkAggregation.
- Load distribution method: Source MAC address

Table 1.22 Example of load distribution

Source MAC address of send frame	Key	Modulo result	Destination port
00:0B:5D:70:80:01	1	1	2
00:0B:5D:70:80:02	2	2	3
00:0B:5D:70:80:03	3	0	1
00:0B:5D:70:80:04	4	1	2
00:0B:5D:70:80:05	5	2	3
00:0B:5D:70:80:06	6	0	1
00:0B:5D:70:80:07	7	1	2
00:0B:5D:70:80:08	0	0	1
00:0B:5D:70:80:09	1	1	2
00:0B:5D:70:80:0A	2	2	3
...			

1.4.7 Other notes

Port linkup time

When the external ports (GigabitEthernet 0/1 to 0/8) are set to auto-negotiation (default) and connected to the 1G-bit ports, the linkup timing of all ports at startup may vary by about five seconds.

STP setting for VLAN

When VLAN is divided to avoid a loop, set STP to off.

STP operates for each device. Even when VLAN is divided, STP determines a loop and blocks one port.

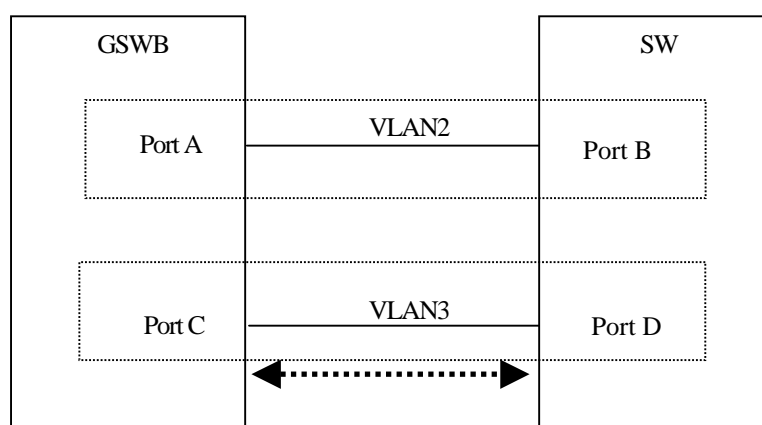


Figure 1.21 STP setting for VLAN

A loop configuration is avoided by separating the A and B pair of ports from the C and D pair of ports using divided VLANs. However, STP detects a loop and blocks port C, and accordingly the communication between ports C and D is disabled.

Optical module in the GSWB-XG

Do not remove the optical module provided in the GSWB-XG, when the GSWB-XG power is on. If the optical module is removed when the GSWB-XG power is on, the GSWB-XG restarts. After this GSWB-XG restart, the error log has the following message:

"00d0 X2 Module detach"

If power is turned on to the GSWB-XG with the optical module removed, the GSWB-XG starts in the hardware error state, where it cannot operate. After this GSWB-XG startup, the error log has the following message:

"HE-4800-e00b IFM_NET: X2 Module not installation. Unit** Port**"

When communication with a GSWB is performed from the business LAN

When communication with a GSWB is performed by using telnet, ssh, tftp, or ping from the business LAN in any of the following conditions, it may take a long time to perform the communication:

- A broadcast frame has been sent to the business LAN.
- Many frames have been sent to the IP address set in the GSWB.

When it takes a long time to perform communication, place the devices that perform communication with the GSWB in a separate VLAN group to have communication occur only between the devices and the GSWB.

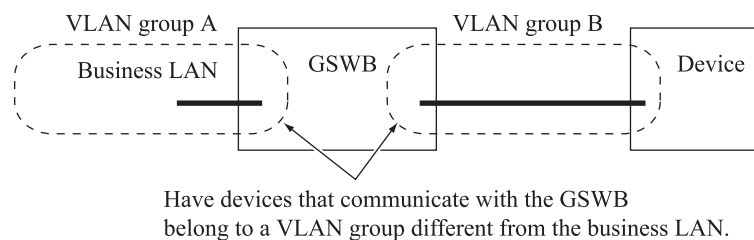


Figure 1.22 Setting for when communication with a GSWB is performed from the business LAN

Communication speed setting

The communication speed of the 1000BASE-T interface at the front of the GSWB cannot be set to a fixed rate of 1,000 Mbps. For communication at 1,000 Mbps through a port, make Autonegotiation settings for the port. The SerDes interface on the backplane side of the GSWB supports only a fixed rate of 1,000 Mbps for the communication speed setting.

The communication speed cannot be set to 100 or 10 Mbps.

Cable for a connection

To connect the GSWB to an external switch through a port for which the communication setting is other than Autonegotiation (i.e., the communication speed is fixed), use a crossover cable.

CHAPTER 2 GSWB Setup

2.1 GSWB Initialization

The setup tasks that should be performed for the GSWB product are listed below. These settings are not required unless you plan to use the GSWB.

If two GSWBs are mounted, make these settings for one GSWB, and copy the settings except the basic host function settings to the other GSWB. This results in the boards being powered on individually.

For backing up the settings that have been made, see [Section 2.1.7, "Saving GSWB configuration definition information"](#)

- Turning GSWB power on (→ [2.1.1](#))
- Basic setting for host function (→ [2.1.2](#))
- Setting SNMP (→ [2.1.3](#))
- Setting the Telnet server (→ [2.1.4](#))
- Copying GSWB settings (→ [2.1.8](#))

Remarks:

1. To use more GSWB functions, further settings are required. Before the actual operation starts, refer to the *PRIMEQUEST 580A/540A/580/540/480/440 System Design Guide* (C122-B001EN), *PRIMEQUEST 580A/540A/520A/500/400 Series Reference Manual: Basic Operation/GUI/Commands* (C122-E003EN), etc., to make settings required by your customer.
2. When making GSWB settings, be sure to make a backup copy of the settings and configuration information.

2.1.1 Turning GSWB power on

- 1 Turn on the power to the MMB and the peripheral devices.
- 2 Log in to the MMB Web-UI.
The MMB Web-UI window appears.
- 3 Select [System] → [System Power Control] from the MMB menu.
The [System Power Control] window is displayed.

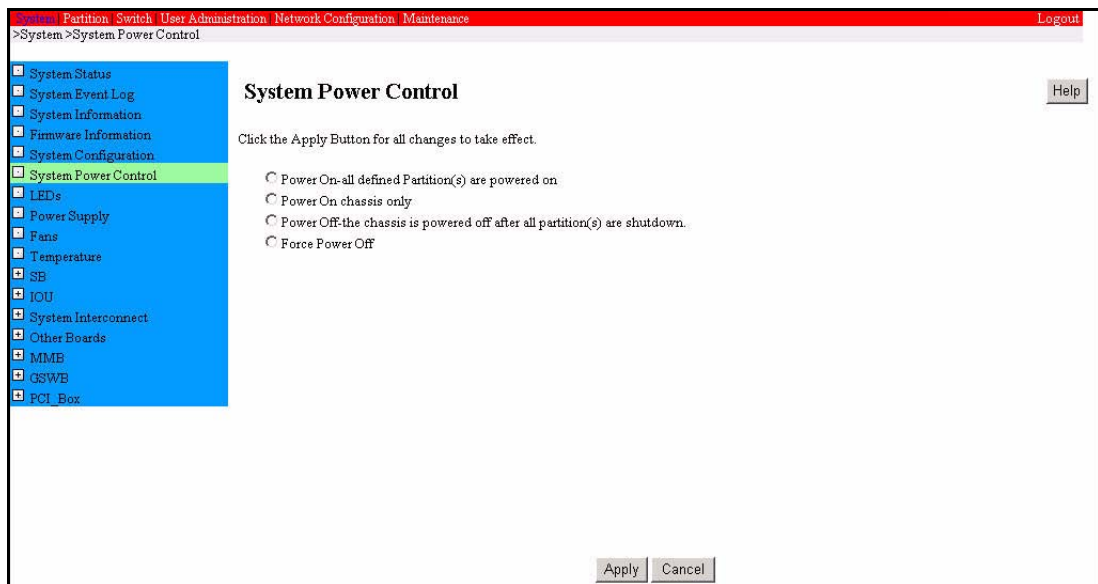


Figure 2.1 [System Power Control] window

- 4 Click [Power On chassis only] and click the [Apply] button.

Remarks: Clicking [Power On chassis only] turns on the power to the units (including the GSWB) other than the SBs and IO Units.

You can also turn on the power to the GSWB in the standby state by clicking [Switch] → [GSWB#x] and then performing the power-on operation from the [Power Control] window. In this case, the boards are powered on individually.

2.1.2 Basic setting for host function

Basic data (host name, IP address, Subnet Mask, Default Gateway) for the host function can be set. This setting can be made with the Administrator privilege.

During installation, specify the default VLAN ID to continue. If two GSWBs are mounted, make these settings for each GSWB.

Procedure

- 1 Select [Switch] → [GSWB#x] → [System] → [Host].
The [Host] window is displayed.

Figure 2.2 [Host] window

- 2 Enter necessary data for items.

Table 2.1 Displayed and setting items is the [Host] window

Item	Description
VLAN ID (Management VLAN)	Specify the VLAN ID used on a host. Only defined VLAN IDs are available. Default: [1]
Host Name	Specify a host name in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (-_/#*). The host name must begin with an alphanumeric character. Default: switch
IP Address	Enter the host IP address (0 - 255). Default: blank
Subnet Mask	Enter the subnet mask (0 - 255). Default: blank
Default Gateway	Enter the IP address of the default gateway (0 - 255). Default: blank

- 3 Click the [Apply] button.

2.1.3 Setting SNMP

An SNMP agent can be set.

- Setting an SNMP community (→ [2.1.3.1](#))
- Setting SNMP v3 (→ [2.1.3.2](#))
- Setting an SNMP trap send destination (→ [2.1.3.3](#))

2.1.3.1 Setting an SNMP community

Set a host that collects or manipulates MIB information using SNMP version 1 or SNMP version 2. Up to eight hosts can be set.

Procedure

- 1 Click [Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP Community].
The [SNMP Community] window is displayed.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Management>SNMP>SNMP Community

SNMP Community (GSWB#0) Help

Location [up to 64 characters] none

Contact [up to 64 characters] none

Please check the check box of line to add or to change an entry.

	IP Address	SNMP Version	Access Mode	Community String [1-20 characters]
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	

Apply Cancel

Figure 2.3 [SNMP Community] window

- 2 Depending on the requirement take the appropriate action as detailed below.
 - [To set an SNMP agent]
Set [Location] and [Contact].
 - [To add or modify an SNMP host]
Select a check box and specify [IP Address], [SNMP Version], [Access Mode], and [Community String].
 - [To delete an SNMP host]
Select the check box of the target host and delete the IP address displayed in the [IP Address] field.

Explanation of [SNMP Community] window

Table 2.2 Displayed and setting items is the [SNMP Community] window

Item	Description
Location	Specify the location of the GSWB in up to 64 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (_ - @ .). Default: [none]
Contact	Specify the contact for the GSWB in up to 64 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (_ - @ .). Default: [none]
IP Address	Specify the IP address of the target SNMP host. Default: blank
SNMP Version	Specify the SNMP version (1 or 2). 1: Lowest-security model 2: Second-lowest-security model
Access Mode	Read-Only: Allows read-only access to the MIB tree. Read-Write: Allows read/write access to the MIB tree.
Community String	Enter a password-like community string in up to 20 alphanumeric characters (0 to 9, a to z, A to Z).

- 1 Click the [Apply] button.

2.1.3.2 Setting SNMP v3

Set a user who establishes a connection using SNMP v3 from the server. Up to eight users can be registered. Engine-ID need not be specified if SNMP v3 is not used.

Procedure

- 1 Click [Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP v3 Configuration].

The [SNMP v3 Configuration] window is displayed.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Management>SNMP>SNMP v3 Configuration

SNMP v3 Configuration (GSWB#0) Help

Engine ID String [10-24 hexadecimal characters] 0x00000000000000000000000000000000

Please check the check box of line to add or to change an entry.

	User Name [4-16 characters]	Access Mode	Authentication	Password [8-16 characters] / Confirm	Passphrase [8-16 characters] / Confirm
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha		

Apply Cancel

Figure 2.4 [SNMP V3] window

- 2 Depending on the requirement take the appropriate action as detailed below.

[To change an Engine ID]

Enter a new engine ID in a character string consisting of 10 or more hexadecimal characters.

[To add or modify an SNMP user]

Select a check box and specify the User Name, Access Mode, and Authentication level. When the Authentication level is something other than noauth, specify a hash function. When it is auth, specify a Password. When it is priv, specify a Password - Path phrase

[To delete an SNMP user]

Select the [Delete] check box of the target host currently registered, and delete the user name from the [User Name] column.

Table 2.3 Displayed and setting items is the [SNMP v3] window

Item	Description
Engine ID String	Specify a character string consisting of 10 to 24 hexadecimal digits (0 to 9, a to f, A to F). "0x" is not included in the above number of digits and can be omitted. A character string specified in less than 24 digits is padded with trailing 0(s) to make a 24-digit Engine ID. Default: 0x000000000000000000000000
User Name	Specify a user name in 4 to 16 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols '-_'. Default: blank
Access Mode	Specify access mode. <ul style="list-style-type: none"> • [Read-Write]: Grants the user read/write authority • [Read-Only]: Grants the user read-only authority
Authentication	Specify the authentication level. <ul style="list-style-type: none"> • [noauth]: Disables authentication and encryption based on a password (enables authentication based on the user name). • [auth]: Enables authentication based on a password but disables encryption. • [priv]: Enables authentication and encryption based on a password. • [md5]: Selects MD5 as a hash function for password encryption. • [sha]: Selects SHA as a hash function for password encryption.
Password	Specify an authentication password in 8 to 16 alphanumeric characters (0 to 9, a to z, A to Z).
Confirm	Specify the same authentication password as [Password] for confirmation.
Passphrase	Specify a keyword for packet encryption in 8 to 16 alphanumeric characters (0 to 9, a to z, A to Z).
Confirm	Specify the same keyword for packet encryption as [Passphrase] for confirmation.

3 Click the [Apply] button.

2.1.3.3 Setting an SNMP trap send destination

Set a host so that traps can be sent to it, and specify how to send the traps. Up to eight hosts can be defined for trap send destinations.

Procedure

- 1 Click [Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP Trap].
The [SNMP Trap] window is displayed.

Figure 2.5 [SNMP Trap] window

- 2 Depending on the requirement take the appropriate action as detailed below.
[To add or modify an SNMP trap send host]
Select a check box and specify necessary information including the IP address and SNMP version.
[To delete an SNMP trap send destination]
To delete a trap, select the check box of the associated trap send destination, check box and delete the IP address that is set in [IP Address].

Table 2.4 Displayed and setting items is the [SNMP Trap] window

Item	Description
IP Address	Specify the IP address of the trap send destination host in the range from 0 to 255. Default: blank
SNMP Version	Select an SNMP version. <ul style="list-style-type: none"> • [1]: Sends traps of SNMP version 1. Specify [Community String] used for the server for authentication. • [2]: Sends traps of SNMP version 2. Specify [Community String] used for the server for authentication. • [3]: Sends traps of SNMP version 3. Specify [Community String] used for the server for authentication.

Item	Description
User Name	Specify the name of the user who sets up the connection using SNMP v3 from the server in 4 to 16 alphanumeric characters (0 to 9, a to z, A to Z) and/or '-_ '.
Community String	Enter a password-like community string in up to 20 alphanumeric characters (0 to 9, a to z, A to Z).
Authentication	Specify the authentication method. <ul style="list-style-type: none"> • [noauth]: Disables authentication and encryption based on a password (enables authentication based on the user name). • [auth]: Enables authentication based on a password but disables encryption. • [priv]: Enables authentication and encryption based on a password. • [md5]: Selects MD5 as a hash function for password encryption. • [sha]: Selects SHA as a hash function for password encryption.
Password	Specify an authentication password with 8 to 16 alphanumeric characters (0 to 9, a to z, A to Z).
Pass phrase	Specify a keyword for packet encryption with 8 to 16 alphanumeric characters (0 to 9, a to z, A to Z).

3 Click the [Apply] button.

2.1.4 Setting the Telnet server

This section describes the settings for enabling or disabling Telnet. No port number can intentionally be assigned to the Telnet server. For a GSWB connection through the Telnet server, a host that is permitted access for this connection must be specified in the [Remove Access] window.

Procedure

- 1 Click [Switch] → [GSWB#x] → [Management] → [Telnet].
The [Telnet] window is displayed.

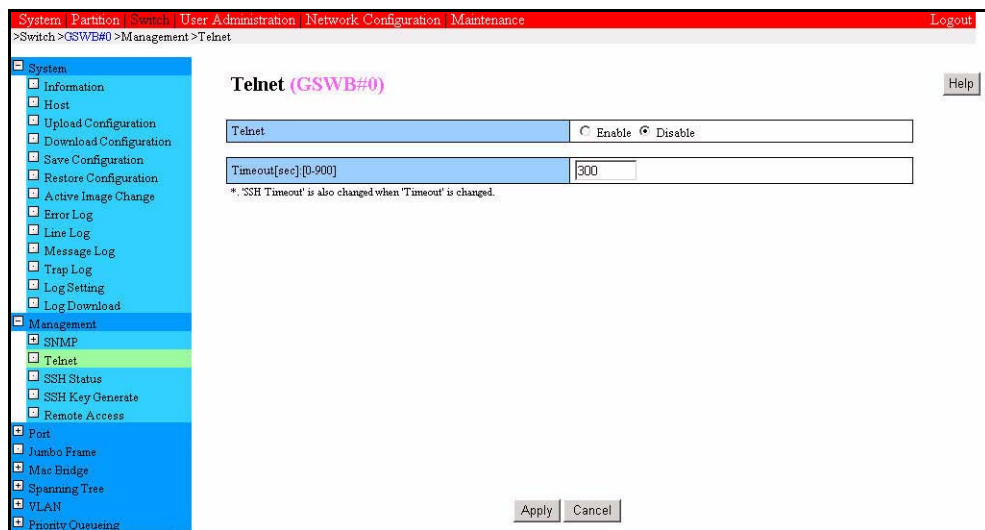


Figure 2.6 [Telnet] window

- 2 Select [Enable] or [Disable].

Explanation of [Telnet] window

Table 2.5 Displayed and setting items is the [Telnet] window

Item	Description
Telnet	Enable or disable Telnet. <ul style="list-style-type: none"> • [Enable]: Enables the Telnet server. • [Disable]: Disables the Telnet server. Default: [Disable]
Timeout	Specify the timeout value for the consoles (Telnet, SSH) in the range from 0 to 900 seconds. If 0 is specified, no timeout occurs. The value specified here is also used for timeout in the SSH server setting window. Default: 300

Note: To change the Telnet timeout value, enter a new value in the setting field.
 Note, however, that the value set here is also used for the SSH timeout value.

3 Click the [Apply] button.

2.1.5 Setting the SSH server

The SSH server can be enabled or disabled. The SSH server cannot be individually enabled by setting [Enable] for the SSH server status. To use the SSH server, an SSH key must be generated. For a GSWB connection through the SSH server, a host that is permitted access for this connection must be specified in the [Remove Access] window.

Fujitsu recommends setting up the SSH server during installation to ensure security. However, the SSH server can be set up later.

- Enabling or disabling SSH (→ [2.1.5.1](#))
- Creating an SSH key (→ [2.1.5.2](#))

2.1.5.1 Enabling or disabling SSH

The SSH server can be enabled under the specified protocol.

For details on SSH key generation, see [Section 2.1.5.2, "Creating an SSH key."](#)

Procedure

- 1 Click [Switch] → [GSWB#x] → [Management] → [SSH Status].
The [SSH Status] window is displayed.

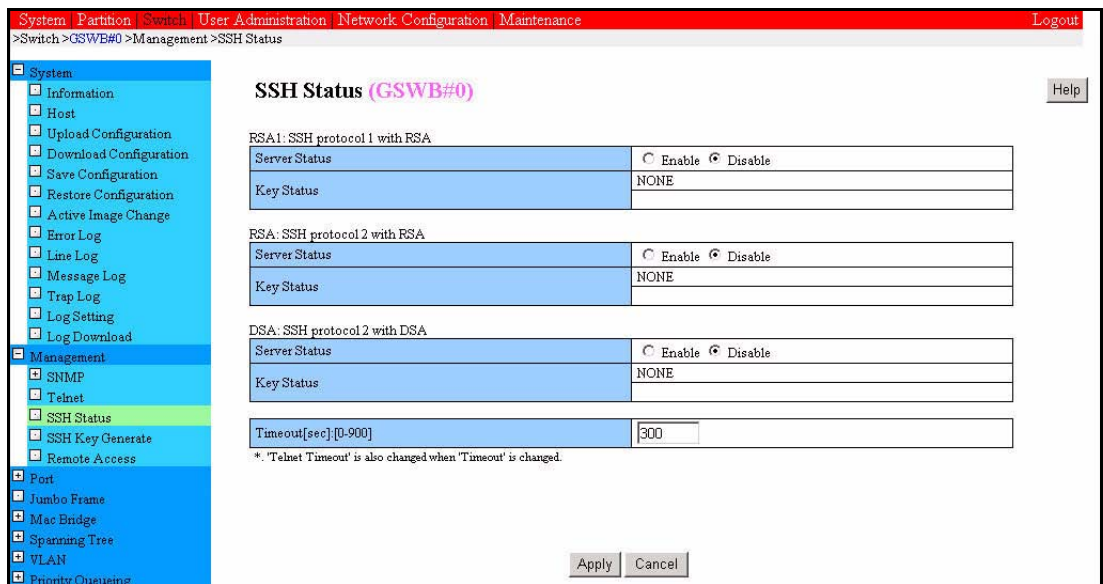


Figure 2.7 [SSH Status] window

- 2 To enable or disable SSH, change the SSH status.
To delete the key, select the [Delete] check box. (If no SSH key has been generated, the [Delete] check box is not displayed.) When the server status is [Enable], key deletion cannot be selected. First change the server status to [Disable] and then select the [Delete] check box.
- 3 Enter data for the individual items.

Table 2.6 Displayed and setting items is the [SSH Status] window

Item	Description
SSH Status	Specify whether to enable or disable the SSH server. <ul style="list-style-type: none">• [Enable]: Enables the SSH server under the specified protocol.• [Disable]: Disables the SSH server. Default: [Disable]
Key Status	Key status <ul style="list-style-type: none">• [None]: Displayed when a key has not been created.• 1024: A 1024-bit key has been created.• 2048: A 2048-bit key has been created.

Item	Description
Timeout	Specify the timeout value for the consoles (Telnet, SSH) in the range from 0 to 900 seconds. If 0 is specified, no timeout occurs. The value specified here is also used for timeout in the Telnet server setting window. Default: 300

Note: To change the Telnet timeout value, enter a new value in the setting field.
Note, however, that the value set here is also used for the SSH timeout value.

- Click the [Apply] button.

2.1.5.2 Creating an SSH key

A key of the specified protocol can be created.

Procedure

- Click [Switch] → [GSWB#x] → [Management] → [SSH Key Generate].
The [SSH Key Generate] window is displayed.

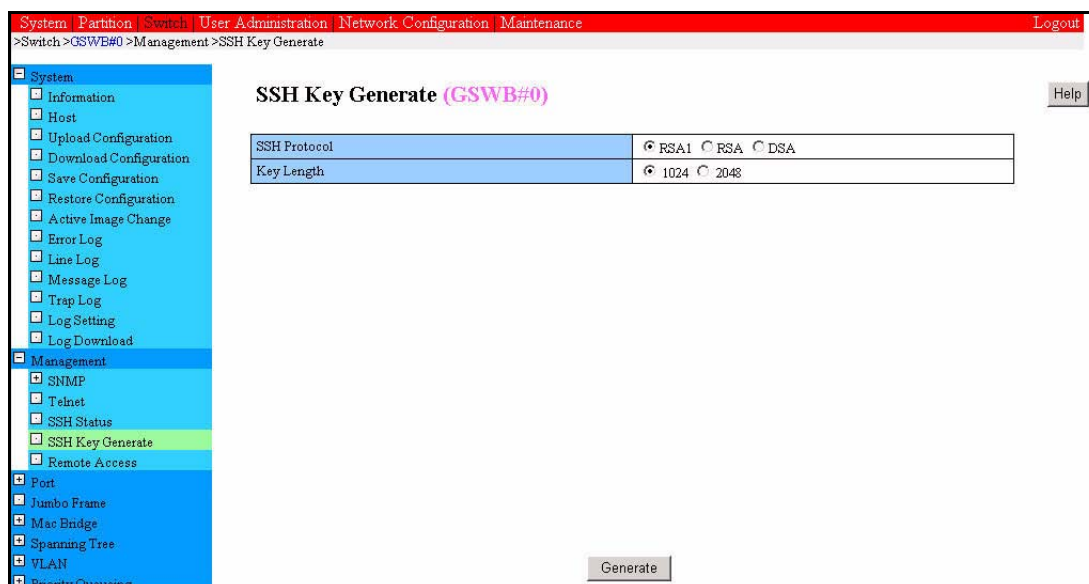


Figure 2.8 [SSH Key Generate] window

Table 2.7 Displayed and setting items is the [SSH Key Generate] window

Item	Description
SSH Protocol	<ul style="list-style-type: none">• [RSA1]: Generates an RSA1 key.• [RSA]: Generates an RSA key.• [DSA]: Generates a DSA key.
Key	<ul style="list-style-type: none">• [1024]: Generates a 1024-bit key.• [2048]: Generates a 2048-bit key.

- 2 To create an SSH server key, specify the protocol and the number of key bits, and click the [Generate] button.

Note1: No key can be generated under a protocol in which the SSH server is enabled. To generate another SSH key, the SSH server must be disabled beforehand.

Note2: A progress window is displayed during key generation. To cancel key generation, click the [Cancel] button.

2.1.6 Setting ports

This section explains port settings and port status confirmation.

- Interface names (→ [2.1.6.1](#))
- Setting ports (→ [2.1.6.2](#))
- Conforming port status (→ [2.1.6.3](#))

2.1.6.1 Interface names

You can use the Web-UI to select an interface name to specify a GSWB port. The following table lists the ports and their corresponding interface names.

Table 2.8 Interface names

Type	GSWB		Web-UI	
	Port No.	Interface name	ID	Interface name
IOU (Back panel ports)	port 1	IOU 0 0	00	IOU 0 0
	port 2	IOU 0 1	01	IOU 0 1
	port 3	IOU 1 0	02	IOU 1 0
	port 4	IOU 1 1	03	IOU 1 1
	port 5	IOU 2 0	04	IOU 2 0
	port 6	IOU 2 1	05	IOU 2 1
	port 7	IOU 3 0	06	IOU 3 0
	port 8	IOU 3 1	07	IOU 3 1
	port 9	IOU 4 0	08	IOU 4 0
	port 10	IOU 4 1	09	IOU 4 1
	port 11	IOU 5 0	10	IOU 5 0
	port 12	IOU 5 1	11	IOU 5 1
	port 13	IOU 6 0	12	IOU 6 0
	port 14	IOU 6 1	13	IOU 6 1
	port 15	IOU 7 0	14	IOU 7 0
	port 16	IOU 7 1	15	IOU 7 1
External (Front panel ports)	port 17	GigabitEthernet 0/1	16	Gigabit 1
	port 18	GigabitEthernet 0/2	17	Gigabit 2
	port 19	GigabitEthernet 0/3	18	Gigabit 3
	port 20	GigabitEthernet 0/4	19	Gigabit 4
	port 21	GigabitEthernet 0/5	20	Gigabit 5
	port 22	GigabitEthernet 0/6	21	Gigabit 6
	port 23	GigabitEthernet 0/7	22	Gigabit 7
	port 24	GigabitEthernet 0/8	23	Gigabit 8
External (10G daughter ports)	port 25	TenGigabitEthernet 1/1	24	10Gigabit 1
	port 26	TenGigabitEthernet 1/2	25	10Gigabit 2
port-channel (Port channels)	port 27	port-channel 1	26	port-channel 1
	port 28	port-channel 2	27	port-channel 2
	port 29	port-channel 3	28	port-channel 3
	port 30	port-channel 4	29	port-channel 4
	port 31	port-channel 5	30	port-channel 5
	port 32	port-channel 6	31	port-channel 6
	port 33	port-channel 7	32	port-channel 7

2.1.6.2 Setting ports

Interface status and communication speeds can be set.

Note: The Speed/Duplex settings for port 1 (IOU00) to port 16 (IOU71), port 25 (10Gigabit 1), and port 26 (10Gigabit 2) cannot be changed.

Procedure

- 1 Select [Switch] → [GSWB#x] → [Port] → [Port Configuration] → [IOU].
The [Port Configuration (IOU)] window is displayed.

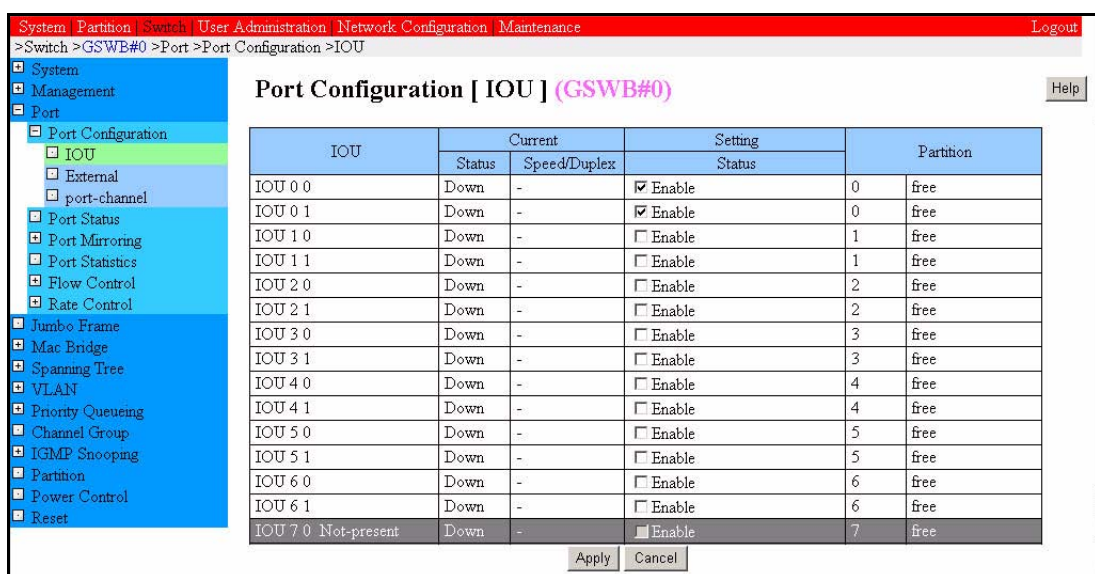


Figure 2.9 [Port Configuration (IOU)] window

- 2 Specify whether to enable or disable each interface, and click the [Apply] button.

Table 2.9 Displayed and setting items is the [Port Configuration (IOU)] window

Item	Description
IOU	Displays a list of interfaces.
Status (Current)	Displays current setting. <ul style="list-style-type: none"> Up: Link-up state Down: Link-down state
Speed/Duplex (Current)	Displays current setting. <ul style="list-style-type: none"> 10M/Full: The port is running at 10 Mbps, full duplex. 10M/Half: The port is running at 10 Mbps, half duplex. 100M/Full: The port is running at 100 Mbps, full duplex. 100M/Half: The port is running at 100 Mbps, half duplex. 1000M/Full: The port is running at 1000 Mbps, full duplex. -: Link-down state
Status (Setting)	Specify whether to enable or disable each port. <ul style="list-style-type: none"> [Enable] Select the check box to enable the interface. Clear the check box to disable the interface. Default: [Disable] (not checked)
Partition	Displays the number and name of the partition to which the IO Unit belongs.

3 Continue by clicking [External] in the submenu.

The [Port Configuration (External)] window is displayed.

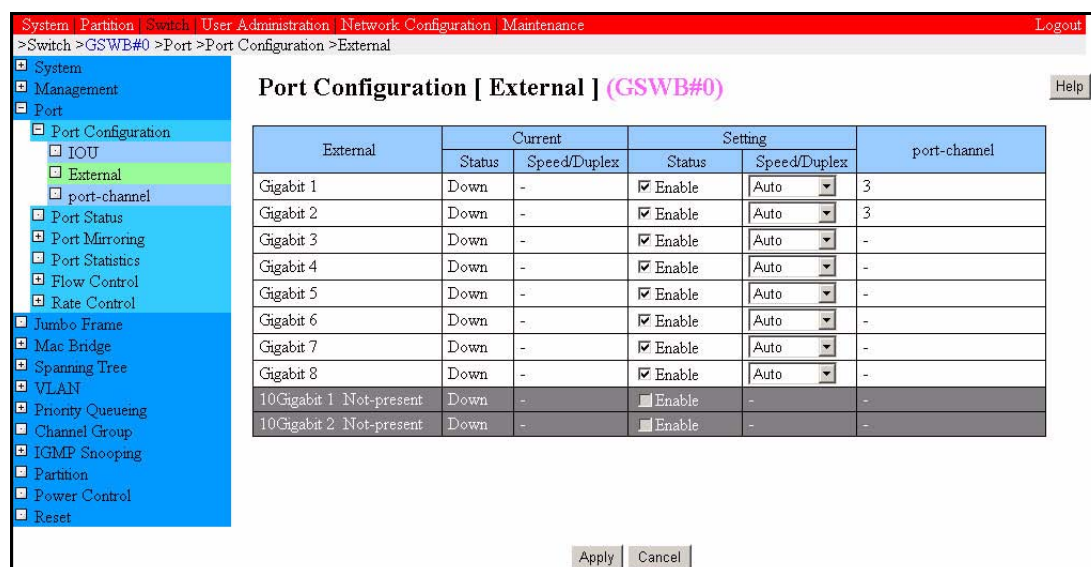


Figure 2.10 [Port Configuration (External)] window

- 4 Specify whether to enable or disable each interface, and click the [Apply] button.

Table 2.10 Displayed and setting items is the [Port Configuration (External)] window

Item	Description
External	Displays a list of interfaces.
Status (Current)	Displays the current settings. <ul style="list-style-type: none"> • UP: Link-up state • Down: Link-down state
Speed/Duplex (Current)	Displays the current transfer rates and duplex modes. <ul style="list-style-type: none"> • 10M/Full: The port is running at 10 Mbps in full-duplex mode. • 10M/Half: The port is running at 10 Mbps in half-duplex mode. • 100M/Full: The port is running at 100 Mbps in full-duplex mode. • 100M/Half: The port is running at 100 Mbps in half-duplex mode. • 1000M/Full: The port is running at 1000 Mbps in full-duplex mode. • -: Link-down state
Status (Setting)	Specify whether to enable or disable a port. <ul style="list-style-type: none"> • [Enable]: Select the check box to enable the interface. Clear the check box to disable the interface. <p style="text-align: right;">Default: [Enable] (checked)</p>
Speed/Duplex (Setting)	Specify a transfer rate and duplex mode. <ul style="list-style-type: none"> • [10M/Full]: The port runs at 10 Mbps in full-duplex mode. • [10M/Half]: The port runs at 10 Mbps in half-duplex mode. • [100M/Full]: The port runs at 100 Mbps in full-duplex mode. • [100M/Half]: The port runs at 100 Mbps in half-duplex mode. • [Auto]: The port automatically detects the appropriate setting. <p style="text-align: right;">Default: [Auto]</p>
port-channel	Displays the number of the port channel to which the interface belongs.

5 Continue by clicking [port-channel] in the submenu.

The [Port Configuration (port-channel)] window is displayed.

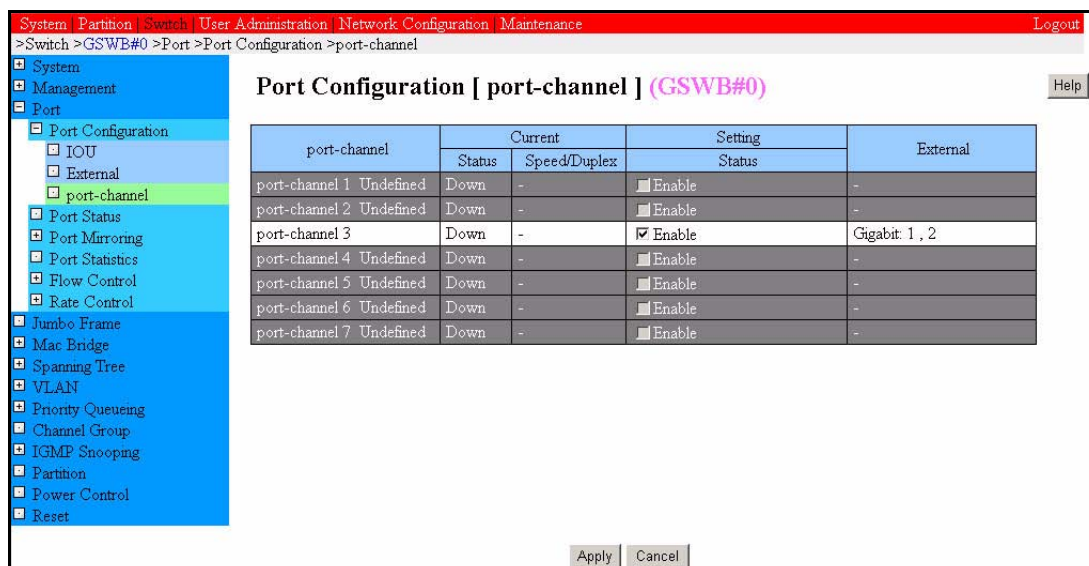


Figure 2.11 [Port Configuration (port-channel)] window

6 Specify whether to enable or disable each interface, and click the [Apply] button.

Table 2.11 Displayed and setting items is the [Port Configuration (port-channel)] window

Item	Description
port-channel	Display a list of interfaces.
Status (Current)	Displays the current settings. <ul style="list-style-type: none"> UP: Link-up state Down: Link-down state
Speed/Duplex (Current)	Displays the current transfer rates and duplex modes. <ul style="list-style-type: none"> Speed: Total speed of all interfaces composing a port-channel pair. Duplex: "Half" is displayed if all interfaces composing a port-channel pair are in half duplex mode. -: Indicates either the link-down state where both the full- and half-duplex modes exist or the link-up state for each of the interfaces composing a port channel.
Status (Setting)	Specify whether to enable or disable a port. <ul style="list-style-type: none"> [Enable]: Select the check box to enable the interface. Clear the check box to disable the interface. <p style="text-align: right;">Default: [Enable] (checked)</p>
Front Panel	Displays the number of the interface belonging to the port channel.

2.1.6.3 Conforming port status

Settings of interface status and communication speeds can be confirmed.

Procedure

- 1 Click [Switch] → [GSWB#x] → [Port] → [Port Status].
The [Port Status] window is displayed.

Port Status (GSWB#0)		
Interface	Current	
	Status	Speed/Duplex
IOU 0 0	Down	-
IOU 0 1	Down	-
IOU 1 0	Down	-
IOU 1 1	Down	-
IOU 2 0	Down	-
IOU 2 1	Down	-
IOU 3 0	Down	-
IOU 3 1	Down	-
IOU 4 0	Down	-
IOU 4 1	Down	-
IOU 5 0	Down	-
IOU 5 1	Down	-
IOU 6 0	Down	-
IOU 6 1	Down	-
IOU 7 0 Not-present	Down	-
IOU 7 1 Not-present	Down	-
Gigabit 1	Down	-
Gigabit 2	Down	-

Figure 2.12 [Port Status] window

Table 2.12 Displayed and setting items is the [Port Status] window

Item	Description
Interface	Displays the interface
Status (Current)	<ul style="list-style-type: none"> UP: Link-up state Down: Link-down state
Speed/Duplex (Current)	<ul style="list-style-type: none"> 10M/Full: The port is running at 10 Mbps, full duplex. 10M/Half: The port is running at 10 Mbps, half duplex. 100M/Full: The port is running at 100 Mbps, full duplex. 100M/Half: The port is running at 100 Mbps, half duplex. 1000M/Full: The port is running at 1000 Mbps, full duplex. -: Link-down state (If "port channel" is selected, "-" is displayed even in the link-up state.)

- 2 To refresh the interface status display, click the [Refresh] button.
If auto refresh is enabled, the displayed information is automatically refreshed; the [Refresh] button need not be clicked.

2.1.7 Saving GSWB configuration definition information

This section describes how to save GSWB configuration definition information.

There are following two types of saving:

- Saving the configuration definition file
Save GSWB RunningConfig (current definition).
Remarks:
Two configuration definition files can be stored on the GSWB. Therefore, the user must identify them by specifying config0 or config1 on the Web-UI.
- Downloading the configuration definition file
Download the configuration definition file from the GSWB (MMB) to the remote PC.

2.1.7.1 Saving the configuration definition file

Save GSWB Running Config (current definition). When saving this configuration file, specify to whichever of config0 or config1 the file is to be saved. You can add a comment to the configuration definition file by specifying it during saving.

Procedure

- 1 Select [Switch] → [GSWB#x] → [System] → [Save Configuration].
The [Save Configuration] window is displayed.

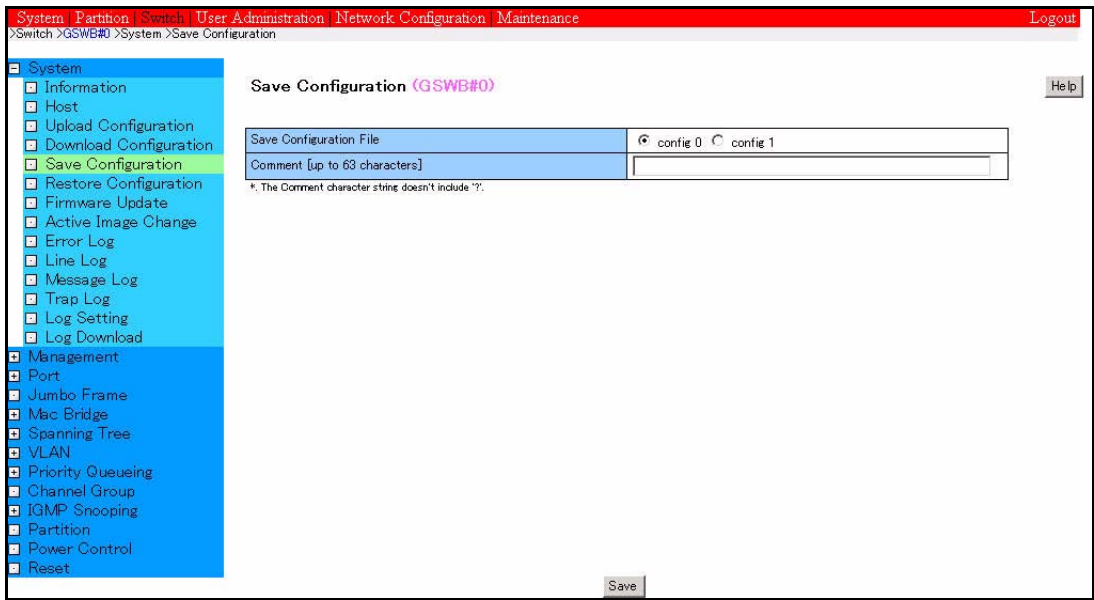


Figure 2.13 [Save Configuration] window

Table 2.13 Displayed and setting items is the [Save Configuration] window

Item	Description
Save Configuration File	[config0]: Saves to config0. [config1]: Saves to config1. Default: [config0]
Comment	Specify a comment to be added to the configuration definition file in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (space characters,!, " # \$ % & ' () * + ' - . / : ; < = > @ [\] ^ _ ` { } ~) except the question mark (?). Default: blank

- 2 Specify the config0 or config1 save area to which the current definition is to be saved.
To add a comment to the configuration definition file, specify a comment in the "Comment" field.
- 3 Click the [Save] button.
This saves the specified definition and displays a completion window.

2.1.7.2 Downloading a configuration definition file

Download a configuration definition file from the GSWB to the remote PC.

Procedure

- 1 Click [Switch] → [GSWB#x] → [System] → [Download Configuration].
The [Download Configuration] window is displayed.

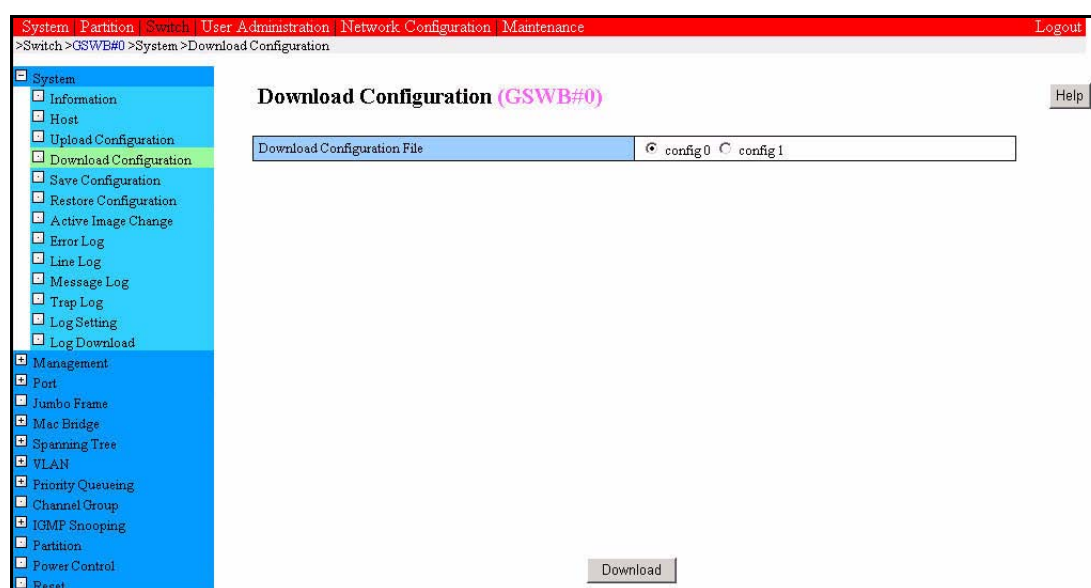


Figure 2.14 [Download Configuration] window

Table 2.14 Displayed and setting items is the [Download Configuration] window

Item	Description
Download Configuration File	config0: Downloads config0. config1: Downloads config1. Default: [config0]

- 2 Specify which configuration file, config0 or config1, should be downloaded from the GSWB.

- 3 Click the [Download] button.
The download window is displayed.

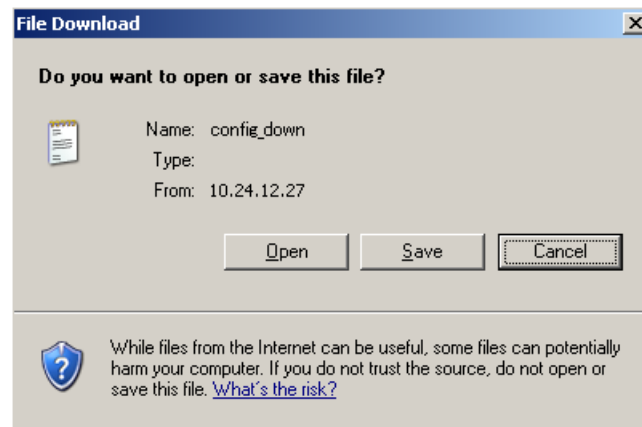


Figure 2.15 [File download] dialog box

- 4 Click [Save] button.
The file name specification dialog box appears.
- 5 Specify the path and name of the save target file in the remote PC.

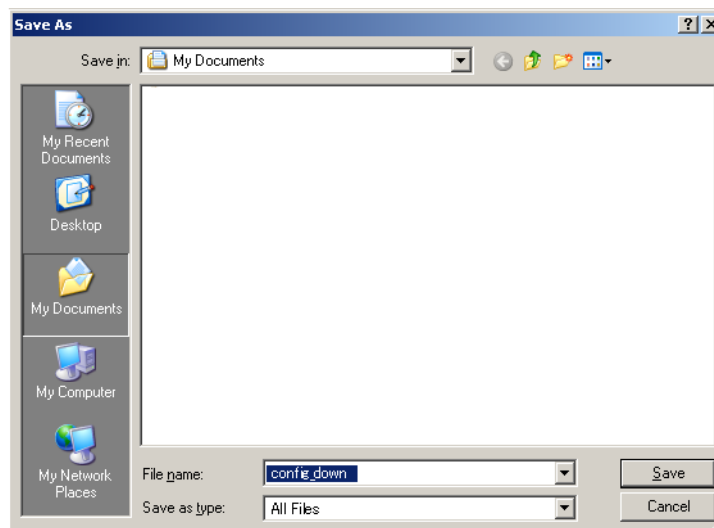


Figure 2.16 [Save As] dialog box

- 6 Click [Save] button.

2.1.8 Copying GSWB settings

If the PRIMEQUEST 580A/540A/580/540/480/440 machine contains two GSWBs (GSWB#0 and GSWB#1), copy the settings made for one GSWB, as described in Sections [2.1.3](#) to [2.1.6](#), to the other one.

Overall procedure

To make identical GSWB#0 and GSWB#1 settings, GSWB operations other than those from the [Configuration Copy] window are required. Copy the GSWB settings as follows:

- 1 Create a source file.
Specify the respective GSWB items, and save the configuration definitions of the source GSWB as a configuration definition file.
- 2 Make a copy.
Specify the source GSWB (whose configuration definitions have been saved), the destination GSWB, and the configuration definition file to be copied (which has been saved) in the [Configuration Copy] window, and start copying. For details, see "[Procedure \(\[Configuration Copy\] window\)](#)" below.

Note: If the destination GSWB already has a configuration definition file, the new configuration definition file is written over the existing file.

- 3 Restart the destination GSWB.
The destination GSWB must be restarted to validate the new configuration definition file. For this purpose, the copy of the configuration definition file to be used at startup of the GSWB must be selected in the [Active Image Change] window before restarting.
- 4 Specify the items that need not be copied.
The copy operation does not copy some setting items to the destination GSWB. Therefore, if any such item is specified for the source GSWB, they must be specified again for the destination GSWB.

Note: After adding or modifying any item for the destination GSWB in step 4, save the configuration definition file to save the new setting.

Procedure ([Configuration Copy] window)

- 1 Click [Switch] → [Configuration Copy].
The [Configuration Copy] window is displayed.

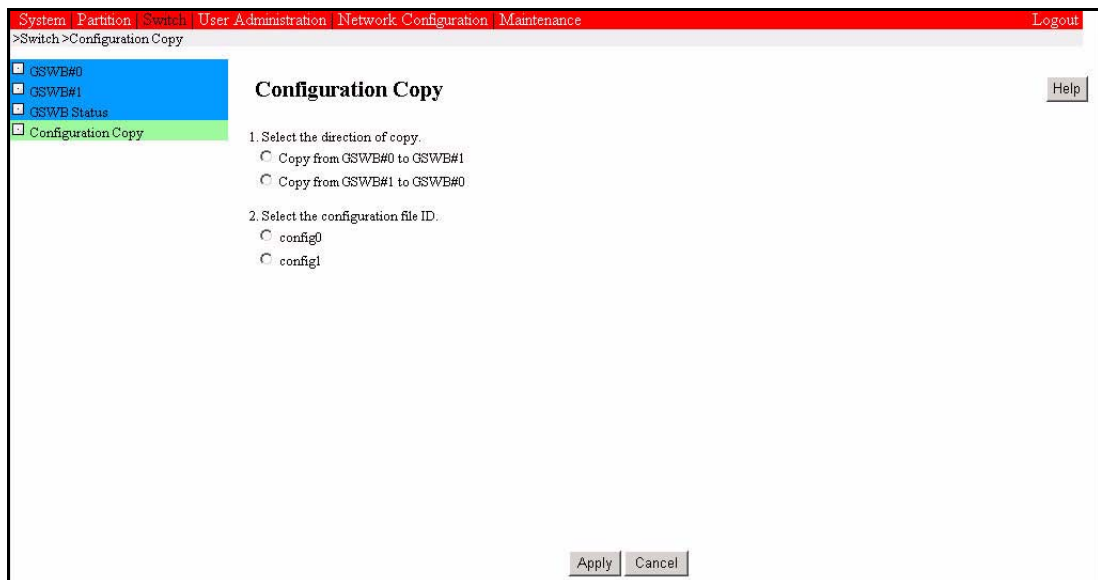


Figure 2.17 [Configuration Copy] window

- 2 Select the source and destination GSWBs from [Select the direction of copy], and specify the configuration definition file to be copied in [Select the configuration file ID].

Since a GSWB can store two configuration definition files (config0 and config1), select one of the configuration definition files as the one to be copied.

Table 2.15 Displayed and setting items is the [Configuration Copy] window

Item	Description
Select the direction of copy	
Copy from GSWB#0 to GSWB#1	Copies configuration information from GSWB#0 to GSWB#1.
Copy from GSWB#1 to GSWB#0	Copies configuration information from GSWB#1 to GSWB#0.
Select the configuration file ID	
config 0	Copies config0.
config 1	Copies config1.

3 Click the [Apply] button.

Notes1: After the configuration definition file is copied and after the copied file is modified in the [Active Image Change] window, the GSWB must be restarted before the switching operation can reflect the changes in the file.

Notes2: After the configuration definition file is copied, the configuration definition file of the specified destination GSWB is overwritten.

Notes3: [Select the direction of copy] and [Select the configuration file ID] are not selected by default when the window is displayed for the first time.

Notes4: The settings that must not be the same between the two GSWBs and the operation setting items are not copied. The settings that are not copied are listed below:

Configuration definition items	IP address, subnet mask, gateway address
Operation setting item	SSH key

CHAPTER 3 Network Management and Operation

3.1 Function list

This section lists the functions supported by GSWB Web-UI.

For the GSWB CLI command types, see [CHAPTER 5, "CLI Operations."](#)

Table 3.1 Function list

Function	Description	Reference section
Device information display function	Device information display	4.6.1 [Information] window
Log function	Log level setting (message log only)	4.6.12 [Log Setting] window
	Error log display, clear, or downloading	4.6.8 [Error Log] window
	Line log display, clear, or downloading	4.6.9 [Line Log] window
	Message log display, clear, or downloading	4.6.10 [Message Log] window
	Trap log display, clear, or downloading	4.6.11 [Trap Log] window
	Batch downloading of log files	4.6.13 [Log Download] window
Configuration definition management function	Configuration definition file (Running config) saving	4.6.5 [Save Configuration] window
	Configuration definition file restoration	4.6.6 [Restore Configuration] window
	Configuration definition file downloading	4.6.4 [Download Configuration] window
	Configuration definition file uploading	4.6.3 [Upload Configuration file] window
	Configuration definition file copying between GSWBs	3.2.1 Copying the GSWB settings 4.5.1 [Configuration Copy] window
Firmware management function	Firmware uploading	3.2.3 Updating firmware
Start file selection function	Selection of runtime configuration definition file	4.6.7 [Active Image Change] window
Flow control function	Flow control setting	4.8.5 [Flow Control] window

Function	Description	Reference section
Jumbo frame function	Jumbo frame setting (enable or disable)	4.9.1 [Jumbo Frame] window
Rate control function (Storm control function)	Multicast, broadcast, and DLF frame setting	4.8.6 [Rate Control] window
Host function	Unit name (host name) setting IP address setting Default gateway setting	4.6.2 [Host] window
MAC bridge function	Aging timer setting	4.10.1 [Aging Time] window
	Static address addition or deletion (VLAN-ID)	
	Static address addition or deletion	4.10.2 [Static MAC Address] window
	MAC address table displaying or clearing	4.10.3 [MAC Address Table] window
STP function	STP setting (Enable or Disable) for the entire device	4.11.1 [Global Setting] window
	BPDU frame transfer setting (Transfer or Not transfer)	4.11.1 [Global Setting] window
	Bridge priority setting	4.11.1 [Global Setting] window
	Maximum aging time setting	4.11.1 [Global Setting] window
	Hello message transmission interval setting	4.11.1 [Global Setting] window
	Transfer delay timer setting	4.11.1 [Global Setting] window
	Port priority setting	4.11.2 [Interface Setting] window
	Interface path cost setting	4.11.2 [Interface Setting] window
	STP setting (Enable or Disable) for the specified interface	4.11.2 [Interface Setting] window
	STP status display.	4.11.3 [STP Status] window
	Clearing of STP statistical information	4.11.4 [STP Statistics] window
VLAN function	VLAN creation or deletion	4.12.1 [VLAN ID Select] window 4.12.2 [VLAN Information] window
	VLAN deletion	4.12.3 [Delete VLAN] window
	Native VLAN ID setting	4.12.4 [Native VLAN] window
Priority control function	Priority setting of frame without tag	4.13.1 [Default Priority] window
	User priority and CoS queue mapping	4.13.2 [CoS Queue Map] window
Port trunking function (Link Aggregation function)	Channel group creation or deletion	4.14.1 [Channel Group] window
	Load dispersion algorithm setting	4.14.1 [Channel Group] window

Function	Description	Reference section
IGMP snooping function	IGMP snooping setting (Enable or Disable) for the entire device	4.15.1 [Global Setting] window
	IGMP snooping setting (Enable or Disable) for a specific VLAN	4.15.2 [VLAN Setting] window
	Multicast router port setting	4.15.2 [VLAN Setting] window
	Multicast statistic address addition or deletion	4.15.3 [MAC Address] window
Port mirroring function	Setting of ports to be monitored	4.8.3.2 [Source Port] window
	Mirror port setting	4.8.3.1 [Destination Port] window
Port configuration function	Enable or disable interface	4.8.1 [Port Configuration] window
	Interface transmission speed setting	4.8.1 [Port Configuration] window
	Interface status and transmission speed displaying	4.8.2 [Port Status] window
	Interface statistics information displaying or clearing	4.8.4 [Port Statistics] window
Access restriction function	Setting of network conditions for permitting remote connection (Telnet, SSH)	4.7.5 [Remote Access] window
SNMP function	Location setting	4.7.1.1 [SNMP Community] window
	Contact setting	4.7.1.1 [SNMP Community] window
	Host setting to acquire and use MIB information	4.7.1.1 [SNMP Community] window
	Engine ID setting	4.7.1.2 [SNMP v3 Configuration] window
	User setting for an SNMPv3 connection	4.7.1.2 [SNMP v3 Configuration] window
	SNMP trap notification destination	4.7.1.3 [SNMP Trap] window
Telnet function	Enable or disable telnet sever	4.7.2 [Telnet] window
	Console timeout setting	4.7.2 [Telnet] window
SSH function	SSH key creation or deletion	4.7.4 [SSH Key Generate] window
	Enable or disable SSH	4.7.3 [SSH Status] window
	Console timeout setting	4.7.3 [SSH Status] window
Partition function	Interlocking of interface and partition settings	3.2.2 Settings dependent on partition settings 4.16.1 [Partition] window
Reset function	GSWB setting	4.18.1 [Reset] window
Power control function	GSWB powering on or off	4.17.1 [Power Control] window

3.2 GSWB Setting

- Copying the GSWB settings ([3.2.1](#))
- Settings dependent on partition settings ([3.2.2](#))
- Updating firmware ([3.2.3](#))
- Management of GSWB configuration definition information ([3.2.4](#))

3.2.1 Copying the GSWB settings

When two GSWB boards (GSWB#0 and GSWB#1) are mounted on the PRIMEQUEST 580A/540A/580/540/480/440 rack, makes the same settings on the two GSWB boards. In this window, the setup values (configuration definitions) of one board can be copied to the other.

Remarks: To copy the GSWB setup values in this window, the setup values (configuration definitions) of one board must be saved as a configuration definition file in the [Save Configuration] window.

For details, see [Section 3.2.4.4, "Saving configuration definition files."](#)

Overall procedure

To make identical GSWB#0 and GSWB#1 settings, GSWB operations other than those from the [Configuration Copy] window are required. Copy the GSWB settings as follows:

- 1 Create a source file.
Specify the respective GSWB items, and save the configuration definitions of the source GSWB as a configuration definition file.
- 2 Make a copy.
Specify the source GSWB (whose configuration definitions have been saved), the destination GSWB, and the configuration definition file to be copied (which has been saved) in the [Configuration Copy] window, and start copying. For details, see "[Procedure \(\[Configuration Copy\] window\)](#)" below.

Note: If the destination GSWB already has a configuration definition file, the new configuration definition file is written over the existing file.

- 3 Restart the destination GSWB.
The destination GSWB must be restarted to validate the new configuration definition file. For this purpose, the copy of the configuration definition file to be used at startup of the GSWB must be selected in the [Active Image Change] window before restarting.

4 Specify the items that need not be copied.

The copy operation does not copy some setting items to the destination GSWB. Therefore, if any such item is specified for the source GSWB, they must be specified again for the destination GSWB.

Note: After adding or modifying any item for the destination GSWB in step 4, save the configuration definition file to save the new setting.

Procedure ([Configuration Copy] window)

- 1 Click [Switch] → [Configuration Copy].
The [Configuration Copy] window is displayed.

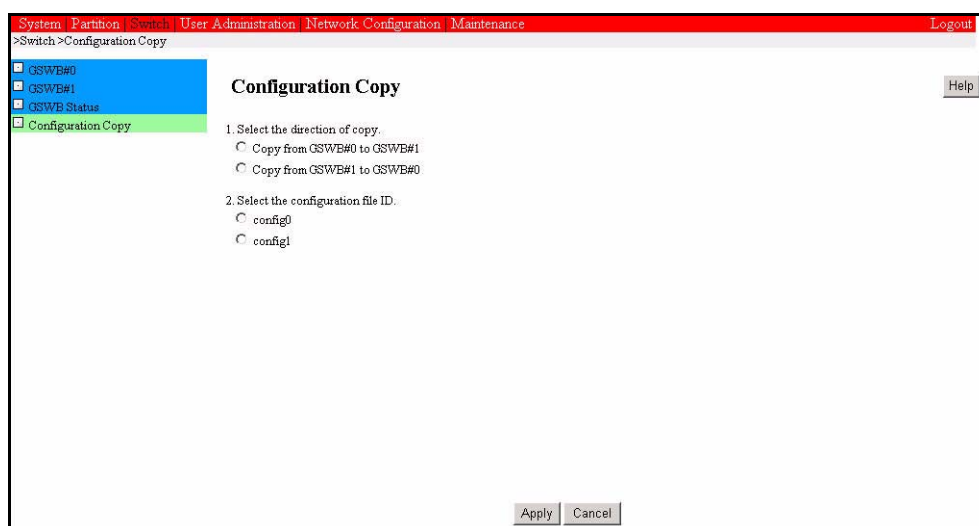


Figure 3.1 [Configuration Copy] window

Table 3.2 Displayed and setting items is the [Configuration Copy] window

Item	Description
Select the direction of copy	Copy from GSWB#0 to GSWB#1:Copies configuration information from GSWB#0 to GSWB#1. Copy from GSWB#1 to GSWB#0:Copies configuration information from GSWB#1 to GSWB#0.
Select the configuration file ID	config 0: Copies config0. config 1: Copies config1.

- 2 In the [Select the direction of copy] column, select the copy source GSWB and the copy destination GSWB. Then, in the [Select the configuration file ID] column, specify the configuration definition file to be copied.
Because one GSWB board can retain two configuration definitions (config0 and config1), specify which configuration definition file is to be copied.

3 Click the [Apply] button.

Note1: After the configuration definition file is copied and after the copied file is modified in the [Active Image Change] window, the GSWB must be restarted before the switching operation can reflect the changes in the file.

Note2 After the configuration definition file is copied, the configuration file of specified destination GSWB is overwritten.

Note3 [Select the direction of copy] and [Select the configuration file ID] are not selected by default.

Note3 The settings that differ between the two GSWB boards and operation setting items are not copied. The items that are not copied are as follows:

Configuration definition items	IP address, subnet mask, and gateway address
Operation setting items	SSH key

3.2.2 Settings dependent on partition settings

For specific settings (interface settings), the GSWB Web-UI can be used to set GSWB and partition setting values separately. These partition setting values are used to make identical settings for interfaces connecting IO Units belonging to the same partition.

When [Partition Dependence] is [On] in the Partition window, the IO Unit interface settings depend on the configuration of the partition to which the IO Unit belongs and are changed according to partition settings in the window as described below.

When a setting is made in the [Partition Dependence] window, the setting is made for an IO Unit belonging to the partition/interface numbers for which [Partition Dependence] is set to [On]. While [Partition Dependence] is set to [Off], the setting is not reflected even if the IO Unit belongs to the partition.

If the partition configuration is changed and the IO Unit is switched to another partition while [Partition Dependence] is set to [On], the IO Unit interface settings are automatically changed to include the partition-dependent values set for the new partition number. While [Partition Dependence] is set to [Off], the values set for the IO Unit interface are used directly as partition values.

Partition-dependent settings can be made in the windows as described below.

- [Switch] → [GSWB#x] → [Port] → [Flow Control] → [Partition]
- [Switch] → [GSWB#x] → [Port] → [Rate Control] → [Partition]
- [Switch] → [GSWB#x] → [Spanning Tree] → [Interface Setting] → [Partition]
- [Switch] → [GSWB#x] → [VLAN] → [VLAN Configuration]
- [Switch] → [GSWB#x] → [VLAN] → [Native VLAN] → [Partition]
- [Switch] → [GSWB#x] → [Priority Queueing] → [Default Priority] → [Partition]

- Example of use

This example assumes that partition #0 contains IOU#0 and IOU#1, partition #1 contains IOU#2, and [Partition Dependence] is set as follows:

Partition Dependence	On	IOU 0 0, IOU 0 1, IOU 1 0IOU 2 0, IOU 2 1
	Off	IOU 1 1

In this example, if the settings of partition #0 and partition #1 are changed in the [Partition Dependence] window, the changed settings of partition #0 are reflected for IOU 0 0, IOU 0 1, and IOU 1 0 but not IOU 1 1. Similarly, the changed settings of partition #1 are reflected for IOU 2 0 and IOU 2 1.

If the partition definition of IOU#2 is changed from partition #1 to partition #0, the interface settings (IOU 2 0 and IOU 2 1) of IOU#2 are changed to include the values set by partition #0 instead of the values set by partition #1, since [Partition Dependence] is set to [On]. Moreover, if the partition definition of IOU#1, which belongs to partition #0, is changed to partition #1, the interface settings (IOU 1 0) of IOU#1 are changed to include the values set by partition #2, since [Partition Dependence] is set to [On]. However, the setting values for IOU 1 1 are not changed since [Partition Dependence] is set to [Off].

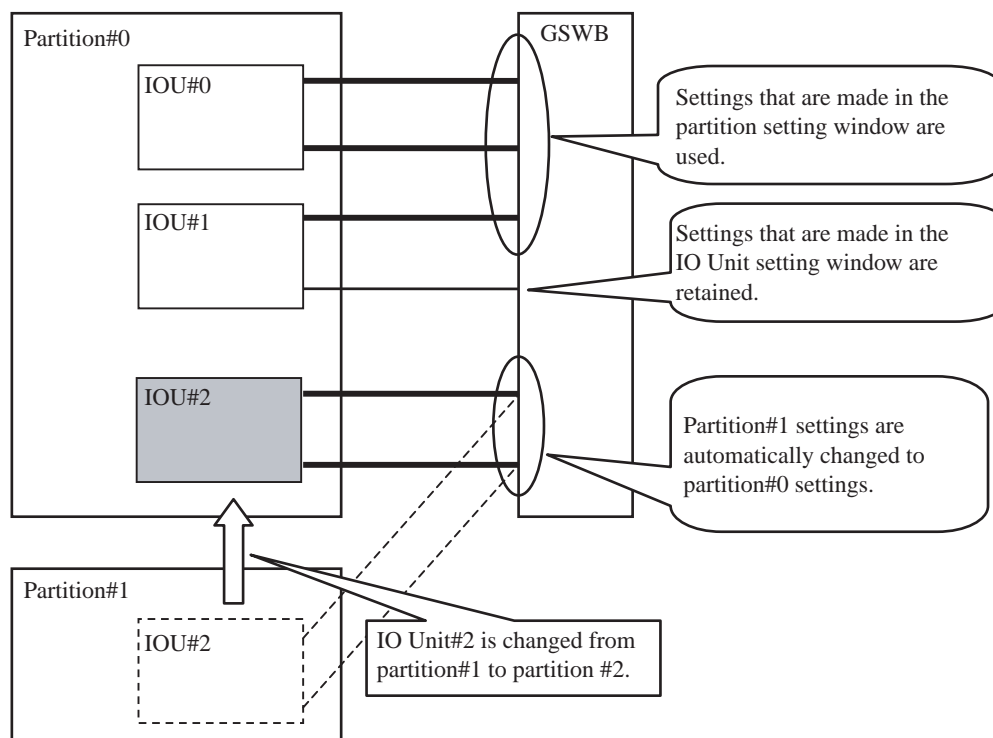


Figure 3.2 Link setting with partition settings

Procedure

- 1 Click [Switch] → [GSWB#x] → [Partition].
The [Partition] setting window is displayed.

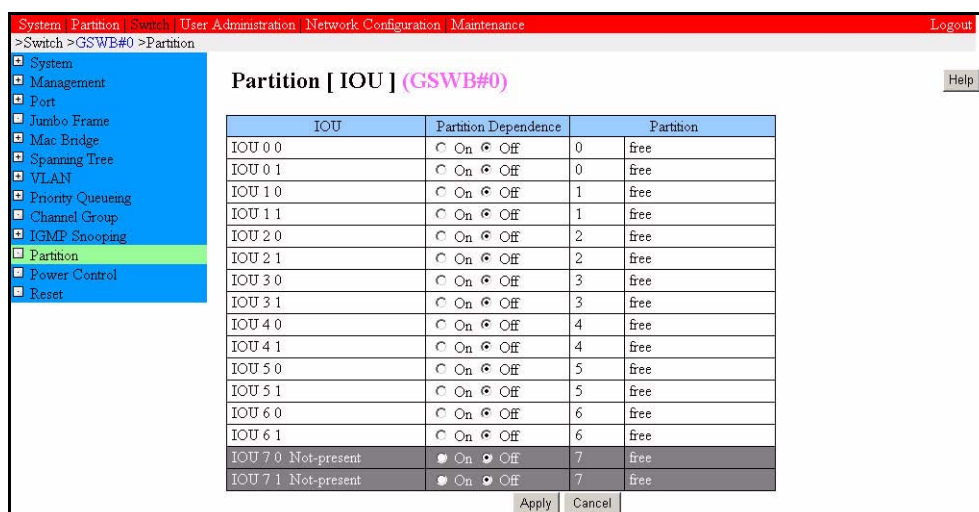


Figure 3.3 [Partition] window

Table 3.3 Displayed and setting items is the [Partition] window

Option	Explanation
Partition	<ul style="list-style-type: none"> • [On]: Partition settings are used.
Dependence	<ul style="list-style-type: none"> • [Off]: GSWB interface settings are used. The interface settings are retained even when the settings of the belonging partition are changed. <p style="text-align: right;">Default: [Off]</p>

Note: Because partition attributes are intended only for IO Unit ports, [Partition Dependence] can be set only for IO Unit ports.

- 2 To allow the IO Unit interface settings to vary depending on the partition configuration, select "On" in the [Partition Dependence] column.
To make the IO Unit interface settings independent from the partition configuration, select "Off" in the [Partition Dependence] column.

3 Click the [Apply] button.

Remarks:

- When "On" is selected in [Partition Dependence]
When the partition configuration is changed while the IO Unit interface is set to "On," the partition settings are automatically applied to the interface that has newly been incorporated into the partition. Also, when a setting is made in the partition setting window, it is also applied to the interface that is set to "On."
- When "Off" is selected in [Partition Dependence]
While the IO Unit interface is set to "Off," the current interface settings are retained when the partition configuration is changed or when a setting is made in the partition setting window.

3.2.3 Updating firmware

Firmware can be updated. When firmware is uploaded, the firmware that is currently inactive is overwritten.

Procedure

- 1 Click [Maintenance] → [Firmware Update] → [GSWB Firmware Update].
The [GSWB Firmware Update] window is displayed.

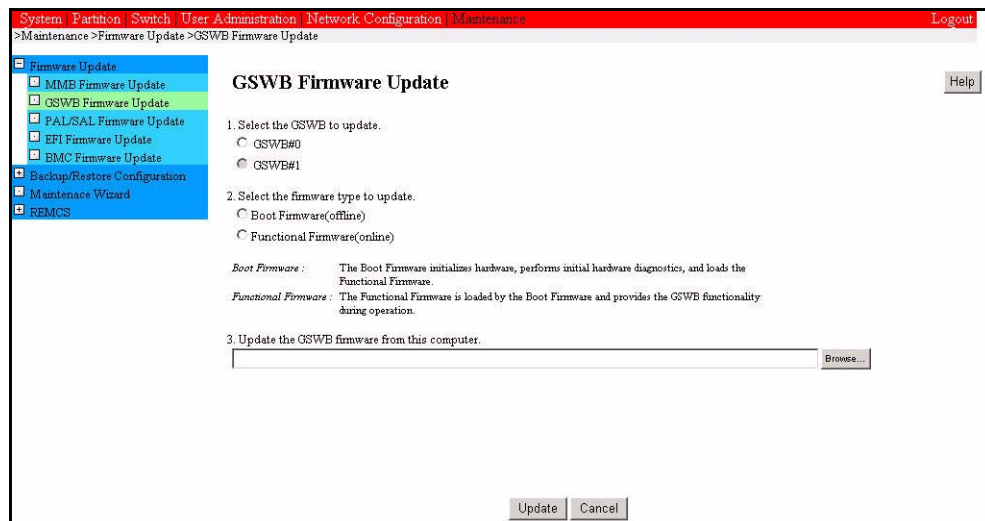


Figure 3.4 [GSWB Firmware Update] window

Table 3.4 Displayed and setting items is the [GSWB Firmware Update] window

Item	Description
Select the GSWB to update.	<ul style="list-style-type: none"> GSWB#0: Specifies GSWB#0. GSWB#1: Specifies GSWB#1.
Select the firmware type to update.	<ul style="list-style-type: none"> [Boot Firmware (Offline)]: Specifies offline firmware. [Functional Firmware (Online)]: Specifies online firmware.
Update the GSWB firmware from this computer.	Specify the firmware path.

- 2 Select the GSWB whose firmware you want to update.
- 3 Specify the type of the firmware to be uploaded, [Functional Firmware (Offline)] or [Boot Firmware (Online)].
- 4 Specify the path of the firmware file stored on the remote PC according to the specified firmware type. Click the [Upload] button.

After firmware uploading is complete, firmware installation begins with the following window displayed.

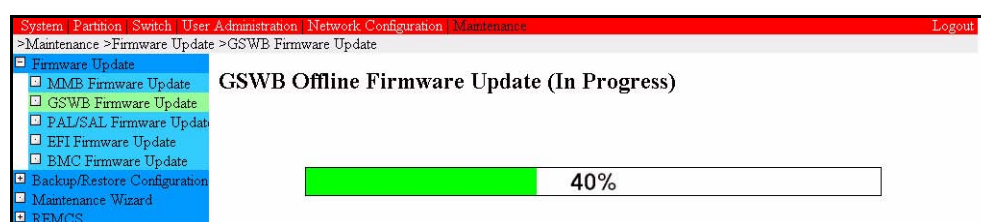


Figure 3.5 [Firmware Update (In Progress)] window

- 5 After firmware installation is complete, a pop-up message is displayed. To restart the system with the installed firmware, click the [OK] button.
To not restart the system, click the [Cancel] button.

Remarks: If the uploaded file is not GSWB firmware, "Specified file is NOT a GSWB Firmware" is displayed.

3.2.4 Management of GSWB configuration definition information

This section explains the management of the GSWB configuration definition information.

Be sure to back up the GSWB configuration definition information during installation. Every time the GSWB settings are changed after the start of system operation, be sure to back up the GSWB configuration definition information.

3.2.4.1 Management of GSWB configuration definition information

The management of the configuration definition information includes the following types.

- Downloading configuration definition files
Transfers a configuration definition file from the GSWB (MMB) to the remote PC.
- Uploading configuration definition files
Transfers a configuration definition file from the remote PC or MMB to the GSWB.
- Saving configuration definition files
Saves a GSWB Running Configuration (the definition currently in use).
- Restoring configuration definition files
Copies a configuration definition file to an area that is referenced when the GSWB starts.

Remarks:

- The settings that are made on the GSWB are not saved until the saving operation is performed. If the saving operation is not performed, turn the GSWB power off and back on again to clear the settings.

- Two configuration definition files can be saved to the GSWB. Therefore, "config0" and "config1" must be specified to identify those files in the Web-UI. The following shows the flow of the GSWB configuration definition files in each operation of configuration definition management.

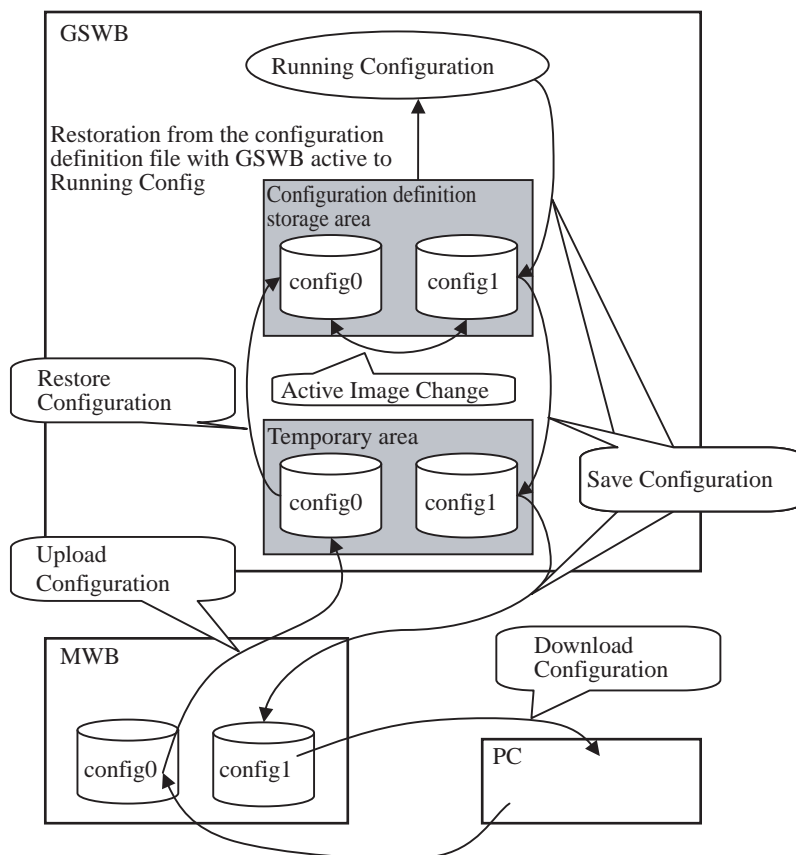


Figure 3.6 Flow of GSWB configuration definition file

3.2.4.2 Downloading configuration definition files

This function downloads a configuration definition file from the GSWB to the remote PC.

Procedure

- 1 Click [Switch] → [GSWB#x] → [System] → [Download Configuration].
The [Download Configuration] window is displayed.

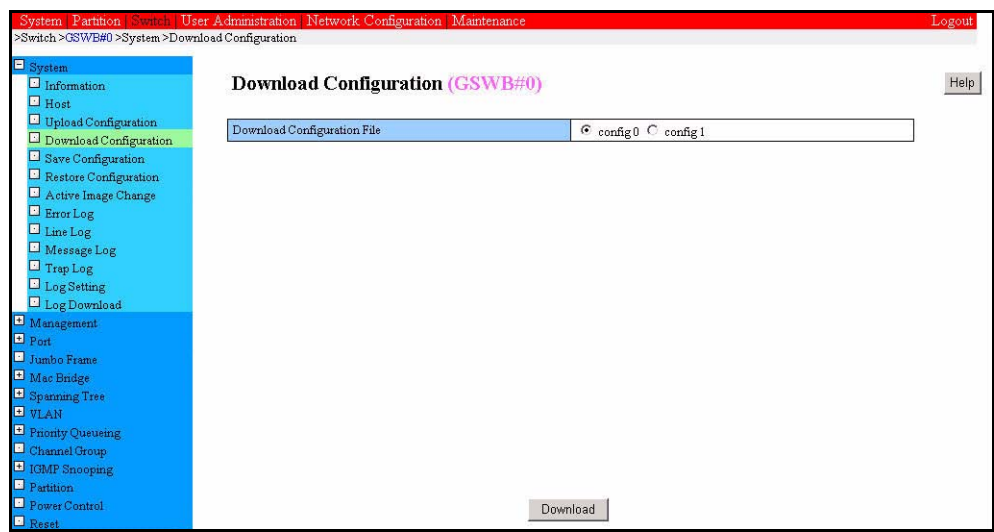


Figure 3.7 [Download Configuration] window

Table 3.5 Displayed and setting items is the [Download Configuration] window

Item	Description
Download configuration File	config0: Downloads config0. config1: Downloads config1. <div>Default: [config0]</div>

- 2 Specify which file to download, config0 or config1 on the GSWB.

- 3 Click the [Download] button.
The [File Download] dialog box is displayed.

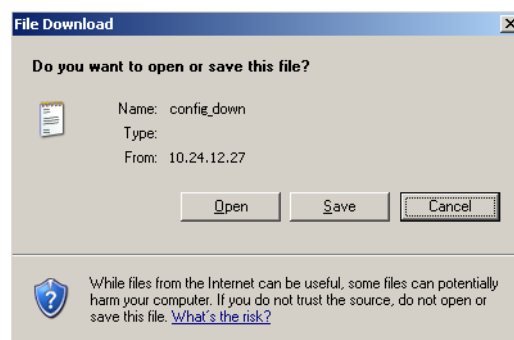


Figure 3.8 [File Download] dialog box

- 4 Click the [Save] button.
The Save As dialog box is displayed.
- 5 Specify the path and name of the file to be saved to the remote PC.

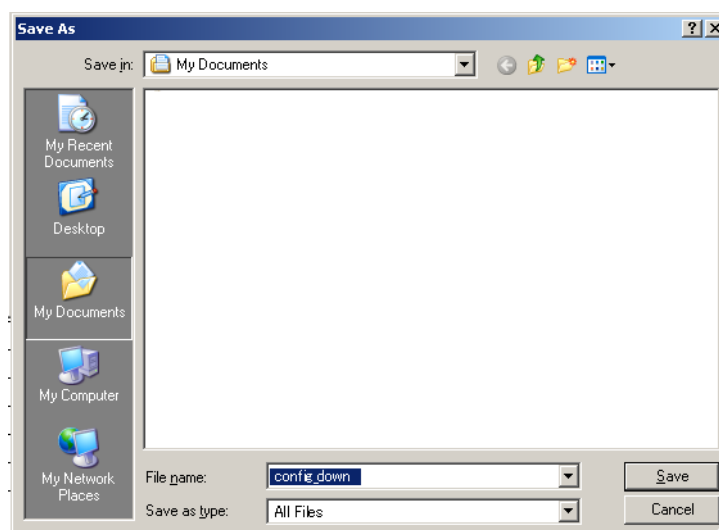


Figure 3.9 [Save As] dialog box

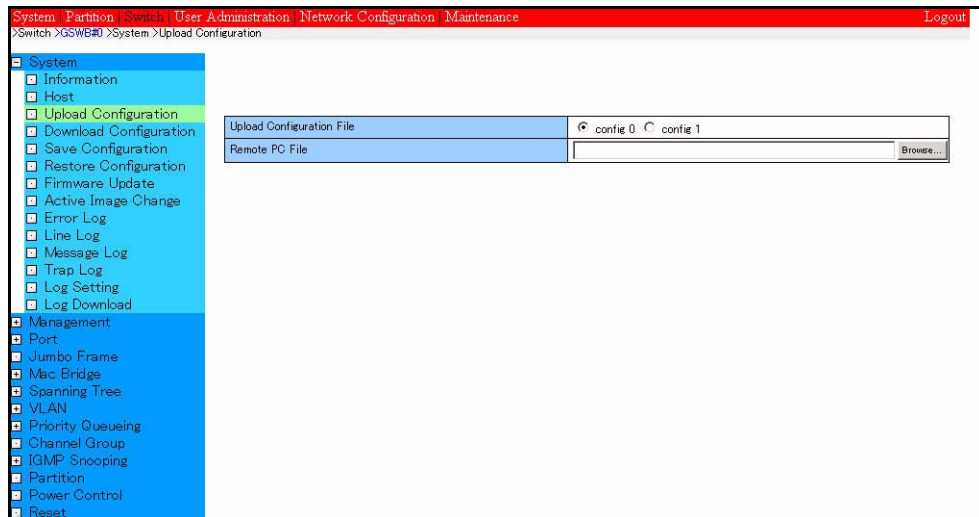
- 6 Click [Save] button.

3.2.4.3 Uploading configuration definition files

This function transfers a configuration definition file from the remote PC or MMB to the GSWB.

Procedure

- 1 Click [Switch] → [GSWB#x] → [System] → [Upload Configuration].
The [Upload Configuration] window is displayed.
The window displayed with administrator privilege differs from the one with CE privilege .
- With administrator privilege



- With CE privilege

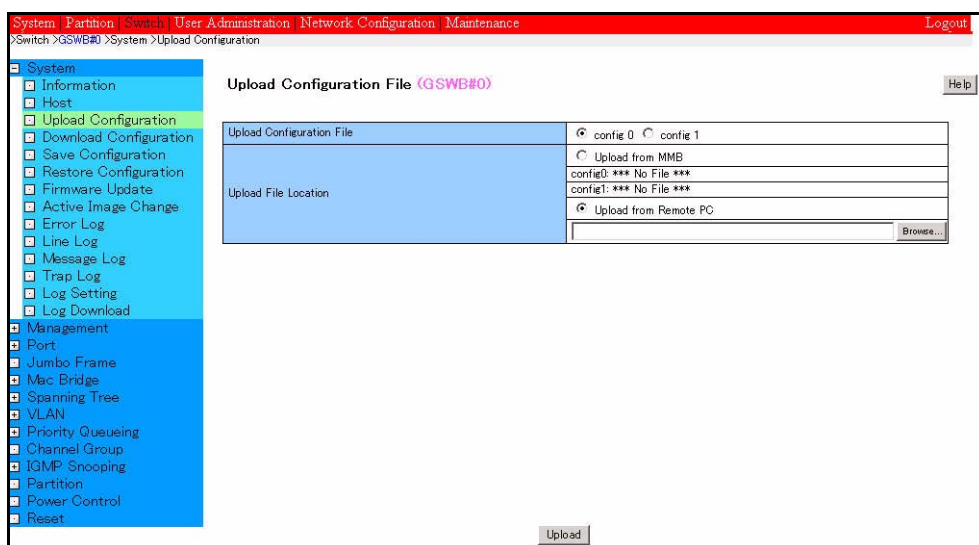


Figure 3.10 [Upload Configuration File] window

Table 3.6 Displayed and setting items is the [Update Configuration] window

Item	Description
Upload Configuration File	config0: Uploads config0. config1: Uploads config1. Default: config0
Remote PC File (with administrator privilege)	File path. Specify a file on the remote PC.
Upload File Location (with CE privilege)	Upload from MMB: Specifies a configuration definition that is stored on the MMB. <ul style="list-style-type: none"> • config0: config0 file version and date • config1: config1 file version and date If no file is available, "*** No File ***" is displayed.
	Upload form RemotePC (default): Specifies a file on the remote PC.

- 2 Use a radio button to specify which file to be overwritten, config0 or config1 on the GSWB.
- 3 Enter the path of the file to be uploaded directly in the [Remote PC File] column. If the user is with CE privilege, they can click the [Browse...] button and select the configuration definition file from the window displayed.

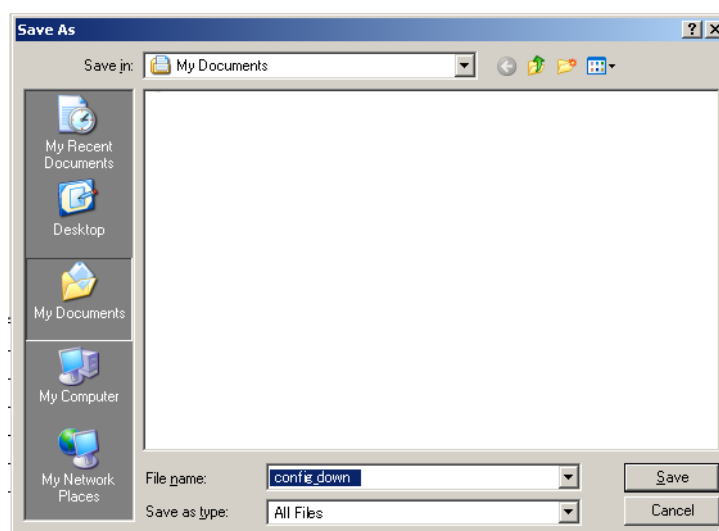


Figure 3.11 [Save As] dialog box

Note: If the user authority is CE, the configuration definition file that is automatically stored on the MMB can be uploaded. To use this function, select the [Upload from MMB] radio button without an entry in the [Upload from Remote PC] box.

- 4 After selecting the file, click the [Upload] button.

The configuration definition file is transferred from the remote PC to the GSWB. Then, it is uploaded. When uploading is completed, a completion notification window is displayed.

Remarks: When the configuration definition file is uploaded from the remote PC, a validity check is performed to ensure that the GSWB configuration definition file is the file uploaded.

- 5 Click the [OK] button.

3.2.4.4 Saving configuration definition files

This function saves a GSWB Running Configuration (the definition currently in use). At the time of save, an optional comment can be added to the configuration definition file.

Note: The settings that are made on the GSWB are not saved until the saving operation is performed. If the saving operation is not performed, turn the GSWB power off and back on again to clear the settings.

Procedure

- 1 Click [Switch] → [GSWB#x] → [System] → [Save Configuration].
The [Save Configuration] window is displayed.



Figure 3.12 [Save Configuration] window

Table 3.7 Displayed and setting items is the [Save Configuration] window

Item	Description
Save ConfigurationFile	[config0]: Saves to config0. [config1]: Saves to config1. Default: config0
Comment	Specify a comment to be added to the configuration definition file in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (space characters,!, " # \$ % & ' () * + ' - . / : ; < = > @ [\] ^ _ ` { } ~) except the question mark (?). Default: Blank

- 2 Specify the area to save the running config definition, [config0] or [config1].
To add a comment to the configuration definition, write it to [Comment].
- 3 Click the [Save] button.
The file is saved. When saving is completed, a completion notification window is displayed.
- 4 Click the [OK] button

3.2.4.5 Restoring GSWB configuration definition files

This function copies a GSWB configuration definition file, which is saved or uploaded from the remote PC, to an area to be referenced when the GSWB is started.

Procedure

- 1 Click [Switch] → [GSWB#x] → [System] → [Restore Configuration].
The [Restore Configuration] window is displayed.

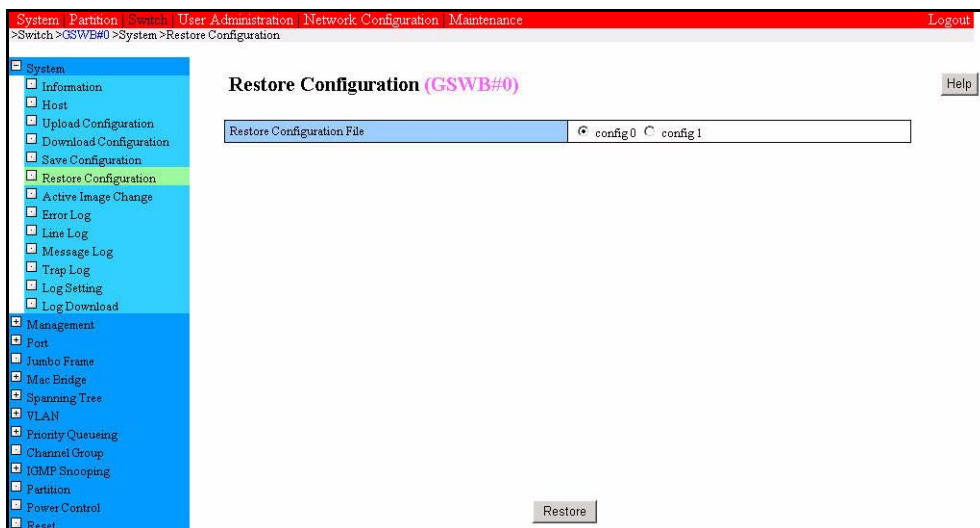


Figure 3.13 [Restore Configuration] window

Table 3.8 Displayed and setting items is the [Restore Configuration] window

Item	Description
Restore ConfigurationFile	[config0]: Restores config0. [config1]: Restores config1. Default: [config0]

- 2 Select the radio button of the configuration definition file to be copied.

3 Click the [Restore] button

Copying starts. When copying is completed, a completion notification window is displayed.

Note: After the copy is completed, the GSWB must be restarted to reflect the contents of the copied configuration definition file in the operation definition.

CHAPTER 4 Web-UI Operations

The giga-bit switch board (GSWB) is connected to the MMB, which manages the entire server, via the private LAN.

The GSWB is usually operated from a console connected to the management LAN of the MMB through the Web user interface (Web-UI). Alternatively, the MMB or GSWB can be directly connected through the Telnet/SSH interface, and the command interface (CLI) can be used to operate the GSWB.

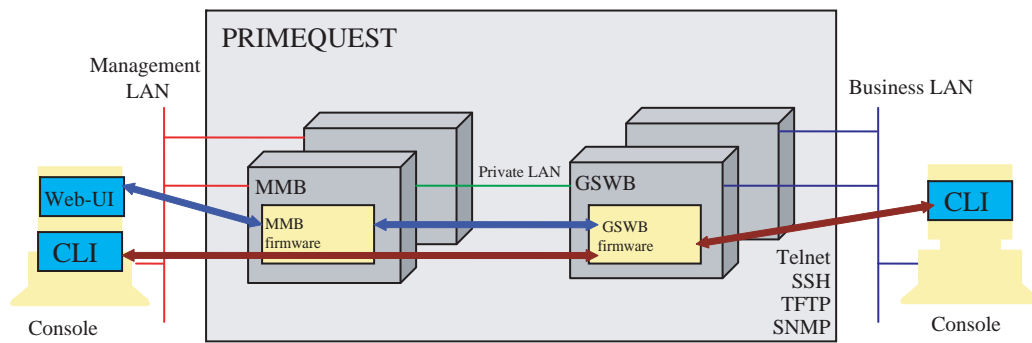


Figure 4.1 GSWB connections

4.1 MMB user interface

In the PRIMEQUEST system, the server management board, called the management board (MMB), provides two user interfaces.

- The Web server function allows operation and management to be performed from a Web browser on a general standard PC or workstation.
- With the Command Line Interface (CLI), operation can be performed via a serial port or from a remote PC via a management LAN.

Remarks: For GSWB CLI operation, see [CHAPTER 5, "CLI Operations."](#)

CAUTION

Malfunction

MMB Web-UI supports the following browsers. Note that if other browsers are used, the Web-UI window may not be displayed correctly.

- Microsoft® IE (Internet Explorer) v5.5 (SP2) or later
- Netscape v7.02 or later

4.1.1 Distinguishing between use of the Web-UI and use of the CLI

Usually, either the Web-UI or CLI can be used to set up the GSWB. Sometimes, using the Web-UI is convenient, since certain functions are supported only by the Web-UI. For example, using the Web-UI eliminates the need to provide an external TFTP server to update GSWB firmware or transfer the configuration definition file.

However, the GSWB setup and reference functions provided by the Web-UI are a subset of the GSWB setup and reference functions provided by the CLI. Therefore, some functions of CLI commands cannot be used from the Web-UI. In such cases, use the CLI.

The Web-UI and CLI support equivalent functions of CLI configuration definition commands, except for LDAP functions, NTP functions, and commands specific to the CLI (terminal).

However, the Web-UI cannot use some CLI operation commands. To refer to detailed device information and statistical information for the GSWB as provided by these commands, use the CLI.

Remarks: Since LDAP functions are automatically set up by the MMB, do not change CLI settings. If the settings are changed using the CLI, some Web-UI functions may not operate normally.

The operation commands that are not supported by the Web-UI are listed in the table below.

Table 4.1 Operation commands not supported by the Web-UI

Command	Remarks
Console-related commands	
clock set	
show clock	
show filelist	Not used when the Web-UI is used.
show history	Not used when the Web-UI is used.
terminal pager	Not used when the Web-UI is used.
show terminal	Not used when the Web-UI is used.
telnet	Not used when the Web-UI is used.
ssh	Not used when the Web-UI is used.
tftp	Not used when the Web-UI is used.
Device-related commands	
clear config	
show memory	
show processes	
clear ramdisk	
eprominit	
IP-related commands	
ip dhcp restart	If BOOTP/DHCP is set, the Web-UI is not supported.
clear arp	
ping	Not used when the Web-UI is used.
show arp	
show ip	Not supported when BOOTP/DHCP is set.
show ip default-gateway	Not supported when BOOTP/DHCP is set.
show ip host	Not supported when BOOTP/DHCP is set.
show ip socket	
traceroute	Not used when the Web-UI is used.
Statistics management command	
show ether statistics	
IGMP-related commands	
show ip igmp snooping	
show ip igmp snooping mrouter	
show ip mac address-table multicast	
show ip igmp snooping statistics	
clear ip igmp snooping statistics	
LDAP-related command	
show ldap	
NTP-related command	
show ntp	

4.2 Screen Elements and Basic Operation

A variety of settings are made and checked from the MMB Web-UI window. This section explains, in addition to the MMB menu configuration, the basic operations including how to interpret MMB Web-UI screen elements.

- Web-UI screen elements (→ [4.2.1](#))
- Basic operation on MMB Web-UI window (→ [4.2.2](#))

4.2.1 Web-UI screen elements

This section explains information to be displayed on the Web-UI window.

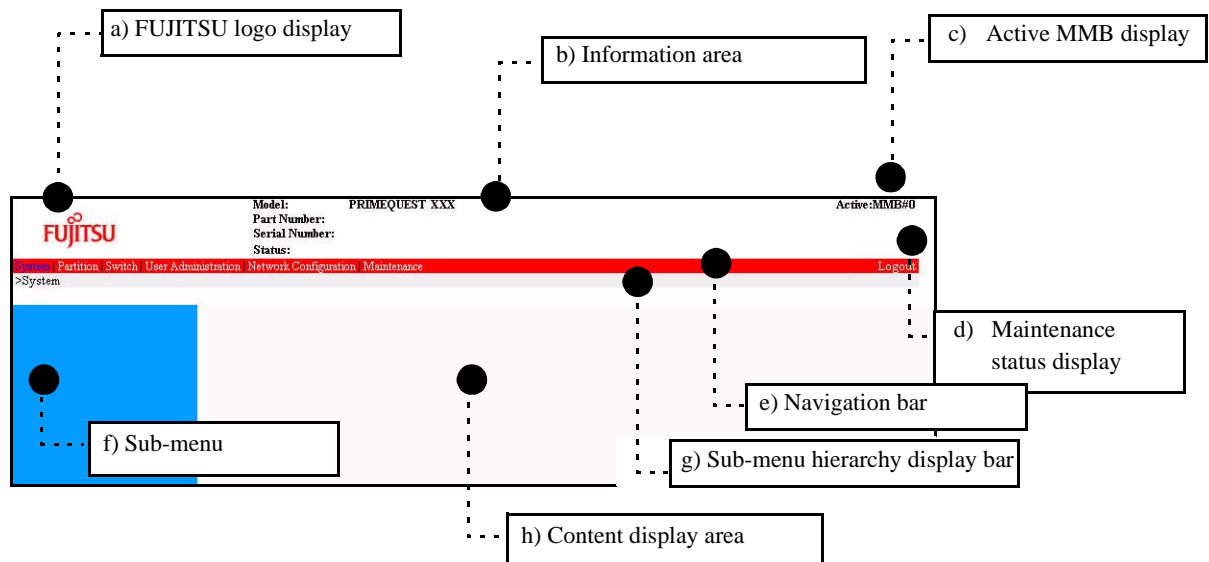


Figure 4.2 [Web-UI Frame Information] window

a) FUJITSU logo display

The FUJITSU logo mark is displayed. Click this mark to display the FUJITSU homepage.



b) Information area

Model:	PRIMEQUEST XXX	Active:MMB#0
Part Number:		
Serial Number:		
Status:		Under Maintenance

This area displays the following information.

- [Model]
Displays the PRIMEQUEST model name (Product Info Product Name of operation panel FRU).
- [Part Number]
Displays the PRIMEQUEST part number (Product Info Product Part/Model Number of operation panel FRU).
- [Serial Number]
Displays the serial number of the PRIMEQUEST.
- [Status]
Displays the status of the entire PRIMEQUEST. The system status display indicates the three statuses below. Click one of the three to display the [System Event Log] window.

Table 4.2 System status display

Status	Display color	Icon
Normal	Green	None
Warning	Yellow	Black ! in yellow triangle 
Error	Red	White × in red circle 

c) Active MMB display

Displays the number of the MMB that is operating as an active MMB with the Web-UI connected.

d) Maintenance status display

When a certified service engineer is maintaining this device by using a maintenance wizard menu, "Under Maintenance" is displayed in orange. When maintenance is not being conducted, no information is displayed.

e) Navigation bar

System	Partition	Switch	User Administration	Network Configuration	Maintenance	Logout
--------	-----------	--------	---------------------	-----------------------	-------------	--------

The top layer menus are displayed. A menu being selected is displayed in black characters, and one not selected is displayed in white characters.

- [System], [Partition], [Switch], [User Administration], [Network Configuration], [Maintenance]

Click one of the menus to display the sub-menu in g).

- [Logout]

Click here to log out from the MMB Web-UI.

f) Sub-menu hierarchy display bar

>System

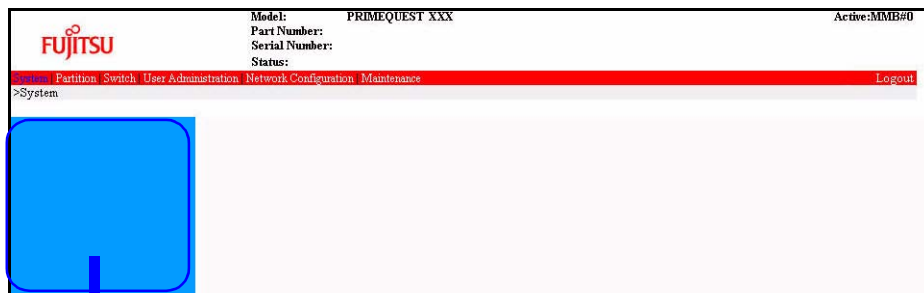
Hierarchy display

The menu hierarchies that the user passes from the top menu to the sub-menu displayed in the sub-menu area are displayed. Click the menu displayed here to display the content screen of that menu.

Example: >System>System Status

g) Sub-menu

The sub-menu of the menu selected on the navigation bar is displayed.



The sub-menu is displayed as follows.

- Up to three menu hierarchies are displayed.
- A "+" display at the beginning indicates that there are lower-layer menus.
- A "-" display at the beginning indicates that there are lower layer menus, which are expanded.
- A "." display at the beginning indicates that there is no lower menu.
- When the cursor is positioned on a menu, the menu color is displayed in reverse video.
- The background color of a selected menu changes.

h) Content area

The screen for a selected sub-menu is displayed in the content area.

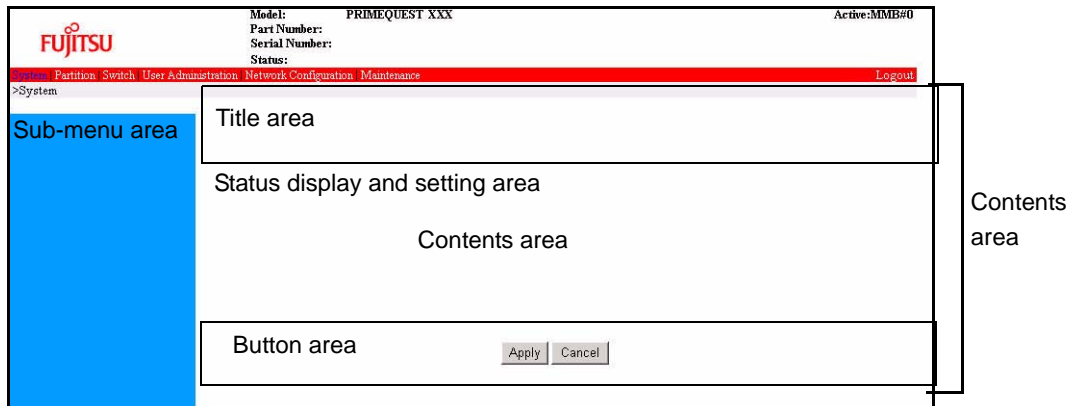


Figure 4.3 Content area

The content area is divided into the following three.

- Title area

Content title is displayed.

- This area has a [Help] button for displaying the Help menu for the content and the [Refresh] button to display the most up-to-date content.
- The [Refresh] button is applied to only the content area.
- The [Refresh] button is not displayed on all screens. It is not displayed on one where only settings are made and its status is not automatically changed.

Remarks:

Use [Refresh Rate] in the [Network Configuration] menu to set a refresh rate. For details of the operations, see Chapter 5, "Web-UI Operation," in Part III, "MMB," in the *PRIMEQUEST 580A/540A/520A/500/400 Series Reference Manual: Basic Operation/GUI/Commands*.

- A screen with the [Refresh] button is subject to automatic refreshing. (Excluding PSA)
- This area is not scrolled together with [Status display and setting area].

- Status display and setting area

This area displays content related status and setting details.

The status display has three patterns, "Normal status," "Warning status," and "Error status," each displayed with the background colors indicated below.

Table 4.3 Contents area status display

Status	Background color
Normal	Typical screen background color
Warning	Warning color (yellow)
Error	Error color (red)

When the user has only the display authority, input field, radio button, and check box are displayed dimmed (not selectable).

- Button area

Buttons for setting the status display and setting the setting area contents are displayed. The [Apply] and [Cancel] buttons are normally displayed.

For contents that are displayed only and do not require user input, this button area is not displayed.

Notation used for screen operation

The screen operations in this manual are described as follows:

- Menu operation of Web UI

[] → []

Example: Describing the operation procedure for displaying the [System Status] screen

Click [System] → [System Status]. (Select the items in order of indication.)

- Describing multiple menus indicated in the same hierarchy

[]/[]/[]/[]

Example: Describing the operation procedure for displaying the [Port

Configuration] screen of the IOU, front panel, port-channel, or partition

Click [Switch] → [GSWB#x] → [Port] → [Port Configuration] → [IOU]/[Front Panel]/[port-channel]/[Partition].

- Describing one of multiple components (The actual Web-UI is indicated with a number.)

Component-name#x

Example: Describing a partition number in the second hierarchy

Click [Partition] → [Partition#x] → [Mode].

4.2.2 Basic operation on MMB Web-UI window

This section explains how to access an MMB Web-UI and the basic operations on the Web-UI window.

To access the Web-UI, specify the virtual IP address or the physical IP address of the active MMB or the FQDN for that address.

- Login procedure to MMB Web-UI (→ [4.2.2.1](#))
- Input format types (→ [4.2.2.2](#))

4.2.2.1 Login procedure to MMB Web-UI

- 1 Start the Web browser.

Remarks:

- For using JavaScript through the MMB Web-UI, JavaScript must be enabled by the browser setting.
- For downloading through the MMB Web-UI, downloading must be enabled by the browser setting.

- 2 Enter the following URL.

Standard	http://nodename:adminport
SSL	https://nodename:adminport

nodename: Specifies an MMB FQDN or IP address.

adminport: Specifies a port number that is allocated to the MMB management port (default value: 8081, or 432 for SSL).

- 3 Enter a user account name and password as follows, and click the [Login] button.

Remarks: When the browser is started for the first time or a setting change is not made, the following default user account and password are applied and a change to a new password is requested.

Username	Administrator
password	Password specified by the Fujitsu certified service engineer during device setup

- 4 Select a menu from the navigation bar.
The submenu of the selected menu is displayed in the sub-menu area.
 - 1 Select a menu from the sub-menu.
- 5 The screen of the selected menu is displayed in the content area.
- 6 Check and set information on the displayed screen.
Click the [Apply] button to set the information.
Click the [Cancel] button to return the information to its state before it was input.

Remarks: To return to the upper hierarchy, click the [←] (Back) button on the IE toolbar.

The upper-hierarchy screen is displayed in the content area.
- 7 To close the browser, click [Logout] at the right end of the navigation bar.
Log out from the Web-UI.

Remarks: To perform other operations, select a menu or sub-menu.

4.2.2.2 Input format types

Input on the content screen is classified into the following types.

Character string input field:

Enter a character string in the field.

User Name	Aaaaaaaa
-----------	----------

Selection field (pull-down list):

For an item with the [▼] button displayed, click the button to display a pull-down list to select a value.

Power Fault Reaction	Continue – continue the system running Shutdown – shutdown the system Continue ▼
----------------------	--

Setting button:

- Apply** : Updated with a value input or selected in the field
- Cancel** : Cancels the value input or selected in the field and returns to a value before the input.

Selection of one value (radio button):

Click [○] to select a value in the field. More than one value cannot be selected.

Chassis Power Switch

☒ ON ☐ OFF

Selection of more than one value (check box):

Click [□] to select values in the field. More than one value can be selected.

Partition:

☒ 0 ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15

Link:

Click an underline display such as LINK to move to the window indicated by the link.

IP address input field:

Enter a value from 0 to 255 in the input field of each character string.

NTP Server 1

MAC address input field:

Enter a value from 00 to FF in hexadecimal numbers in the input field of each character string. Values, A, B, C, D, E, and F, are not case-sensitive.

4.2.2.3 User authorities

User authorities are set for smooth operation, and some functions cannot be executed, depending on the authorities held by the user.

Table 4.4 User authorities

Authority level	Function that can be operated
User	Only PRIMEQUEST status referencing is possible. Configuration information setting and partition power-on/off are possible.
CE	Authority held by a Fujitsu certified service engineer. System status referencing is possible. Maintenance operation is also possible, but user management and network setting change are not possible
Operator	System status referencing and setting are possible. However, user management and management LAN configuration change are not possible.
Administrator	All operations are possible.

4.2.3 Interface names

Web-UI allows the user to specify a GSWB port by selecting the corresponding interface name. The names of individual ports are listed in the table below.

Table 4.5 Interface names

Type	GSWB		Web-UI	
	Port No.	Interface name	ID	Interface name
IOU (Backpanel port)	port 1	IOU 0 0	00	IOU 0 0
	port 2	IOU 0 1	01	IOU 0 1
	port 3	IOU 1 0	02	IOU 1 0
	port 4	IOU 1 1	03	IOU 1 1
	port 5	IOU 2 0	04	IOU 2 0
	port 6	IOU 2 1	05	IOU 2 1
	port 7	IOU 3 0	06	IOU 3 0
	port 8	IOU 3 1	07	IOU 3 1
	port 9	IOU 4 0	08	IOU 4 0
	port 10	IOU 4 1	09	IOU 4 1
	port 11	IOU 5 0	10	IOU 5 0
	port 12	IOU 5 1	11	IOU 5 1
	port 13	IOU 6 0	12	IOU 6 0
	port 14	IOU 6 1	13	IOU 6 1
	port 15	IOU 7 0	14	IOU 7 0
	port 16	IOU 7 1	15	IOU 7 1
External (Front panel port)	port 17	GigabitEthernet 0/1	16	Gigabit 1
	port 18	GigabitEthernet 0/2	17	Gigabit 2
	port 19	GigabitEthernet 0/3	18	Gigabit 3
	port 20	GigabitEthernet 0/4	19	Gigabit 4
	port 21	GigabitEthernet 0/5	20	Gigabit 5
	port 22	GigabitEthernet 0/6	21	Gigabit 6
	port 23	GigabitEthernet 0/7	22	Gigabit 7
	port 24	GigabitEthernet 0/8	23	Gigabit 8
External (10G daughter port)	port 25	TenGigabitEthernet 1/1	24	10Gigabit 1
	port 26	TenGigabitEthernet 1/2	25	10Gigabit 2
port-channel (Port channel)	port 27	port-channel 1	26	port-channel 1
	port 28	port-channel 2	27	port-channel 2
	port 29	port-channel 3	28	port-channel 3
	port 30	port-channel 4	29	port-channel 4
	port 31	port-channel 5	30	port-channel 5
	port 32	port-channel 6	31	port-channel 6
	port 33	port-channel 7	32	port-channel 7

4.3 Basic Operation and GSWB Menu Configuration

GSWB operation is performed via MMB. See [Section 4.2, "Screen Elements and Basic Operation,"](#) for the elements displayed on the screen and basic operation of the screen.

This section explains the following:

- GSWB screen display and basic operation (→ [4.3.1](#))
- Web-UI menu configuration (→ [4.3.2](#))

4.3.1 GSWB screen display and basic operation

GSWB operation is performed via MMB. See [Section 4.2, "Screen Elements and Basic Operation,"](#) for the elements displayed on the screen and their operation.

This section explains the following:

- Display for interface setting (→ [4.3.1.1](#))
- Basic operation (→ [4.3.1.2](#))

4.3.1.1 Display for interface setting

Attributes in the interface setting window vary depending on the interface type. The interface setting window displays these attributes for the individual interfaces.

IO Unit (backpanel) setting window

Partition numbers and names are displayed.

- When an IO Unit belongs to a partition:

Partition	
Partition number	Partition name

- When an IO Unit does not belong to a partition:

Partition	
Free	Blank

External (front panel) setting window

Port channel numbers are displayed.

- When External belongs to a channel group:

port-channel
Channel group number

- When External does not belong to a channel group:

port-channel
-

port-channel (port channel) setting window

Interface numbers are displayed.

- When an interface belongs to port-channel:

Front Panel
Interface number, ...

- When no interface belongs to port-channel:

Front Panel
-

Partition setting window

The partition setting window (explained later) displays the numbers of the IO Units that belong to a partition.

- When an IO Unit belongs to a partition:

IOU
IOU number, ...

Note:

If an IO Unit that belongs to a partition is defined as partition-independent (Off) in the partition dependence setting explained later, "*" is added to the beginning of the IOU number.

- When no IO Unit belongs to a partition:

IOU
-

Display of GSWB to be set

Two GSWB boards are used. The GSWB relevant to the current setting window is displayed in the title field:

Title: Title name GSWB#x

Note: x is 0 or 1.

Presence of IO Unit

If an IO Unit is not installed, the corresponding interface is grayed out to disable the setting in the IO Unit setting window. Web-UI displays "not present" indicating the IO Unit is not installed.

No setting can be made for the interface on the IO Unit side even if "On" is specified in the [Partition] window (explained later).

Auto refresh

A window such as one displaying statistical information that is subject to a window refresh can automatically be refreshed. The [Refresh] button appears in the title field. The refresh interval can be set using [Refresh Rate] in the MMB [Network Configuration] menu.

Remarks: The refresh interval can be set using [Refresh Rate] in the MMB [Network Configuration] menu. By default, "Refresh Rate=Disable" is selected. See Chapter 5, "Web-UI Operation," in Part III, "MMB," in the *PRIMEQUEST 580A/540A/520A/500/400 Series Reference Manual: Basic Operation/GUI/Commands*, for details on the operation.

4.3.1.2 Basic operation

An account for MMB Web-UI operation is enough for menu operation from GSWB. No special account for the partition is required.

- Copying setup information

When two GSWB boards (GSWB#0 and GSWB#1) are mounted on PRIMEQUEST 580A/540A/580/540/480/440, the setup information of one board can be copied to the other. ([4.5.1, "\[Configuration Copy\] window."](#))

- Interlocking with partition settings

For specific settings (interface settings), GSWB Web-UI retains partition settings separately from the GSWB settings. In this partition setting window, specify which should be used as the actual IO Unit interface settings, the partition settings or IO Unit settings. ([3.2.2, "Settings dependent on partition settings."](#))

Starting the GSWB menu

- 1** Select [Switch] → [GSWB#x] from the navigation bar on the MMB Web-UI screen.
The GSWB menu is displayed.
- 2** Select the target menu from the GSWB submenu.

4.3.2 Web-UI menu configuration

The menu configuration depends on the mounted GSWBs and the user privilege. For example, if GSWB#1 is not mounted, no menu is displayed under GSWB#1. Also, different menus are displayed depending on the user privilege.

The following tables outline the Web-UI menus.

The abbreviations in the privilege columns mean the following:

- RW: The user can read and write in the window concerned.
- RO: The user can only read in the window concerned.
- N/A: The window and submenu concerned are not displayed.

Table 4.6 Web-UI menu configuration 1

GSWB-MENU	User privilege				Remarks
First level	Admin	CE	Operator	User	
GSWB#0					Displayed only if GSWB#0 is mounted
GSWB#1					Displayed only if GSWB#1 is mounted
GSWB Status	RO	RO	RO	RO	Statuses of GSWB#0 and GSWB#1
Configuration Copy	RW	RW	N/A	N/A	Copies setting values between GSWB#0 and GSWB#1.

GSWB#0 and GSWB#1 contain submenus.

"Switch > GSWB#0" or "Switch > GSWB#1" is displayed in the information area when [GSWB#0] or [GSWB#1], respectively, is clicked, and [GSWB#0] or [GSWB#1] is no longer displayed in the submenu area. Thus, the level immediately below GSWB#0 and GSWB#1 becomes the first level.

Table 4.7 Web-UI menu configuration 2

RW: Read/write permitted RO: Read-only N/A: Not displayed

GSWB-MENU			User privilege				Remarks
First level			Admin	CE	Operator	User	
	Second level						
		Third level					
System							
	Information		RO	RO	RO	RO	Displays system information
	Host		RW	RW	RO	RO	Sets a host name and IP address.
	Upload Configuration		RW	RW	N/A	N/A	Uploads the configuration definition file.
	Download Configuration		RW	RW	N/A	N/A	Downloads the configuration definition file.
	Save Configuration		RW	RW	N/A	N/A	Saves the configuration definition file.
	Restore Configuration		RW	RW	N/A	N/A	Updates the configuration definition file.
	Active Image Change		RW	RW	RO	RO	Sets the GSWB startup file.
	Error Log		RW	RW	N/A	N/A	Displays or downloads the error log.
	Line Log		RW	RW	N/A	N/A	Displays or downloads the line log.
	Message Log		RW	RW	N/A	N/A	Displays or downloads the message log.
	Trap Log		RW	RW	N/A	N/A	Displays or downloads the trap log.
	Log Setting		RW	RW	N/A	N/A	Sets the message log.
	Log Download		RW	RW	N/A	N/A	Downloads log data.
Management							
	SNMP						
		SNMP Community	RW	RW	RO	RO	Specifies an SNMP version 1.2c host.
		SNMP v3 Configuration	RW	RW	RO	RO	Specifies an SNMP version 3 user.
		SNMP Trap	RW	RW	RO	RO	Specifies the SNMP trap notification destination.
	Telnet		RW	RW	RO	RO	Specifies a Telnet server.
	SSH Status		RW	RW	RO	RO	Specifies an SSH server.
	SSH Key Generate		RW	RW	N/A	N/A	Creates an SSH key.
	Remote Access		RW	RW	RO	RO	Sets the remote access permission.

GSWB-MENU			User privilege				Remarks
First level			Admin	CE	Operator	User	
	Second level						
		Third level					
Port							
	Port Configuration						Enables/disables a port and sets the port speed
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	
		port-channel	RW	RW	RO	RO	
	Port Status		RO	RO	RO	RO	Displaying the Link status, and displaying the Speed and Duplex settings
	Port Mirroring						
		Destination Port	RW	RW	RO	RO	Setting the mirroring port
		Source Port	RW	RW	RO	RO	Setting the port to be monitored
	Port Statistics		RW	RW	RO	RO	The interface can be selected.
	Flow Control						Making the flow controller settings
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	
		Partition	RW	RW	RO	RO	
	Rate Control						Making the rate controller (storm controller) settings
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	
		Partition	RW	RW	RO	RO	
Jumbo Frame			RW	RW	RO	RO	Setting jumbo frames
Mac Bridge							
	Aging Time		RW	RW	RO	RO	Setting an aging time
	Static MAC Address		RW	RW	RO	RO	Displaying or adding a static MAC address
	MAC Address Table		RW	RW	RO	RO	Displaying or clearing for the MAC address table
Spanning Tree							
	Global Setting		RW	RW	RO	RO	Making the STP settings for the entire unit
	Interface Setting						Making the STP settings separately for individual interfaces
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	

GSWB-MENU			User privilege				Remarks
First level			Admin	CE	Operator	User	
	Second level						
		Third level					
		port-channel	RW	RW	RO	RO	
		Partition	RW	RW	RO	RO	
	STP Status		RO	RO	RO	RO	Displaying the STP status
	STP Statistics		RW	RW	RO	RO	Displaying or clearing the STP statistics
VLAN							
	VLAN Configuration		RW	RW	N/A	N/A	Newly creating or changing a VLAN configuration
	VLAN Information		RW	RW	RO	RO	Displaying VLAN settings already in effect
	Delete VLAN		RW	RW	RO	RO	Deleting VLAN settings already in effect
	Native VLAN						Setting the native VLAN ID
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	
		port-channel	RW	RW	RO	RO	
		Partition	RW	RW	RO	RO	
Priority Queueing							
	Default Priority						Setting the priority of frames without tags
		IOU	RW	RW	RO	RO	
		External	RW	RW	RO	RO	
		port-channel	RW	RW	RO	RO	
		Partition	RW	RW	RO	RO	
	CoS Queue Map		RW	RW	RO	RO	Assigning a priority to a CoS Queue
Channel Group			RW	RW	RO	RO	Creating, changing, or deleting a channel group
IGMP Snooping							IGMP Snooping
	Global Setting		RW	RW	RO	RO	Making the IGMP snooping settings for the entire unit
	VLAN Setting		RW	RW	RO	RO	Making the IGMP snooping settings separately for each VLAN
	MAC Address		RW	RW	RO	RO	Displaying, adding or deleting a multicast MAC address

GSWB-MENU		User privilege				Remarks
First level		Admin	CE	Operator	User	
	Second level					
Third level						
Partition		RW	RW	RO	RO	Making the partition interlock setting for an IO Unit interface
Power Control		RW	RW	RO	RO	GSWB Power On/Off
Reset		RW	RW	N/A	N/A	GSWB Reset

4.4 GSWB Status Menu

4.4.1 [GSWB Status] window

Clicking the [Switch] menu displays the [GSWB Status] window. The GSWB current status is displayed.

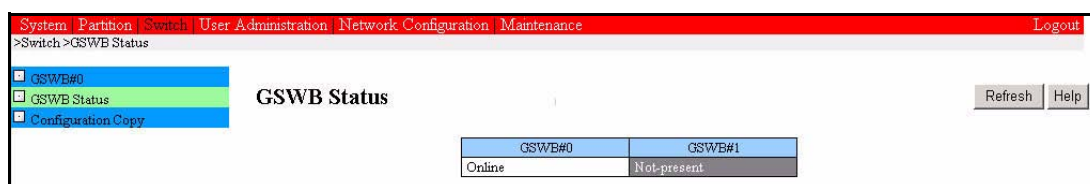


Figure 4.4 [GSWB Status] window

Table 4.8 Displayed and setting items in the [GSWB Status] window

Item	Description
Status	Status information: <ul style="list-style-type: none"> • Online: Ready for operation • Starting: Starting (cannot be operated) • Standby: Powered off • Connection Error: GSWB connection failure • Get Status Error: GSWB status acquisition failure • Config Error: Configuration definition error • Hard Error: Hardware error • Not present: Not installed

Table 4.9 Buttons in the [GSWB Status] window

Button	Description
Help	Displays the Help window.

(1) Menu operation

[Switch] → [GSWB Status]

(2) GUI operation

The GSWB status is displayed.

4.5 Configuration Copy Menu

4.5.1 [Configuration Copy] window

This window is used to copy the values (configuration definitions) set for one GSWB to another GSWB. If the main unit has two GSWBs (GSWB#0 and GSWB#1) for redundancy, this window is used to make identical settings for the two GSWBs.

However, this window cannot be used to copy items related to operational settings or items that must not be identical on the two GSWBs.

- Configuration definitions: IP address, subnet mask, gateway address
- Operation definitions: SSH key

Note: This function is not displayed to users who logged in with the Operator or User privilege.

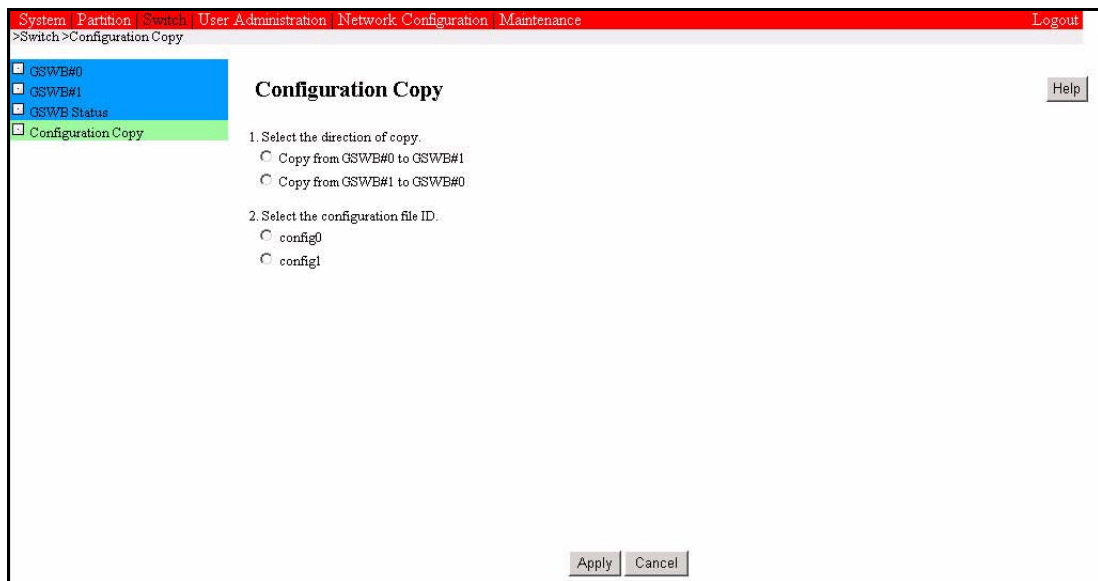


Figure 4.5 [Configuration Copy] window

Table 4.10 Displayed or setting item in the [Configuration Copy] window

Item	Description
Select the direction of copy	
Copy from GSWB#0 to GSWB#1	Copies settings from GSWB#0 to GSWB#1.
Copy from GSWB#1 to GSWB#0	Copies settings from GSWB#1 to GSWB#0.
Select the configuration file ID	
config 0	config0 copies config 0
config 1	config1 copies config 1

Table 4.11 Buttons in the [Configuration Copy] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified value.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [Configuration Copy]

(2) GUI operation

- Copying

- 1 Select the copy source GSWB and copy destination GSWB from [Select the direction of copy], and specify the ID of the configuration definition file to be copied in [Select the configuration file ID].
Since two GSWB configuration definitions (config0 and config1) can be saved, select which configuration definition file on the GSWB to copy.
- 2 Click the [Apply] button.

Note1: To use this window to copy GSWB setting values, the values (configuration definitions) set for one GSWB in the [Save Configuration] window must already be saved as a configuration definition file.
For details, see [Section 3.2.4.4, "Saving configuration definition files."](#)

Note2: Before the switching operation can be performed based on the copied configuration definition file, you need to change the configuration in the [Active Image Change] window so that the configuration file is used at the time of startup, and then restart the GSWB.

Note3: After the configuration definition file is copied, the configuration file of specified destination GSWB is overwritten.

Note4: [Select the direction of copy] and [Select the configuration file ID] radio buttons are not selected by default.

4.6 System Menu

The [System] menu is used to acquire and display system information.

4.6.1 [Information] window

The [Information] window displays device information according to whether [GSWB#0] or [GSWB#1] was selected. This window is displayed by default when [GSWB#0] or [GSWB#1] is clicked from the submenu area.

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >System >Information

Information (GSWB#0) Help

Machine Information

Hostname	switch
----------	--------

Board Information

Mfg Date/Time	2005-03-26
Board Manufacturer	FUJITSU LIMITED
Board Product Name	GSWB_XU
Board Serial No	PP0514S734
Board Part No	CA06501-D162 A2

Running status

Running online	V02L01-A08 2007-04-04 10:01:06
Running config	config0 0.2 2007-09-27 19:35:46
Running offline	V002L001 2006-02-14 21:43:04

Configuration File Information (The '*' means start bank setting)

*config0	0.2 2007-09-27 19:35:46
config0 comment	gswb0 config0 save config regression
config1	0.2 2007-09-08 20:03:14
config1 comment	gswb0 config1 cli save

Global MAC

Global MAC	00:0B:5D:12:FF:4F
------------	-------------------

Figure 4.6 [Information] window

Table 4.12 Displayed and setting items in the [Information] window

Item	Description
Machine Information	
Hostname	Device name
Board Information	
Mfg Date/Time	Manufacturing date and time
Board Manufacturer	Manufacturer's name
Board Product Name	Product name
Board Serial No	Board serial number
Board Part No	Board part number

Item	Description
Running online	Information on online firmware at startup
Running config	Configuration definition file information at startup
Running offline	Information on offline firmware at startup
Configuration File Information	
config0/1	Configuration definition file information. If no configuration definition file exists, "*** No File ***" is displayed, and if a configuration definition file error occurs, "*** Error File ***".
config0/1 comment	Comments (specified when the configuration definition file is saved) on the configuration definition file

Global MAC	MAC address of the GSWB host
------------	------------------------------

Remarks: The asterisks "*" at the beginning of [Configuration File Information] items indicate the firmware for the configuration definition file used for startup.

Table 4.13 Button in the [Information] window

Button	Description
Help	Displays the Help window.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Information]

(2) GUI operation

Device information is displayed.

4.6.2 [Host] window

The [Host] window configures host settings. The IP address set in this window is used to make settings directly from a business LAN port. If no IP address is set, the field is blank (not 0).

Note1: To use the following GSWB functions, an IP address must be assigned to the GSWB.

- SNMP
- Telnet
- SSH (Secure Shell)
- TFTP (when the GSWB CLI is used)
- NTP (Network Time Protocol) (when an external server is used)
- LDAP (Lightweight Directory Access Protocol) (when an external server is used) (Secure Shell)
- Firmware update (when the GSWB CLI is used)
- Downloading/uploading of the configuration definition file (when the GSWB CLI is used)

Note2: To use the Telnet and SSH functions, enable each server function.

Telnet : [Switch] → [GSWB#x] → [Management] → [Telnet]

SSH : [Switch] → [GSWB#x] → [Management] → [SSH Status]

To actually connect to the GSWB, enable the remote connection for the terminal to be accessed.

[Switch] → [GSWB#x] → [Management] → [Remote Access]

Host (GSWB#0)	
VLAN ID(Management VLAN)	1
Host Name [1-63 characters]	GSWB_test_gswb1_config1
IP Address	10 . 10 . 10 . 100
Subnet Mask	255 . 255 . 255 . 0
Default Gateway	10 . 10 . 10 . 12

Figure 4.7 [Host] window

Table 4.14 Displayed and setting items in the [Host] window

Item	Description
VLAN ID	Specify the VLAN ID of the VLAN to which the host belongs. Only the defined VLAN IDs (1 to 4094) can be selected. default: 1
Host Name	Specify a host name. The first character must be an alphanumeric character. Enter a character string consisting of up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (space characters, !, " # \$ % & ' () * + ' - . / : ; < = > @ [\] ^ _ ` { } ~) except the question mark (?). default: switch
IP Address	Specify the host IP address. Enter values ranging from 0 to 255. default: no value
Subnet Mask	Specify the subnet mask. Enter values ranging from 0 to 255. default: no value
Default Gateway	Specify the IP address of the default gateway. Enter values ranging from 0 to 255. default: no value

Table 4.15 Buttons in the [Host] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Host]

(2) GUI operation

- Setting
 - 1 Select a defined VLAN ID from the pull-down menu.
 - 2 Enter an IP address and a subnet mask, and specify the default gateway.
 - 3 To change the host name, enter a new host name.
 - 4 Click the [Apply] button.
- Deletion
 - 1 Delete the value in each field so that the field is blank.
 - 2 Click the [Apply] button.

4.6.3 [Upload Configuration file] window

The [Upload Configuration File] window transfers the configuration definition file on a remote PC to the GSWB. The displayed window varies depending on whether the user logged in with the Administrator privilege or CE privilege.

If a file other than the GSWB configuration definition file is specified for uploading from a remote PC, an error message is displayed.

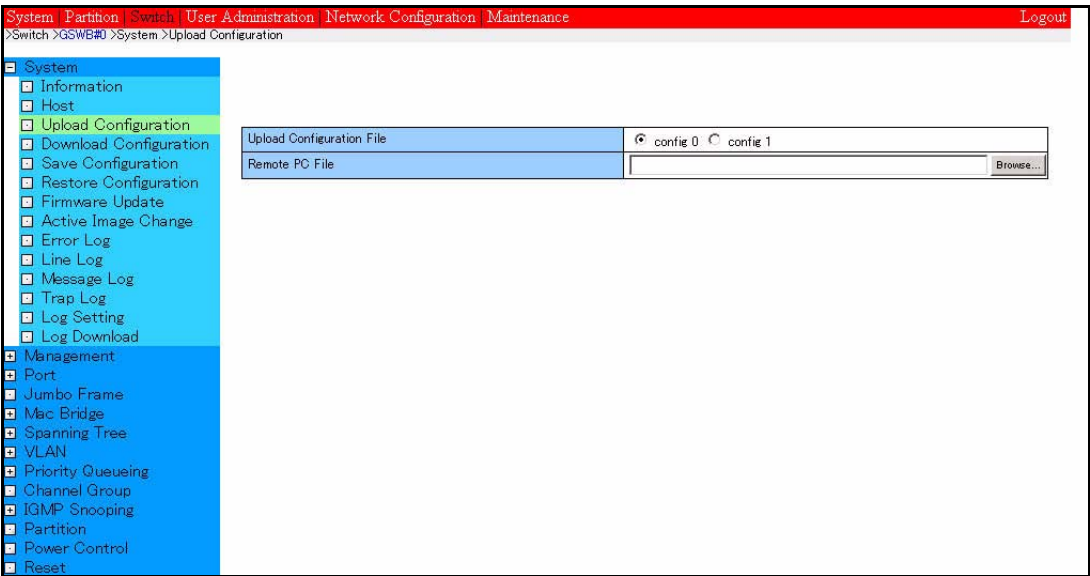


Figure 4.8 [Upload Configuration] window (Administrator privilege)

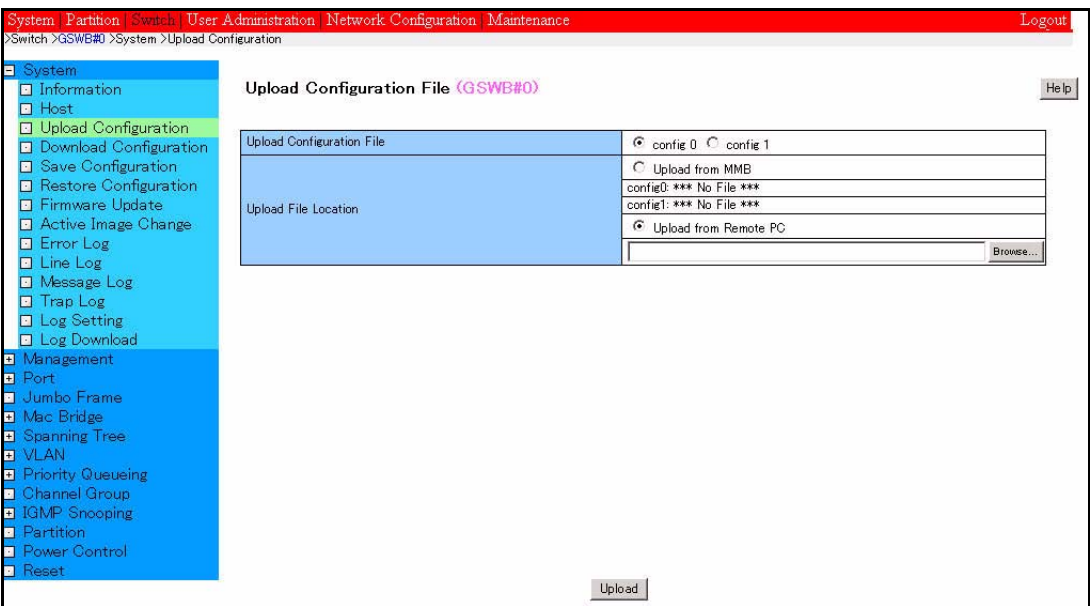


Figure 4.9 [Upload Configuration] window (CE privilege)

Table 4.16 Displayed and setting items in the [Upload Configuration] window

Item	Description
Upload Configuration File	Select the file to be uploaded: <ul style="list-style-type: none"> • config0: Uploads to config0. • config1: Uploads to config1. Default: [config 0]
Remote PC File (for Administrator privilege)	Specify a file on a remote PC.
Upload File Location (for CE privilege)	Specify the file to be uploaded: <ul style="list-style-type: none"> • Upload from MMB: Uploads the specified configuration definition file stored on the MMB: config0: config0 file version/date config1: config1 file version/date If there is no file, "*** No File ***" is displayed. • Upload from Remote PC: Uploads a file from a remote PC. Default: [Update from Remote PC]

Table 4.17 Buttons in the [Upload Configuration] window

Button	Description
Help	Displays the Help window.
Browse...	Used to specify a file path.
Upload	Uploads a file.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Upload Configuration]

(2) GUI operation

- Upload from a remote PC (Administrator privilege)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Enter the path of the configuration definition file directly in the [Remote PC File] field, or select the file after clicking the [Browse...] button.
 - 3 Click the [Upload] button.
 - 4 Click [OK] button in the completion notification window.

- Upload from a remote PC (CE privilege only)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Select [Upload from Remote PC].
 - 3 Enter the path of the configuration definition file directly, or select the file after clicking the [Browse...] button.
 - 4 Click the [Upload] button.
 - 5 Click [OK] button in the completion notification window.
- Upload of the configuration definition file automatically saved on the MMB (CE privilege only)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Select [Upload from MMB].
 - 3 Click the [Upload] button.
 - 4 Click [OK] button in the completion notification window

4.6.4 [Download Configuration] window

The [Download Configuration File] window saves the configuration definition file from the GSWB to a remote PC. If no configuration definition has been saved and no configuration definition file exists, "The configuration file is not found. Please save the configuration file in advance." is displayed.



Figure 4.10 [Download Configuration] window

Table 4.18 Displayed or setting item in the [Download Configuration] window

Item	Description
Download Configuration File	Specify the file to be downloaded: <ul style="list-style-type: none"> • config0: Downloads config0. • config1: Downloads config1. <p style="text-align: right;">Default: [config 0]</p>

Table 4.19 Buttons in the [Download Configuration] window

Button	Description
Help	Displays the Help window.
Download	Downloads a file. The default log file name for the download is "config0" or "config1" (the browser may add a subscript). The file path and file name used to save a file to a remote PC can be specified.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Download Configuration]

(2) GUI operation

- 1 Specify the file to be downloaded.
- 2 Click the [Download] button.
- 3 Click [Save] in the [Download file] window.
- 4 Specify the file path and file name used to save the file to a remote PC.

4.6.5 [Save Configuration] window

The [Save Configuration] window saves Running Configuration (definition currently in use) of the GSWB. Either [config0] or [config1] must be specified as the save destination for Running Config. Comments can be added to the configuration definition file.

Be sure to back up the GSWB configuration definition information during installation. Every time the GSWB settings are changed after the start of system operation, be sure to back up the GSWB configuration definition information.

Note: Entered setting values for the GSWB are not saved unless they are explicitly saved. If they are not saved, the setting values are cleared when the GSWB is powered off or restarted.

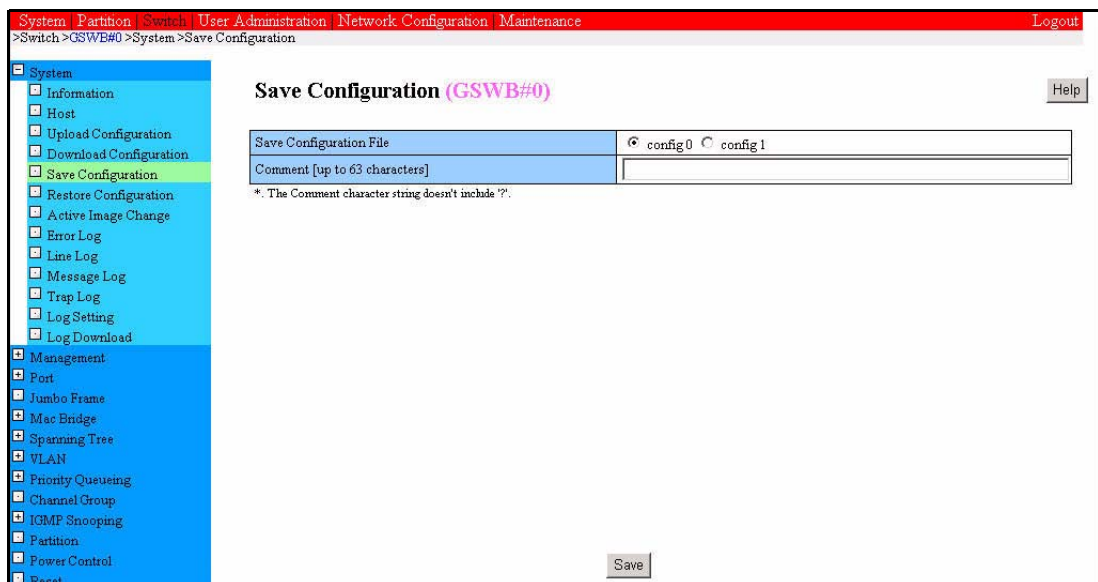


Figure 4.11 [Save Configuration] window

Table 4.20 Displayed and setting items in the [Save Configuration] window

Item	Description
Save Configuration File	Select the configuration definition file to be saved: - config0: Saves to config0. - config1: Saves to config1. Default: [config 0]
Comment	Specify a comment to be embedded in the configuration definition file in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (space characters,!, " # \$ % & ' () * + ' - . / : ; < = > @ [\] ^ _ ` { } ~) except the question mark (?). Default: None

Table 4.21 Buttons in the [Save Configuration] window

Button	Description
Help	Displays the Help window.
Save	Saves a file.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Save Configuration]

(2) GUI operation

- Saving
 - 1 Specify [config0] or [config1] as the save destination for Running Config.
 - 2 To add a comment to the configuration definition file, enter the comment in [Comment].
 - 3 Click the [Save] button.
 - 4 Click [OK] in the completion notification window.

4.6.6 [Restore Configuration] window

The [Restore Configuration] window restores an existing configuration definition file or a configuration definition file uploaded from a remote PC to an area referenced by the GSWB at startup.

The GSWB must be restarted to validate the restored configuration definition file.

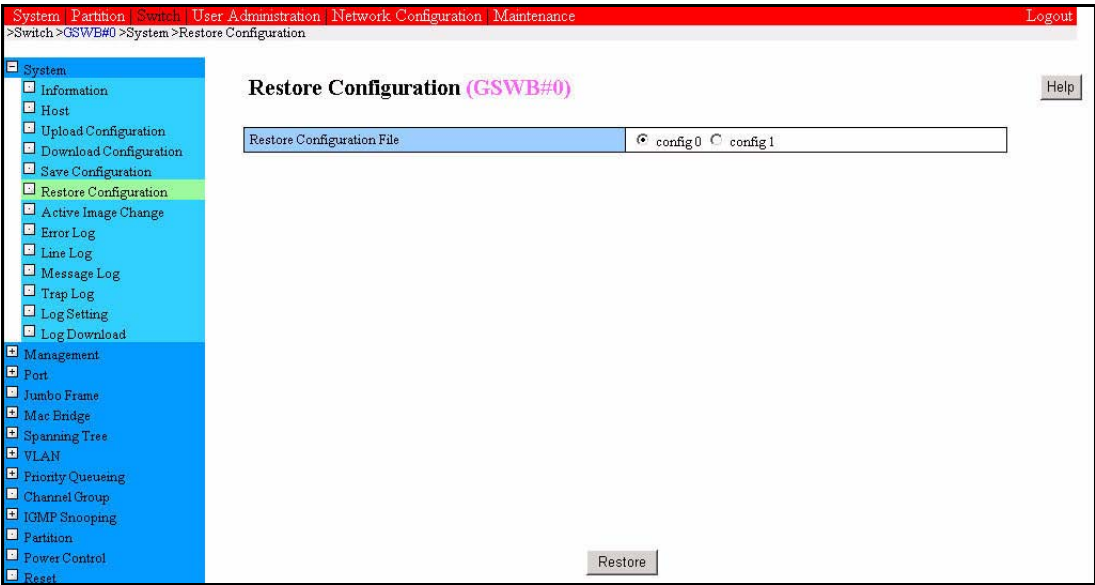


Figure 4.12 [Restore Configuration] window

Table 4.22 Displayed or setting item in the [Restore Configuration] window

Item	Description
Restore Configuration File	Select the configuration definition file to be restored: <ul style="list-style-type: none">• config0: Restores config0.• config1: Restores config1. Default: [config 0]

Table 4.23 Buttons in the [Restore Configuration] window

Button	Description
Help	Displays the Help window.
Restore	Restores a file.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Restore Configuration]

(2) GUI operation

- Restoration
 - 1 Specify the configuration definition file to be restored by selecting either [config0] or [config1].
 - 2 Click the [Restore] button.
 - 3 Click [OK] in the completion notification window.
 - 4 If you want the restored configuration definition reflected on operation, change the settings in the [Active Image Change] window, and then reboot the GSWB in the [Reset] window.

4.6.7 [Active Image Change] window

The [Active Image Change] window changes the configuration definition file. Settings that are enabled in [Current Setting] are also enabled in the initial display of this window.

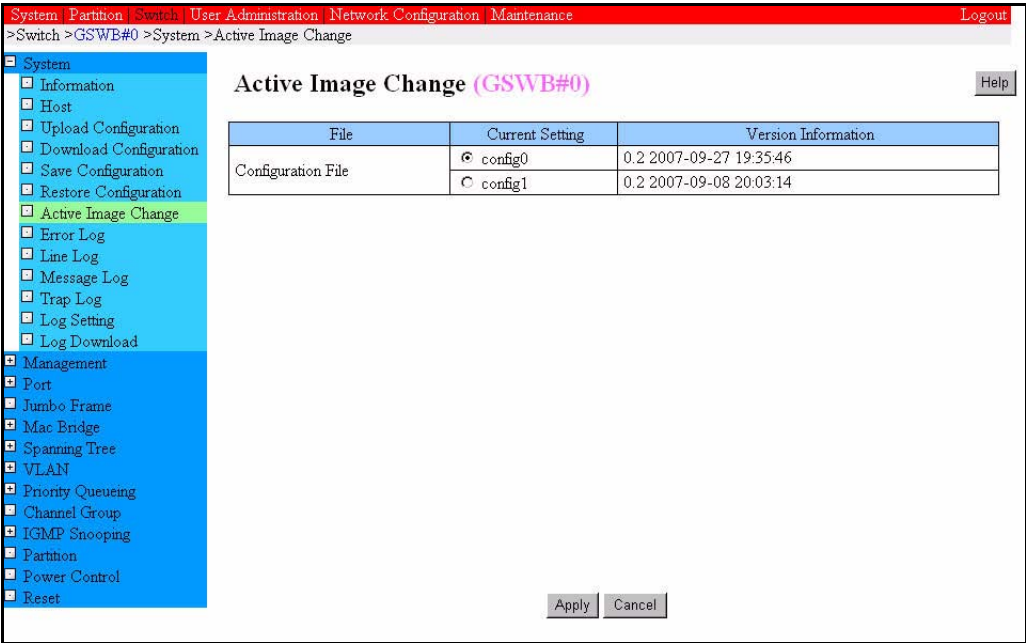


Figure 4.13 [Active Image Change] window

Table 4.24 Displayed and setting items in the [Active Image Change] window

Item	Description
Configuration File	Specify the configuration definition file that is used at GSWB startup: <ul style="list-style-type: none">• config0• config1

Table 4.25 Buttons in the [Active Image Change] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Active Image Change]

(2) GUI operation

- Changing the active
 - 1 Select [config] from [Current Setting].
 - 2 Click the [Apply] button.
 - 3 When you click the [OK] button in the [Reset of the GSWB is required to use the configuration file and the firmware. If you want to reset, click OK button. If not click Cancel button.] window, GSWB rebooting begins. If you do not want to reboot the GSWB, click the [Cancel] button.

4.6.8 [Error Log] window

The [Error Log] window displays the log in the event of a reboot or panic.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

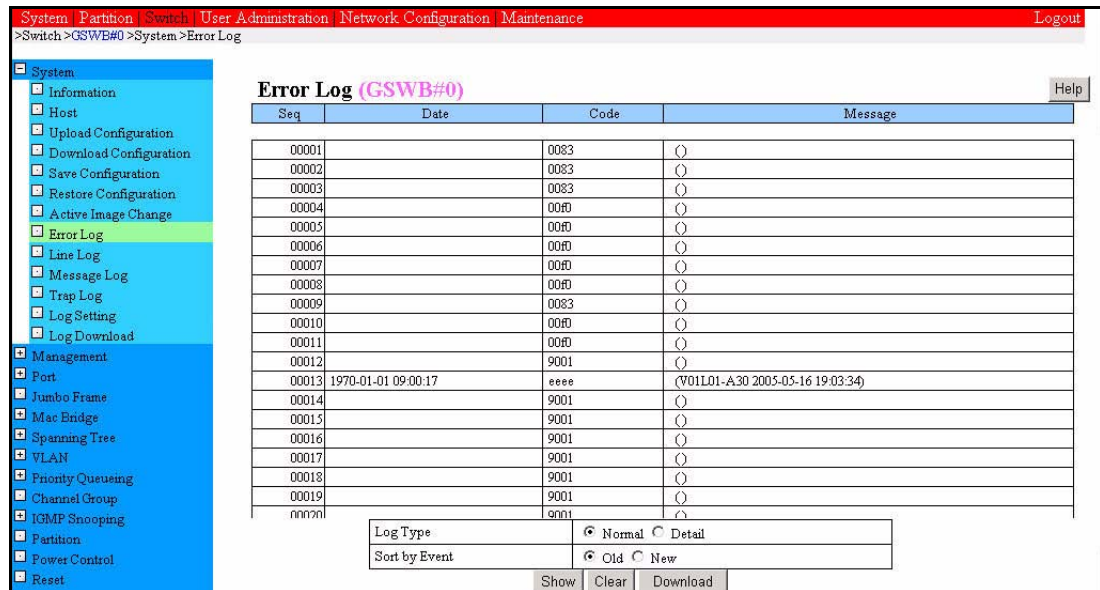


Figure 4.14 [Error Log] window (standard display)

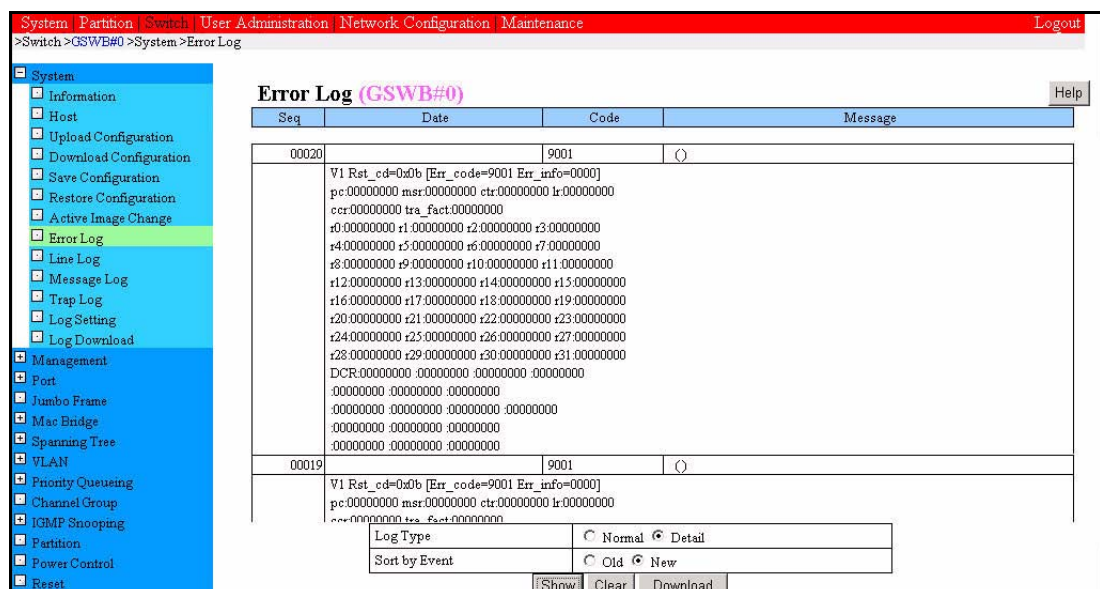


Figure 4.15 [Error Log] window (detailed display)

Table 4.26 Displayed and setting items in the [Error Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Code	Log number
Message	Firmware version/error messages
Log Type	Select the log display type: <ul style="list-style-type: none"> • Normal: Normal log display • Detail: Detailed display Default: [Normal]
Sort by Event	Select the log display order: <ul style="list-style-type: none"> • Old: Displays the log in chronological order. • New: Displays the log in reverse chronological order. Default: [Old]

Table 4.27 Buttons in the [Error Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: error.log (The browser may add a subscript.)

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Error Log]

(2) GUI operation

- Log display
 - 1 In [Log Type], set [Detail] to use the detailed log display or [Normal] to use the normal log display. Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] button in the confirmation window clears all log items.
- Log download
 - 1 Specify a value in [Log Type].
 - 2 Click the [Download] button. Log items are saved using [Detail] in [Log Type] and [Old] in [Sort by Event].

4.6.9 [Line Log] window

The [Line Log] window displays the log showing whether links are established. The log of each interface is displayed.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

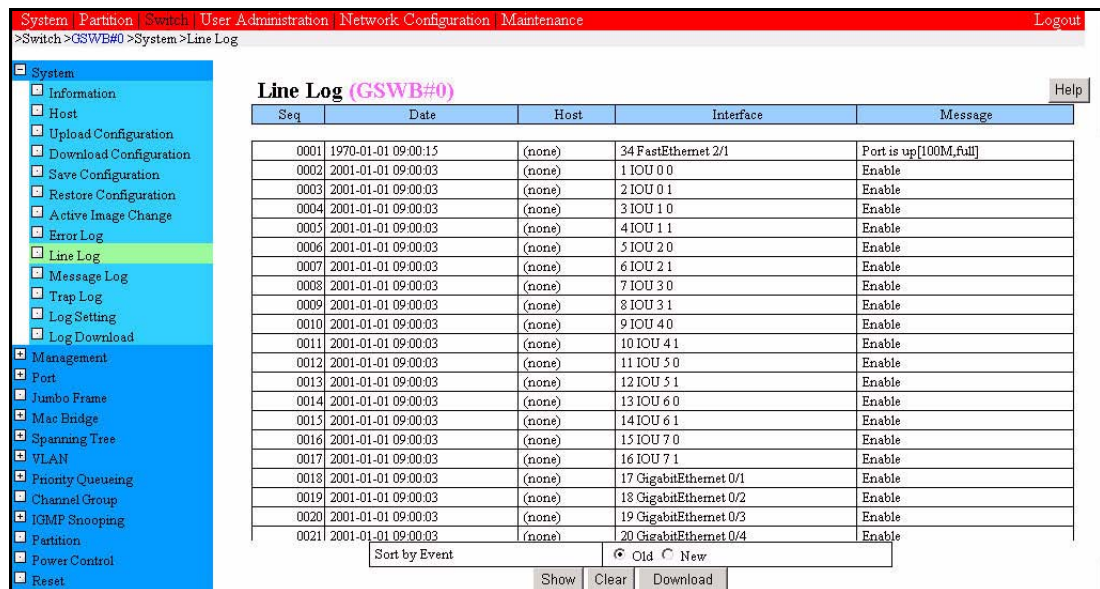


Figure 4.16 [Line Log] window

Table 4.28 Displayed and setting items in the [Line Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Host	Host name
Interface	Interface information
Message	Line message
Sort by Event	Specify the log display order: <ul style="list-style-type: none"> • Old: Displays the log in chronological order. • New: Displays the log in reverse chronological order. Default: [Old]

Table 4.29 Buttons in the [Line Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: line.log (The browser may add a subscript.)

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Line Log]

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] button in the confirmation window clears all log items.
- Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

4.6.10 [Message Log] window

The [Message Log] window displays the message log.

Note: This window is not displayed to users who logged in with the Operator and User privilege.

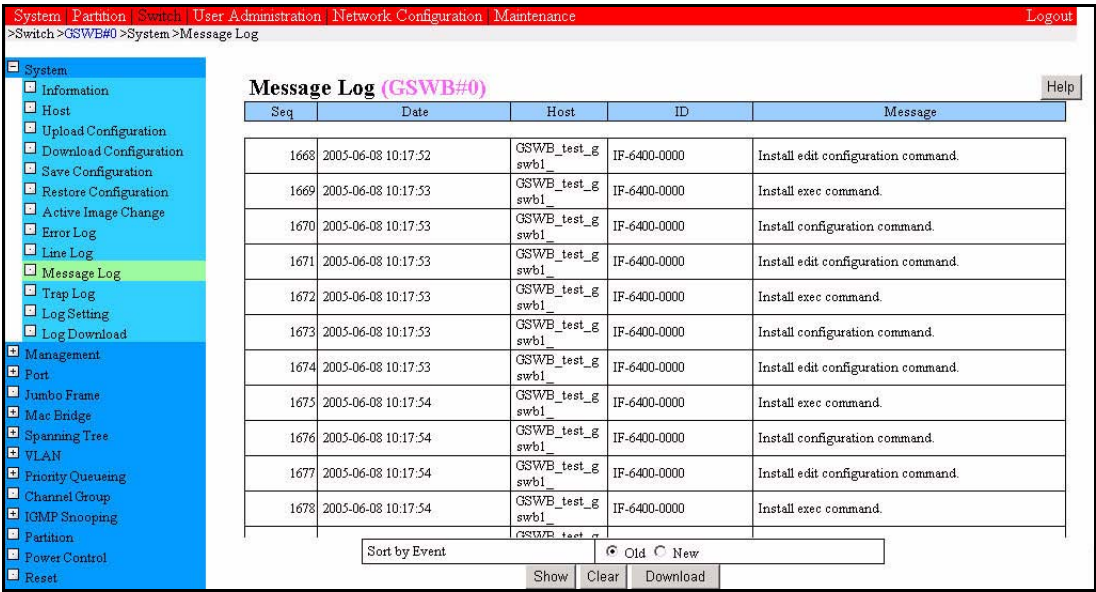


Figure 4.17 [Message Log] window

Table 4.30 Displayed and setting items in the [Message Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Host	Host name
ID	Log number
Message	Message
Sort by Event	Specify the log display order: <ul style="list-style-type: none">• Old: Displays the log in chronological order.• New: Displays the log in reverse chronological order. Default: [Old]

Table 4.31 Buttons in the [Message Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: message.log (The browser may add a subscript.)

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Message Log]

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] button in the confirmation window clears all log items.
- Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

4.6.11 [Trap Log] window

The [Trap Log] window displays the trap log.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

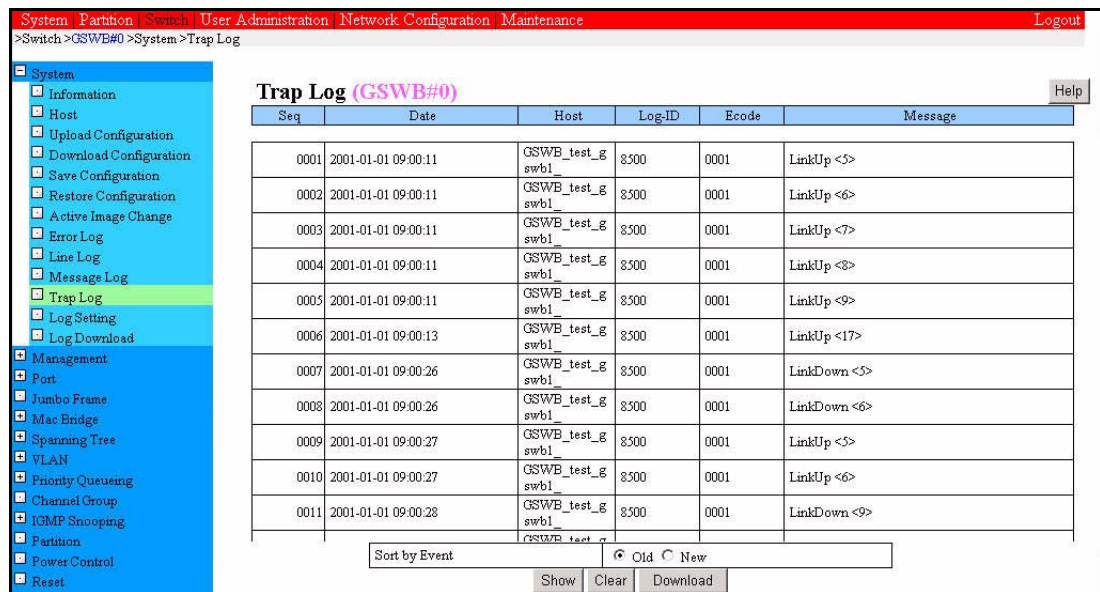


Figure 4.18 [Trap Log] window

Table 4.32 Displayed and setting items in the [Trap Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Host	Host name
Log-ID	Log ID
Ecode	Error code
Message	Error message
Sort by Event	Specify the log display order: <ul style="list-style-type: none"> • Old: Displays the log in chronological order. • New: Displays the log in reverse chronological order. Default: [Old]

Table 4.33 Buttons in the [Trap Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.

Button	Description
Download	Downloads the log. Default log file name for download: trap.log (The browser may add a subscript.)

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Trap Log]

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] in the confirmation window clears all log items.
- Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

4.6.12 [Log Setting] window

The [Log Setting] window enables and disables message log collection, specifies the collection level of the message log, and specifies the log transfer destination.

The message log types are as follows:

- HE (Hardware Error): Log of detected hardware errors
- SE (Software Error): Log of detected software errors
- AL (Alarm): Log of device-detected errors (that do not affect operation)
- IF (Information): Log of device status changes caused by software processing
- PI (Port Information): Log of port status changes
- DE (Debug): Log of debug information

The log type depends on the [Level] setting of the message log as follows:

Table 4.34 Collected log type list

Level	Type
Emergency	HE
Alert	HE
Critical	HE
Error	HE, SE

Level	Type
Warning	HE, SE, AL
Nortice	HE, SE, AL
Info	HE, SE, AL, IF, PI
Debug	HE, SE, AL, IF, PI, DE

Note: This window cannot be displayed or otherwise used by users who logged in with the Operator and User privilege.

seq	date	hostname	message
0233	2001-01-01 09:15:43	switch	: IF-6400-0000 Install exec command.
0234	2001-01-01 09:15:43	switch	: IF-6400-0000 Install configuration command.
0235	2001-01-01 09:15:43	switch	: IF-6400-0000 Install edit configuration command
.			
0236	2001-01-01 09:15:43	switch	: IF-6400-0000 Install exec command.
0237	2001-01-01 09:15:43	switch	: IF-6400-0000 Install configuration command.
0238	2001-01-01 09:15:43	switch	: IF-6400-0000 Install edit configuration command
.			
0239	2001-01-01 09:15:44	switch	: IF-6400-0000 Install exec command.
0240	2001-01-01 09:15:44	switch	: IF-6400-0000 Install configuration command.
0241	2001-01-01 09:15:44	switch	: IF-6400-0000 Install edit configuration command
.			
0242	2001-01-01 09:15:44	switch	: IF-6400-0000 Install exec command.
0243	2001-01-01 09:15:44	switch	: IF-6400-0000 Install configuration command.
0244	2001-01-01 09:15:44	switch	: IF-6400-0000 Install edit configuration command

Figure 4.19 Example of the message log file

Figure 4.20 [Log Setting] window

Table 4.35 Displayed and setting items in the [Log Setting] window

Item	Description
Status	Specify enable or disable for message log collection: <ul style="list-style-type: none"> • Enable: Enables message log collection. • Disable: Disables message log collection. Default: [Enable]
Level	Specify the collection level of the message log: <ul style="list-style-type: none"> • Debug: Debug message • Info: General report message • Notice: Notification message • Warning: Error message • Error: Serious error message • Critical: Fatal error message • Alert: Message indicating that an immediate repair is required • Emergency: Message indicating a serious situation or an unstable system Default: [Info]
Forward IP Address	Specify the IP address of the log transfer destination server: <ul style="list-style-type: none"> • Octet range: 0 to 255 Default: no value

Table 4.36 Buttons in the [Log Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Log Setting]

(2) GUI operation

- Message log collection
 - 1 Specify [Enable] in [Status].
 - 2 Select the collection level of the message log in [Level].
 - 3 Click the [Apply] button.
- Log transfer
 - 1 Specify an IP address in [Forward IP Address].
 - 2 Click the [Apply] button.

- Transfer IP address deletion
 - 1 Delete all entries in the IP address field (so that it is blank).
 - 2 Click the [Apply] button.

4.6.13 [Log Download] window

The [Log Download] window downloads archived log files. The log files include the error log file, line log file, message log file, and trap log file. These files can all be downloaded in one operation.

Note: This window is not displayed to users who logged in with the Operator and User privilege.

- The default log file names are log_gswb0.tar.gz and log_gswb1.tar.gz.
- Each log file can be individually downloaded from its own window.
- TAR is used to archive each log file.

The following figure shows the internal configuration of the archived files.



Figure 4.21 Internal configuration of the archived files



Figure 4.22 [Log Download] window

Table 4.37 Buttons in the [Log Download] window

Button	Description
Help	Displays the Help window.
Download	Downloads the log files. Remarks: Downloads all log files. Each log file can be individually downloaded from its own window.

(1) Menu operation

[Switch] → [GSWB#x] → [System] → [Log Download]

(2) GUI operation

- Batch download

1 Click the [Download] button.

4.7 Management Menu

4.7.1 SNMP menu

The [SNMP] menu is used to configure SNMP agent settings.

4.7.1.1 [SNMP Community] window

The [SNMP Community] window specifies the host that acquires and manipulates MIB information using SNMP version 1 or SNMP version 2. Up to eight hosts can be specified.

System Partition SNMP User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Management>SNMP>SNMP Community

SNMP Community (GSWB#0) Help

Location [up to 64 characters] none

Contact [up to 64 characters] none

Please check the check box of line to add or to change an entry.

	IP Address	SNMP Version	Access Mode	Community String (1-20 characters)
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	
<input type="checkbox"/>	1	Read-Only	

Apply Cancel

Figure 4.23 [SNMP Community] window

Table 4.38 Displayed and setting items in the [SNMP Community] window

Item	Description
Location	Specify the installation location of GSWB. Enter a character string consisting of up to 64 en-size alphanumeric characters (0 to 9, a to z, A to Z) and symbols (_ - @ .). Default: none
Contact	Specify the contact information about GSWB. Enter a character string consisting of up to 64 en-size alphanumeric characters (0 to 9, a to z, A to Z) and symbols (_ - @ .). Default: none
IP Address	Specify the host IP address (target receiver). Enter values ranging from 0 to 255. Default: no value
SNMP Version	Specify the version (1 or 2): <ul style="list-style-type: none"> 1: Security model with the lowest security 2: Security model with the second lowest security
Access Mode	Select an access mode: <ul style="list-style-type: none"> Read-Only: Sets the access privilege to the MIB tree to Read-Only. Read-Write: Sets the access privilege to the MIB tree to Read/Write.
Community String	Enter a community string, whose function is similar to a password. Enter a character string consisting of up to 20 en-size alphanumeric characters (0 to 9, a to z, A to Z).

Table 4.39 Buttons in the [SNMP Community] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP Community]

(2) GUI operation

- SNMP Agent setting
 - Specify values in [Location] and [Contact].
 - Click the [Apply] button.

- SNMP host addition or modification
 - 1 Check the check box of the host to be added or modified.
 - 2 Specify the IP address, SNMP version, access privilege, and community string.
 - 3 Click the [Apply] button.
- SNMP host deletion
 - 1 Check the check box of the host to be deleted.
 - 2 Delete the displayed IP address from the [IP Address] field.
 - 3 Click the [Apply] button.

4.7.1.2 [SNMP v3 Configuration] window

The [SNMP v3 Configuration] window specifies the user to be connected using SNMP v3 from the server side. Up to eight users can be registered. If v3 is not used, no Engine-ID need be specified.

System Partition SNMP User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Management>SNMP>SNMP v3 Configuration

SNMP v3 Configuration (GSWB#0) Help

Engine ID String [10-24 hexadecimal characters] 0x0000000000000000000000000000

Please check the check box of line to add or to change an entry.

	User Name [4-16 characters]	Access Mode	Authentication	Password [8-16 characters] / Confirm	Passphrase [8-16 characters] / Confirm
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		
<input type="checkbox"/>		Read-Only	noauth <input type="radio"/> md5 <input type="radio"/> sha <input type="radio"/>		

Apply Cancel

Figure 4.24 [SNMP v3 Configuration] window

Table 4.40 Displayed and setting items in the [SNMP 3 Configuration] window

Item	Description
Engine ID String	<p>"0x" is not included in the number of digits and may be omitted. If the entered string consists of 23 or fewer digits, the engineID value is padded with "0" up to the 24th digit.</p> <p>Enter a hexadecimal string consisting of 10 to 24 digits (0 to 9, a to f, A to F).</p> <p>Default: 0x000000000000000000000000</p>
User Name	<p>Enter a user name.</p> <p>The user name is a character string consisting of 4 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z), which may include - and _.</p> <p>Default: no value</p>
Access Mode	<p>Set the access mode:</p> <ul style="list-style-type: none"> • Read-Write: User privilege. The user has read/write permission. • Read-Only: User privilege. The user has read-only permission.
Authentication	<p>Specify whether passwords are used for the authentication method:</p> <ul style="list-style-type: none"> • noauth: An authentication level is set. Password-based authentication and encryption are not performed. (However, authentication by user name is performed.) • auth: Authentication uses passwords. Encryption is not performed. • priv: Password-based authentication and encryption are performed. • md5: MD5 is selected as the hash function for password encryption. • Sha: SHA is selected as the hash function for password encryption.
Password	<p>Enter the authentication password.</p> <p>The password is a character string consisting of 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z).</p>
Confirm	<p>Enter the authentication password for confirmation.</p> <p>The password is a character string consisting of 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z).</p>
Passphrase	<p>Enter the keyword for packet encryption.</p> <p>The keyword is a character string consisting of 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z).</p>
Confirm	<p>Enter the keyword for packet encryption for confirmation.</p> <p>The keyword is a character string consisting of 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z).</p>

Table 4.41 Buttons in the [SNMP 3 Configuration] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP 3 Configuration]

(2) GUI operation

- Engine ID change
 - 1 To change the Engine ID, specify a hexadecimal string consisting of at least 10 characters.
 - 2 Click the [Apply] button.
- SNMP user addition or modification
 - 1 Check the check box of the user to be added or whose settings are to be modified.
 - 2 Specify the user name, user privilege, and authentication level.
 - 3 If the authentication level is not [noauth], specify the hash function. Specify a password for [auth] and a password and passphrase for [priv].
 - 4 Click the [Apply] button.
- SNMP user deletion
 - 1 Check the check box of the user to be deleted.
 - 2 Delete the displayed user name from [User Name].
 - 3 Click the [Apply] button.

4.7.1.3 [SNMP Trap] window

The [SNMP Trap] window enables transmission of traps to the selected host. Up to eight trap transmission destinations can be registered.

Figure 4.25 [SNMP Trap] window

Table 4.42 Displayed and setting items in the [SNMP Trap] window

Item	Description
IP Address	Trap notification destination Setting range: 0 to 255 Default: no value
SNMP Version	SNMP version <ul style="list-style-type: none"> 1: Send version-1 SNMP traps. You need to set the Community String to be used for server authentication. 2: Send version-2 SNMP traps. You need to set the Community String to be used for server authentication. 3: Send version-3 SNMP traps. You need to set the authentication level.
Community String/ User Name	Community string or user name Specify the Community String or User Name. <ul style="list-style-type: none"> Community String: 20 or fewer one-byte alphanumeric characters (0 to 9, a to z, A to Z) User Name: 4-16 one-byte alphanumeric characters (0 to 9, a to z, A to Z) or symbols (- and _)

Item	Description
Authentication	Authentication method: <ul style="list-style-type: none"> • noauth: An authentication method is set. Password-based authentication and encryption are not performed. (However, authentication by user name is performed.) • auth: Authentication uses passwords. Encryption is not performed. • priv: Password-based authentication and encryption are performed. • md5: MD5 is selected as the hash function for password encryption. • sha: SHA is selected as the hash function for password encryption.
Password	Authentication password. <ul style="list-style-type: none"> • Character string: 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z)
Passphrase	Passphrase (keyword for packet encryption). <ul style="list-style-type: none"> • Character string: 8 to 16 en-size alphanumeric characters (0 to 9, a to z, A to Z)

Table 4.43 Buttons in the [SNMP Trap] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [SNMP] → [SNMP Trap]

(2) GUI operation

- SNMP Trap addition or modification
 - 1 Check the check box of the SNMP Trap to be added or modified.
 - 2 Specify the IP address and SNMP version.
 - 3 The setting method is as follows:
 - If you select SNMP version 1 or 2, specify [Community String].
 - If you select SNMP version 3, Specify [User Name] and [Authentication].
 - If you select [auth] or [priv] for [Authentication], select [sha] and [md5]. Then enter the password if you select [auth] or enter the password and passphrase if you select [priv].
 - 4 Click the [Apply] button.

- SNMP Trap deletion

- 1 Check the check box corresponding to the transmission destination of the trap to be deleted.
- 2 Delete the IP address from the [IP Address] field.
- 3 Click the [Apply] button.

4.7.2 [Telnet] window

The [Telnet] window is used to enable or disable the Telnet server. The port number of the Telnet server cannot be specified. The timeout setting of Telnet is shared with [Timeout] of SSH. For a GSWB connection through the Telnet server, a host that is permitted access for this connection must be specified in the [Remove Access] window.

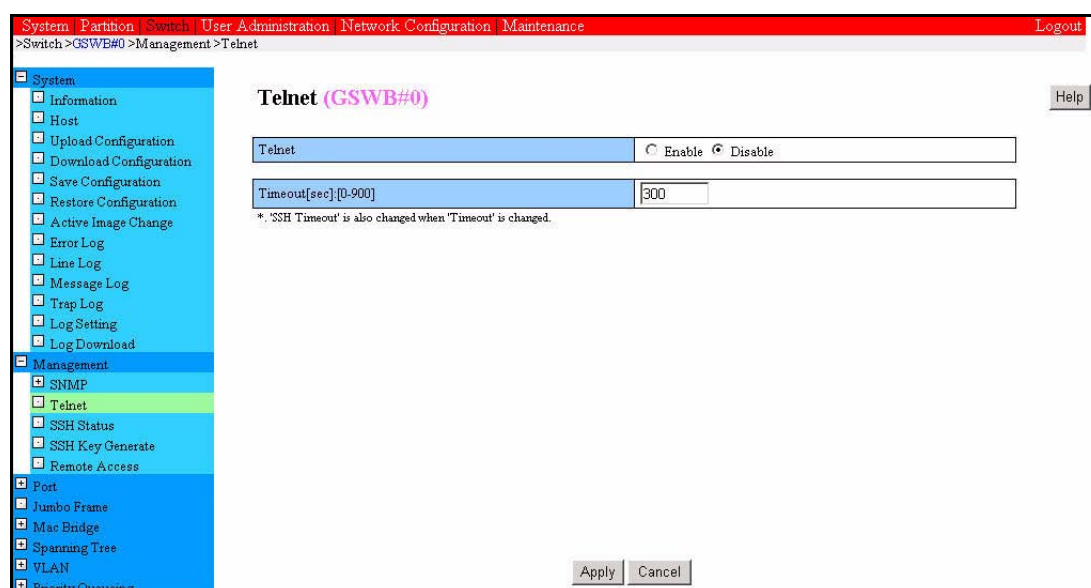


Figure 4.26 [Telnet] window

Table 4.44 Displayed and setting items in the [Telnet] window

Item	Description
Telnet	Specify enable or disable for Telnet. <ul style="list-style-type: none">• Enable: Enables Telnet.• Disable: Disables Telnet. Default: [Disable]
Timeout	Specify the timeout time of the console (Telnet, SSH). If 0 is set, the connection is not terminated. Time value range: 0 to 900 s Default: 300

Table 4.45 Buttons in the [Telnet] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [Telnet]

(2) GUI operation

- Setting
 - 1 Specify [Enable] in [Telnet].
 - 2 To change the timeout time for Telnet, specify a new value in the input field.
 - 3 Click the [Apply] button.

4.7.3 [SSH Status] window

The [SSH Status] window enables the SSH server using the specified protocol.

The SSH server can be enabled or disabled. The SSH server cannot be individually enabled by setting [Enable] for the SSH server status. To use the SSH server, an SSH key must be generated. For a GSWB connection through the SSH server, a host that is permitted access for this connection must be specified in the [Remove Access] window.

The timeout time in [Timeout] is shared with the Telnet server setting window.

Figure 4.27 [SSH Status] window

Table 4.46 Displayed and setting items in the [SSH Status] window

Item	Description
Server Status	Specify enable or disable for SSH server: <ul style="list-style-type: none"> • Enable: Enables the SSH server using the specified protocol. • Disable (default): Disables SSH. <p style="text-align: right;">Default: [Disable]</p>
Key Status	Key status: <ul style="list-style-type: none"> • None: No key is generated. • 1024: A 1024-bit key is generated. • 2048: A 2048-bit key is generated. <p>To delete a key, check its [Delete] check box.</p>
Timeout	Specify the timeout time of the console (Telnet, SSH). If 0 is set, the connection is not terminated. Time value range: 0 to 900 (default: 300) <p style="text-align: right;">Default: 300</p>

Table 4.47 Buttons in the [SSH Status] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [SSH Status]

(2) GUI operation

- Setting

- 1 Specify values for the SSH servers in the [Server Status] window.
- 2 Click the [Apply] button.

Remarks: To use SSH, you must enable the SSH server status, and create an SSH server key.

- Key deletion

- 1 Check the [Delete] check box of the key.
If the server status is [Enable], no key can be deleted. To delete a key in such cases, change the server status to [Disable], and then check the [Delete] check box of the key.
- 2 Click the [Apply] button.

Remarks: If no SSH key has been generated, the [Delete] check box is not displayed.

4.7.4 [SSH Key Generate] window

The [SSH Key Generate] window generates keys of the specified protocol. While the SSH server is enabled, no SSH key is generated. To generate another SSH key, disable the SSH server.

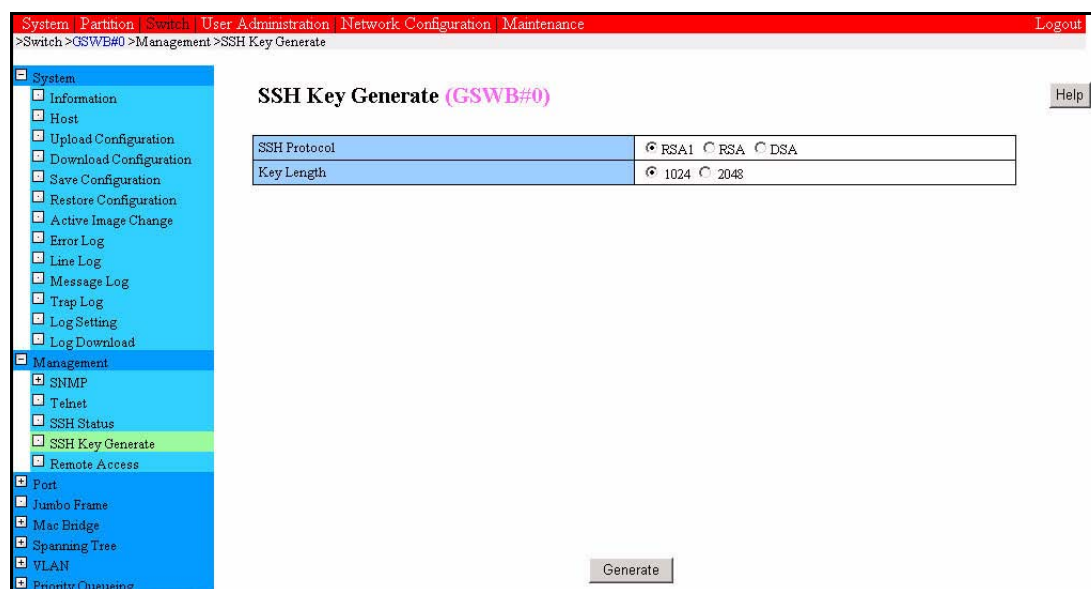


Figure 4.28 [SSH Key Generate] window

Table 4.48 Displayed and setting items in the [SSH Key Generate] window

Item	Description
SSH Protocol	Select the SSH protocol: <ul style="list-style-type: none"> • RSA1: Generates an RSA1 key. • RSA: Generates an RSA key. • DSA: Generates a DSA key.
Key Length	Select the number of bits in a key: <ul style="list-style-type: none"> • 1024: Generates a key with 1024 bits. • 2048: Generates a key with 2048 bits. <p style="text-align: right;">Default: [1024]</p>

Table 4.49 Buttons in the [SSH Key Generate] window

Button	Description
Help	Displays the Help window.
Generate	Generates a key.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [SSH Key Generate]

(2) GUI operation

- Generation
 - 1 Specify the protocol and the number of bits in the key.
 - 2 Click the [Generate] button.
 - 3 The [SSH Key Generate (In Progress)] window is displayed when key generation of key starts. To cancel key generation while it is in progress, click the [Cancel] button.
 - 4 The completion confirmation window is displayed when key generation is completed. Clicking the [OK] button displays the initial [SSH Key Generate] window.

4.7.5 [Remote Access] window

The [Remote Access] window specifies the host or network conditions under which remote connections are allowed. You can define up to 100 entries for condition definitions.

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Management >Remote Access

Remote Access (GSWB#0) Help

Protocol	IP Address	Subnet Mask	Delete
All	All		<input type="checkbox"/>
ssh	All		<input type="checkbox"/>
ssh	192.168.2.0	255.255.255.0	<input type="checkbox"/>
telnet	All		<input type="checkbox"/>
telnet	192.168.0.1		<input type="checkbox"/>
telnet	192.168.3.0	255.255.255.0	<input type="checkbox"/>

↑ Add the new entry

Protocol	<input type="radio"/> All <input type="radio"/> telnet <input type="radio"/> ssh
IP Address	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
Subnet Mask	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>

Figure 4.29 [Remote Access] window

Table 4.50 Displayed and setting items in the [Remote Access] window

Item	Description
Protocol	Protocol
IP Address	IP address
Subnet Mask	Subnet mask
Delete	To delete a setting, check its check box.
Add the New Entry	
Protocol	Specify a protocol: <ul style="list-style-type: none"> • All: Specifies all protocols. • Telnet: Specifies Telnet. • SSH: Specifies SSH.
IP Address	Specify an IP address: <ul style="list-style-type: none"> • All: Specifies all IP addresses. • Host: Specify host addresses to be permitted. • Network: Specify network addresses to be permitted. If you select Host or Network, specify the IP or network addresses that are permitted for remote connection. In the range from 0 to 255.
Subnet Mask	If [Network] is specified in [IP address], no subnet mask need be specified. Setting range: 0 to 255

Table 4.51 Buttons in the [Remote Access] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Management] → [Remote Access]

(2) GUI operation

- Setting
 - 1 Select the protocol that is responsible for permitting access and the IP address or network address specification method.
 - 2 If you select [Host] for [IP Address], specify the host address in the address field.
If you select [Network], specify the network address and subnet mask.
 - 3 Click the [Apply] button.

- Deletion
 - 1 Check the appropriate [Delete] check box (multiple check boxes can be checked).
 - 2 Click the [Apply] button.

4.8 Port Menu

The [Port] menu is used to display and configure port settings.

4.8.1 [Port Configuration] window

The [Port Configuration] window displays the interface status and specifies the interface communication speed. The Speed/Duplex values for ports 1 (IOU 0 0) to 16 (IOU 7 1), 25 (10Gigabit 1), 26 (10Gigabit 2), and 27 (port channel 1) to 32 (port channel 7) are fixed.

For information on the names of the individual ports, see [Section 4.2.3, "Interface names."](#)

IOU	Current		Setting	Partition	
	Status	Speed/Duplex	Status		
IOU 0 0	Down	-	<input checked="" type="checkbox"/> Enable	0	free
IOU 0 1	Down	-	<input checked="" type="checkbox"/> Enable	0	free
IOU 1 0	Down	-	<input type="checkbox"/> Enable	1	free
IOU 1 1	Down	-	<input type="checkbox"/> Enable	1	free
IOU 2 0	Down	-	<input type="checkbox"/> Enable	2	free
IOU 2 1	Down	-	<input type="checkbox"/> Enable	2	free
IOU 3 0	Down	-	<input type="checkbox"/> Enable	3	free
IOU 3 1	Down	-	<input type="checkbox"/> Enable	3	free
IOU 4 0	Down	-	<input type="checkbox"/> Enable	4	free
IOU 4 1	Down	-	<input type="checkbox"/> Enable	4	free
IOU 5 0	Down	-	<input type="checkbox"/> Enable	5	free
IOU 5 1	Down	-	<input type="checkbox"/> Enable	5	free
IOU 6 0	Down	-	<input type="checkbox"/> Enable	6	free
IOU 6 1	Down	-	<input type="checkbox"/> Enable	6	free
IOU 7 0 Not-present	Down	-	<input type="checkbox"/> Enable	7	free

Figure 4.30 [Port Configuration (IOU)] window

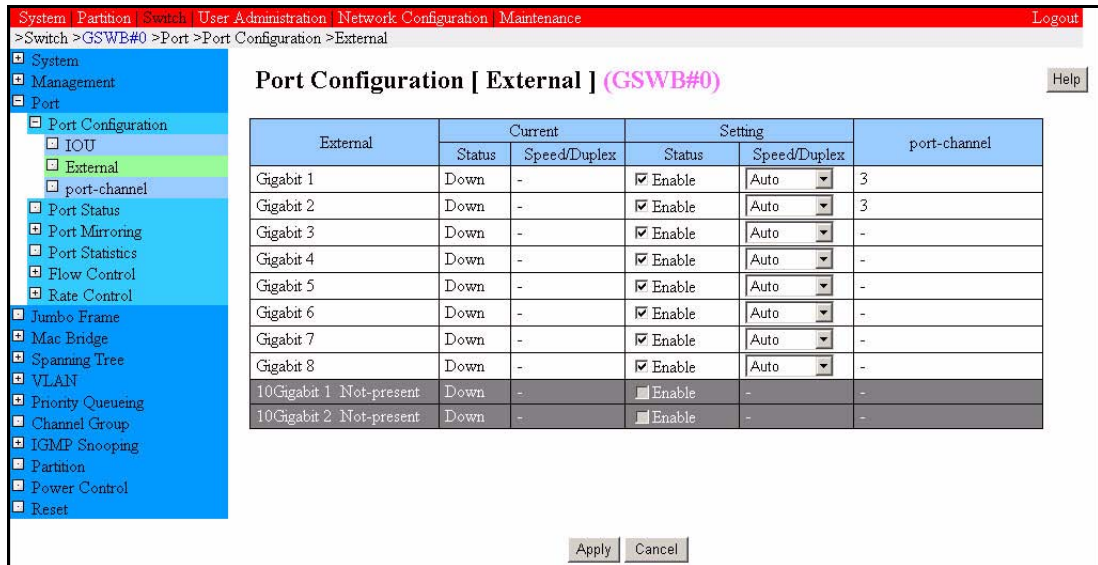


Figure 4.31 [Port Configuration (External)] window

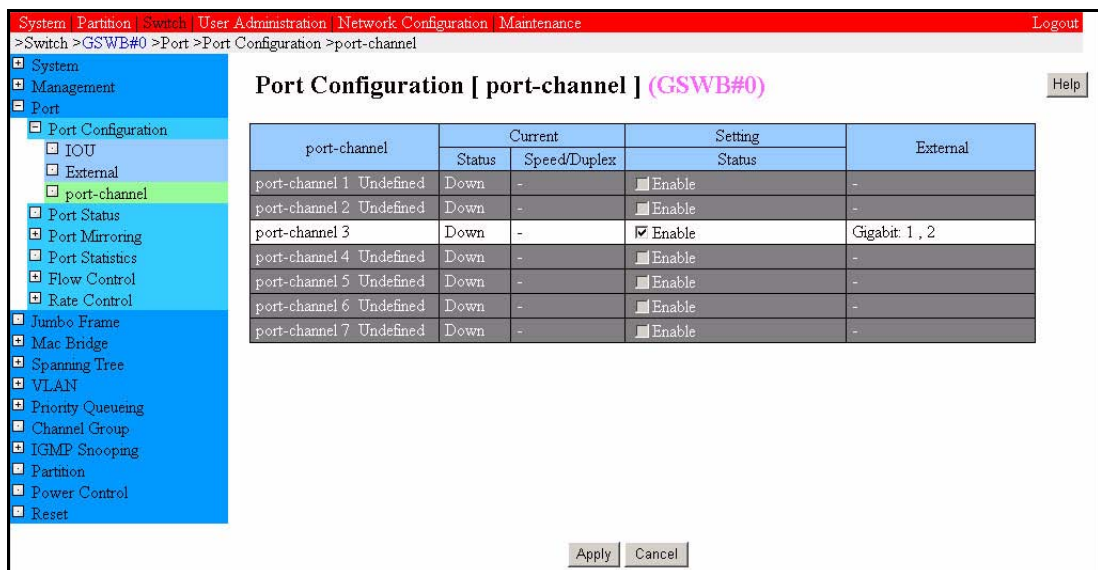


Figure 4.32 [Port Configuration (port-channel)] window

Table 4.52 Displayed and setting items in the [Port Configuration] window

Item	Description
Current: Current settings	
Status	Current status: <ul style="list-style-type: none"> • Up: A link is established. • Down: The link is broken.
Speed/Duplex	Current operating speed and Duplex state: <ul style="list-style-type: none"> • 10M/Full: The port is in full-duplex operation at 10 Mbps. • 10M/Half: The port is in half-duplex operation at 10 Mbps. • 100M/Full: The port is in full-duplex operation at 100 Mbps. • 100M/Half: The port is in half-duplex operation at 100 Mbps. • 1000M/Full: The port is in full-duplex operation at 1000 Mbps. • -: The link is broken. Reference: The port-channel operation speed is the sum of the operation speeds of interfaces comprising the port-channel. However, if these interfaces have different Duplex states, "-" is displayed.
Setting: Setting	
Status	Specify enable or disable for the interface: <ul style="list-style-type: none"> • Enable: The interface is enabled when this option setting is on and disabled when it is off. Default: The [Enable] check box is selected. When the interface is IO Unit, the [Enable] check box is not selected.
Speed/Duplex	Specify the operating speed and Duplex state: <ul style="list-style-type: none"> • 10M/Full: The port is set for full-duplex operation at 10 Mbps. • 10M/Half: The port is set for half-duplex operation at 10 Mbps. • 100M/Full: The port is set for full-duplex operation at 100 Mbps. • 100M/Half: The port is set for half-duplex operation at 100 Mbps. • Auto: The port automatically detects the appropriate setting. Default: [Auto]

Table 4.53 Buttons in the [Port Configuration] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

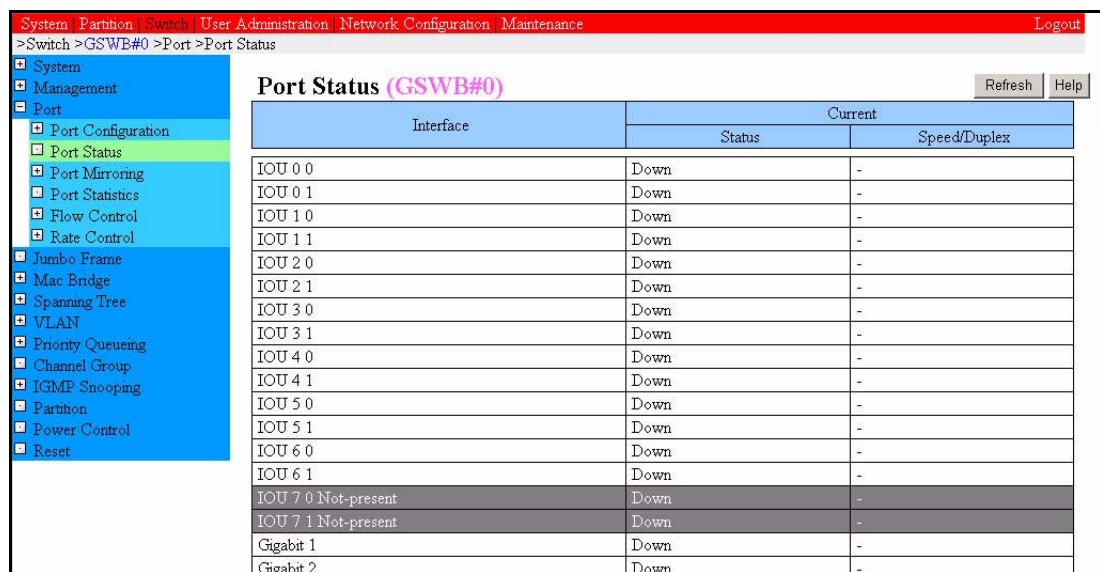
[Switch] → [GSWB#x] → [Port] → [Port Configuration] → [IOU] / [Front Panel] / [port-channel]

(2) GUI operation

- Setting
 - 1 Turn on [Enable] to enable the interface.
 - 2 Specify a value for a front panel port in [Speed/Duplex].
 - 3 Click the [Apply] button.

4.8.2 [Port Status] window

The [Port Status] window displays the interface status and communication speed.



Port Status (GS WB#0)		
Interface	Current	
	Status	Speed/Duplex
IOU 0 0	Down	-
IOU 0 1	Down	-
IOU 1 0	Down	-
IOU 1 1	Down	-
IOU 2 0	Down	-
IOU 2 1	Down	-
IOU 3 0	Down	-
IOU 3 1	Down	-
IOU 4 0	Down	-
IOU 4 1	Down	-
IOU 5 0	Down	-
IOU 5 1	Down	-
IOU 6 0	Down	-
IOU 6 1	Down	-
IOU 7 0 Not-present	Down	-
IOU 7 1 Not-present	Down	-
Gigabit 1	Down	-
Gigabit 2	Down	-

Figure 4.33 [Port Status] window

Table 4.54 Displayed and setting items in the [Port Status] window

Item	Description
Interface	Interface
Current: Current status	
Status	Current status: <ul style="list-style-type: none"> • UP: A link is established. • Down: The link is broken.
Speed/Duplex	Current operating speed and Duplex state: <ul style="list-style-type: none"> • 10M/Full: The port is in full-duplex operation at 10 Mbps. • 10M/Half: The port is in half-duplex operation at 10 Mbps. • 100M/Full: The port is in full-duplex operation at 100 Mbps. • 100M/Half: The port is in half-duplex operation at 100 Mbps. • 1000M/Full: The port is in full-duplex operation at 1000 Mbps. • -: Link down (in the port-channel configuration, the speed is not displayed even when the link is in the Up state).

Table 4.55 Buttons in the [Port Status] window

Button	Description
Help	Displays the Help window.
Refresh	Updates the interface status display.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Port Status]

(2) GUI operation

- Refresh display
 - 1 Click the [Refresh] button.
 - 2 The interface status is updated. If Auto-Refresh is enabled, the display is automatically refreshed.

4.8.3 Port Mirroring menu

The [Port Mirroring] menu manipulates port mirroring and configures mirror port settings.

4.8.3.1 [Destination Port] window

The [Destination Port] window specifies the mirroring target. A target port can be specified for only one interface. The specified port cannot be used as a standard communication port. The specified port cannot be used as a normal communication port. No channel group can be specified.

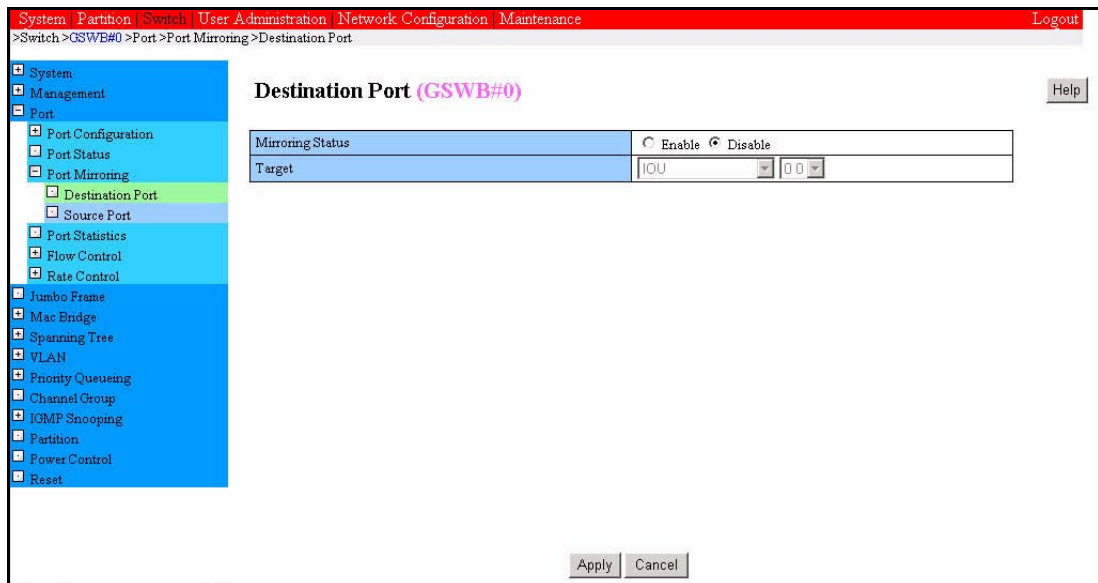


Figure 4.34 [Destination Port] window

Table 4.56 Displayed and setting items in the [Destination Port] window

Item	Description
Mirroring Status	Specify enable or disable for mirroring: <ul style="list-style-type: none"> • Enable: Enables mirroring. • Disable: Disables mirroring. <p style="text-align: right;">Default: Disable</p>
Target	Select the mirroring target: <ul style="list-style-type: none"> • IOU: Select an IO Unit (00 to 71). • Gigabit: Specify GigabitEthernet (1 to 8). • 10Gigabit: Specify 10GigabitEthernet (1 or 2)

Table 4.57 Buttons in the [Destination Port] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Port Mirroring] → [Destination Port]

(2) GUI operation

- Mirror port setting
 - 1 Specify Enable in [Mirroring Status].
 - 2 Specify the target interface for the mirror port.
 - 3 Click the [Apply] button.

4.8.3.2 [Source Port] window

The [Source Port] window specifies the monitored ports. You cannot specify a channel group for a port to be monitored.

To change [Direction] of a monitored port that is already set, first disable the port in the [Source Port] window.

If mirroring is enabled in the [Destination Port] window, "(Destination)" is displayed for the interface number specified as a target.

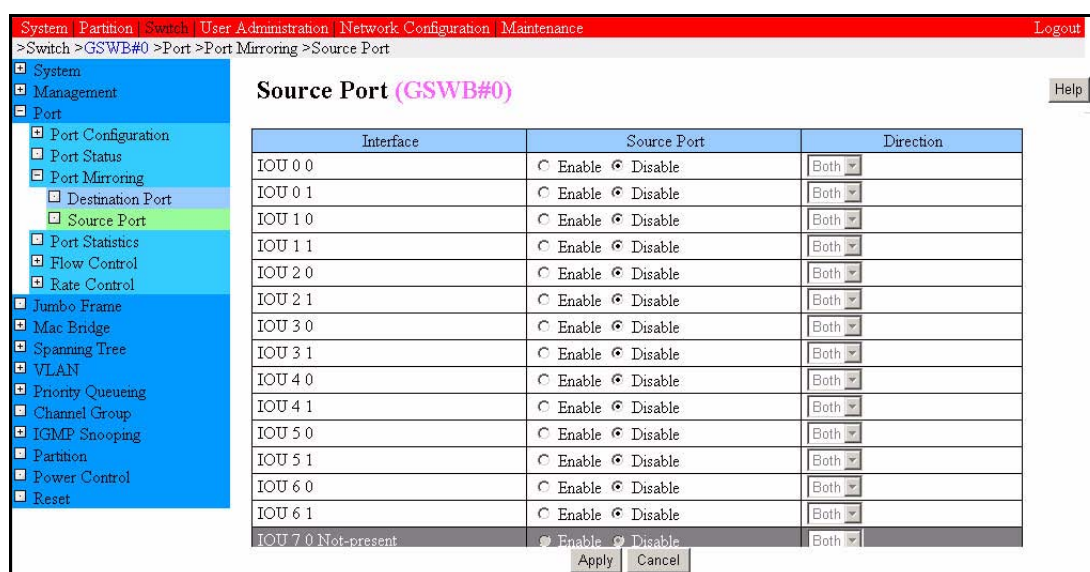


Figure 4.35 [Source Port] window

Table 4.58 Displayed and setting items in the [Source Port] window

Item	Description
Interface	Interface
Source Port	Specify the source port setting: <ul style="list-style-type: none"> • Enable: Set as the source port • Disable: Not set as the source port Default: [Disable]
Direction	Specify the traffic direction: <ul style="list-style-type: none"> • Rx: Incoming traffic • Tx: Outgoing traffic • Both: Bidirectional traffic

Table 4.59 Buttons in the [Source Port] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Port Mirroring] → [Source Port]

(2) GUI operation

- Port addition
 - 1 Specify [Enable] in [Source Port].
 - 2 Specify a value in [Direction].
 - 3 Repeat steps 1 and 2 for each other interface to be added.
 - 4 Click the [Apply] button.
- Port deletion
 - 1 Specify [Disable] in [Source Port].
 - 2 Click the [Apply] button.

4.8.4 [Port Statistics] window

The [Port Statistics] window displays statistical information (e.g., numbers of transmitted and received frames and error frames) about the GSWB interface. If 10Gigabit has been selected, some items are not displayed. The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Port>Port Statistics

Port Statistics (GSWB#0) Refresh Help

Interface : Gigabit 1

Iffable stats			
Octets input	0	Octets output	0
Unicast input	0	Unicast output	0
Discard input	0	Discard output	0
Error input	0	Error output	0
QLen output	16		

Extended iffable stats			
Multicast input	0	Multicast output	0
Broadcast input	0	Broadcast output	0

Ether-like stats			
Alignment errors	0	FCS errors	0
Single collision frames	0	Multiple collision frames	0
Deferred transmissions	0		
Late collisions	0	Excessive collisions	0
Internal mac transmit errors			0
Internal mac receive errors			0
Frame too longs	0	Carrier sense errors	0

RMON status			
Octets	0	Packets	0
Broadcast pkts	0	Multicast pkts	0
Undersize pkts	0	Oversize pkts	0
Fragments	0	Jabbers	0
CRC align errors	0	Collisions	0
Packet size == 64 octets			0
Packet size 65 to 127 octets			0
Packet size 128 to 255 octets			0
Packet size 256 to 511 octets			0
Packet size 512 to 1023 octets			0
Packet size 1024 to 1518 octets			0

Interface: Gigabit 1 Apply Clear

Figure 4.36 [Port Statistics] window

Table 4.60 Displayed and setting items in the [Port Statistics] window

Item	Description
Interface	Type and number of the interface whose statistical information is currently displayed
Iftable stats	
Octet input/ Octet output	Number of transmitted and received octets
Unicast input / Unicast output	Number of transmitted and received unicast frames
Discard input / Discard output	Number of frames discarded without being transmitted or received
Error input / Error output	<p>Number of transmitted and received errors</p> <ul style="list-style-type: none"> IOU or GigabitEthernet specified <p>Error input: The sum total of the following statistical information is displayed:</p> <ul style="list-style-type: none"> - Number of received frames with a length of less than 64 octets - Number of received fragment frames - Number of received FCS error frames - Number of received oversize frames - Number of received Jabber frames <p>Error output: The sum total of the following statistical information is displayed:</p> <ul style="list-style-type: none"> - Number of transmitted excessive collision frames - Number of transmission aborted packets <ul style="list-style-type: none"> 10GigabitEthernet specified <p>Error input: The sum total of the following statistical information is displayed:</p> <ul style="list-style-type: none"> - Number of received FCS error packets - Number of received oversize packets - Number of received length-out-of-range frames - Number of received frames with a length of less than 64 octets - Number of received fragment frames <p>Error output: The following statistical information is displayed:</p> <ul style="list-style-type: none"> - Number of transmission aborted packets
Qlen output	Transmit queue length
Extended Iftable stats	
Multicast input / Multicast output	Number of transmitted and received multicast frames

Item	Description
Broadcast input / Broadcast output	Number of transmitted and received broadcast frames
Ether-like stats	
Alignment errors	Number of alignment errors. If 10GigabitEthernet has been selected, this item is not displayed.
FCS errors	Number of FCS errors
Single collision frames	Number of frames whose first transmission attempt failed. If 10GigabitEthernet has been selected, this item is not displayed.
Multiple collision frames	Number of frames whose transmission failed in multiple attempts. If 10GigabitEthernet has been selected, this item is not displayed.
Deferred transmissions	Number of transmission trials in which the initial transmission was deferred because media was in use. If 10GigabitEthernet has been selected, this item is not displayed.
Late collisions	Number of detected collisions. If 10GigabitEthernet has been selected, this item is not displayed.
Excessive collisions	Number of transmission failures caused by excessive collisions. If 10GigabitEthernet has been selected, this item is not displayed.
Internal mac transmit errors	Number of frames that failed to be transmitted because of an external transmission error. If 10GigabitEthernet has been selected, this item is not displayed.
Internal mac receive errors	Number of frames that failed to be received because of an internal reception error. If 10GigabitEthernet has been selected, this item is not displayed.
Frame too longs	Number of sending frames longer than the maximum length
Carrier sense errors	Number of times that carrier detection was lost during frame transfer. If 10GigabitEthernet has been selected, this item is not displayed.
RMON status	
Octets	Number of received octets
Packets	Number of packets
Broadcast pkts	Number of broadcast packets
Multicast pkts	Number of multicast packets
Undersize pkts	Number of packets shorter than the minimum length
Oversize pkts	Number of packets longer than the maximum length
Fragments	Number of frames of FCS error or alignment error with a length of less than 64 octes.
Jabbers	Number of frames of FCS error or alignment error with a length of more than 1518 octes. If 10GigabitEthernet has been selected, this item is not displayed.
CRC Align Errors	Number of CRC alignment errors
Collisions	Number of collisions. If 10GigabitEthernet has been selected, this item is not displayed.

Item	Description
Packet size == 64 octets	Number of packets with a length of 64 octets
Packet size 65 to 127 octets	Number of packets with a length ranging from 65 to 127 octets
Packet size 128 to 255 octets	Number of packets with a length ranging from 128 to 255 octets
Packet size 256 to 511 octets	Number of packets with a length ranging from 256 to 511 octets
Packet size 512 to 1023 octets	Number of packets with a length ranging from 512 to 1023 octets
Packet size 1024 to 1518 octets	Number of packets with a length ranging from 1024 to 1518 octets. If 10GigabitEthernet has been selected, this item is not displayed.
Interface	Specify the interface: <ul style="list-style-type: none"> • IOU: Select an IO Unit (00 to 71). • Gigabit: Specify GigabitEthernet (1 to 8). • 10Gigabit: Specify 10GigabitEthernet (1 or 2). • port-channel: Specify a port-channel (1 to 7). Default: [Gigabit 1]

Table 4.61 Buttons in the [Port Statistics] window

Button	Description
Refresh	Updates the display of statistic information.
Help	Displays the Help window.
Apply	Displays statistical information on the specified interface.
Clear	Clears the statistic information.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Port Statistics]

(2) GUI operation

- Changing the interface whose statistical information is to be displayed
 - 1 Specify the interface.
 - 2 Click the [Apply] button.
- Updating statistical information
 - 1 Click the [Refresh] button.
 - 2 The displayed contents are updated.

If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.
- Statistical information clearing
 - 1 Specify the interface whose statistical information you want to clear.
 - 2 Click the [Clear] button.
 - 3 The confirmation window is displayed. Clicking [OK] clears statistical information.

4.8.5 [Flow Control] window

The [Flow Control] window displays the current status of each port under flow control and configures flow control settings.

Configuration of port-channel settings is not possible.

The same setting for both transmission and reception is suitable for point-to-point links. Different settings are suitable for a connection between a hub and end node. (The end system being stopped by the hub is desirable, but the hub being stopped by the end system is not desirable.) For example, the "on-on" setting is suitable for a connection between switches and the "on-off" or "off-on" setting is suitable for a connection between a switch and end station.

An asterisk (*) displayed in the IO Unit field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Port>Flow Control>IOU

Flow Control [IOU] (GSWB#0) Help

IOU	Flow Control Status		Partition	
	Receive	Send		
IOU 0 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	0	free
IOU 0 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	0	free
IOU 1 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	1	free
IOU 1 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	1	free
IOU 2 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	2	free
IOU 2 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	2	free
IOU 3 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	3	free
IOU 3 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	3	free
IOU 4 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	4	free
IOU 4 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	4	free
IOU 5 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	5	free
IOU 5 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	5	free
IOU 6 0	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	6	free
IOU 6 1	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off	6	free
IOU 7 0 Not-present	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off	7	free

Apply Cancel

Figure 4.37 [Flow Control (IOU)] window

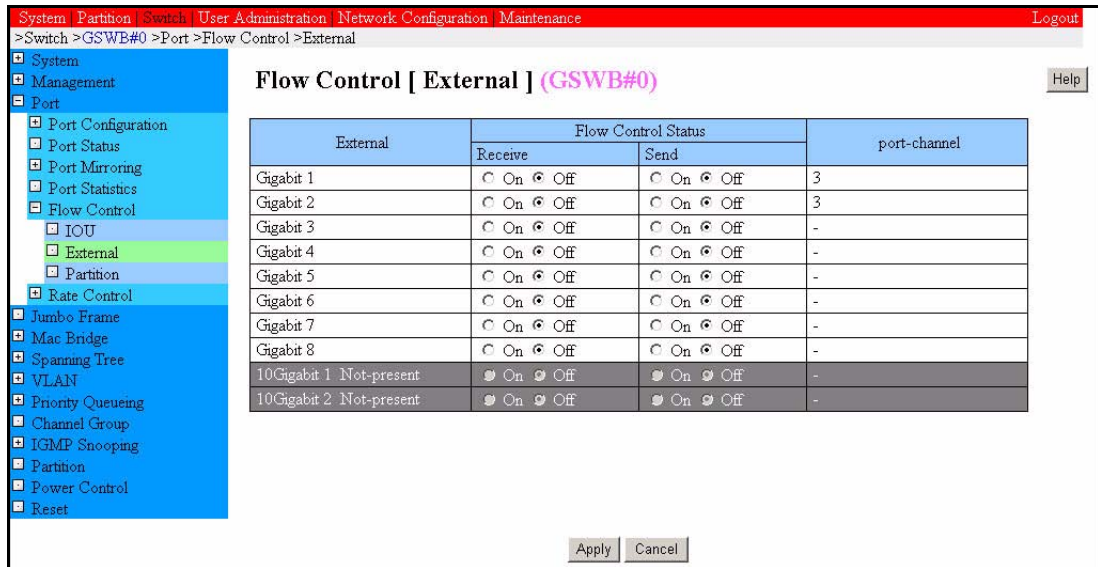


Figure 4.38 [Flow Control (External)] window

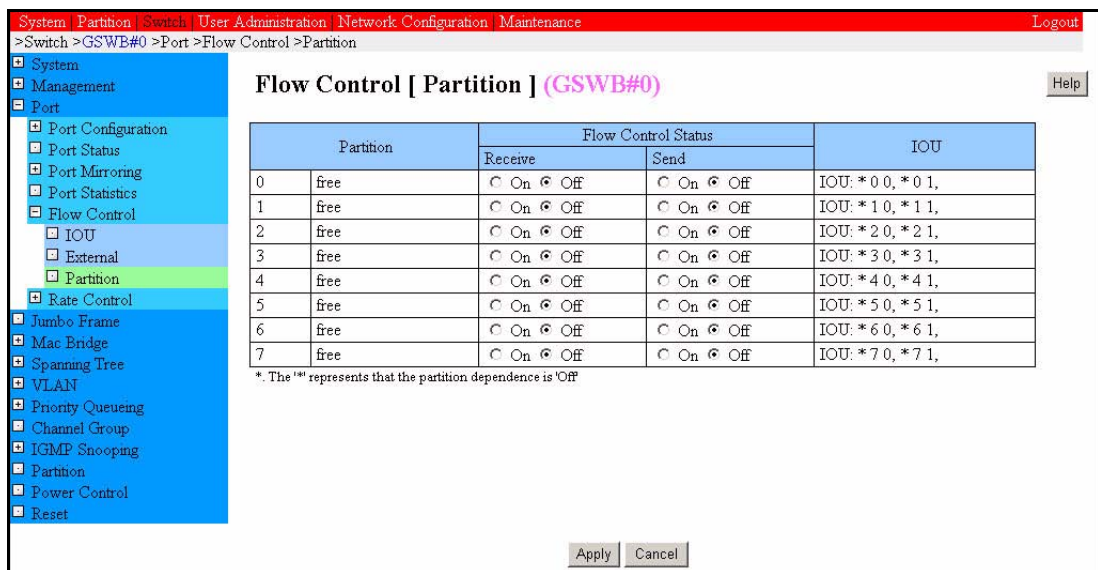


Figure 4.39 [Flow Control (Partition)] window

Table 4.62 Displayed and setting items in the [Flow Control] window

Item	Description
Flow Control Status	
Receive	<p>Specify whether to allow the interface to receive flow control packets from a connected unit:</p> <ul style="list-style-type: none"> • On: The interface can receive flow control packets from connected units that must send them and from those that need not send them but can still send them. • Off: Frame transmission is not interrupted by flow control. <p style="text-align: right;">Default: [Off]</p>
Send	<p>Specify whether to allow the interface to send flow control packets to a connected unit:</p> <ul style="list-style-type: none"> • On: The interface sends flow control packets to a remote unit that supports flow control. If auto-negotiation is set, however, the interface sends flow control packets regardless of whether the remote unit supports flow control. • Off : The function for sending flow control packets to a connected unit is disabled for a local port. <p style="text-align: right;">Default: [Off]</p>

Table 4.63 Buttons in the [Flow Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Flow Control] → [IOU] / [Front Panel] / [Partition]

(2) GUI operation

- Setting
 - 1 To change the flow control status, change the radio button settings accordingly.
 - 2 Click the [Apply] button.

4.8.6 [Rate Control] window

The [Rate Control] window displays and configures the threshold values of rate control. Configuration of port-channel and 10Gigabit settings is not possible.

- An asterisk (*) displayed in an IOU field of a partition indicates the port settings are not synchronized with the partition configuration.
- Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

IOU	Broadcast/ Threshold	Multicast/ Threshold	DLF/ Threshold	Partition
IOU 0 0	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	0 free
IOU 0 1	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	0 free
IOU 1 0	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	1 free
IOU 1 1	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	1 free
IOU 2 0	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	2 free
IOU 2 1	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	2 free
IOU 3 0	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	3 free
IOU 3 1	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	<input type="checkbox"/> Enable []	3 free

Figure 4.40 [Rate Control (IOU)] window

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Port>Rate Control>External

System Management Port Port Configuration Port Status Port Mirroring Port Statistics Flow Control Rate Control IOU External Partition Jumbo Frame Mac Bridge Spanning Tree VLAN Priority Queueing Channel Group IGMP Snooping Partition Power Control Reset

Rate Control [External] (GSWB#0)

External	Broadcast/ Threshold	Multicast/ Threshold	DLF/ Threshold	port-channel
Gigabit 1	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	3
Gigabit 2	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	3
Gigabit 3	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-
Gigabit 4	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-
Gigabit 5	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-
Gigabit 6	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-
Gigabit 7	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-
Gigabit 8	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	-

Apply Cancel

Figure 4.41 [Rate Control (External)] window

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Port>Rate Control>Partition

System Management Port Port Configuration Port Status Port Mirroring Port Statistics Flow Control Rate Control IOU External Partition Jumbo Frame Mac Bridge Spanning Tree VLAN Priority Queueing Channel Group IGMP Snooping Partition Power Control Reset

Rate Control [Partition] (GSWB#0)

Partition	Broadcast/ Threshold	Multicast/ Threshold	DLF/ Threshold	IOU
0 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 0 0, * 0 1,
1 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 1 0, * 1 1,
2 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 2 0, * 2 1,
3 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 3 0, * 3 1,
4 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 4 0, * 4 1,
5 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 5 0, * 5 1,
6 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 6 0, * 6 1,
7 free	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	<input type="checkbox"/> Enable <input type="text"/>	IOU: * 7 0, * 7 1,

Apply Cancel

Figure 4.42 [Rate Control (Partition)] window

Table 4.64 Displayed and setting items in the [Rate Control] window

Item	Description
Broadcast/Threshold	<p>Define broadcast storm control:</p> <ul style="list-style-type: none"> • Enable: Turn this on to enable broadcast storm control on the port. • Threshold: Specify the threshold (pkts/sec). 1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M) The setting ranges are provided as a guide for the link-up speeds shown in (). And all of them are in a range of 1 to 262143. Default: The [Enable] check box is not selected.
Multicast/Threshold	<p>Define multicast storm control:</p> <ul style="list-style-type: none"> • Enable: Specify whether to enable multicast storm control on the port. Default: off (disabled) • Threshold: Specify the threshold (pkts/sec). Default: 0 (For 0, the field is blank.) 1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M) The setting ranges are provided as a guide for the link-up speeds shown in (). And all of them are in a range of 1 to 262143. Default: The [Enable] check box is not selected.
DLF/Threshold	<p>Define Destination Lookup failure (DLF) storm control:</p> <ul style="list-style-type: none"> • Enable: Specify whether to enable DLF storm control on the port. Default: off (disabled) • Threshold: Specify the threshold (pkts/sec). Default: 0 (For 0, the field is blank.) 1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M) The setting ranges are provided as a guide for the link-up speeds shown in (). And all of them are in a range of 1 to 262143. Default: The [Enable] check box is not selected.

Table 4.65 Buttons in the [Rate Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Port] → [Rate Control] → [IOU] / [Front Panel] /
[Partition]

(2) GUI operation

- Setting ON
 - 1 Turn on [Enable].
 - 2 Enter a threshold value in the allowable range.
 - 3 Click the [Apply] button.
- Setting OFF
 - 1 Turn off [Enable].
 - 2 Click the [Apply] button.

4.9 Jumbo Frame Menu

4.9.1 [Jumbo Frame] window

Clicking the [Jumbo Frame] menu displays the [Jumbo Frame] window. The [Jumbo Frame] window displays the jumbo frame status and configures jumbo frame settings.

When specifying a jumbo frame, the frame sizes in all units on the communication path must match.



Figure 4.43 [Jumbo Frame] window

Table 4.66 Displayed or setting item in the [Jumbo Frame] window

Item	Description
Jumbo Frame Status	Specify enable or disable for the jumbo frame: <ul style="list-style-type: none">• Enable: Enables the jumbo frame.• Disable: Disables the jumbo frame. Default: [Disable]

Table 4.67 Buttons in the [Jumbo Frame] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Jumbo Frame]

(2) GUI operation

- 1 Specify values in [Jumbo Frame Status].
- 2 Click the [Apply] button.

4.10 Mac Bridge Menu

The [Mac Bridge] menu is used to manipulate the MAC address table and configure its settings.

4.10.1 [Aging Time] window

The [Aging Time] window specifies the period in which dynamic entries are retained in the MAC address table.

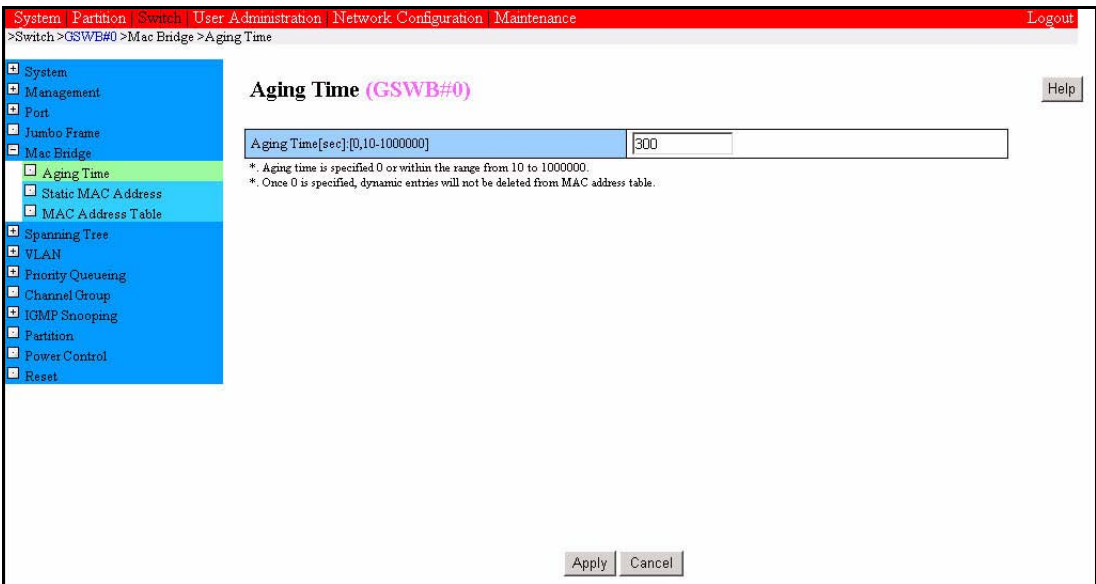


Figure 4.44 [Aging Time] window

Table 4.68 Displayed or setting item in the [Aging Time] window

Item	Description
Aging Time	Specify the aging time. If 0 second is specified, no dynamic entry is deleted from the MAC address table. <ul style="list-style-type: none">Time value range: 0 or 10 to 1000000 (s) Default: 300

Table 4.69 Buttons in the [Aging Time] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Mac Bridge] → [Aging Time]

(2) GUI operation

- Setting
 - 1 To change the aging time setting, change its current value.
 - 2 Click the [Apply] button.

4.10.2 [Static MAC Address] window

The [Static MAC Address] window displays, adds, and deletes static addresses. Up to 128 static addresses can be registered. If the MAC address table is full, the number of static addresses to be registered may be less than 128 (maximum).

Broadcast addresses, multicast addresses, and an ALL 0 MAC address cannot be specified.

Figure 4.45 [Static MAC Address] window

Table 4.70 Displayed and setting items in the [Static MAC Address] window

Item	Description
MAC Address	Station MAC address
VLAN ID	VLAN ID

Item	Description
Action	Forward/discard setting: <ul style="list-style-type: none"> Forward: Transfers frames to their destinations. Discard: Discards frames of the specified destination.
Interface	Interface
Delete	To delete a static address, check its check box.
Add the New Entry	
MAC Address	Specify the station unicast MAC address. Octet range: 0x00 to 0xFF
VLAN ID	Specify a VLAN ID. Setting range: 1 to 4094
Action	Specify forward or discard: <ul style="list-style-type: none"> Forward: Transfers frames to their destinations. Discard: Discards frames of the specified destination Default: [Forward]
Interface	Specify the interface: <ul style="list-style-type: none"> IOU: Select an IO Unit (00 to 71). Gigabit: Specify GigabitEthernet (1 to 8). 10Gigabit: Specify 10GigabitEthernet (1 or 2) port-channel: Specify a port-channel (1 to 7). [Default: IOU00]

Table 4.71 Buttons in the [Static MAC Address] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Mac Bridge] → [Static MAC Address]

(2) GUI operation

- Setting
 - 1 Specify the MAC address, VLAN ID, action, and interface.
 - 2 Click the [Apply] button.
- Deletion
 - 1 Select the [Delete] check box of the static address that you want to delete.
 - 2 Click the [Apply] button.

4.10.3 [MAC Address Table] window

The [MAC Address Table] window displays static addresses and display and clears dynamic addresses. Up to 16384 addresses can be registered in the MAC Address Table. Static entries cannot be deleted by clearing them. The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

System: Parthion | Search | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Mac Bridge >MAC Address Table

MAC Address Table (GSWB#0) Help

No.	Chip	MAC Address	VID	Interface	Status	Action
1	1	00:0B:5D:70:81:D4	1	Self	Static	Forward
2	1	00:11:22:33:44:55	1	IOU 0 0	Static	Forward
3	1	00:22:33:44:55:66	1	Gigabit 3	Static	Forward
4	1	00:99:88:77:66:55	1	ALL	Static	Discard
5	1	01:00:5E:00:30:01	2	Multicast	Static	Forward
6	1	01:00:5E:22:22:22	2	Multicast	Static	Forward
7	1	01:00:5E:33:33:33	2	Multicast	Static	Forward
8	2	00:0B:5D:70:81:D4	1	Self	Static	Forward
9	2	00:11:22:33:44:55	1	IOU 0 0	Static	Forward
10	2	00:22:33:44:55:66	1	Gigabit 3	Static	Forward

Query by:

☒ ALL entries

☐ Interface

☐ MAC Address : : : : :

☐ VLAN ID

☐ Status ☒ Static ☐ Dynamic

☐ Chip Number

Figure 4.46 [MAC Address Table] window

Table 4.72 Displayed and setting items in the [MAC Address Table] window

Item	Description
No	Displays the entry number.
Chip	Select a chip number.
MAC Address	MAC address
VID	VLAN ID
Interface	Interface
Status	Address status: <ul style="list-style-type: none"> • Static: Static address • Dynamic: Dynamic address
Action	Forward/discard setting: <ul style="list-style-type: none"> • Forward: Transfers frames to their destinations. • Discard: Discards frames of the specified destination.

Query By: Search conditions

All	Select this to display all entries. The number of MAC address entries registered with the GSWB is displayed in the field on the right.
Interface	Specify the interface: <ul style="list-style-type: none"> • IOU: Specify an IO Unit (00 to 71). • Gigabit: Specify GigabitEthernet (1 to 8). • 10Gigabit: Specify 10GigabitEthernet (1 or 2). • port-channel: Specify a port-channel (1 to 7). Default: [IOU 00]
VLAN ID	Specify a VLAN ID (1 to 4094).
MAC Address	Specify the station MAC address (0x00 to 0xFF).
Status	Specify the type of addresses to be displayed: <ul style="list-style-type: none"> • Static: Displays static addresses only. • Dynamic: Displays dynamic addresses only. Default: [Static]
Chip Number	Specify a chip number (1 to 4). Default: [1]

Table 4.73 Buttons in the [MAC Address Table] window

Button	Description
Help	Displays the Help window.
Query	Displays search results after a search is completed.
Clear	Clears dynamic entries. Static entries are not cleared.

(1) Menu operation

[Switch] → [GSWB#x] → [Mac Bridge] → [MAC Address Table]

(2) GUI operation

- Display
 - 1 Specify the search conditions. Multiple search conditions cannot be specified.
 - 2 Click the [Query] button.
 - 3 Only entries that matched the search conditions are displayed.
- Clearing
 - 1 To clear dynamic MAC address entries, click the [Clear] button.
 - 2 The confirmation window is displayed. Clicking the [OK] button clears the dynamic entries.
 - 3 All dynamic entries are cleared, regardless of the search conditions.

4.11 Spanning Tree Menu

Loops may be formed when a redundant configuration is integrated into a network. The protocol function detects and removes such loops, and the [Spanning Tree] menu is used to configure protocol function settings.

4.11.1 [Global Setting] window

The [Global Setting] window configures spanning tree protocol settings.

Set the spanning tree protocol (STP) for the entire unit.

Remarks: When VLAN is used, the spanning tree protocol (STP) function needs to be disabled depending on the configuration.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch >GSWB#0 >Spanning Tree >Global Setting

Global Setting (GSWB#0) Help

Spanning Tree Protocol	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
BPDU Forwarding	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Bridge Priority[0-65535]	<input type="text" value="32768"/>
Max Age[sec].[6-40]	<input type="text" value="20"/>
Hello Time[sec].[1-10]	<input type="text" value="2"/>
Forward Time[sec].[4-30]	<input type="text" value="15"/>

*, please set value between [a:b].

Figure 4.47 [Global Setting] window

Table 4.74 Displayed and setting items in the [Global Setting] window

Item	Description
Spanning Tree Protocol	Specify enable or disable for the spanning tree protocol: <ul style="list-style-type: none"> • Enable: Enables STP for the entire device. • Disable: Disables STP for the entire device. Default: [Enable]
BPDU Forwarding	Specify whether to forward BPDU [Bridge Protocol Data Unit] frame when STP is globally disabled. <ul style="list-style-type: none"> • Enable: Enable BPDU forwarding. • Disable: Disable BPDU forwarding. While STP is enabled, this is always [Disable]. Default: [Disable]
Bridge Priority	Specify the bridge priority. The lower this value, the higher the bridge priority. Setting range: 0 to 65535 Default: 32768
Max Age	Specify the maximum aging time. Reception of periodic Hello messages stops and recalculations for the spanning tree starts when the specified time has elapsed. Time value range: 6 to 40 (s) Default: 20
Hello Time	Specify a Hello message transmission interval. Time value range: 1 to 10 (s) default: 2
Forward Time	Set the transfer delay timer. The transfer delay time is the period required for a transition to another state, such as a transition from the listening state (Listening) > learning state (Learning) > forwarding state (Forwarding). Time value range: 4 to 30 (s) Default: 15

Table 4.75 Buttons in the [Global Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Spanning Tree] → [Global Setting]

(2) GUI operation

- Setting Enable in [Spanning Tree Protocol]
 - 1 Specify [Enable] for [Spanning Tree Protocol].
 - 2 Specify values in [Bridge Priority], [Max Age], [Hello Time], and [Forward Time].
 - 3 Click the [Apply] button.
- Setting Disable in [Spanning Tree Protocol]
 - 1 Specify [Disable] for [Spanning Tree Protocol].
 - 2 Specify [Enable] or [Disable] in [BPDU Forwarding].
 - 3 Click the [Apply] button.

4.11.2 [Interface Setting] window

The [Interface Setting] window manipulates STP for the interface and configures interface settings. If STP is enabled for the whole device, interface settings can be configured. The default STP setting for interfaces is disabled for the IOU interface and enabled for other interfaces.

If [Disable] is set in [Spanning Tree Protocol] in the [Global Setting] window, "Spanning Tree Protocol' status is Disabled." is displayed.

An asterisk (*) displayed in the IOU field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

IOU	Port Priority	Cost	Spanning Tree	Partition
IOU 0 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	0 free
IOU 0 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	0 free
IOU 1 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	1 free
IOU 1 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	1 free
IOU 2 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	2 free
IOU 2 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	2 free
IOU 3 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	3 free
IOU 3 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	3 free
IOU 4 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	4 free
IOU 4 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	4 free
IOU 5 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	5 free
IOU 5 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	5 free
IOU 6 0	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	6 free

Figure 4.48 [Interface Setting (IOU)] window

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Spanning Tree >Interface Setting >External

Interface Setting [External] (GSWB#0)

Help

External	Port Priority	Cost	Spanning Tree	port-channel
Gigabit 1	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	3
Gigabit 2	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	3
Gigabit 3	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	-
Gigabit 4	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	-
Gigabit 5	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	-
Gigabit 6	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
Gigabit 7	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	-
Gigabit 8	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	-
10Gigabit 1 Not-present	0	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
10Gigabit 2 Not-present	0	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-

*. Port Priority:[0-255]
*. Cost:[0-65535]

Apply Cancel

Figure 4.49 [Interface Setting (External)] window

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Spanning Tree >Interface Setting >port-channel

Interface Setting [port-channel] (GSWB#0)

Help

port-channel	Port Priority	Cost	Spanning Tree	External
port-channel 1 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
port-channel 2 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
port-channel 3	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input checked="" type="checkbox"/> Enable	Gigabit: 1, 2
port-channel 4 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
port-channel 5 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
port-channel 6 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-
port-channel 7 Undefined	0	<input type="radio"/> Auto <input type="radio"/> Specify <input type="text"/>	<input type="checkbox"/> Enable	-

*. Port Priority:[0-255]
*. Cost:[0-65535]

Apply Cancel

Figure 4.50 [Interface Setting (port-channel)] window

Interface Setting [Partition] (GSWB#0)

Partition	Port Priority	Cost	Spanning Tree	IOU
0	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 0 0, * 0 1,
1	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 1 0, * 1 1,
2	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 2 0, * 2 1,
3	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 3 0, * 3 1,
4	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 4 0, * 4 1,
5	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 5 0, * 5 1,
6	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 6 0, * 6 1,
7	free	128	<input checked="" type="radio"/> Auto <input type="radio"/> Specify	<input type="checkbox"/> Enable IOU: * 7 0, * 7 1,

*. Port Priority:[0-255]
 *. Cost:[0-65535]
 . The "" represents that the partition dependence is 'OFF'

Apply Cancel

Figure 4.51 [Interface Setting (Partition)] window

Table 4.76 Displayed and setting items in the [Interface Setting] window

Item	Description
Port Priority	Specify the port priority. The lower the port priority, the higher the probability of forwarding. • Setting range: 0 to 255 default: 128
Cost	Specify the interface path cost: • Setting value: [Auto] or [Specify] If [Specify] is specified, specify a value ranging from 0 to 65535. • If [Auto] is specified, the default value is as follows: -- 10Mbps: 100 -- 100Mbps: 19 -- 1000Mbps: 4 -- 10Gbps: 2 default: [Auto]
Spanning Tree	To enable STP for the specified interface when STP is enabled for the whole device, check the check box of the interface. Default: The [Enable] check box is selected.

Table 4.77 Buttons in the [Interface Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Spanning Tree] → [Interface Setting] → [IOU] / [Front Panel] / [port-channel] / [Partition]

(2) GUI operation

- Setting
 - 1 Confirm that [Enable] is selected for [Spanning Tree Protocol] in the [Global Setting] window.
 - 2 Enable an interface in [Spanning Tree].
 - 3 Specify values in [Port Priority] and [Cost].
 - 4 To disable STP on the interface, uncheck the [Enable] check box in [Spanning Tree].
 - 5 Click the [Apply] button.

4.11.3 [STP Status] window

The [STP Status] window displays the STP status. If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.

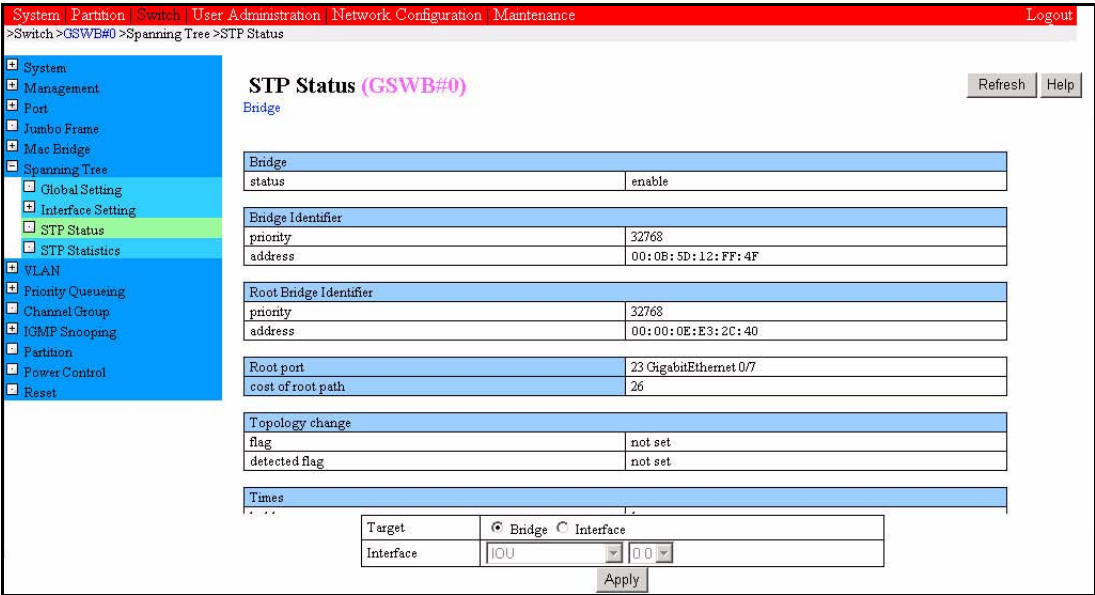


Figure 4.52 [STP Status (Bridge status Enable)] window



Figure 4.53 [STP Status (Bridge status Disable)] window

Table 4.78 Displayed and setting items in the [STP Status (Bridge status)] window

Item	Description
Bridge: Bridge information	
status	STP setting status, either STP enabled or STP disabled: <ul style="list-style-type: none"> • Enable: STP enabled • Disable: STP disabled
Bridge Identifier: Device identification information	
priority	Bridge priority value of the device: <ul style="list-style-type: none"> • Displayed range: 0 to 65535
address	Device MAC address
Root Bridge Identifier: Root bridge information	
priority	Bridge priority of the bridge unit specified as the root bridge: <ul style="list-style-type: none"> • Displayed range: 0 to 65535
address	MAC address of the bridge unit specified as the root bridge
Root port	
	Interface name of the unit specified as the root port. The following interface types can be used: <ul style="list-style-type: none"> • GigabitEthernet 0/1 to 0/8 • IOU 00 to 71 • 10GigabitEthernet 1/1 to 1/2 • port-channels 1 to 7 If the interface works as a root bridge, "0" is displayed as the port number and nothing is displayed as the interface name.
cost of root path	Path cost from the device to the root bridge: <ul style="list-style-type: none"> • Displayed range: 0 to 2147483647
Topology change: Flag ("set" or "not set" is displayed)	
flag	Topology change flag (set or not set).
detected flag	Topology change detection flag (set or not set).
Times: Values of timers in use (These are not displayed when the topology is being changed.)	
hold	Config BPDU transmission holding period
topology change	Topology change flag storage period in Config BPDU
notification	TCN BPDU transmission interval when a topology change is detected
hello	Config BPDU transmission interval
max age	Maximum aging time
forward delay	Transfer delay time

Item	Description
Configured Times: Specified values based on configuration definitions (These are not displayed when the topology is being changed.)	
hello time	Config BPDU transmission time: Interval value range: 1 to 10
max age	Maximum aging time: Displayed range: 6 to 40
forward delay	Transfer delay time: Displayed range: 6 to 40
Timers: Flags that indicate whether timers are active ("ACTIVE" or "INACTIVE" is displayed) (These are not displayed when the topology is being changed.)	
hello	Hello time timer
bpdu filter	When the entire unit STP status is "Disable," the filtering status display reveals whether the BPDU frame is transferred. When the entire unit STP status is "Enable," the filtering status is not displayed. <ul style="list-style-type: none"> • on: BPDU forwarding status is "Enable" (BPDU Frame transferred) • off: BPDU forwarding status is "Disable" (BPDU Frame not transferred)
Item	Description
Target	Select the target to be displayed. <ul style="list-style-type: none"> • Bridge: Displays bridge information. • Interface: Displays interface information. default: [Bridge]
Interface	Select an interface. <ul style="list-style-type: none"> • IOU: Selects an IO Unit (00 to 71) • Gigabit: Specifies GigabitEthernet (1 to 8) • 10Gigabit: Specifies 10GigabitEthernet (1 or 2) • port-channel: Specifies a port channel (1 to 7). default: [IOU 00]

Table 4.79 Buttons in the [STP Status] window

Button	Description
Refresh	Displays the latest information.
Help	Displays the Help window.
Apply	Sets the specified values.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Spanning Tree>STP Status

STP Status (GSWB#0) Refresh Help

Interface : IOU 0 0

Interface	01 IOU 0 0
Port status	disabled
Port path cost	4(auto)
Port priority	0
Port Identifier	00.00

Designated root	
priority	0
address	00:00:00:00:00:00

Designated bridge	
priority	0
address	00:00:00:00:00:00

Designated port id	00.00
designated path cost	4

Timers

Target	<input type="radio"/> Bridge <input checked="" type="radio"/> Interface
Interface	IOU 0 0

Apply

Figure 4.54 [STP Status (Interface status)] window

Table 4.80 Displayed and setting items in the [STP Status (Interface status)] window

Item	Description
Interface: Interface information	
	Port name: <ul style="list-style-type: none"> • IOU 00 to 71 • GigabitEthernet 0/1 to 0/8 • TenGigabitEthernet 1/1 to 1/2 • Port-channels 1 to 7 The interface name is "none" if no port-channel is defined and the interface status is "10GigabitEthernet Not-present."
Port status	Port status (listening, learning, forwarding or blocking)
Port path cost	Port path cost If "AUTO" is specified, "(auto)" is displayed.
Port priority	Port priority
Port Identifier	Port ID
Designated root: Root bridge information	
priority	Priority
address	MAC address

Item	Description
Designated bridge: Designated bridge information	
priority	Priority
address	MAC address
Designated port id	Designated port ID
Designated path cost	Designated path cost (if the interface is not the designated port, same as the designated path cost in [Config BPDU])
Timers: Flag to indicate whether the timer is active (ACTIVE or INACTIVE is displayed)	
forward delay	Forward delay timer
hold	Hold timer
Item	Description
Target	Select the target to be displayed. <ul style="list-style-type: none"> • Bridge: Displays bridge information. • Interface: Displays interface information. default: [Bridge]
Interface	Select an interface. <ul style="list-style-type: none"> • IOU: Selects an IO Unit (00 to 71) • Gigabit: Specifies GigabitEthernet (1 to 8) • 10Gigabit: Specifies 10GigabitEthernet (1 or 2) • port-channel: Specifies a port channel (1 to 7). default: [IOU 00]

Table 4.81 Buttons in the [STP Status] window

Button	Description
Refresh	Displays the latest information.
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

[Switch] → [GSWB#x] → [Spanning Tree] → [STP Status]

(2) GUI operation

- Bridge information display
 - 1 Specify [Bridge] in [Target].
 - 2 Click the [Apply] button.
 - 3 To refresh the displayed information, click the [Refresh] button in the title area.

- Interface information display
 - 1 Specify [Interface] in [Target].
 - 2 Select [Interface], and click the [Apply] button.
 - 3 To refresh the displayed information, click the [Refresh] button in the title area.

4.11.4 [STP Statistics] window

The [STP Statistics] window displays the STP statistical information.

If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.

The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Spanning Tree>STP Statistics

STP Statistics (GSWB#0) Refresh Help

Bridge

Bridge	
topology changes	1
last change occurred	00:00:00
forwarding db deleted	0
change to root bridge	0
change to not root bridge	1

Target ☒ Bridge ☐ Interface

Interface

Apply Clear

Figure 4.55 [STP Statistics (bridge information)] window

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch>GSWB#0>Spanning Tree>STP Statistics

STP Statistics (GSWB#0) Refresh Help

Interface : IOU 0 0

Interface	
	01 IOU 0 0
changed to root port	0
changed to designated port	0
changed to forwarding state	0
message age timer timeout	0
port request enable	0
port request disable	0

Config BPDU	
sent	0
received	0
discarded	0
TC flag ON Config BPDU received	0

TCN BPDU	
sent	0
received	0
discarded	0

Target ☐ Bridge ☒ Interface

Interface

Figure 4.56 [STP Statistics (interface information)] window

Table 4.82 Displayed and setting items in the [STP Statistics] window

Item	Description
Bridge: Bridge information	
topology changes	Number of topology changes
last change occurred	Elapsed time after the last topology change
forwarding-db deleted	Number of times that the learning table was deleted
changed to root bridge	Number of times that a bridge was changed to the root bridge
changed to not root bridge	Number of times that a bridge was changed to a non-root bridge
Interface: Interface information	
	Port name: <ul style="list-style-type: none"> • IOU 00 to 71 • GigabitEthernet 0/1 to 0/8 • TenGigabitEthernet 1/1 to 1/2 • Port-channels 1 to 7 The interface name is "none" if no port-channel is defined and the interface status is "10GigabitEthernet Not-present."
changed to root port	Number of times that a port was changed to the root port
changed to designated port	Number of times that a port was changed to the designated port
changed to forwarding state	Number of transitions to the forwarding state
message age timer timeout	Timeout count of the message age timer

Item	Description
port request enable	Number of times that the port was enabled
port request disable	Number of times that the port was disabled
Config BPDU: Config BPDU statistical information	
sent	Number of transmitted BPDUs
received	Number of received BPDUs
discarded	Number of received BPDUs that were discarded
TC flag ON Config BPDU received	Number of received Config BPDUs with the topology change flag set to ON.
TCN BPDU: TCN BPDU statistical information	
sent	Number of transmitted BPDUs
received	Number of received BPDUs
discarded	Number of received BPDUs that were discarded
BPDU discarded by system error	Number of BPDUs that were discarded because of a system error
Trigger for changing to root bridge: Trigger for a change to the root bridge	
message age timeout	Displays the number of times that message age timeout became a trigger.
port down	Displays the number of times that port-down became a trigger.
Trigger for changing to not root bridge: Trigger for a change to a non-root bridge	
new Config BPDU received	Reception of a new Config BPDU
Target	Select the type of information to be displayed: Bridge: Bridge information Interface : Interface information default: [Bridge]
Interface	Select the interface whose information is displayed when [Interface] has been selected in [Target]: <ul style="list-style-type: none"> • IOU: Select an IO Unit (00 to 71). • Gigabit: Specify GigabitEthernet (1 to 8). • 10Gigabit: Specify 10GigabitEthernet (1 or 2). • port channel: Specify a port-channel (1 to 7). default: [IOU 00]

Table 4.83 Buttons in the [STP Statistics] window

Button	Description
Refresh	Displays up-to-date information.
Help	Displays the Help window.
Apply	Sets the specified values.
Clear	Clears statistical information.

(1) Menu operation

[Switch] → [GSWB#x] → [Spanning Tree] → [STP Statistics]

(2) GUI operation

- Bridge statistical information display
 - 1 Specify [Bridge] in [Target].
 - 2 Click the [Apply] button.
- Interface statistical information display
 - 1 Specify [Interface] in [Target].
 - 2 Select the interface whose information is to be displayed.
 - 3 Click the [Apply] button.
- Refresh display
 - 1 Click the [Refresh] button. If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.
- Statistical information clearing
 - 1 Click the [Clear] button.
 - 2 Clicking the [OK] button in the confirmation window clears the target statistical information. All statistical information is cleared, rather than statistical information on the selected interface.

4.12 VLAN Menu

The [VLAN] menu is used to manipulate VLANs and configure VLAN settings.

4.12.1 [VLAN ID Select] window

The [VLAN ID Select] window is used to select a VLAN for settings or changes.

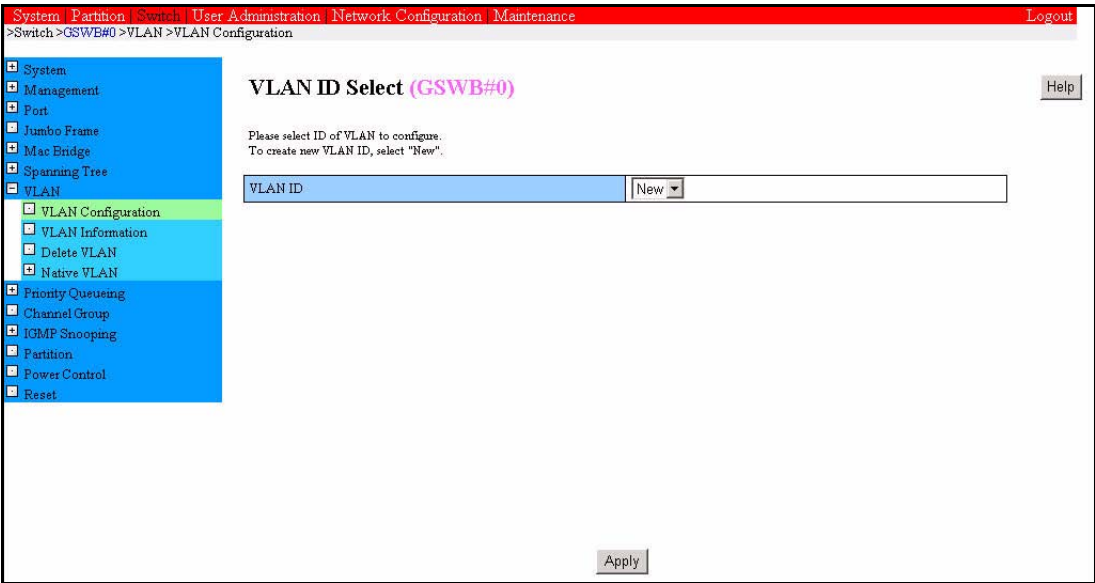


Figure 4.57 [VLAN ID Select] window

Table 4.84 Displayed or setting item in the [VLAN ID Select] window

Item	Description
VLAN ID	Select a VLAN ID. To create a VLAN ID, select [New]. Selection range: [New] or defined VLAN IDs: 1 to 4094 Default: New

Table 4.85 Buttons in the [VLAN ID Select] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

[Switch] → [GSWB#x] → [VLAN] → [VLAN Configuration]

(2) GUI operation

- VLAN ID creation
 - 1 Select [New] from the [VLAN ID] pulldown list.
 - 2 Click the [Apply] button.
 - 3 The [VLAN Configuration] window is displayed.
- Setting change
 - 1 Select the VLAN ID to be changed from the [VLAN ID] pulldown list.
 - 2 Click the [Apply] button.
 - 3 The [VLAN Configuration] window is displayed.

4.12.1.1 [VLAN Configuration] window

The [VLAN Configuration] window configures settings of the VLAN selected in the [VLAN ID Select] window.

An asterisk (*) displayed in the IOU field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

Note: Initially, all interfaces for the Access VLAN with VLAN ID 1 are set. Changing only a VLAN name is not possible. To change a VLAN name, delete the VLAN, specify a new VLAN name, and then create the VLAN. For details on [Partition] items, see [Section 3.2.2, "Settings dependent on partition settings."](#)

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch >GSWB#0 >VLAN >VLAN Configuration

VLAN Configuration (GSWB#0) Help

System
Management
Port
Jumbo Frame
Mac Bridge
Spanning Tree
VLAN
 VLAN Configuration
 VLAN Information
 Delete VLAN
 Native VLAN
 Priority Queuing
Channel Group
IGMP Snooping
Partition
Power Control
Reset

VLAN ID	1
VLAN Name	vlan0001

IOU	None	Access	Tagged	Partition
IOU 0 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	0 free
IOU 0 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	0 free
IOU 1 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1 free
IOU 1 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1 free
IOU 2 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2 free
IOU 2 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2 free
IOU 3 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	3 free
IOU 3 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	3 free
IOU 4 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	4 free
IOU 4 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	4 free
IOU 5 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	5 free
IOU 5 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	5 free
IOU 6 0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	6 free
IOU 7 0 Not-present	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7 free
IOU 7 1 Not-present	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7 free

External	None	Access	Tagged	port-channel
Gigabit 1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	3
Gigabit 2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	3
Gigabit 3	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
Gigabit 4	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
Gigabit 5	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
Gigabit 6	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
Gigabit 7	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
Gigabit 8	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-
10Gigabit 1 Not-present	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
10Gigabit 2 Not-present	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-

port-channel	None	Access	Tagged	External
port-channel 1 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
port-channel 2 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
port-channel 3	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Gigabit: 1, 2
port-channel 4 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
port-channel 5 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
port-channel 6 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-
port-channel 7 Undefined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-

Partition	None	Access	Tagged	IOU
0 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *0 0, *0 1,
1 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *1 0, *1 1,
2 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *2 0, *2 1,
3 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *3 0, *3 1,
4 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *4 0, *4 1,
5 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *5 0, *5 1,
6 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *6 0, *6 1,
7 free	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	IOU: *7 0, *7 1,

. The "" represents that the partition dependence is "OR"

Back Apply Cancel

Figure 4.58 [VLAN Configuration] window

Table 4.86 Displayed and setting items in the [VLAN Configuration] window

Item	Description
VLAN ID	Specify a VLAN ID. This can be specified only during configuration of a new VLAN. Setting range: 2 to 4094
VLAN Name	Specify a VLAN name. This can be specified only during configuration of a new VLAN.
VLAN Config	Select a VLAN type: <ul style="list-style-type: none"> • None: Does not include the interface in the selected VLAN. • Access: Specifies the VLAN as an access VLAN (port VLAN). • Tagged: Specifies the VLAN as a tagged VLAN. The name consists of up to 32 en-size alphanumeric characters (0 to 9, a to z, and A to Z) (Optional) Default: [None] when a VLAN is created

Table 4.87 Buttons in the [VLAN Configuration] window

Button	Description
Help	Displays the Help window.
Back	Redisplays the window that was displayed before the transition.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [VLAN] → [VLAN Configuration] → Select a VLAN ID → [Apply] button

(2) GUI operation

- VLAN creation
 - 1 Specify values in [VLAN ID] and [VLAN NAME].
 - 2 Click the [Apply] button.
- Setting change
 - 1 Change the setting for the VLAN of each interface.
 - 2 Click the [Apply] button.

Reference: Since an interface needs to be a member of a defined VLAN, the setting may be left unchanged if you specify [None] and click the [Apply] button.

4.12.2 [VLAN Information] window

The [VLAN Information] window lists VLANs that have been set up. "-" is displayed for any interface that is not a member of the VLAN configuration. "A" is displayed for any interface in Access mode. "T" is displayed for any tagged interface.

A VLAN can be selected from the list and modified or deleted.

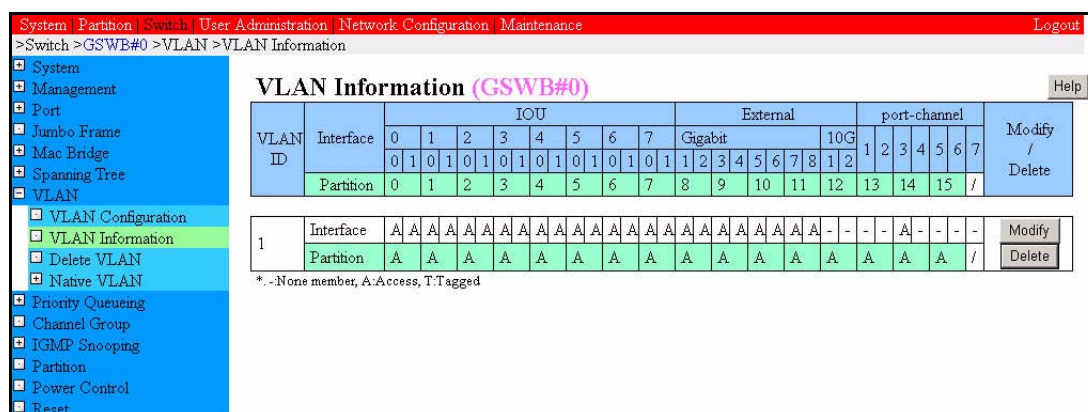


Figure 4.59 [VLAN Information] window

Table 4.88 Displayed or setting item in the [VLAN Information] window

Item	Description
VLAN ID	VLAN information: <ul style="list-style-type: none"> -: Not a member of the VLAN configuration A: Access VLAN T: Tag VLAN

Table 4.89 Buttons in the [VLAN Information] window

Button	Description
Help	Displays the Help window.
Modify	Modifies VLAN information.
Delete	Deletes VLAN information.

(1) Menu operation

[Switch] → [GSWB#x] → [VLAN] → [VLAN Information]

(2) GUI operation

- VLAN setting change

1 To change a VLAN, click the [Modify] button next to its VLAN ID.

- 2 The [VLAN Configuration] window is displayed.
(See [Section 4.12.1.1, "\[VLAN Configuration\] window."](#))
- VLAN deletion
 - 1 To delete a VLAN, click the [Delete] button next to its VLAN ID.
 - 2 Clicking the [OK] button in the confirmation window deletes the VLAN.

4.12.3 [Delete VLAN] window

The [VLAN Delete] window deletes VLANs. The VLAN with VLAN ID 1 cannot be deleted.



Figure 4.60 [Delete VLAN] window

Table 4.90 Displayed and setting items in the [Delete VLAN] window

Item	Description
VLAN ID	Registered VLAN ID
VLAN Name	VLAN name corresponding to a VLAN ID
Delete	To delete a VLAN, check the check box of its VLAN ID.

Table 4.91 Buttons in the [Delete VLAN] window

Button	Description
Help	Displays the Help window.
Apply	Deletes the specified VLAN ID.

(1) Menu operation

[Switch] → [GSWB#x] → [VLAN] → [Delete VLAN]

(2) GUI operation

- VLAN deletion
 - 1 To delete a VLAN, check the check box of its VLAN ID.
 - 2 Click the [Apply] button.
 - 3 Clicking the [OK] button in the confirmation window deletes the VLAN.

4.12.4 [Native VLAN] window

The [Native VLAN] window specifies native VLAN IDs. If the interface is in VLAN Trunk mode, specify a VLAN that receives traffic without tags. A VLAN ID can be changed only if the interface belongs to a tagged VLAN.

An asterisk (*) displayed in the IOU field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

IOU	Membership Mode	VLAN ID	Partition	
IOU 0 0	Access	1	0	free
IOU 0 1	Access	1	0	free
IOU 1 0	Access	1	1	free
IOU 1 1	Access	1	1	free
IOU 2 0	Access	1	2	free
IOU 2 1	Access	1	2	free
IOU 3 0	Access	1	3	free
IOU 3 1	Access	1	3	free
IOU 4 0	Access	1	4	free
IOU 4 1	Access	1	4	free
IOU 5 0	Access	1	5	free
IOU 5 1	Access	1	5	free
IOU 6 0	Access	1	6	free
IOU 6 1	Access	1	6	free
IOU 7 0 Not-present	Access	1	7	free

Figure 4.61 [Native VLAN (IOU)] window

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch >GSWB#0 >VLAN >Native VLAN >External

Native VLAN [External] (GSWB#0) Help

External	Membership Mode	VLAN ID	port-channel
Gigabit 1	Access	1	3
Gigabit 2	Access	1	3
Gigabit 3	Access	1	-
Gigabit 4	Access	1	-
Gigabit 5	Access	1	-
Gigabit 6	Access	1	-
Gigabit 7	Access	1	-
Gigabit 8	Access	1	-
10Gigabit 1 Not-present	-		-
10Gigabit 2 Not-present	-		-

*. Please specify 1 through 4094.

Apply Cancel

Figure 4.62 [Native VLAN (External)] window

System Partition Switch User Administration Network Configuration Maintenance Logout

>Switch >GSWB#0 >VLAN >Native VLAN >port-channel

Native VLAN [port-channel] (GSWB#0) Help

port-channel	Membership Mode	VLAN ID	External
port-channel 1 Undefined	-		-
port-channel 2 Undefined	-		-
port-channel 3	Access	1	Gigabit 1, 2
port-channel 4 Undefined	-		-
port-channel 5 Undefined	-		-
port-channel 6 Undefined	-		-
port-channel 7 Undefined	-		-

*. Please specify 1 through 4094.

Apply Cancel

Figure 4.63 [Native VLAN (port-channel)] window

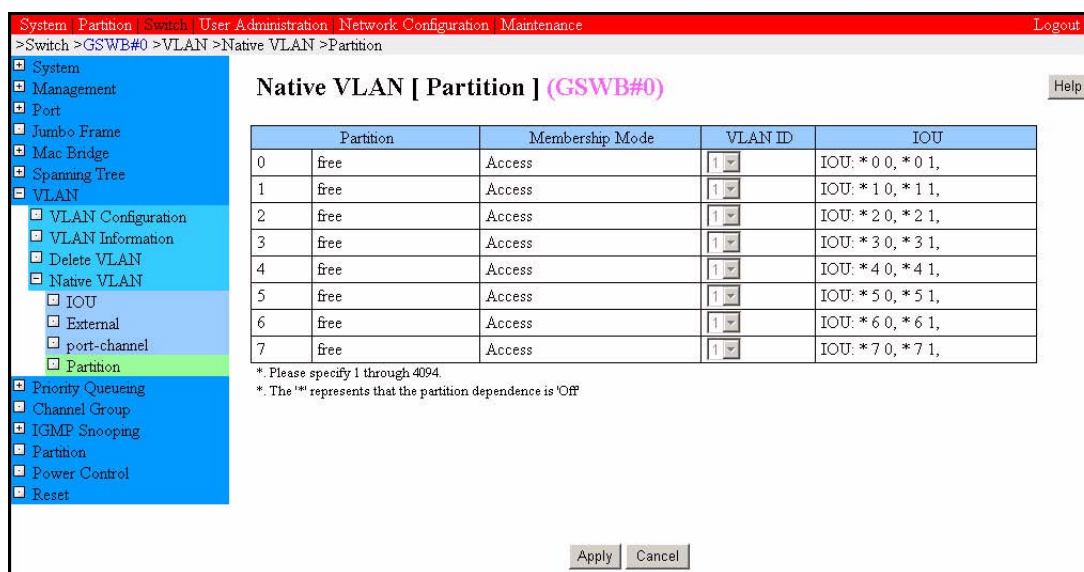


Figure 4.64 [Native VLAN (Partition)] window

Table 4.92 Displayed or setting item in the [Native VLAN] window

Item	Description
VLAN ID	Specify a PVID that is allocated to traffic without a tag when the interface is in 802.1Q VLAN Trunk mode. Setting range for defined VLAN ID: 1 to 4094 Default: 1

Table 4.93 Buttons in the [Native VLAN] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [VLAN] → [Native VLAN] → [IOU] / [Front Panel] / [port-channel] / [Partition]

(2) GUI operation

- Setting
 - 1 Select a VLAN ID that is allocated to traffic without a tag.
 - 2 Click the [Apply] button.

4.13 Priority Queueing Menu

The [Priority Queueing] menu is used to define priority control.

4.13.1 [Default Priority] window

The [Default Priority] window sets priorities to frames without tags. They do not apply to IEEE802.1Q VLAN tagged frames.

An asterisk (*) displayed in the IOU field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window. For details on settings in the [Partition menu] window, see [Section 4.16, "Partition Menu."](#)

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Priority Queueing >Default Priority >IOU

System
Management
Port
Jumbo Frame
Mac Bridge
Spanning Tree
VLAN
Priority Queueing
Default Priority
IOU
External
port-channel
Partition
CoS Queue Map
Channel Group
IGMP Snooping
Partition
Power Control
Reset

Default Priority [IOU] (GSWB#0)

IOU	Priority	Partition
IOU 0 0	0	free
IOU 0 1	0	free
IOU 1 0	1	free
IOU 1 1	1	free
IOU 2 0	2	free
IOU 2 1	2	free
IOU 3 0	3	free
IOU 3 1	3	free
IOU 4 0	4	free
IOU 4 1	4	free
IOU 5 0	5	free
IOU 5 1	5	free
IOU 6 0	6	free
IOU 6 1	6	free
IOU 7 0 Not-present	7	free

Apply Cancel

Figure 4.65 [Default Priority (IOU)] window

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Priority Queueing >Default Priority >External

Default Priority [External] (GSWB#0) Help

External	Priority	port-channel
Gigabit 1	0	3
Gigabit 2	1	3
Gigabit 3	2	-
Gigabit 4	3	-
Gigabit 5	4	-
Gigabit 6	5	-
Gigabit 7	6	-
Gigabit 8	7	-
10Gigabit 1 Not-present		-
10Gigabit 2 Not-present		-

*. Priority [0-7], 7 is the highest.

Apply Cancel

Figure 4.66 [Default Priority (External)] window

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Priority Queueing >Default Priority >port-channel

Default Priority [port-channel] (GSWB#0) Help

port-channel	Priority	External
port-channel 1 Undefined		-
port-channel 2 Undefined		-
port-channel 3	0	Gigabit: 1, 2
port-channel 4 Undefined		-
port-channel 5 Undefined		-
port-channel 6 Undefined		-
port-channel 7 Undefined		-

*. Priority [0-7], 7 is the highest.

Apply Cancel

Figure 4.67 [Default Priority (port-channel)] window

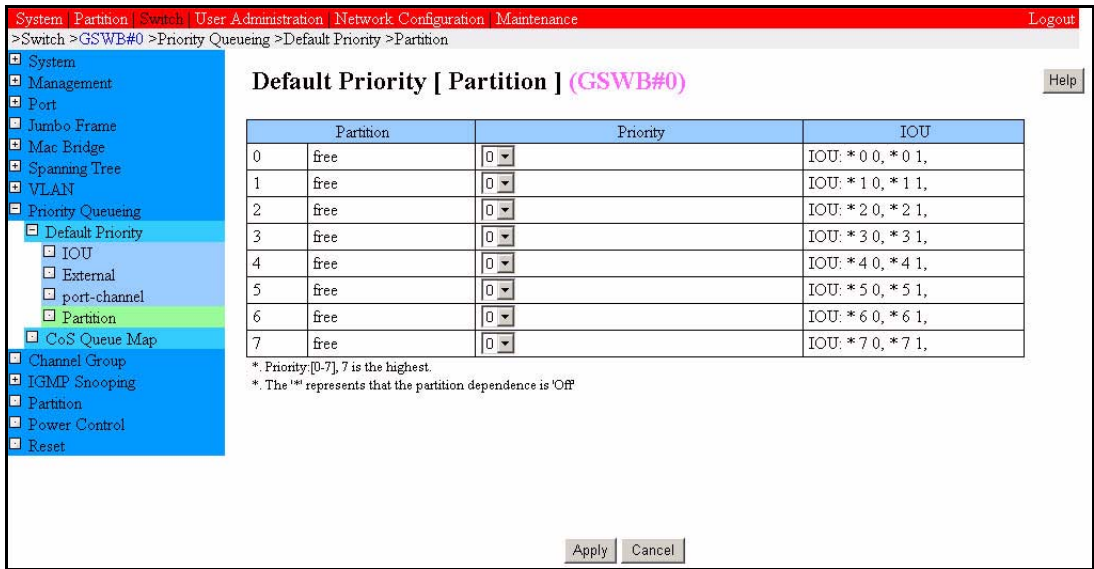


Figure 4.68 [Default Priority (Partition)] window

Table 4.94 Displayed or setting item in the [Default Priority] window

Item	Description
Priority	Specify the priority for a frame without a tag. The highest priority is 7. <ul style="list-style-type: none">• Setting range: 0 to 7 <p style="text-align: right;">Default: 0</p>

Table 4.95 Buttons in the [Default Priority] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Priority Queueing] → [Default Priority] → [IOU] /
[Front Panel] / [port-channel] / [Partition]

(2) GUI operation

- Setting
 - 1 Select the priority.
 - 2 Click the [Apply] button.

4.13.2 [CoS Queue Map] window

The [CoS Queue Map] window defines the correspondence between the user priority and the CoS Queue. Clicking the [Default] button returns the mapping to its initial state.

Table 4.96 Weighting in each Queue

Priority (CoS Queue)	Weight	Notes
0	1	The bandwidth is about 10% for simultaneous transmission of all queues.
1	2	The bandwidth is about 20% for simultaneous transmission of all queues.
2	3	The bandwidth is about 30% for simultaneous transmission of all queues.
3	4	The bandwidth is about 40% for simultaneous transmission of all queues.

Table 4.97 Default QoS map

Unit priority	User priority	Application (example)
0	1, 2	Background service
1	0, 3	Best efforts (default)
2	4, 5	Video
3	7, 6	Network management, audio, etc.

Note: The CoS value allocated to the input port is used for CoS priority selection in the output port.

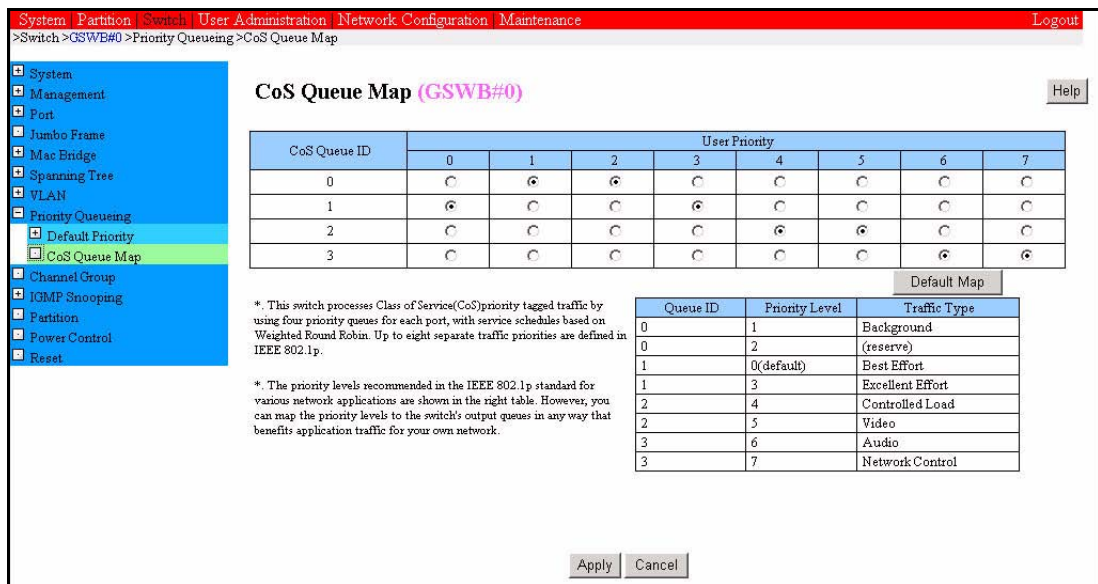


Figure 4.69 [CoS Queue Map] window

Table 4.98 Displayed and setting items in the [CoS Queue Map] window

Item	Description
CoS Queue ID	Queue ID of CoS priority queue (0 to 3)
User Priority	Specify the priority of a frame without a tag (0 to 7)

Table 4.99 Buttons in the [CoS Queue Map] window

Button	Description
Help	Displays the Help window.
Default Map	Returns mapping to its initial state.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Priority Queueing] → [CoS Queue Map]

(2) GUI operation

- Setting
 - 1 Click the appropriate radio buttons to perform mapping.
 - 2 Click the [Apply] button.

- Default value restoration
 - 1 Click the [Default Map] button.
 - 2 Click the [Apply] button.

4.14 Channel Group Menu

4.14.1 [Channel Group] window

The [Channel Group] window adds and deletes physical links in channel groups:

- If a channel group has no port, the channel group is deleted.
- A channel group is defined when the first port is added.
- Up to eight ports can be configured in one channel group.
- Load balancing can be set up only for a defined channel group. (Load balancing is set up by default when the group is defined).
- The first port added to a channel group is set as the Master-Port, which has the lowest interface number among the ports in the channel group.
- To delete the Master-Port, it must be deleted when all other ports in the same channel group are deleted.
- GigabitEthernet and 10GigabitEthernet ports cannot be in the same channel group.

Note: To add an IOU interface to a channel group, use the GSWB CLI. When the GSWB CLI is used to add an IOU interface to a channel group, the [Channel Group] window does not display the added interface and displays only "Defined" for it.

System | Partition | Switch | User Administration | Network Configuration | Maintenance | Logout

>Switch >GSWB#0 >Channel Group

Channel Group (GSWB#0) Help

Channel Group	Status	Member Port	Load Balance
1	Undefined		
2	Undefined		
3	Defined	Gigabit: 1, 2	src-dst-mac
4	Undefined		
5	Undefined		
6	Undefined		
7	Undefined		

* Master-port is the first added interface in a channel group.
 * Master-port has a minimum interface number in the member port.
 * Master-port must not be deleted until the end.
 * Gigabit interface and 10Gigabit interface cannot be aggregated.

↑ Modify the channel group

Channel Group		
Operation	<input checked="" type="radio"/> Add <input checked="" type="radio"/> Delete	
Interface	Gigabit <input type="radio"/> 0/1 <input type="radio"/> 0/2 <input type="radio"/> 0/3 <input type="radio"/> 0/4 <input type="radio"/> 0/5 <input type="radio"/> 0/6 <input type="radio"/> 0/7 <input type="radio"/> 0/8 10Gigabit <input type="radio"/> 1/1 <input type="radio"/> 1/2	

Apply Cancel

Figure 4.70 [Channel Group] window

Table 4.100 Displayed and setting items in the [Channel Group] window

Item	Description
Channel Group	Displays the channel group number.
Status	Channel group status: <ul style="list-style-type: none"> • Defined: Defined/registered channel group • Undefined: Undefined channel group
Member Port	Port
Load Balance	Load balancing information
Modify the channel group	
Channel Group	Specify the channel number for a channel group: <ul style="list-style-type: none"> • Setting range: 1 to 7
Operation	Select Add or Delete for an interface: <ul style="list-style-type: none"> • Add: Adds an interface to the port channel. • Delete: Deletes an interface from the port channel.
Member Port	Specify the interface that you want to add or delete. <ul style="list-style-type: none"> • Gigabit: Specifies a GigabitEthernet. • 10Gigabit: Specifies a 10GigabitEthernet.
Load Balance	Define load balancing: <ul style="list-style-type: none"> • src-mac: Uses hash for the source MAC addresses for load balancing. • dst-mac: Uses hash for the destination MAC addresses for load balancing. • src-dst-mac: Uses hash for both the source and destination MAC addresses for load balancing. • src-ip: Uses hash for the source IP addresses for load balancing. • dst-ip: Uses hash for the destination IP addresses for load balancing. • src-dst-ip: Uses hash for both the source and destination IP addresses for load balancing. <p style="text-align: right;">Default: [src-mac]</p>

Table 4.101 Buttons in the [Channel Group] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Channel Group]

(2) GUI operation

- Interface addition

- 1 Select a channel group number for the added interface.
- 2 Select [Add] from [Operation].
- 3 Select the interface to be added.
- 4 Click the [Apply] button.

Note: If no port channel has been created, a port channel is automatically created, and the interface is added to it.

- Interface deletion

- 1 Select the channel group number of the interface to be deleted.
- 2 Select [Delete] in [Operation].
- 3 Select the interface to be deleted.
- 4 Click the [Apply] button.

Note: If no interface remains in the port channel after the interface is deleted, the definition of the port channel is deleted.

4.15 IGMP Snooping Menu

The [IGMP Snooping] menu is used to manipulate IGMP snooping and configure its settings.

4.15.1 [Global Setting] window

The [Global Setting] window configures IGMP snooping settings.

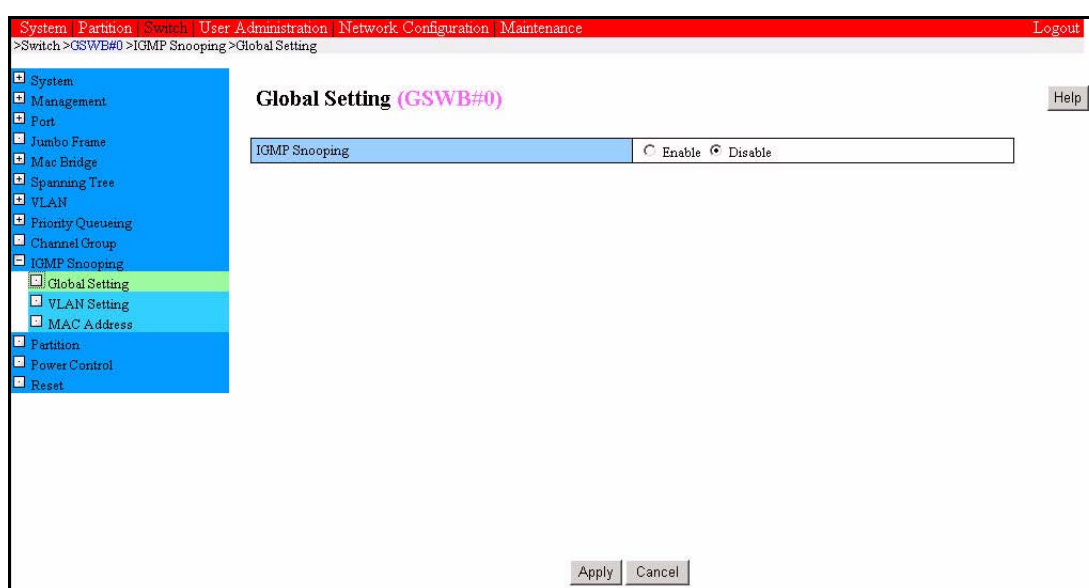


Figure 4.71 [Global Setting] window

Table 4.102 Displayed or setting item in the [Global Setting] window

Item	Description
IGMP Snooping	Specify Enable or Disable for IGMP snooping: <ul style="list-style-type: none"> • Enable: Enables IGMP snooping (throughout the entire device). • Disable (default): Disables IGMP snooping (throughout the entire device). <p style="text-align: right;">Default: [Disable]</p>

Table 4.103 Buttons in the [Global Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [IGMP Snooping] → [Global Setting]

(2) GUI operation

- Setting
 - 1 Select Enable or Disable.
 - 2 Click the [Apply] button.

4.15.2 [VLAN Setting] window

The [VLAN Setting] window sets Enable or Disable for a specific VLAN:

- To enable IGMP snooping in the VLAN, enable IGMP snooping on the entire device.
- If IGMP snooping is disabled in the VLAN, no router port can be specified.
- Any port that is not part of the VLAN cannot be defined as a router port.
- IGMP snooping can be enabled in up to 110 VLANs.

The displayed items depend on whether a selection was made from the menu, a VLAN ID was selected, or an IGMP setting was changed.

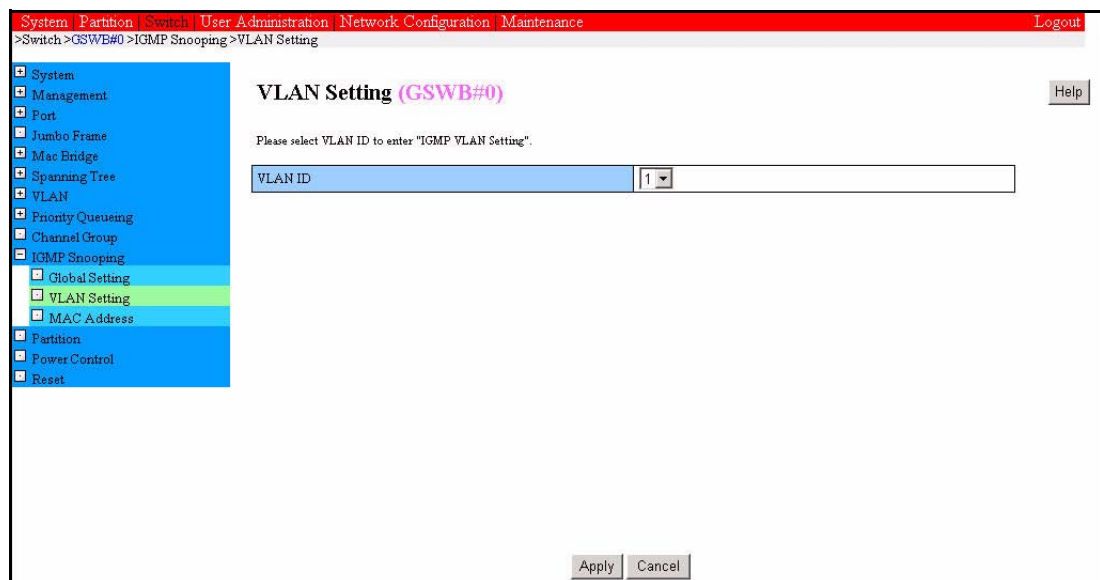


Figure 4.72 [VLAN Setting] window (after a selection is made from the menu)

Table 4.104 Displayed or setting item in the [VLAN Setting] window
(after selection is made from the menu)

Item	Description
VLAN ID	Select a defined VLAN ID. Setting range: 1 to 4094 default: 1

Figure 4.73 [VLAN Setting] window
(after a VLAN ID is selected or an IGMP setting is changed)

Table 4.105 Displayed and setting items in the [VLAN Setting] window
(after a VLAN ID is selected or an IGMP setting is changed)

Item	Description
VLAN ID	VLAN ID
Status	Specify Enable or Disable for the VLAN: <ul style="list-style-type: none"> • Enable: Enables IGMP snooping in the specified VLAN. • Disable: Disables IGMP snooping in the specified VLAN. Default: [Disable]
Type / Multicast Router Port	Specify for each Type the interface to be added to the router port. <ul style="list-style-type: none"> • IOU: Specify the IO Unit interface. • Gigabit: Specify the Gigabit interface. • 10Gigabit: Specify the 10Gigabit interface. • port-channel: Specify port-channel.

Table 4.106 Buttons in the [VLAN Setting] window

Button	Description
Help	Displays the Help window.
Back	Redisplays the window that is used when selecting VLAN IDs.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [IGMP Snooping] → [VLAN Setting]

(2) GUI operation

- VLAN-ID selection
 - 1 To specify or change a VLAN, select its VLAN ID from the pull-down menu.
 - 2 Clicking the [Apply] button displays the IGMP setting of the selected VLAN ID.
- Enabling IGMP
 - 1 Specify [Enable] in [Status].
 - 2 Click the [Apply] button.
- Router port setting
 - 1 Check the check box of an interface that is part of the VLAN.
 - 2 Click the [Apply] button.

4.15.3 [MAC Address] window

The [MAC Address] window adds a layer-2 port into a multicast group. You can statically specify a multicast MAC address and interface.

- You need to enable IGMP snooping on the entire device and at the specified VLAN ID to add multicast addresses.
- The specified interface must be a member of the specified VLAN ID.
- You can specify up to 252 multicast MAC addresses.

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>Switch>GSWB#0>IGMP Snooping>MAC Address

MAC Address (GSWB#0) Help

VLAN ID	MAC Address	Interface	Delete
There are no igmp mac address entries.			

↑ Add the new entry

VLAN ID	
MAC Address	01 : 00 : 5e : : :
Interface	IOU 00

Apply

Figure 4.74 [MAC Address] window

Table 4.107 Displayed and setting items in the [MAC Address] window

Item	Description
VLAN ID	Specify a VLAN ID: <ul style="list-style-type: none"> Setting range: Defined VLAN ID 1 to 4094
MAC Address	Specify a multicast MAC address. The beginning of the MAC address is fixed with 01:00:5E. A value ranging from 0x00 to 0x7F can be entered in the first field.
Interface	Select an interface: <ul style="list-style-type: none"> IOU: Select an IO Unit (00 to 71). Gigabit: Specify GigabitEthernet (1 to 8). 10Gigabit: Specify 10GigabitEthernet (1 or 2) only if the 10G daughterboard is mounted. Port-channel: Specify a port-channel (1 to 7). <p style="text-align: right;">Default: [IOU 00]</p>
Delete	Check the check box corresponding to the entry to be deleted.

Table 4.108 Buttons in the [MAC Address] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

[Switch] → [GSWB#x] → [IGMP Snooping] → [MAC Address]

(2) GUI operation

- Addition
 - 1 Specify a VLAN ID, multicast MAC address, and Interface in the field for a new entry.
 - 2 Click the [Apply] button.
- Deletion
 - 1 Check the appropriate [Delete] check box. (Multiple check boxes can be checked.)
 - 2 Click the [Apply] button.

4.16 Partition Menu

4.16.1 [Partition] window

For specific settings (interface settings), the GSWB Web-UI can be used to set GSWB and partition setting values separately. These partition setting values are used to make identical settings for interfaces connecting IO Units belonging to the same partition.

When [Partition Dependence] is [On] in the [Partition] window, the IO Unit interface settings depend on the configuration of the partition to which the IO Unit belongs and are changed according to partition settings in the window as described below.

When a setting is made in the [Partition Dependence] window, the setting is made for an IO Unit belonging to the partition/interface numbers for which [Partition Dependence] is set to [On]. While [Partition Dependence] is set to [Off], the setting is not reflected even if the IO Unit belongs to the partition.

If the partition configuration is changed and the IO Unit is switched to another partitions while [Partition Dependence] is set to [On], the IO Unit interface settings are automatically changed to include the partition-dependent values set for the new partition number. While [Partition Dependence] is set to [Off], the values set for the IO Unit interface are used directly as partition values.

Partition-dependent settings can be made in the following window.

- [Switch] → [GSWB#x] → [Port] → [Flow Control] → [Partition]
- [Switch] → [GSWB#x] → [Port] → [Rate Control] → [Partition]
- [Switch] → [GSWB#x] → [Spanning Tree] → [Interface Setting] → [Partition]
- [Switch] → [GSWB#x] → [VLAN] → [VLAN Configuration]
- [Switch] → [GSWB#x] → [VLAN] → [Native VLAN] → [Partition]
- [Switch] → [GSWB#x] → [Priority Queueing] → [Default Priority] → [Partition]

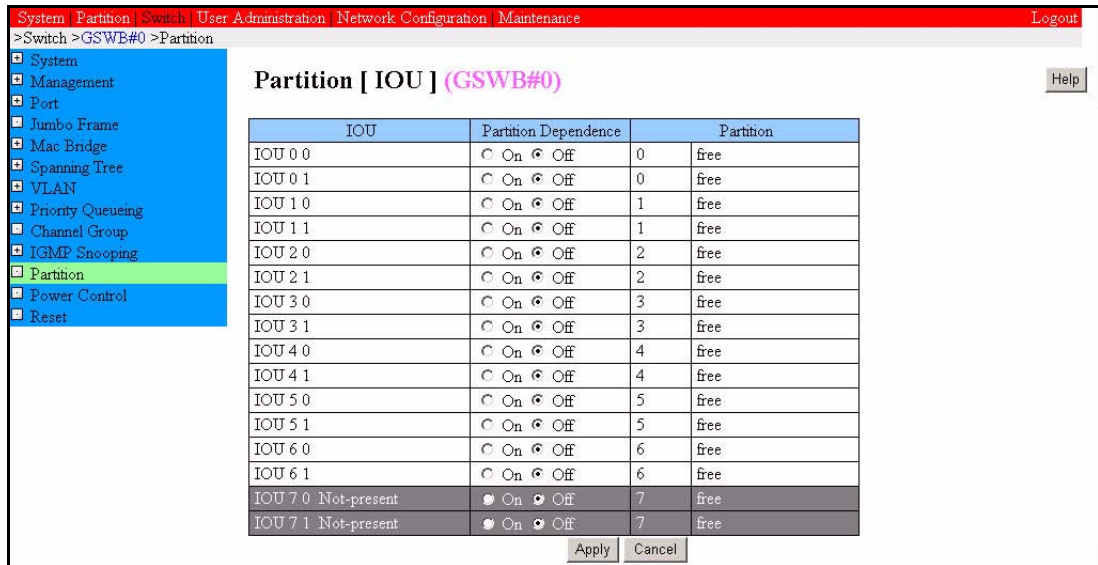


Figure 4.75 [Partition] window

Table 4.109 Displayed and setting items in the [Partition] window

Item	Description
IOU	IOU information
Partition Dependence	Specify whether to use the partition or interface: On: Uses the partition setting value. Off: Uses the interface setting value on the GSWB. The interface setting value is maintained even if the partition to which the interface belongs is changed. Default: [Off]
Partition	Partition information

Table 4.110 Buttons in the [Partition] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Partition]

(2) GUI operation

- 1 When changing IO Unit interface setting values that depend on the partition configuration, set [On] for [Partition Dependence].
When changing IO Unit interface setting values that do not depend on the partition configuration, set [Off] for [Partition Dependence].
- 2 Click the [Apply] button.

4.17 Power Control Menu

4.17.1 [Power Control] window

The [Power Control] window specifies whether to turn on or turn off power to the GSWB during an occasion such as GSWB replacement.

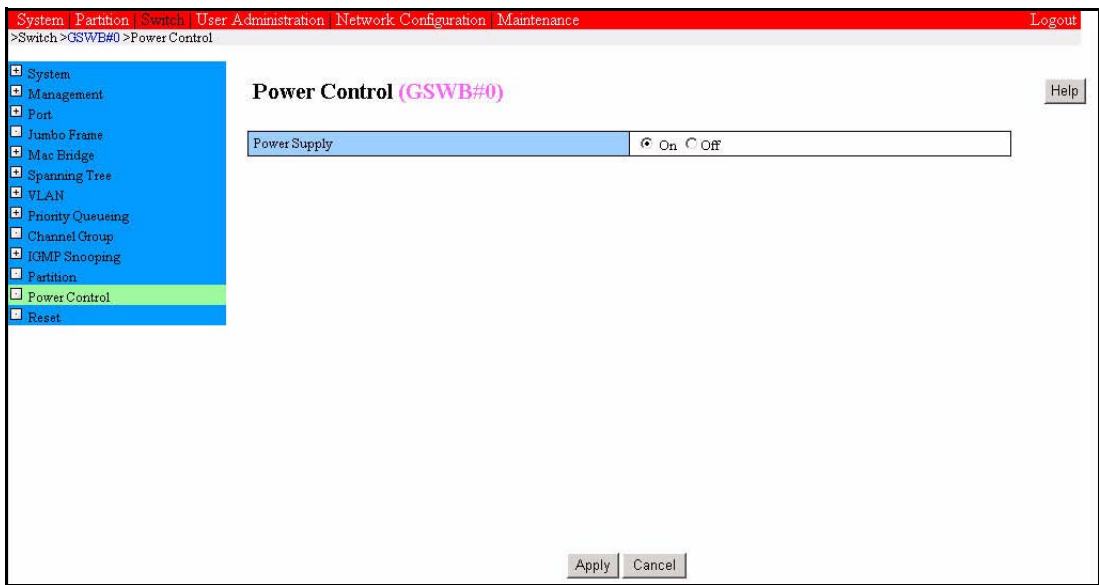


Figure 4.76 [Power Control] window

Table 4.111 Displayed or setting item in the [Power Control] window

Item	Description
Power Supply	Select whether to turn on or turn off power: <ul style="list-style-type: none">• On: Turns on power (power-on).• Off: Turns off power (power-off).

Table 4.112 Buttons in the [Power Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

[Switch] → [GSWB#x] → [Power Control]

(2) GUI operation

- Power-on
 - 1 Select [On].
 - 2 Click the [Apply] button.
 - 3 Restarting the GSWB takes several minutes. The following message is displayed at this time:
"GSWB is booting now. Please wait several minutes."
 - 4 The following message is displayed when this GSWB restart is completed:
[GSWB Started.]
- Power-off
 - 1 Select [Off].
 - 2 Click the [Apply] button.
 - 3 The power-off confirmation window is displayed. Clicking the [OK] button turns off power.

Remarks: If GSWB#0 or GSWB#1 is clicked from a submenu in the [GSWB Status] window when the GSWB is powered off, the [Power Control] window is displayed so that the GSWB can be powered on.



Figure 4.77 [Power Control] window (for a [GSWB Status] window operation)

4.18 Reset Menu

4.18.1 [Reset] window

When the configuration definition or firmware is updated, the GSWB must be restarted to use the updated files.

The [Reset] window restarts the GSWB, and this window can be used to specify that an initial diagnosis be run.

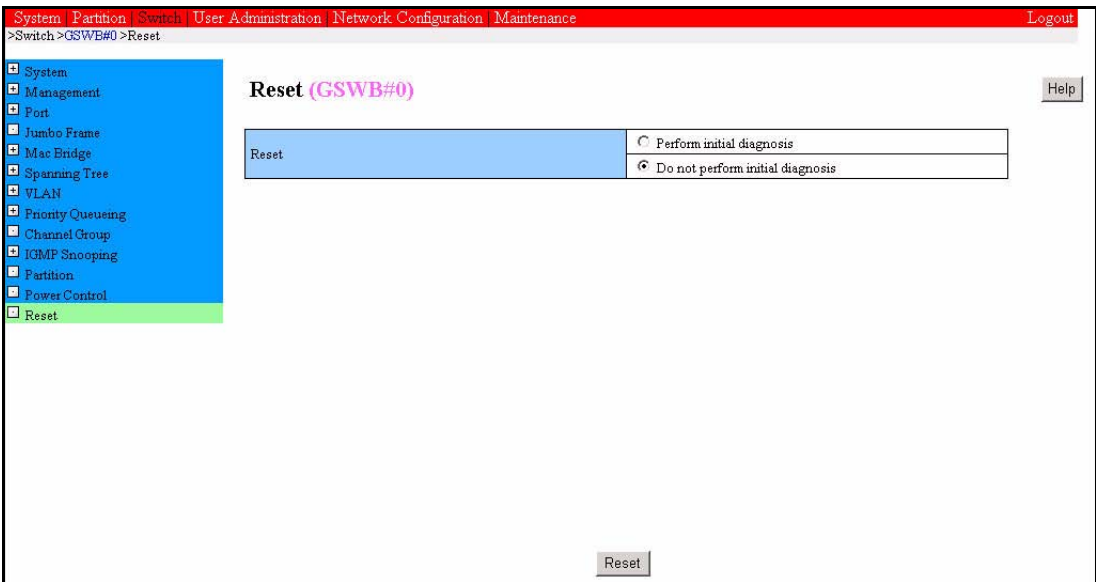


Figure 4.78 [Reset] window

Table 4.113 Displayed or setting item in the [Reset] window

Item	Description
Reset	Select whether to run an initial diagnosis at restart: <ul style="list-style-type: none">• Perform initial diagnosis: Runs an initial diagnosis after restarting the GSWB.• Do not perform initial diagnosis: Restarts the GSWB without running an initial diagnosis. Default: [Do not perform initial diagnosis]

Table 4.114 Buttons in the [Reset] window

Button	Description
Help	Displays the Help window.
Reset	Restart the GSWB.

(1) Menu operation

[Switch] → [GSWB#x] → [Reset]

(2) GUI operation

- Resetting
 - 1 Select whether to run an initial diagnosis.
 - 2 Click the [Reset] button.
 - 3 The restart confirmation window is displayed. Clicking the [OK] button restarts the GSWB.
 - 4 Restarting the GSWB takes several minutes, and the following message is displayed at this time:
"GSWB is rebooting now. Please wait several minutes."
 - 5 [GSWB Started.] is displayed when this GSWB restart is completed.

CHAPTER 5 CLI Operations

5.1 Basic CLI Operations

This section describes the command line interface (CLI) provided by the GSWB.

5.1.1 Operating environment

The operating environment needs to include a terminal that can be connected to the GSWB as a remote console. For details, see the *PRIMEQUEST 500A/500/400 Series Installation Manual*. (C122-E001EN)

5.1.2 CLI access procedure

After the device is started, connect to the remote console (execute the [Telnet] or [SSH] command). A [login] prompt appears. Enter the correct account name and password to log in.

5.1.3 CLI command modes

The commands are divided into operation commands, configuration definition commands, and editing commands. Operation commands display system status information and statistical information and clear statistical counters. The configuration definition and editing commands modify interface parameters and enable switching functions. In addition, the commands run in different modes. The available commands depend on the command mode selected.

Table 5.1 Command modes

Command type	Command mode	Prompt	Description
Operation commands	user exec	Switch>	General user mode
	enabled exec	Switch#	Highest mode for administrators
Configuration definition commands	Global configuration	Switch (config)#	Mode for configuring settings for the whole device
	Interface configuration	Switch (config-if)#	Mode for configuring interface settings
	Line configuration	Switch (config-line)#	Mode for configuring terminal line settings
	VLAN configuration	Switch (config-vlan)#	Mode for configuring VLAN settings
Editing commands	Global edit	Switch (edit)#	Mode for editing all device items
	Interface edit	Switch (edit-if)#	Mode for globally editing all interface items
	Line edit	Switch (edit-line)#	Mode for editing terminal line items
	VLAN edit	Switch (edit-vlan)#	Mode for editing VLAN items

Remarks: The above prompts are examples where the host name is "Switch".

After login to the GSWB, a transition to either of the command modes of the operation commands depends on the user privilege, as shown in the following table.

Table 5.2 User privileges and command modes

No.	User privilege	Operation command mode transition destination
1	User privilege	user exec
2	Operator privilege	user exec
3	CE privilege	enabled exec
4	Administrator privilege	enabled exec

After a transition to enabled exec, the configure command can be used for a transition of a command mode of the configuration definition commands or the editing commands.

5.1.4 Interface designation and display

An interface name or port number can be used to specify an interface from the CLI.

For example, the following two commands have the same result.

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)#
```

```
Switch(config)# interface port 17
Switch(config-if)#
```

Table 5.3 Port numbers and interface names

Type	GSWB		Web-UI	
	Port number	Interface name	ID	Interface name
Back panel port	port 1	IOU 0 0	00	IOU 0 0
	port 2	IOU 0 1	01	IOU 0 1
	port 3	IOU 1 0	02	IOU 1 0
	port 4	IOU 1 1	03	IOU 1 1
	port 5	IOU 2 0	04	IOU 2 0
	port 6	IOU 2 1	05	IOU 2 1
	port 7	IOU 3 0	06	IOU 3 0
	port 8	IOU 3 1	07	IOU 3 1
	port 9	IOU 4 0	08	IOU 4 0
	port 10	IOU 4 1	09	IOU 4 1
	port 11	IOU 5 0	10	IOU 5 0
	port 12	IOU 5 1	11	IOU 5 1
	port 13	IOU 6 0	12	IOU 6 0
	port 14	IOU 6 1	13	IOU 6 1
	port 15	IOU 7 0	14	IOU 7 0
	port 16	IOU 7 1	15	IOU 7 1
Front panel port	port 17	GigabitEthernet 0/1	16	GigabitEthernet 0/1
	port 18	GigabitEthernet 0/2	17	GigabitEthernet 0/2
	port 19	GigabitEthernet 0/3	18	GigabitEthernet 0/3
	port 20	GigabitEthernet 0/4	19	GigabitEthernet 0/4
	port 21	GigabitEthernet 0/5	20	GigabitEthernet 0/5
	port 22	GigabitEthernet 0/6	21	GigabitEthernet 0/6
	port 23	GigabitEthernet 0/7	22	GigabitEthernet 0/7
	port 24	GigabitEthernet 0/8	23	GigabitEthernet 0/8
10G daughter port	port 25	TenGigabitEthernet 1/1	24	10GigabitEthernet 1/1
	port 26	TenGigabitEthernet 1/2	25	10GigabitEthernet 1/2

Type	GSWB		Web-UI	
	Port number	Interface name	ID	Interface name
Port channel	port 27	port-channel 1	26	port-channel 1
	port 28	port-channel 2	27	port-channel 2
	port 29	port-channel 3	28	port-channel 3
	port 30	port-channel 4	29	port-channel 4
	port 31	port-channel 5	30	port-channel 5
	port 32	port-channel 6	31	port-channel 6
	port 33	port-channel 7	32	port-channel 7

5.1.5 Configuration definition command operations

This section describes operation in configuration definition mode and in global edit mode.

Configuration definition mode

This mode is used to change a definition currently in use.

Device behavior is modified according to the entered configuration definition command. When a valid command has been entered, its definition is immediately reflected in device behavior. However, the exec-timeout command is effective only in the behavior of terminals logged in afterwards.

Device behavior is modified without restarting the device when a configuration definition command is entered in configuration definition mode. Conversely, device behavior is not modified while the device is operating unless a configuration definition command is entered in configuration definition mode.

Global edit

This mode is used exclusively for editing the configuration definition file.

Even if a configuration definition command is entered, the current behavior of the device is not modified.

A new configuration definition or another configuration definition can be edited.

Table 5.4 Configuration definition command

Setting mode	Prompt	Description
Configuration definition mode (Config mode)	Switch(config)#	The current behavior is modified.
Global edit (Edit mode)	Switch(edit)#	The current behavior is not modified.

In either mode, simply entering a configuration definition command does not modify the configuration definition information on flash memory.

The save command must be executed to save a modified configuration definition to ensure that the modified configuration definition is used the next time the device is started.

5.1.5.1 Command input method and execution trigger

Uppercase letters, lowercase letters, or a combination of such characters must be used to enter a command name.

Each command name or keyword can be abbreviated as long as the abbreviation does not match the abbreviation of another command name or keyword. For example, "show" can be abbreviated to "sh".

After a command is entered in the CLI, any change made to a setting is validated when the [Enter] key is pressed. However, if this document clearly states a specific trigger for a configuration definition command, the change made to a setting by the command is validated at the command-specific trigger.

5.1.5.2 Help function

If the question mark or [?] key, is pressed during entry of a command name or command parameter, a list of commands that begin with the entered string is displayed.

- *1 If the question mark (?) is entered without a space character during entry of a command name or command parameter, a selection of commands is displayed without explanations.
- *2 In the displayed help information of a selection of commands, "WORD" is displayed to indicate no selection of commands is available.

5.1.5.3 Tab-based complement function

If the [Tab] key is pressed during entry of a command, it adds the string that can be concatenated with the entered string.

If the trailing string can be determined uniquely, the string is added to the entered string.

If the trailing string cannot be determined uniquely, the string up to the common part is added to the entered string.

Parameters for which the input format is displayed in help information are not completed.

Only the current parameter is completed. The next parameter (or command name) is not completed.

5.1.5.4 Command editing function

This section describes how to specify and cancel commands.

- Specifying a command

To specify a command, switch to a command mode in which the command can be specified, enter it in the CLI, and press the [Enter] key.

- Canceling a command (no)

To cancel the setting made by a command and restore its default setting, specify "no" in front of the command in the CLI and then execute the command.

Canceling the command also cancels any subcommand within the scope of the command.

Example:

no hostname

The default device name is restored.

5.1.5.5 Command selection display function

When the show command is executed, the command selection display function displays the commands that can be specified in the current mode.

If the command is executed with part of a command name or command parameter entered after "show", only the commands that match the specified parameter are displayed.

5.1.5.6 Error messages

The appropriate action to be taken for a configuration definition command error depends on the detected location and contents of the error message. The following table lists the error messages that are common to all of the configuration definition commands. For other error messages, see the command descriptions.

Table 5.5 Error messages of the configuration definition commands

Error message	Cause	Action to be taken
% Incomplete command.	Invalid command entered	Enter a correct command string.
% Invalid input detected at '^' marker.	Invalid character detected at the '^' marker in the command input string	Enter a correct command string.
% Unrecognized command	An invalid command was entered. "?" is in the middle of the entered string.	Check the entered command.
% Ambiguous command: "XXX" XXX: Entered command	An unrecognizable command abbreviation was entered (e.g., open c ?).	Check the entered command.
No Memory	Insufficient memory	Restart the device.
Fatal error	A fatal error occurred.	Restart the device. Replace the firmware.

5.1.5.7 Special input format and display format

- Function keys

The following input has special functions in configuration definition editing:

- Pressing the [Ctrl]+[c] keys
If they are pressed during execution of a configuration definition command, the system returns to the prompt without waiting for the command to be completed.
- Pressing the [Ctrl]+[v] keys
If the [?] key is pressed next, "?" is entered as a character without displaying help information.
- Pressing the [Ctrl]+[z] keys
This terminates the configure command.
- Pressing the [!] key
If "cr" is entered next, a transition occurs to the configuration mode one layer above.

- Characters handled as special characters

Since the configuration definition commands consider the following characters to be special characters, their input and display formats differ from those for ordinary characters.

{ } = # ! " \ ? <tab> <line feed> <space>

- Input and display formats of special characters

Special characters can be entered for parameters that have "WORD" displayed for them in displayed help information, if use of such characters is not restricted by the applicable command.

The input and display formats of special characters are described below.

For simplicity, parameters containing special characters are referred to as "tokens."

- A token can be specified by enclosing the entire token between double quotation marks ("). Double quotation marks are not handled as specified characters.
- Each token must be enclosed by double quotation marks. If a token not enclosed by double quotation marks is entered, it is displayed with double quotation marks enclosing it.
- The backslash character is used as the escape character for input of the following characters:
 - Double quotation mark ("): backslash character + double quotation mark [`\`"]
 - Backslash character (`\`): backslash character + backslash character [`\\`]
 - Tab character (<tab>): backslash character + t [`\t`]
 - Line feed character (<line feed>): backslash character + n [`\n`]

The backslash character is considered the escape character only in a token enclosed by double quotation marks. The backslash character in a token not enclosed by double quotation marks is handled as a specified character.

- If a character that is not intended for escape input (any character other than `"`, `\`, `t`, and `n`) is entered after the escape character (backslash character in a token enclosed by double quotation marks), the escape character (backslash character) is ignored.
- To enter `"?"`, first press the `[ctrl]+[v]` keys (ASCII code: 0x16 in hexadecimal notation) and then the `[?]` key. The combination of `[ctrl] + [v]` itself is not considered an input character.
- A token that contains a double quotation mark not accompanied by the escape character is not a valid token.
- A token that consists of only one backslash character is not a valid token.

Table 5.6 Examples of input

Input	Output (show)	Internally processed string
Abc	abc	Abc
abc{ }=#!	"abc{ }=#!"	abc{ }=#!
\	"\""	\
\"	"\\\""	\"
\\	"\\\\"	\\
\t\n	"\\t\\n"	\t\n
abc\def	"abc\\def"	abc\def
abc?def (Press the [Ctrl]+[v] keys immediately before the [?] key)	"abc?def"	abc?def
abc"def	abc\"def	abc"def
"abc"	abc	Abc
"abc{ }=#!"	"abc[]=#!"	abc[]=#!
"\" Error!!		
"\""	"\""	"
"\t\n"	"\t\n"	<tab><line feed>
"abc\def"	abcdef	abcdef
"abc"def" Error!!		
"abc def"	"abc def"	abc def
" abc"	" abc"	abc
"abc "	"abc "	abc

5.1.6 Operation command operations

The operation commands can be executed in the following two command modes:

- user exec

This mode is intended for general users. A limited set of commands is available, such as the command that displays network information.

- enabled exec

This mode is intended for SEs and system administrators. All commands are available.

The session for a remote console is terminated when the quit command is executed in logged-in command mode.

A transition to a command mode with a lower privilege than that in logged-in command mode is not permitted.

Example:

After login to enabled exec, a transition to user exec is not permitted.

5.1.6.1 Input string requirements

The following requirements apply to command input strings:

- All entered characters must be 8-bit characters.
- Only uppercase and lowercase alphabetic characters, numeric characters, symbols, and the space character can be used.
- Alphabetic characters are treated as case-insensitive. (However, passwords are case-sensitive.)
- One space character must be entered between tokens. (Two or more space characters are recognized as one space character.)

5.1.6.2 Competition between commands

If executing of a command would cause resource access conflict, such as if the same command as a currently running command is entered, the command is not executed.

5.1.6.3 Help function

If the question mark or [?] key is pressed when only the command prompt is displayed, the available commands in the user's current command mode are displayed together with simple descriptions.

If the [Space] and [?] keys are pressed during entry of a command, simple descriptions of the options and parameters that can follow the entered string are displayed.

5.1.6.4 Command name abbreviation function

A command name can be abbreviated as long as the abbreviation does not match the abbreviation of another command name. For example, "rel" can be entered as an abbreviation for the reload command.

Since the available commands vary depending on the command class and command mode, their abbreviations may be different.

5.1.6.5 Termcap support

Even after login from a different type of console, terminal settings are adjusted for the connected terminal.

The defined terminal settings are used after login from a remote terminal. The `show terminal` command can be used to check terminal settings.

If the terminal size is changed after login, the string editing function does not work correctly because the change cannot be automatically recognized.

5.1.6.6 Display termination function with the [Ctrl]+[c] keys

Command processing can be terminated by pressing the [Ctrl]+[c] keys during execution of the command.

Note: Processing of some commands such as the `Install` command cannot be terminated.

5.1.6.7 String editing function using function keys

Strings entered from a terminal can be edited with function key ([Ctrl] + alphabet key) input.

Table 5.7 Function keys

Function key	Function
[Ctrl] + [a]	Moves the cursor to the beginning of the line.
[Ctrl] + [b]	Moves the cursor forward by one word.
[Ctrl] + [c]	Suspends input.
[Ctrl] + [d]	Deletes the character at the cursor position.
[Ctrl] + [e]	Moves the cursor to the end of the line.
[Ctrl] + [f]	Moves the cursor backward by one word.
[Ctrl] + [h]	Deletes the character preceding the cursor.
[Ctrl] + [i]	Complement (equivalent to the [Tab] key)
[Ctrl] + [j]	Input end (equivalent to the [Enter] key)
[Ctrl] + [k]	Deletes all characters at and after the cursor position.
[Ctrl] + [l]	Initializes the display.
[Ctrl] + [m]	Input end (equivalent to the [Enter] key)
[Ctrl] + [n]	Displays the newer input history item.
[Ctrl] + [p]	Displays the older input history item.
[Ctrl] + [r]	Updates the display.

Function key	Function
[Ctrl] + [t]	Exchanges the character at the cursor position with the previous character.
[Ctrl] + [u]	Deletes the characters between the beginning of the line and the cursor position.
[Ctrl] + [w]	Deletes the word preceding to the cursor position.
[Ctrl] + [x]	Deletes the characters between the beginning of the line and the cursor position.
[Ctrl] + [y]	Inserts input at the cursor position.

Note: The tab-based complement function and function keys can be used on terminals of the ANSI system, VT100 system, VT200 system, KTERM, XTERM, CON25, LINUX, or SCREEN type. The show terminal status command can be used to check the current terminal type.

5.1.6.8 History function

The command input strings entered from a console (remote console) can be saved and displayed as history.

The saved history consists of the last commands entered, up to 32 commands. The maximum length of the command on one line is 1024 characters, including the linefeed character. History is saved separately for each console logged in.

Pressing the [Ctrl]+[p] keys from the CLI displays the previous command. Pressing the [Ctrl]+[n] keys displays the next command. In the former case, if there is no previous command, the oldest command remains displayed; in the latter case, if there is no next command, the latest command remains displayed.

5.1.6.9 Pager function

If one screen does not accommodate all contents to be displayed, the contents can be displayed using successive screens on the terminal.

The terminal pager command can set ON or OFF for the pager function and be used to check this setting. Initially the pager function is not enabled.

If the pager function is enabled, the displayed contents are as follows:

- A screenful of output information (strings) is displayed.
- If "--More--" is displayed together with the contents of a screen, it indicates a wait for input from the console.

- When "--More--" is displayed, if the [Enter] key is pressed, the screen scrolls up one line. If the space character is entered, the next screen is displayed. Pressing the [q] key or [Q] key quits the display. If the [g] key or [G] key is pressed, the last screen of the contents is displayed.

5.1.6.10 Tab-based complement function

If the [Tab] key is pressed during entry of a command, it adds the string that can be concatenated with the entered string.

Example: terminal command

```
Switch# termi<tab>
```

```
> Switch# terminal
```

Note: The tab-based complement function and function keys can be used on terminals of the ANSI system, VT100 system, VT200 system, KTERM, XTERM, CON25, LINUX, or SCREEN type. The show terminal status command can be used to check the current terminal type.

5.1.6.11 Error messages

If the [Enter] or [?] key is pressed during entry of an operation command and the string is not recognized, an error message is displayed. The following table lists the error messages that are common to all of the operation commands.

Table 5.8 Error messages of the operation commands

Error message	Error cause	Action to be taken
% Unrecognized command	An invalid command and "?" were entered.	Check the entered command.
% Ambiguous command: "XXX" XXX: Entered command	An unrecognizable command abbreviation was entered (e.g., open c ?).	Check the entered command.
No Memory	Insufficient memory	Restart the device.
Fatal error	A fatal error occurred.	Restart the device. Replace the firmware.

5.1.7 Lists of CLI commands

This section describes the configuration definition commands and the operation commands separately. This device uses the general user access privilege and administrator access privilege. The command modes available to the general users differ from those available to the administrators. "Y" indicates an available command, and "-" indicates that the command is not available.

Remarks:

- Users in general are referred to as the general users. The general users can use a limited set of commands, such as the command that displays network information.
- SEs and system administrators are referred to as the administrators. The administrators can use all commands.

5.1.7.1 Lists of the configuration definition commands

The following tables list the available configuration definition commands.

Table 5.9 Configuration definition management

Command	General user	Administrator	Functional outline
open	-	Y	Starts editing of the configuration definition file.
close	-	Y	Ends editing of the configuration definition file.
save	-	Y	Saves the configuration definition file being edited.
save config	-	Y	Copies the configuration definition file to the work area.
restore config	-	Y	Overwrites the configuration definition file with the contents in the work area.
new	-	Y	Creates a new configuration definition file and starts its editing.

Table 5.10 Mode change

Command	General user	Administrator	Functional outline
configure	-	Y	Used for editing system configuration such as device and network configurations.
exit	Y	Y	Returns to the previous command mode. Alternatively, the current command mode is exited.
show	-	Y	Displays configuration definition contents.

Table 5.11 Flow control function

Command	General user	Administrator	Functional outline
flowcontrol	-	Y	Defines flow control.

Table 5.12 Jumbo frame function

Command	General user	Administrator	Functional outline
jumbo frame	-	Y	Enables or disables the jumbo frame.

Table 5.13 Rate control function

Command	General user	Administrator	Functional outline
storm-control	-	Y	Enables or disables rate control. It also sets the threshold.

Table 5.14 Host function (address definition)

Command	General user	Administrator	Functional outline
ip host	-	Y	Specifies the IP address setting or how to acquire it.
ip default-gateway	-	Y	Sets the IP address of the default gateway.
hostname	-	Y	Sets the device name.

Table 5.15 MAC bridge function

Command	General user	Administrator	Functional outline
mac address-table aging-time	-	Y	Sets the aging time.

Command	General user	Administrator	Functional outline
mac address-table static	-	Y	Adds and deletes static addresses to the MAC address table.

Table 5.16 Spanning tree protocol (STP) function

Command	General user	Administrator	Functional outline
spanning-tree	-	Y	Enables or disables STP for the whole device.
spanning-tree priority	-	Y	Sets the bridge priority.
spanning-tree max-age	-	Y	Sets the maximum aging time.
spanning-tree hello-time	-	Y	Sets the transmission interval of Hello messages.
spanning-tree forward-time	-	Y	Sets the transfer delay timer.
spanning-tree port-priority	-	Y	Sets the port priority.
spanning-tree cost	-	Y	Sets the interface path cost.
spanning-tree bpdupfilter	-	Y	Defines the BPDU filter.
spanning-tree	-	Y	Enables or disables the spanning tree protocol for the specified interface.

Table 5.17 Virtual LAN (VLAN) function

Command	General user	Administrator	Functional outline
vlan	-	Y	Creates and deletes VLANs.
switchport access vlan	-	Y	Specifies an interface for a VLAN.
switchport mode	-	Y	Sets the selected VLAN membership mode for an interface.
switchport allowed vlan	-	Y	Sets trunk properties.
switchport native vlan	-	Y	Specifies a VLAN that receives traffic without tags.

Table 5.18 Priority control function (Class of Service)

Command	General user	Administrator	Functional outline
switchport priority default	-	Y	Sets the default priority to frames without tags.
wrr-queue cos-map	-	Y	Defines the correspondence between user priorities and the CoS Queue.

Table 5.19 Port trunking function

Command	General user	Administrator	Functional outline
interface port-channel	-	Y	Creates and deletes channel groups.
channel-group	-	Y	Adds and deletes physical links in a channel group.
port-channel load-balance	-	Y	Specifies the method of load balancing among physical links in a trunk group.

Table 5.20 IGMP snooping function

Command	General user	Administrator	Functional outline
ip igmp snooping	-	Y	Enables or disables IGMP snooping.
ip igmp snooping vlan	-	Y	Enables IGMP snooping in a specific VLAN.
ip igmp snooping vlan mrouter	-	Y	Specifies a multicast router port.
ip igmp snooping vlan static	-	Y	Adds a layer-2 port to a multicast group.
ip igmp snooping interval	-	Y	Specifies the query interval.
ip igmp snooping rebustness	-	Y	Specifies the rebustness value.
ip igmp snooping timeout	-	Y	Specifies the query timeout time.

Table 5.21 Port mirroring function

Command	General user	Administrator	Functional outline
monitor session source	-	Y	Specifies the monitored ports.
monitor session destination	-	Y	Specifies the mirror port.

Table 5.22 Interface

Command	General user	Administrator	Functional outline
interface	-	Y	Specifies an interface.
shutdown	-	Y	Disables an interface.
speed	-	Y	Sets the port speed.
duplex	-	Y	Sets the duplex mode.

Table 5.23 Access restriction function

Command	General user	Administrator	Functional outline
remote-access	-	Y	Defines host or network conditions to allow remote connections.

Table 5.24 Console

Command	General user	Administrator	Functional outline
line	-	Y	Specifies a line for a connection.
exec-timeout	-	Y	Sets the console timeout time (Telnet, SSH).

Table 5.25 SNMP

Command	General user	Administrator	Functional outline
snmp-server engineID local	-	Y	Sets the SNMP engine ID of GSWB.
snmp-server location	-	Y	Specifies the installation location of GSWB.
snmp-server contact	-	Y	Sets the contact address of GSWB.
snmp-server user	-	Y	Specifies the connected user from a server using SNMP v3.
snmp-server host	-	Y	Specifies the host whose MIB information is to be acquired or manipulated.
snmp-server enable traps	-	Y	Enables trap transmission to the specified host. It also specifies the transmission notification type.

Table 5.26 LDAP

Command	General user	Administrator	Functional outline
ldap server	-	Y	Specifies an ldap server.
ldap dn	-	Y	Specifies the base DN for searches.
ldap ssl	-	Y	Enables ldap over ssl.

Table 5.27 Telnet

Command	General user	Administrator	Functional outline
Telnet enable	-	Y	Enables or disables Telnet.

Table 5.28 SSH

Command	General user	Administrator	Functional outline
SSH enable	-	Y	Enables the SSH server using the specified protocol.

Table 5.29 ntp

Command	General user	Administrator	Functional outline
ntp server	-	Y	Registers an NTP server. It also synchronizes the system clock and hardware clock with the NTP server.
ntp status	-	Y	Sets the interval of inquiries to an NTP server.

Table 5.30 Log

Command	General user	Administrator	Functional outline
logging on	-	Y	Enables or disables message log (mlog) collection.
logging level	-	Y	Sets the collection level of the message log (mlog).
logging host	-	Y	Sets the IP address of the log transfer destination.

5.1.7.2 Lists of the operation commands

The following tables list the available operation commands.

Table 5.31 Console-related commands

Command	General user	Administrator	Functional outline
clock set	-	Y	Sets the current time.
show clock	Y	Y	Displays the current time.
show filelist	-	Y	Displays a directory information list for the specified file system.
show history	Y	Y	Lists the commands previously entered in an interactive shell.
terminal pager	Y	Y	Enables or disables the pager function.
show terminal	Y	Y	Displays basic terminal output settings.
quit	Y	Y	Quits the currently active shell.
telnet	Y	Y	Communicates with other hosts using the TELNET protocol.
ssh	Y	Y	Communicates with other hosts using the ssh protocol.
tftp	-	Y	Communicates with the tftp server.

Table 5.32 Device-related commands

Command	General user	Administrator	Functional outline
change	-	Y	Specifies the operation program used at restart with the change program command. It also specifies the configuration definition file used at restart with the change config command.
clear config	-	Y	Clears the configuration definition command file.
install	-	Y	Installs the system files in areas not used for startup.
reload	-	Y	Restarts the device.
show globalmac	Y	Y	Displays MAC information.

Command	General user	Administrator	Functional outline
show memory	-	Y	Displays the status of different types of memory resources.
show processes	Y	Y	Displays CPU usage and other detailed information.
show system information	Y	Y	Displays device static information.
show system status	Y	Y	Displays device dynamic information.
clear ramdisk	-	Y	Clears all work areas used by tftp.
eeeprominit	-	Y	Deletes SDR/SEL information.

Table 5.33 Port-related commands

Command	General user	Administrator	Functional outline
show interface status	Y	Y	Displays interface status information.
show interface counters	Y	Y	Displays interface statistical information.
show interface switchport	Y	Y	Displays interface settings.
show monitor session	Y	Y	Displays the port mirroring configuration.
show portstat	Y	Y	Displays the logical port status.
show port-channel	Y	Y	Displays port channel setting information.

Table 5.34 IP-related commands

Command	General user	Administrator	Functional outline
ip dhcp restart	-	Y	Sends a BOOTP or DHCP client request.
clear arp	-	Y	Deletes dynamic ARP entries from the ARP table.
ping	Y	Y	Determines whether communication with the host of the specified IP address is possible.
show arp	Y	Y	Displays ARP table entries.
show ip	Y	Y	Displays the IP information.
show ip default-gateway	Y	Y	Displays the default gateway.

Command	General user	Administrator	Functional outline
show ip host	Y	Y	Displays the IP interface information and status.
show ip socket	Y	Y	Displays the socket information and status.
tracert	Y	Y	Examines the routes on which packets are transmitted to their destinations.

Table 5.35 VLAN-related command

Command	General user	Administrator	Functional outline
show vlan	Y	Y	Displays configuration information about all registered VLANs.

Table 5.36 Bridge-related commands

Command	General user	Administrator	Functional outline
show bridge	Y	Y	Displays the learning table.
show bridge summary	Y	Y	Displays the number of entries registered in the learning table.
show bridge aging-time	Y	Y	Displays the amount of time that the MAC address table retains entries.
clear bridge	-	Y	Deletes the learning table.

Table 5.37 STP-related commands

Command	General user	Administrator	Functional outline
show spanning-tree	Y	Y	Displays the STP status.
show spanning-tree statistics	Y	Y	Displays STP statistical information.
clear spanning-tree	-	Y	Clears STP statistical information.

Table 5.38 Log-related command

Command	General user	Administrator	Functional outline
clear logging error	-	Y	Clears the contents currently stored in the error log.
clear logging line	-	Y	Clears the contents currently stored in the line log.
clear logging message	-	Y	Clears the contents currently stored in the message log.
clear logging trap	-	Y	Clears the contents currently stored in the trap log.
show logging error	-	Y	Displays the contents currently stored in the error log.
show logging line	-	Y	Displays the contents currently stored in the line log.
show logging message	-	Y	Displays the contents currently stored in the message log.
show logging trap	-	Y	Displays the contents currently stored in the trap log.
show logging	-	Y	Displays the syslog setting.

Table 5.39 Filtering/QoS-related commands

Command	General user	Administrator	Functional outline
show remote-access	Y	Y	Displays the host or network conditions that allow remote connections.
show storm-control	Y	Y	Displays broadcast, multicast, or DLF storm control settings.
show wrr-queue cos-map	Y	Y	Displays the mapping of the CoS priority queue.

Table 5.40 Statistics management

Command	General user	Administrator	Functional outline
show ether statistics	Y	Y	Displays Gigabit Ether and 10Gigabit Ether statistical information.
clear ether statistics	Y	Y	Deletes Gigabit Ether and 10Gigabit Ether statistical information.

Table 5.41 IGMP-related commands

Command	General user	Administrator	Functional outline
show ip igmp snooping	Y	Y	Displays snooping information about all VLANs or a specified VLAN.
show ip igmp snooping mrouter	Y	Y	Displays the multicast router interface information learned dynamically or manually set.
show mac address-table multicast	Y	Y	Displays the layer-2 MAC address table entries corresponding to a VLAN.
show ip igmp snooping statistics	Y	Y	Displays IGMP snooping statistical information.
clear ip igmp snooping statistics	Y	Y	Clears the counts of received and discarded IGMP packets.

Table 5.42 LDAP-related command

Command	General user	Administrator	Functional outline
show ldap	Y	Y	Displays LDAP setting information.

Table 5.43 SNMP-related command

Command	General user	Administrator	Functional outline
show snmp-server	Y	Y	Displays SNMP setting information.

Table 5.44 SSH-related commands

Command	General user	Administrator	Functional outline
SSH keygen	-	Y	Generates RSA/DSA keys used by SSH.
SSH keydel	-	Y	Deletes RSA/DSA keys used by SSH.
show SSH	-	Y	Displays the enable/disable setting of the SSH server and the server settings.

Table 5.45 NTP-related command

Command	General user	Administrator	Functional outline
show ntp	Y	Y	Displays NTP setting information.

5.2 Configuration Definition Commands

This section describes the configuration definition commands.

5.2.1 Configuration definition management commands

The configuration definition management commands manipulate the configuration definition file.

5.2.1.1 open

This command starts editing of the configuration definition file.

(1) Synopsis

```
open {config0 | config1}
```

(2) Options

- {config0 | config1}
 - config0: Specifies config0.
 - config1: Specifies config1.

(3) Command mode

Global configuration

(4) See also

close

exit

(5) Examples

- Starts editing of the configuration definition file

```
Switch# open config0  
Switch(edit)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Open error.
Cause: The specified configuration definition file does not exist.
Action: Use the [save config] command to save the configuration definition file.
- File error.
Cause: The specified configuration definition file is corrupt.
Action: Save the configuration definition file again.

5.2.1.2 close

This command ends editing of the configuration definition file.

(1) Synopsis

close

(2) Options

None

(3) Command mode

Global edit

(4) See also

open

new

(5) Examples

- Ends editing of the configuration definition file

```
Switch(config)# open config0
Switch(edit)# close
Switch(config)#
```

(6) Error Messages

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

5.2.1.3 save

This command saves the currently edited configuration definition to the file.

Note: This command cannot be executed during execution of the restore config, save, save config, or clear config command.

(1) Synopsis

```
save {config0 | config1} [<comment>]
```

(2) Options

- {config0 | config1}
 - config0: Specifies config0.
 - config1: Specifies config1.
- <comment> (optional): Sets configuration definition file comments.

To include space characters in a comment, the entire comment must be enclosed by double quotation marks ("). If the line feed character (\n) or tab character (\t) is specified in the comment string enclosed by double quotation marks, a parameter error occurs (Input parameter error). Comments in the configuration definition file (config0 or config1) can be checked using an operation command (show system information).

Note: Up to 63 characters can be entered in a comment. The \ character (\\) and the " character (\") in the character string enclosed by double quotation marks are considered single characters. The end of comments may not be displayed by the show system information command, depending on the display format. Thus, entering comment strings ranging from 40 to 50 characters is recommended.

(3) Command mode

Global

Line

Interface

VLAN

(4) See also

clear config

restore config

save config

show system information

(5) Examples

- Saves a configuration definition

```
Switch(config)# save config0
Are you sure? [y/n]:Y
Now perform...
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Input parameter error.

Cause: An invalid parameter was entered.

Action: Enter the correct parameter.

- Command is already running.

Cause: One of the following commands is running.
restore config / save / save config / clear config

Action: Reexecute after exiting the command.

5.2.1.4 save config

This command copies the configuration definition file to the work area. If the work area contains a file with the same name (config0, config1), the existing file is overwritten.

Note: This command cannot be executed during execution of the clear config, clear ramdisk, restore config, save, save config, or tftp command.

(1) Synopsis

- Copies the configuration definition file to the work area

save config [config0 config1]

(2) Options

- {config0 | config1} (optional)
 - config0: Specifies config0.
 - config1: Specifies config1.

By default, the configuration definition file of the booting memory bank is copied to the work area.

(3) Command mode

enabled exec

(4) See also

clear config

clear ramdisk

restore config

save

tftp

(5) Examples

- Copies the configuration definition file of the booting memory bank to the work area

```
Switch# save config
Switch#
```

- Copies configuration definition file config0 to the work area

```
Switch# save config config0
Switch#
```

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input.
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- Open error.
 - Cause: The specified configuration definition file does not exist.
 - Action: Make sure the configuration definition file exists.
- Internal communication error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Command is already running.
 - Cause: One of the following commands is running.
clear config / clear ramdisk / restore config / save / save config / tftp
 - Action: Reexecute after exiting the command.

5.2.1.5 restore config

This command overwrites the configuration definition file with the contents in the work area.

Note: This command cannot be executed during execution of the clear config, clear ramdisk, restore config, save, save config, or tftp command.

(1) Synopsis

```
restore config {config0 | config1}
```

(2) Options

- {config0 | config1}
 - config0: Overwrites config0 with the contents in the work area.
 - config1: Overwrites config1 with the contents in the work area.

(3) Command mode

enabled exec

(4) See also

clear config
clear ramdisk
save
save config
tftp

(5) Examples

- Overwrites config0 with the contents in the work area

```
Switch# restore config config0
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Open error.
Cause: The specified configuration definition file does not exist.
Action: Make sure the configuration definition file exists.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit.
Alternatively, contact a certified service engineer.
- Command is already running.
Cause: One of the following commands is running.
clear config / clear ramdisk / restore config / save / save config / tftp
Action: Reexecute after exiting the command.

5.2.1.6 new

This command creates a new configuration definition file and allows you to edit it.

When you finish editing the file, execute the save command to save the configuration definition file.

The saved configuration will be effective when the device is restarted.

(1) Synopsis

new

(2) Options

None

(3) Command mode

Global configuration

(4) See also

save

close

exit

(5) Examples

- Create a new configuration definition file and start editing it.

Switch(config)# new

Switch(edit)#

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

5.2.2 Mode change commands

5.2.2.1 configure

This command is used to edit system information such as device and network configurations.

If the command is executed after the device is started when its status is Config Error, a transition to edit mode occurs automatically.

The command can be executed when the device status changes to Online or Config Error.

(1) Synopsis

```
configure
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

exit

(5) Examples

```
Switch# configure
Switch(config)#
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Not ready configuration management task.
Cause: An internal error occurred.

Action: Collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.2.2 exit

This command causes a transition to the previous command mode or exits the current command mode. If the command is executed in global configuration mode, editing of all configuration definitions being edited is terminated, and the associated configuration definition command is terminated.

(1) Synopsis

exit

(2) Options

None

(3) Command mode

All

(4) See also

configure

open

(5) Examples

- Returns to the previous command mode or exits the current command mode

```
Switch(config-if)# exit
Switch(config)# exit
Switch# exit
```

(6) Error Messages

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

5.2.2.3 show

This command displays configuration definition contents. If the mode has been changed, only the definition contents available in the mode are displayed. You cannot use the [Ctrl]+[c] key combination to interrupt the command.

(1) Synopsis

```
show [<command-line>]
```

(2) Options

- <command-line>: Specifies the command line that can be used in the current mode. If this option is omitted, the command will display all configuration definitions.

(3) Command mode

Global

Interface

Line

VLAN

(4) See also

None

(5) Examples

- Displays the hostname definition

```
Switch(config)# show hostname
hostname Switch
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

5.2.3 Flow control definition

5.2.3.1 flowcontrol

This command defines flow control. However, no settings can be made for a channel group.

(1) Synopsis

<code>flowcontrol {receive send} {off on}</code>
--

(2) Options

- {receive | send}
 - receive: Specifies whether an interface receives flow control packets from a connected unit.
 - send: Specifies whether an interface sends flow control packets to a connected unit.
- {off | on}
 - off:
 - If [receive] is off, frame transmission is not interrupted by flow control.
 - If [send] is off, the function used by a local port to send flow control packets to a connected unit is turned off.

- on:

If [receive] is on, the interface can operate with:

- Connected devices that must send flow control packets
- Connected devices that need not send flow control packets but can still send them

If [send] is on, the interface can send flow control packets to the connected unit that support flow control. If auto-negotiation is not set, however, flow control packets are sent regardless of whether the remote device supports flow control.

Both [receive] and [send] are off by default.

(3) Command mode

Interface

(4) See also

show interface counters

show portstat

(5) Examples

- Disables flow control

```
Switch(config-if)# flowcontrol receive off
Switch(config-if)# flowcontrol send off
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.4 Jumbo frame function

5.2.4.1 jumbo frame

This command enables or disables the jumbo frame. If the jumbo frame is enabled, the frame sizes in all units along the communication routes must match.

(1) Synopsis

- Enables the jumbo frame

```
jumbo frame
```

- Disables the jumbo frame (default)

```
no jumbo frame
```

(2) Options

None

(3) Command mode

Global

(4) See also

None

(5) Examples

- Enables the jumbo frame

```
Switch(config)# jumbo frame  
Switch(config)#
```

- Disables the jumbo frame

```
Switch(config)# no jumbo frame  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit.
Alternatively, contact a certified service engineer.

5.2.5 Rate control function

5.2.5.1 storm-control

This command enables or disables rate control. The command also sets the threshold for rate control.

However, TenGigabitEthernet 1/1 to 1/2 and channel groups cannot be specified.

(1) Synopsis

- Sets the rate control threshold

```
storm-control {broadcast | multicast | dlf} threshold <pps>
```

- Disables rate control settings

```
no storm-control {broadcast | multicast | dlf} threshold
```

(2) Options

- {broadcast | multicast | dlf}
 - broadcast: Enables broadcast storm control on a port.
 - multicast: Enables multicast storm control on a port.
 - dlf: Enables DLF storm control on a port.
- <pps>: Specifies the threshold (pkts/sec).
 - Setting range: 1 to 262143
 - Default: Disabled

(3) Command mode

Interface

(4) See also

None

(5) Examples

- Enables broadcast storm control on a port and sets the upper limit to 10000 pkts/sec

```
Switch(config-if)# storm-control broadcast threshold 10000
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: SynopsisInvalid character detected at '^' marker in the entered command string.
Action: Enter the command string correctly.
- Internal communication error.
Cause: SynopsisAn internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.6 Host functions (address definition)

5.2.6.1 ip host

This command specifies an IP address or how to acquire it. Only one IP address can be specified for the device.

If no VLAN is specified, the default VLAN (vlan id 1) is set. The default ip-address is 0.0.0.0, and the default subnet mask is 0.0.0.0.

The IP address cannot be reset to the default value while ip default-gateway is set.

If you specify ip host bootp/dhcp, you need to execute ip dhcp restart.

(1) Synopsis

- Specifies an IP address or how to acquire the address

```
ip host {<ip-address> <subnet-mask> | bootp/dhcp} [vlan <vlan-id>]
```

- Sets an IP address to the default value

```
no ip host
```

(2) Options

- {<ip-address> <subnet-mask> | bootp/dhcp}
 - <ip-address>: Sets the IP address statically.
 - <subnet-mask>: Specifies the subnet mask.
 - bootp/dhcp: Sets the dynamic IP address automatically by DHCP.
- vlan <vlan-id> (optional): Specifies a VLAN.
If this option is omitted, VLAN(vlanid1) is assumed by default.

(3) Command mode

Global

(4) See also

ip dhcp restart

ip default-gateway

vlan

(5) Examples

- Sets an IP address statically

```
Switch(config)# ip host 172.20.128.2 255.255.255.0
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit.
Alternatively, contact a certified service engineer.
- vlan id doesn't exist.
Cause: The specified VLAN does not exist.
Action: Specify an existing VLAN.
- invalid host address.
Cause: An invalid IP address was specified.
Action: Specify a valid address.
- ip address is necessary for ip default-gateway.
Cause: Restoring the IP address to the default value was attempted while ip default-gateway was set.
Action: Restore the IP address to default after restoring the ip default-gateway to default.
- ip default-gateway inconsistent with network.
Cause: The ip default-gateway setting is inconsistent with the network setting.

Action: Specify the consistent ip default-gateway setting.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the consistent ip default-gateway setting.

5.2.6.2 ip default-gateway

This command specifies the IP address of the default gateway. Before the command is executed, the IP address of the host must be specified with the ip host command.

If bootp/dhcp is selected in the ip host command, the setting with this command does not become effective.

(1) Synopsis

- Specifies the IP address of the default gateway

```
ip default-gateway <ip-address>
```

- Resets the default-gateway setting to the default value

```
no ip default-gateway
```

(2) Options

- <ip-address>: Specifies the IP address of the default gateway.

(3) Command mode

Global

(4) See also

None

(5) Examples

- Sets the default gateway of the device to 10.10.10.10

```
Switch# configure
Switch(config)# ip default-gateway 10.10.10.10
Switch(config)#
```

- Resets the default-gateway setting of the device to the default value

```
Switch# configure
Switch(config)# no ip default-gateway
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- invalid gateway address.
Cause: An invalid address was specified for the gateway address.
Action: Specify a valid gateway address.
- ip address is necessary for ip default-gateway.
Cause: Specification of the default gateway was attempted while the IP address was not specified for ip host.
Action: Specify the default gateway after specifying the IP address.
- ip default-gateway inconsistent with network.
Cause: The ip default-gateway and network definitions do not match.
Action: Specify the consistent ip default-gateway setting.

5.2.6.3 hostname

This command sets the device name.

(1) Synopsis

- Specifies a device name

```
hostname <hostname>
```

- Resets a device name to the default value

```
no hostname
```

(2) Options

- <hostname>: Specifies a host name (up to 63 alphanumeric characters including the hyphen (-), underscore (_), slash (/), #, and *). However, the first character cannot be a special symbol (hyphen (-), underscore (_), slash (/), #, or *). The default device name is "switch". The following special symbols cannot be specified: (!"\$%&'()=~^\\`@[{ ;+:}] ,<>?).

(3) Command mode

Global

(4) See also

None

(5) Examples

```
Switch(config)# hostname gswb
gswb(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid string was specified for the host name. Alternatively, a string exceeding 63 characters was specified for the host name.

Action: Specify a valid string for the host name.

5.2.7 MAC bridge functions

5.2.7.1 mac address-table aging-time

This command sets the aging time.

(1) Synopsis

- Sets the amount of time that the MAC address table retains a dynamic entry after the entry is used or updated

```
mac address-table aging-time <seconds>
```

- Resets the aging timer setting to the default value

```
no mac address-table aging-time
```

(2) Options

- <seconds>: Specifies the aging time (s).
The setting range for the aging time is 0 and from 10 to 1000000. The default aging time is 300. If 0 is specified, MAC addresses that have been learned are not deleted because no aging processing is performed.

(3) Command mode

Global

(4) See also

show bridge

clear bridge

(5) Examples

- Sets the aging time to 100 s

```
Switch(config)# mac address-table aging-time 100
Switch(config)#
```

- Disables aging

```
Switch(config)# mac address-table aging-time 0
Switch(config)#
```

- Resets the aging timer to the default value

```
Switch(config)# no mac address-table aging-time
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

5.2.7.2 mac address-table static

This command adds and deletes MAC address table static addresses:

- MAC addresses registered statically cannot be deleted using "clear bridge." They can be deleted using "no mac address-table static."
- Up to 128 definitions can be registered. However, if the MAC address table has no free space because of dynamic learning, defining the maximum number (128) of static addresses may not be possible.
- No MAC address can be set for a broadcast address or multicast address, and no ALL 0 MAC address or ALL F MAC address can be specified.
- Static MAC address entries have priority over dynamic ones.
- If the specified port-channel does not exist, no error occurs, but it is invalid. Each item is enabled when it is created.

(1) Synopsis

- Adds a static address to the MAC address table

```
mac address-table static <mac-address> vlan <vlan-id>
{forward interface <interface-id> | discard}
```

- Deletes a static address from the MAC address table

```
no mac address-table static <mac-address> vlan <vlan-id>
```

(2) Options

- <mac-address>

Station MAC address. A MAC address for a broadcast address or multicast address, an ALL 0 MAC address, and an ALL F MAC address cannot be registered.

- <vlan-id>: Specifies the VLAN ID (1 to 4094) of the output port.
- {forward | discard}
 - forward: Transfers frames to their destinations.
 - discard: Discards frames of the specified destination.
- <interface-id>: Specifies the output port number.
 - GigabitEthernet 0/1 to 0/8
 - IOU 00 to 71
 - TenGigabitEthernet 1/1 to 1/2
 - port-channels 1 to 7
 - ports 1 to 33

(3) Command mode

Global

(4) See also

mac address-table aging-time

show bridge

clear bridge

(5) Examples

- Adds the static address 00:00:00:11:11:11 to the MAC address table

```
Switch(config)# mac address-table static 00:00:00:11:11:11 vlan 1
forward interface GigabitEthernet 0/1
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input bridgemac error.
Cause: An invalid MAC address was specified.
Action: Specify a valid MAC address.

- Input parameter duplicate error.
 - Cause: Registering an already set MAC address or VLAN was attempted.
 - Action: Check the entries already registered.
- Set count over.
 - Cause: Registering more than 128 entries was attempted.
 - Action: Check the entries already registered.
- % Not implement daughter card.
 - Cause: Ten GigabitEthernet was specified for the port while no TenGigaEthernet daughter card was implemented.
 - Action: Check the device configuration.
- It is necessary to review specified VLAN and port.
 - Cause: The VLAN and port definitions do not match.
 - Action: Review the VLAN and port definitions.
- Entry isn't existed.
 - Cause: The specified entry is not registered.
 - Action: Check the entered MAC address entry.
- mac address table is full.
 - Cause: The MAC address table is full.
 - Action: Wait until the MAC address table has a free space and then enter the command again.
- Input parameter error.
 - Cause: An invalid parameter was specified.
 - Action: Specify the correct parameter.

5.2.8 Spanning tree protocol (STP) functions

5.2.8.1 spanning-tree

This command enables or disables STP for the whole device.

If BPDU frame transfer is enabled by the spanning-tree bpdufilter command, this command cannot enable STP. To enable STP, disable BPDU frame transfer.

(1) Synopsis

- Enables STP for the whole device (default)

```
spanning-tree
```

- Disables STP for the whole device

```
no spanning-tree
```

(2) Options

None

(3) Command mode

Global

(4) See also

spanning-tree priority

spanning-tree max-age

spanning-tree hello-time

spanning-tree forward-time

spanning-tree bpdupfilter

(5) Examples

- Disables STP for the whole device

```
Switch(config)# no spanning-tree
Switch(config)#
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Specify bpdudfilter invalid.

Cause: Enabling STP was attempted while BPDU frame forwarding was enabled.

Action: Enable STP after disabling BPDU frame forwarding.

5.2.8.2 spanning-tree priority

This command sets the bridge priority. Specify the command to manipulate the spanning tree topology as intended.

The command defines bridge identifiers with which the device identifies local devices in a spanning tree configuration of switches in a network.

The bridge priority is specified in the high-order two bytes of the bridge identifier. This value is used to manipulate the spanning tree and configure the intended topology.

The root bridge and designated bridge are determined according to the bridge priority, and this sets the structure of the spanning tree. The lower the priority value, the higher the priority. Therefore, specify the minimum value in all bridges in the tree for the root bridge.

(1) Synopsis

- Sets the bridge priority

```
spanning-tree priority <priority>
```

- Resets the bridge priority to the default value

```
no spanning-tree priority
```

(2) Options

- <priority>

Specifies the bridge priority. The lower the priority value, the higher the priority. The setting range is 0 to 65535, and the default value is 32768.

(3) Command mode

Global

(4) See also

spanning tree

(5) Examples

- Sets the spanning tree priority to 8192

```
Switch(config)# spanning-tree priority 8192
Switch(config)#
```

(6) Error messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.
- invalid operation because spanning-tree status is off (disable).
Cause: The command was executed with spanning-tree had been invalidated.
Action: Make spanning-tree validated, and execute the command again.

5.2.8.3 spanning-tree max-age

This command sets the maximum aging time.

The reception timeout time of Hello messages (root configuration information in STP) is specified in seconds. Reception of periodic Hello messages stops after the specified time has elapsed. Recalculation for the spanning tree begins when this time has elapsed.

Because different kinds of delays occur before a message reaches the end of the tree from the root bridge (generally 2 s/segment), IEEE802.1D recommends setting a vicinity of 20 s.

(1) Synopsis

- Sets the maximum aging time

```
spanning-tree max-age <seconds>
```

- Resets the maximum aging time to the default value

```
no spanning-tree max-age
```

(2) Options

- <seconds>

Specifies the maximum aging time (s). The setting range is 6 to 40, and the default value is 20.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

- Sets the valid time of the spanning tree to 30 s for all instances

```
Switch(config)# spanning-tree max-age 30  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.
- invalid operation because spanning-tree status is off (disable).
Cause: The command was executed with spanning-tree had been invalidated.
Action: Make spanning-tree validated, and execute the command again.

5.2.8.4 spanning-tree hello-time

This command sets the transmission interval of Hello messages.

Note: The Hello time is the time interval at which Hello messages (root configuration information in STP) are sent by the root bridge.

(1) Synopsis

- Specifies the transmission interval of Hello messages

```
spanning-tree hello-time <seconds>
```

- Resets the transmission interval of Hello messages to the default value

```
no spanning-tree hello-time
```

(2) Options

- <seconds>

Specifies the Hello time (s). The setting range is 1 to 10, and the default value is 2.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

- Sets the Hello time of the spanning tree to 1 s for all instances

```
Switch(config)# spanning-tree hello-time 1
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.

- invalid operation because spanning-tree status is off (disable).
Cause: The command was executed with spanning-tree had been invalidated.
Action: Make spanning-tree validated, and execute the command again.

5.2.8.5 spanning-tree forward-time

This command specifies the value of the transfer delay timer.

Note: The transfer delay timer (time) is the time interval required for a transition to a state, such as the listening state (Listening) > learning state (Learning) > forwarding state (Forwarding).

(1) Synopsis

- Sets the transfer delay timer

```
spanning-tree forward-time <seconds>
```

- Resets the transfer delay timer setting to the default value

```
no spanning-tree forward-time
```

(2) Options

- <seconds>

Specifies the time of the transfer delay timer (s). The setting range is 4 to 30, and the default value is 15.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

- Sets the transfer time of the spanning tree to 18 s for all instances

```
Switch(config)# spanning-tree forward-time 18  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.
- invalid operation because spanning-tree status is off (disable).
Cause: The command was executed with spanning-tree had been invalidated.
Action: Make spanning-tree validated, and execute the command again.

5.2.8.6 spanning-tree port-priority

This command sets the port priority. The lower the priority value, the higher the priority. If the root path cost is the same for multiple bridges on the same branch line, the port with the lowest value becomes the designated port for relays on the branch line.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected.

The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Sets the port priority

```
spanning-tree port-priority <priority>
```

- Resets the port priority to the default value

```
no spanning-tree port-priority
```

(2) Options

- <priority>

Specifies the port priority. The setting range is 0 to 255, and the default value is 128.

(3) Command mode

Interface

(4) See also

spanning-tree

spanning-tree cost

(5) Examples

- Increases the priority for GigabitEthernet 0/2 so that the forwarding state is entered in the event that a loop forms

```
Switch(config)# interface GigabitEthernet 0/2
Switch(config-if)# spanning-tree port-priority 0
Switch(config-if)#
```

- Sets the port priority for the port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# spanning-tree port-priority 10
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.8.7 spanning-tree cost

This command specifies interface path costs. In the initial state, the path costs are automatically calculated based on data rates. The path costs are automatically recalculated for any change to the data rates.

For each port, each bridge calculates the total (root path cost) from the designated costs of received Hello messages and the costs for the specified number of ports. Then, the port with the lowest total is selected as the root port.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

The calculated value of the Master's link speed - 1 is set in the settings for a port-channel port configured with multiple links.

(1) Synopsis

- Calculates path costs based on data rates automatically by default (automatically recalculates path costs following any change in data rates)

```
spanning-tree cost {<cost> | auto}
```

- Resets the path cost setting to the default value

```
no spanning-tree cost
```

(2) Options

- <cost>

Specifies the path cost value. The setting range is 0 to 65535.

- auto (default)

Automatically sets the path cost value.

The following table lists the default path costs when [Auto] is specified.

Table 5.46 Default settings

Data rate	Default path cost
10Mbps	100
100Mbps	19
1000Mbps	4
10Gbps	2

(3) Command mode

Interface

(4) See also

spanning-tree

spanning-tree port-priority

(5) Examples

- Sets 250 as the path cost for an interface

```
Switch(config)# interface GigabitEthernet 0/4
Switch(config-if)# spanning-tree cost 250
Switch(config-if)#
```

- Sets 500 as the path cost for a port-channel port interface

```
Switch(config)# interface port-channel 1
Switch(config-if)# spanning-tree cost 500
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.

5.2.8.8 spanning-tree bpdudfilter

This command defines the BPDU filter. Enabling the BPDU filter on a specific interface is equivalent to disabling the spanning tree on the interface, and a spanning tree loop may be formed as a result. The spanning tree must be disabled before the BPDU filter is enabled.

(1) Synopsis

- Specifies whether to transfer BPDU frames when STP is disabled

```
spanning-tree bpdudfilter {disable | enable}
```

- Resets the BPDU filter setting to the default value

```
no spanning-tree bpdudfilter
```

(2) Options

- {disable | enable}
 - enable: Enables the BPDU filter (BPDU frames are transferred)
 - disable (default): Disables the BPDU filter (BPDU frames are discarded)

(3) Command mode

Global configuration

(4) See also

spanning-tree

(5) Examples

- Enables the BPDU filter function

```
Switch(config)# spanning-tree bpdufilter enable
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- Internal communication error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- invalid operation because spanning-tree status is off (enable).
 - Cause: The command was executed with spanning-tree had been validated.
 - Action: Make spanning-tree invalidated, and execute the command again.

5.2.8.9 spanning-tree

This command enables or disables the spanning tree protocol on the specified interface. The settings are reflected in the device only if STP (8.2.8.1) is enabled for the whole device.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Enables the spanning tree protocol for the specified interface when STP is enabled for the whole device (default: Enable)

```
spanning-tree
```

- Disables the spanning tree protocol for the specified interface

```
no spanning-tree
```

(2) Options

None

(3) Command mode

Interface configuration

(4) See also

spanning-tree

(5) Examples

- Disables the STP function on a port

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# no spanning-tree
Switch(config-if)#
```

- Enables the STP function on a port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# spanning-tree
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.9 Virtual LAN (VLAN) functions

5.2.9.1 vlan

This command creates and deletes VLANs:

- VLAN IDs 0 and 4095 cannot be specified because they are reserved IDs.
- VLAN ID 1 cannot be specified because it is set for the default VLAN (and it cannot be deleted either).
- The VLAN name is optional (generated automatically).
- A VLAN name of a created VLAN cannot be deleted by specifying the corresponding VLAN ID. To change the VLAN name, delete the VLAN and then create the VLAN again with the VLAN name specified.

(1) Synopsis

- Creates a VLAN and enters the VLAN configuration mode.
If the specified VLAN ID is an existing ID, VLAN configuration mode is entered.

```
vlan <vlan-id> [name <vlan-name>]
```

- Deletes a VLAN

```
no vlan <vlan-id>
```

(2) Options

- <vlan-id>: ID of VLAN to be created (2 to 4094)
- <vlan-name>: VLAN name (up to 32 en-size alphanumeric characters)

(3) Command mode

Global

(4) See also

show vlan

(5) Examples

- Creates a VLAN

```
Switch(config)# vlan 20
Switch(config-vlan)#
```

- Deletes a VLAN

```
Switch(config)# no vlan 20
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: The parameter entered for the command is invalid.
Action: Check the parameter entered for the command.
- Entry isn't existed.
Cause: Deletion of an entry is attempted but the entry did not registered.
Action: Check the specified entry.

5.2.9.2 switchport access vlan

This command specifies an interface for a VLAN.

To make the command available, the port must be in access mode. Only one VLAN can be allocated to the access port.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Designates an interface as a static access port (port VLAN port)

```
switchport access vlan <vlan-id>
```

- Designates an interface as part of the default VLAN in the device

```
no switchport access vlan
```

(2) Options

- <vlan-id>: ID of the port VLAN to which the interface belongs (1 to 4094)

(3) Command mode

Interface

(4) See also

switchport mode

vlan

(5) Examples

- Allocates a port in access mode to VLAN2

```
Switch(config-if)# switchport access vlan 2
Switch(config-if)#
```

- Allocates a port-channel port to VLAN10

```
Switch(config)# interface port channel 1
Switch(config-if)# switchport access vlan 10
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- vlan id doesn't exist.
Cause: The specified VLAN does not exist.
Action: Reenter the command after creating a VLAN.
- Invalid switchport mode.
Cause: The VLAN membership mode is not access.
Action: Reenter the command after changing the mode to access.
- It is necessary to review specified VLAN and port.
Cause: The VLAN and port definitions do not match.
Action: Review the VLAN and port definitions.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

5.2.9.3 **switchport mode**

This command is used to select the VLAN membership mode of an interface.

The available VLAN commands vary depending on the selected mode. No specific error message is displayed, however, after execution of a mode-dependent command that cannot be executed.

- Commands that can be executed in Access mode
switchport access vlan
- Commands that can be executed in Trunk mode
switchport allowed vlan
switchport native vlan

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) **Synopsis**

- Sets the selected VLAN membership mode for an interface

```
switchport mode {access | trunk}
```

- Resets the VLAN membership mode to the initial setting (access)

```
no switchport mode
```

(2) **Options**

- {access | trunk}
 - access: Makes the interface function as a port VLAN (default).
 - trunk: Sets up a VLAN trunk (tagged VLAN).

(3) **Command mode**

Interface

(4) See also

switchport access vlan
switchport allowed vlan
switchport native vlan

(5) Examples

- Sets Access mode for a port

```
Switch(config-if)# switchport mode access
Switch(config-if)#
```

- Sets Trunk mode for a port

```
Switch(config-if)# switchport mode trunk
Switch(config-if)#
```

- Sets Trunk mode for a port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# switchport mode trunk
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- vlan id doesn't exist.
Cause: The specified VLAN does not exist.
Action: Reenter the command after creating a VLAN.
- It is necessary to review specified VLAN and port.
Cause: The VLAN and port definitions do not match.
Action: Review the VLAN and port definitions.

5.2.9.4 switchport allowed vlan

This command specifies trunk properties:

- The VLANs that can be used in Trunk mode are determined by this command and the switchport native vlan command.
- Trunk mode must be set before this command is executed.
- A single VLAN or a range of consecutive VLANs is specified in a setting.
- The default setting is [add 1].
- Since each interface must be a part of at least one VLAN, all VLANs cannot be deleted by using "remove."
- Before the default VLAN 1 is deleted, another VLAN must be added.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Specifies interface properties for operation of an interface in Trunk mode (tagged VLAN mode)

```
switchport allowed vlan <vlan-list>
```

- Specifies trunk properties for a member of the default VLAN

```
no switchport allowed vlan
```

(2) Options

- `<vlan-list>`

Specifies the VLAN ID of the VLAN that transmits/receives traffic in the VLAN tag format on an interface.

The format of `<vlan-list>` is `{ {add | remove} <vlan-atom> }`

- `add`: Adds the VLAN specified in `<vlan-atom>`.
- `remove`: Deletes VLAN specified in `<vlan-atom>`.
- `<vlan-atom>`:

Specifies, using a hyphen, the VLAN IDs of a range of consecutive VLANs.

No space before or after the hyphen is allowed.

Any leading 0 is not permitted.

Example:

Single VLAN	101
List of non-consecutive VLANs	10,12,14,16,18
Consecutive VLAN range	10-15
List of consecutive VLAN ranges	10-15,20-24
List of non-consecutive VLANs and a consecutive VLAN range	8,11,20-24,44

(3) Command mode

Interface

(4) See also

`vlan`

`switchport mode`

`switchport native vlan`

(5) Examples

- Adds VLAN2, 5, and 6 to the permission list

```
Switch(config-if)# switchport allowed vlan add 2
Switch(config-if)# switchport allowed vlan add 5-6
Switch(config-if)#
```

- Deletes VLAN2 from the permission list of a port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# switchport allowed vlan remove 2
Switch(config-if)#
```

- Registers VLAN 10, 20, and 30, which specify the Trunk mode for port1, as allowed VLANs

```
Switch(config)# vlan 10 name aaa
Switch(config-vlan)#exit
Switch(config)# vlan 20 name bbb
Switch(config-vlan)#exit
Switch(config)# vlan 30 name ccc
Switch(config-vlan)#exit
Switch(config)#interface port 1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport allowed vlan add 10
Switch(config-if)# switchport allowed vlan add 20
Switch(config-if)# switchport allowed vlan add 30
Switch(config-if)# switchport native vlan 1
Switch(config-if)#
```

(6) Error messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Reenter the command after creating a VLAN.

- Input parameter error.

Cause: The VLAN specification is invalid.

Action: Review the VLAN specification.

- Invalid switchport mode.

Cause: The VLAN membership mode is not access.

Action: Reenter the command after changing the mode to access.

- It is necessary to review specified VLAN and port.

Cause: The VLAN and port definition do not match.

Action: Review the VLAN and port definitions.

5.2.9.5 switchport native vlan

This command specifies a VLAN to be allocated to traffic without tags:

- The VLANs that can be used in Trunk mode are determined by this command and the switchport allowed vlan command.
- Trunk mode must be set before this command is executed. If the command is executed in Access mode, no error message is displayed and no setting is made.
- The default setting is "switchport native vlan 1".
- Tagged frames of the VLAN specified by this command are also received.
However, VLAN frames specified by the command are sent without tags.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Specifies the VLAN ID for receiving traffic without tags for operation of an interface in VLAN Trunk mode

```
switchport native vlan <vlan-id>
```

- Resets this setting for a member of the native vlan to the default value

```
no switchport native vlan
```

(2) Options

- <vlan-id>

Specifies the native vlan id of the VLAN to be allocated to traffic without tags when the interface is in 802.1Q VLAN Trunk mode.

(3) Command mode

Interface

(4) See also

switchport mode

switchport allowed vlan

(5) Examples

- Sets the native vlan id of a port in Trunk mode to VLAN3

```
Switch(config-if)# switchport native vlan 3
Switch(config-if)#
```

- Resets the native vlan id of a port-channel port to the default value

```
Switch(config)# interface port-channel 1
Switch(config-if)# no switchport native vlan
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- vlan id doesn't exist.
Cause: The specified VLAN does not exist.
Action: Reenter the command after creating a VLAN.
- Invalid switchport mode.
Cause: The VLAN membership mode is not access.
Action: Reenter the command after changing the mode to access.
- It is necessary to review specified VLAN and port.
Cause: The VLAN and port definitions do not match.
Action: Review the VLAN and port definitions.

5.2.10 Priority control functions (Class of Service)

5.2.10.1 switchport priority default

This command sets the default priority to frames without tags. The command is not applicable to IEEE802.1Q VLAN tagged frames.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

- Sets the default priority to frames without tags

<code>switchport priority default <default-priority-id></code>
--

- Resets the CoS map to the default value

```
no switchport priority default
```

(2) Options

- <default-priority-id>

Priority of frames without tags. The setting range is 0 to 7, and the default value is 0. The highest priority is 7.

(3) Command mode

Interface

(4) See also

wrr-queue cos-map

(5) Examples

- Sets the priority to 3

```
Switch(config-if)# switchport priority default 3
Switch(config-if)#
```

- Sets priority 1 for a port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# switchport priority default 1
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.10.2 wrr-queue cos-map

This command specifies the correspondence between user priorities and the CoS Queue.

The CoS allocated to the input port is used for CoS priority selection in the output port.

(1) Synopsis

- Maps the correspondence between user priorities and the CoS Queue

```
wrr-queue cos-map <p0> <p1> <p2> <p3> <p4> <p5> <p6> <p7>
```

- Resets the CoS map to the default value

```
no wrr-queue cos-map
```

(2) Options

- <p0> - <p7>

Specifies the transmit CoS Queue corresponding to the user priority (0 to 7). The setting range for the transmit CoS Queue is 0 to 3. Multiple user priorities are delimited by the space character. The default setting is "1 0 0 1 2 2 3 3".

(3) Command mode

Global

(4) See also

switchport priority default

show wrr-queue cos-map

(5) Examples

- Maps user priorities 0, 1, and 2 to CoS priority queue 0, user priority 3 to CoS priority queue 1, user priorities 4 and 5 to CoS priority queue 2, and user priorities 6 and 7 to CoS priority queue 3

```
Switch(config)# wrp-queue cos-map 0 0 0 1 2 2 3 3
Switch(config)#
```

- Maps user priorities 0, 1, 2, and 3 to CoS priority queue 2 and user priorities 4, 5, 6, and 7 to CoS priority queue 3

```
Switch(config)# wrp-queue cos-map 2 2 2 2 3 3 3 3
Switch(config)#
```

- Sets the CoS value to the default value

```
Switch(config)# no wrp-queue cos-map
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.

5.2.11 Port trunking functions

5.2.11.1 interface port-channel

This command creates and deletes channel groups.

(1) Synopsis

- Creates or accesses a channel group

```
interface port-channel <channel-group-number>
```

- Deletes a channel group

```
no interface port-channel <channel-group-number>
```

(2) Options

- <channel-group-number>

Specifies the channel number of a channel group. The setting range is 1 to 7.

(3) Command mode

Global

(4) See also

channel-group
spanning-tree port-priority
spanning-tree cost
switchport access vlan
switchport mode
switchport allowed vlan
switchport native vlan
switchport priority default

(5) Examples

- Creates a channel group with channel number 5 specified

```
Switch(config)# interface port-channel 5
Switch(config-if)#
```

- Deletes the channel group whose channel number is 5

```
Switch(config)# no interface port-channel 5
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.11.2 channel-group

This command adds and deletes physical links for a channel group:

- The maximum number of ports that can be registered in a channel group is 8.
- Different types of interfaces cannot be registered in the same channel group.
- Registered channel groups cannot be changed. To change a channel group, delete the channel group definition, and create a new channel group.
- The port registered first in a channel group becomes the master port, which inherits communication attributes and settings (Speed, duplex, storm-control, and flowcontrol; but only flowcontrol for TenGigabitEthernet). The master port must have the lowest port number among the registered ports in the group.

- The master port must always be the last port deleted among the registered ports in the group.

(1) Synopsis

- Adds a physical link to a channel group

```
channel-group <channel-group-number>
```

- Deletes a channel group definition (default)

```
no channel-group
```

(2) Options

- <channel-group-number>

Specifies the channel number of a channel group. The setting range is 1 to 7.

(3) Command mode

Interface

(4) See also

interface port-channel

(5) Examples

- Adds physical links to channel group 1

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# channel-group 1
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- port-channel is not define.
 - Cause: A non-existent channel group was specified.
 - Action: Reenter the command after creating a channel group.
- Already registered channel-group.
 - Cause: The interface is already registered with the channel group.
 - Action: To register the interface to another channel group, delete it from the current group and register it with the new group.
- Except for master port still remain.
 - Cause: A port other than the master port is registered with the channel group. The master port must be the last port deleted.
 - Action: Delete the port after deleting all the other ports.
- Smaller than master port.
 - Cause: Registering a port number smaller than that of the master port was attempted.
 - Action: Specify a port number larger than that of the master port.
- Set count over.
 - Cause: Registering more than 8 entries was attempted.
 - Action: Check the entries already registered.
- Port type error.
 - Cause: The port type is wrong.
 - Action: Reenter the command after checking the port type.
- Input parameter error.
 - Cause: An invalid parameter was specified.
 - Action: Specify the correct parameter.

5.2.11.3 port-channel load-balance

This command specifies the method of load balancing among physical links in a channel group.

The command can be used only for the "port-channel" interface type.

(1) Synopsis

- Specifies the method for load balancing among the physical links in a trunk group

```
port-channel load-balance {src-mac | dst-mac | src-dst-mac |  
src-ip | dst-ip | src-dst-ip}
```

- Resets the load balancing method to the default value

```
no port-channel load-balance
```

(2) Options

- {src-mac | dst-mac | src-dst-mac | src-ip | dst-ip | src-dst-ip}

Specifies the load balancing method.

- src-mac: Uses hash for the source MAC address.
- dst-mac: Uses hash for the destination MAC address.
- src-dst-mac (default): Uses hash for the source/destination MAC addresses.
- src-ip: Uses hash for the source IP address.
- dst-ip: Uses hash for the destination IP address.
- src-dst-ip: Uses hash for the source/destination IP addresses

(3) Command mode

Interface

(4) See also

channel-group

(5) Examples

- Specifies "hash for the destination MAC address" as the load balancing method of channel group 1

```
Switch(config)# interface port-channel 1
Switch(config-if)# port-channel load-balance dst-mac
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.12 IGMP snooping functions

5.2.12.1 ip igmp snooping

This command enables or disables IGMP snooping for the whole device.

If IGMP snooping is disabled for the whole device, IGMP snooping is disabled in all existing VLAN interfaces.

(1) Synopsis

- Enables IGMP snooping

```
ip igmp snooping
```

- Disables IGMP snooping (default)

```
no ip igmp snooping
```

(2) Options

None

(3) Command mode

Global

(4) See also

ip igmp snooping vlan

(5) Examples

- Enables IGMP snooping

```
Switch(config)# ip igmp snooping  
Switch(config)#
```

- Disables IGMP snooping

```
Switch(config)# no ip igmp snooping  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

- igmp static exists.

Cause: The ip igmp snooping vlan static or ip igmp snooping vlan mrouter setting is enabled.

Action: Disable the ip igmp snooping vlan static setting or ip igmp snooping vlan mrouter setting, and reexecute the command.

5.2.12.2 ip igmp snooping vlan

This command enables IGMP snooping in a specific VLAN.

For snooping in the specified VLAN, not only must the ip igmp snooping vlan command enable snooping in the specified VLAN, but snooping must also be enabled by the ip igmp snooping command for the whole device.

Snooping can be enabled in up to 110 VLANs.

(1) Synopsis

- Enables IGMP snooping in a specific VLAN

```
ip igmp snooping vlan
```

- Disables IGMP snooping in a specific VLAN (default)

```
no ip igmp snooping vlan
```

(2) Options

None

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snooping

(5) Examples

- Enables IGMP snooping in VLAN 2

```
switch(config)#vlan 2
switch(config-vlan)# ip igmp snooping vlan
switch(config-vlan)#
```

- Disables IGMP snooping in VLAN 2

```
switch(config)#vlan 2
switch(config-vlan)# no ip igmp snooping vlan
switch(config-vlan)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- igmp vlan is max regist.
Cause: 110 VLANs are specified for snooping.
Action: Disable unnecessary IGMP VLANs.

- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.
- igmp static exists.
Cause: The ip igmp snooping vlan static setting or ip igmp snooping vlan static setting is enabled.
Action: Disable the ip igmp snooping vlan static setting or ip igmp snooping vlan static setting, and reexecute the command.

5.2.12.3 ip igmp snooping vlan mrouter

This command specifies a multicast router port.

If a channel group is specified in <interface-id>, the anchor port is set as the multicast router port.

(1) Synopsis

- Specifies a multicast router port

```
ip igmp snooping vlan mrouter interface <interface-id>
```

- Deletes a multicast router port

```
no ip igmp snooping vlan mrouter interface <interface-id>
```

(2) Options

- <interface-id>

Specifies the interface and port number (GigabitEthernet 0/1 to 0/8, IOU 00 to 71, TenGigabitEthernet 1/1 to 1/2, port-channels 1 to 7, ports 1 to 33) to be set for the router port.

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snooping

ip igmp snooping vlan

(5) Examples

- Specifies an interface as a multicast router port of a VLAN

```
Switch(config-vlan)# ip igmp snooping vlan mrouter interface  
GigabitEthernet 0/1  
Switch(config-vlan)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- igmp vlan is invalid.
Cause: IGMP snooping for the specified VLAN is not enabled.
Action: Reenter the command after enabling IGMP snooping for the specified VLAN.
- Input parameter duplicate error.
Cause: Duplicated registration was attempted.
Action: Check the entries already registered.
- % Not implement daughter card.
Cause: TenGigabitEthernet was specified for the unit where no TenGigabitEthernet daughter card was implemented.
Action: Check the device configuration.

- Entry isn't existed.
 - Cause: The specified entry is not registered.
 - Action: Check the entered entry.
- It is necessary to review specified VLAN and port.
 - Cause: The VLAN and port definitions do not match.
 - Action: Review the VLAN and port definitions.
- Input parameter error.
 - Cause: An invalid parameter was specified.
 - Action: Specify the correct parameter.
- igmp is disable.
 - Cause: IGMP snooping is disabled.
 - Action: Enable IGMP snooping, and then reexecute the command.
- port-channel isn't defined.
 - Cause: The name of a port-channel that does not exist is specified for an interface.
 - Action: Specify the appropriate port-channel, and enter the command again.

5.2.12.4 ip igmp snooping vlan static

This command adds a layer-2 port to a multicast group:

- If a channel group is specified in <interface-id>, the anchor port is added to the multicast group.
- The maximum number of registered multicast groups, which consist of dynamically registered groups and groups registered statically by commands, is 252.
- If the MAC address table has no free space, no multicast group can be registered.

(1) Synopsis

- Adds a layer-2 port to a multicast group

```
ip igmp snooping vlan static <mac-address> interface <interface-id>
```

- Deletes a layer-2 port from a multicast group

```
no ip igmp snooping vlan static <mac-address> interface <interface-id>
```

(2) Options

- <mac-address>

Specifies a static group MAC address.

- <interface-id>

Specifies the interface and port number (GigabitEthernet 0/1 to 0/8, IOU 00 to 71, TenGigabitEthernet 1/1 to 1/2, port-channels 1 to 7, and ports 1 to 33) of the port to be added to a multicast group.

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snooping

(5) Examples

- Sets GigabitEthernet 0/1 statically for a multicast group (01:00:5e:02:02:03) of VLAN 20

```
Switch(config)# vlan 20
Switch(config-vlan)# ip igmp snooping vlan static 01:00:5e:02:02:03 interface
GigabitEthernet 0/1
Switch(config-vlan)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter duplicate error.
Cause: Duplicated registration was attempted.
Action: Check the entries already registered.
- % Not implement daughter card.
Cause: TenGigabitEthernet was specified for the unit where TenGigabitEthernet was not implemented.
Action: Check the device configuration.
- igmp static mac address max regist.
Cause: Specification exceeding the multicast table limit was attempted.
Action: Check the number of registered entries.

- Input static mac error.
 - Cause: The specified MAC address is an invalid multicast group.
 - Action: Check the MAC address.
- igmp vlan is invalid.
 - Cause: IGMP snooping for the specified VLAN is not enabled.
 - Action: Reenter the command after enabling IGMP snooping for the specified VLAN.
- Entry isn't existed.
 - Cause: The specified entry is not registered.
 - Action: Check the entered MAC address entry.
- It is necessary to review specified VLAN and port.
 - Cause: The VLAN and port definitions do not match.
 - Action: Review the VLAN and port definitions.
- Input parameter error.
 - Cause: An invalid parameter was specified.
 - Action: Specify the correct parameter.
- igmp is disable.
 - Cause: IGMP snooping is disabled.
 - Action: Enable IGMP snooping, and then reexecute the command.
- mac address table is full.
 - Cause: The MAC learning table is full.
 - Action: Wait until the MAC learning table contains free space, and then reexecute the command.
- port-channel isn't defined.
 - Cause: The name of a port-channel that does not exist is specified for an interface.
 - Action: Specify the appropriate port-channel, and enter the command again.

5.2.12.5 ip igmp snooping interval

This command sets the query interval.

(1) Synopsis

- Sets the query interval

```
ip igmp snooping interval <seconds>
```

- Resets the query interval to the default value.

```
no ip igmp snooping interval
```

(2) Options

- <seconds>

Specifies the query interval (seconds).

The specified value must be in a range of 1 to 65535 seconds. The default value is 130 seconds.

(3) Command mode

Global

(4) See also

ip igmp snooping

(5) Examples

- Sets 120 seconds as the query interval.

```
Switch(config)# ip igmp snooping interval 120  
Switch(config)#
```

(6) Error messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at the '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a Fujitsu certified service engineer.

5.2.12.6 ip igmp snooping robustness

This command sets the robustness value.

(1) Synopsis

- Sets

```
ip igmp snooping robustness <time>
```

- Resets the robustness value to the default value.

```
no ip igmp snooping robustness
```

(2) Options

- <time>

Specifies the robustness value (number of times).

The specified value must be in a range of 1 to 5 times. The default value is 2 times.

(3) Command mode

Global

(4) See also

ip igmp snooping

(5) Examples

- Sets 3 times as the robustness value.

```
Switch(config)# ip igmp snooping robustness 3
Switch(config)#
```

(6) Error messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at the '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a Fujitsu certified service engineer.

5.2.12.7 ip igmp snooping timeout

This command sets the query timeout time.

(1) Synopsis

- Sets the timeout time.

```
ip igmp snooping timeout <seconds>
```

- Resets the timeout time to the default value.

```
no ip igmp snooping timeout
```

(2) Options

- <seconds>

Specifies a timeout value (seconds).

The specified value must be in a range of 1 to 25 seconds. The default value is 10 seconds.

(3) Command mode

Global

(4) See also

ip igmp snooping

(5) Examples

- Sets 25 seconds as the timeout time.

(6) Error messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at the '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a Fujitsu certified service engineer.

5.2.13 Port mirroring functions

5.2.13.1 monitor session source

This command specifies the monitored ports. However, no setting can be made for a port-channel.

A change only to the defined traffic direction is not possible. A reset is required after an entry is deleted. Any interface specified by the monitor session destination command cannot be registered.

The show monitor session source command can be used to check registered entries. If no entry is registered, nothing is displayed.

By default, no entry is registered.

(1) Synopsis

- Specifies a monitored port

```
monitor session source interface <interface-id> [rx | tx | both]
```

- Removes a monitored port from port monitoring

```
no monitor session source interface <interface-id>
```

(2) Options

- <interface-id>

Specifies the source interface (GigabitEthernet 0/1 to 0/8, IOU 00 to 71, TenGigabitEthernet 1/1 to 1/2, ports 1 to 26).

- rx | tx | both (optional)

Specifies the traffic direction. The default setting is [both].

- rx: Incoming
- tx: Outgoing
- both: Bidirectional

(3) Command mode

Global

(4) See also

monitor session destination

(5) Examples

- Sets GigabitEthernet 0/1 as a monitored port

```
Switch(config)# monitor session source interface GigabitEthernet 0/1 both
Switch(config)#
```

- Deletes GigabitEthernet 0/1 from the monitored ports

```
Switch(config)# no monitor session source interface GigabitEthernet 0/1
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)# show monitor session source
Switch(config)#
Switch(config)# monitor session source interface GigabitEthernet 0/1 both
Switch(config)# monitor session source interface GigabitEthernet 0/2 rx
Switch(config)# monitor session source interface GigabitEthernet 0/3 tx
Switch(config)# show monitor session source
monitor session source interface GigabitEthernet 0/1 both
monitor session source interface GigabitEthernet 0/2 rx
monitor session source interface GigabitEthernet 0/3 tx
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- % Not implement daughter card.
Cause: TenGigabitEthernet was specified for the unit where TenGigabitEthernet was not implemented.
Action: Check the device configuration.
- Input parameter duplicate error.
Cause: Duplicated registration was attempted.
Action: Check the entries already registered.
- Entry isn't existed.
Cause: Deletion of an entry was attempted but the entry did not exist.
Action: Check the entries already registered.
- source/destination can't be registered at same port.
Cause: Registering a port with both [source] and [destination] was attempted.
Action: Check the entries already registered.
- Input parameter error.
Cause: An invalid parameter was specified.
Action: Specify the correct parameter.

5.2.13.2 monitor session destination

This command specifies the mirror port.

Only one port can be set as the mirror port. The port specified by the monitor session destination command cannot be used as a normal port. No setting can be made for a port-channel. Any interface registered by the monitor session source command cannot be registered.

By default, no entry is registered.

(1) Synopsis

- Specifies the mirror port

```
monitor session destination interface <interface-id>
```

- Resets the mirror port setting to the default value

```
no monitor session destination
```

(2) Options

- <interface-id>

Specifies the destination interface (GigabitEthernet 0/1 to 0/8, IOU 00 to 71, TenGigabitEthernet 1/1 to 1/2, ports 1 to 26).

(3) Command mode

Global

(4) See also

monitor session source

(5) Examples

- Sets GigabitEthernet 0/1 as the mirror port

```
Switch(config)# monitor destination interface GigabitEthernet 0/1
Switch(config)#
Switch(config)# show monitor destination
monitor destination interface GigabitEthernet 0/1
Switch(config)#
```

- Deletes GigabitEthernet 0/1 as the mirror port

```
Switch(config)# no monitor session destination
Switch(config)#
Switch(config)# show monitor session destination
no monitor session destination
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- % Not implement daughter card.

Cause: TenGigabitEthernet was specified for the unit where no TenGigabitEthernet daughter card was implemented.

Action: Check the device configuration.

- source/destination can't be registered at same port.

Cause: Registering a port with both [source] and [destination] was attempted.

Action: Check the entries already registered.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

5.2.14 Interface

5.2.14.1 interface

This command is used to specify an interface.

(1) Synopsis

- Specifies an interface

```
interface <interface-id>
```

(2) Options

- <interface-id>

Specifies the interface for this setting (GigabitEthernet 0/1 to 0/8, IOU 00 to 71, TenGigabitEthernet 1/1 to 1/2, ports 1 to 33, port-channels 1 to 7).

(3) Command mode

Global

(4) See also

None

(5) Examples

- Switches to interface configuration mode of GigabitEthernet 0/1

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.14.2 shutdown

This command disables an interface.

IOU00 to IOU71 are disabled by default. The other ports are enabled.

(1) Synopsis

- Disables an interface

```
shutdown
```

- Enables an interface

```
no shutdown
```

(2) Options

None

(3) Command mode

Interface

(4) See also

None

(5) Examples

- Disables GigabitEthernet 0/1

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# shutdown
Switch(config-if)#
```

(6) Error Messages

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.14.3 speed

This command specifies the port speed:

- No setting can be made for IOU 00 to 71 and TenGigabitEthernet 1/1 to 1/2.
- No setting can be made for a port-channel.
- The port speed cannot be fixed at 1000 Mbps.
- If auto is specified as the option, the duplex command setting is disabled because Auto Negotiation determines the duplex mode.

(1) Synopsis

- Specifies the port speed

```
speed {10 | 100 | auto}
```

- Resets the port speed to the default value (auto)

```
no speed
```

(2) Options

- {10 | 100 | auto}
 - 10: The port operates at 10 Mbps.
 - 100: The port operates at 100 Mbps.
 - auto: The port detects the appropriate setting automatically (default).

(3) Command mode

Interface

(4) See also

None

(5) Examples

- Sets the port speed of GigabitEthernet 0/1 to 100 Mbps

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# speed 100
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.14.4 duplex

This command specifies a duplex mode:

- No setting can be made for IOU 00 to 71 and TenGigabitEthernet 1/1 to 1/2.
- No setting can be made for a port-channel.
- If [auto] is specified by the speed command, duplex mode setting by this command is disabled because Auto Negotiation determines the duplex mode.
- If the setting is changed to the fixed setting (10/100) by the speed command, the setting by this command is enabled.

(1) Synopsis

- Sets a duplex mode

```
duplex {full | half}
```

- Resets the duplex mode to the default value (full)

```
no duplex
```

(2) Options

- {full | half}
 - full (default): Specifies the full-duplex mode.
 - half: Specifies the half-duplex mode.

(3) Command mode

Interface

(4) See also

None

(5) Examples

- Sets GigabitEther0/1 to full-duplex mode.

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# show speed
100
Switch(config-if)# duplex full
Switch(config-if)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.15 Access restriction functions

5.2.15.1 remote-access

This command specifies the host or network that can have remote connections:

- Telnet and SSH are the protocols available to this command for access control.
- Even after connection permission is deleted (by executing the no remote-access command), the Telnet/SSH connection established to this device is maintained.
- The maximum number of conditions that can be set is 100.
- No connection is permitted at the time of shipment from the factory. To enable the Telnet server function/SSH server function, execute this command to make settings to allow such connections.
- Use [remote-access <ip-address>] to permit access from a specific host.
- Use [remote-access <ip-address> <subnet-mask>] to permit access from a specific network. If no network address is specified in <ip-address>, a connection from the host of a specific network cannot be established.

(1) Synopsis

- Sets host or network conditions to allow remote connections

```
remote-access {all | telnet | ssh } {all | <ip-address> [<subnet-mask>]}
```

- Deletes the host or network conditions that allow remote connections

```
no remote-access {all | telnet | ssh } {all | <ip-address> }
```

(2) Options

- {all | telnet | ssh }

Specifies the protocol.

- all: Specifies both Telnet and SSH.
- Telnet: Specifies Telnet.
- SSH: Specifies SSH.

- {all | <ip-address> [<subnet-mask>]}

- all: Specifies all IP addresses.
- <ip-address>: Specifies the IP address or network address for which remote access is permitted.
- <subnet-mask>: Specifies the subnet mask.

If the IP address of a specific host is specified in <ip-address>, the subnet mask need not be specified. However, the subnet mask is required for a specific network.

(3) Command mode

Global

(4) See also

Telnet enable

SSH enable

show remote-access

(5) Examples

- Defines conditions to allow a Telnet connection from the host whose IP address is 192.168.1.100

```
Switch(config)# remote-access telnet 192.168.1.100
Switch(config)#
```

- Defines conditions to allow a Telnet connection from the host whose network address is 192.168.1.0

```
Switch(config)# remote-access telnet 192.168.1.0 255.255.255.0
Switch(config)#
```

- Defines conditions to allow all Telnet connections

```
Switch(config)# remote-access telnet 0.0.0.0 0.0.0.0
Switch(config)#
```

```
Switch(config)# remote-access telnet all
Switch(config)#
```

- Define conditions to allow all services for the host whose IP address is 192.168.1.100

```
Switch(config)# remote-access all 192.168.1.100
Switch(config)#
```

- Delete conditions to allow a Telnet connection from the host whose IP address is 192.168.1.100

```
Switch(config)# no remote-access telnet 192.168.1.100
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)#show remote-access
Switch(config)#remote-access telnet 10.10.10.10
Switch(config)#remote-access telnet 10.10.10.11
Switch(config)#remote-access telnet 10.10.10.12
Switch(config)#show remote-access
remote-access telnet 10.10.10.10
remote-access telnet 10.10.10.11
remote-access telnet 10.10.10.12
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid IP address was specified.
Action: Enter the correct IP address.
- Input parameter duplicate error.
Cause: Duplicated registration of the same connection conditions was attempted.
Action: Check the remote connection conditions already registered.
- Set count over.
Cause: Registering 101 or more connection conditions was attempted.
Action: Check the remote connection conditions already registered.
- Entry isn't existed.
Cause: Deletion of an unregistered remote connection condition was attempted.
Action: Check the remote connection conditions already registered.

5.2.16 Console

5.2.16.1 line

This command specifies a line for a connection.

(1) Synopsis

- Specifies a line for a connection

```
line vty
```

(2) Options

- vty: Specifies the virtual terminal for remote console access.

(3) Command mode

Global

(4) See also

None

(5) Examples

- Enters line configuration mode

```
Switch(config)# line vty  
Switch(config-line)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.16.2 exec-timeout

This command sets the timeout time of a remote console (Telnet, SSH). The specified time is enabled for the terminals that log in after the command is executed.

(1) Synopsis

- Sets the timeout time of remote consoles (Telnet, SSH)

```
exec-timeout <seconds>
```

- Resets the timeout time of remote consoles to the default value

```
no exec-timeout
```

(2) Options

- seconds

Specifies the timeout time (s).

The setting range is 0 to 900 (s), and the default value is 300 (s). If 0 is specified, no timeout occurs.

(3) Command mode

Line

(4) See also

None

(5) Examples

- Sets the timeout time for remote consoles to 600 (s)

```
Switch(config)# line vty
Switch(config-line)# exec-timeout 600
Switch(config-line)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid timeout value was specified.
Action: Specify a correct timeout value.

5.2.17 SNMP

5.2.17.1 snmp-server engineID local

This command specifies the SNMP engine ID of GSWB. The default value is "0x000000000000000000000000".

(1) Synopsis

- Specifies the SNMP engine ID of GSWB

```
snmp-server engineID local <engineid-string>
```

- Resets the SNMP engine ID of GSWB to the default value

```
no snmp-server engineID local
```

(2) Options

- <engineid-string>

A 10-digit to 24-digit hexadecimal string specifies the ID. "0x" at the beginning of the string may be omitted. If "0x" is entered, it is not included in the number of digits.

If the entered string consists of 23 or fewer digits, the engineID value is padded with "0" up to the 24th digit. This item need not be set if SNMP v3 is not used.

(3) Command mode

Global

(4) See also

snmp-server enable traps

show snmp-server

(5) Examples

- Sets the SNMP engine ID of GSWB

```
Switch(config)# snmp-server engineID local 0x1234000000  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: The specified [engineid-string] is invalid.
Action: Enter a correct value.

5.2.17.2 snmp-server location

This command specifies the installation location of a local device. The default value is "none".

(1) Synopsis

- Specifies the installation location of GSWB

```
snmp-server location <location>
```

- Resets this setting to the default value

```
no snmp-server location
```

(2) Options

- <location>:
The string entered for the installation location consists of 1 to 64 en-size alphanumeric characters and symbols, which may include _ - . and @.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Example

- Sets "tower-5F" as the installation location of GSWB

```
Switch(config)# snmp-server location tower-5F
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: The specified [location] is invalid.
Action: Enter a correct value.

5.2.17.3 snmp-server contact

This command specifies the contact address of GSWB. The default value is "none".

(1) Synopsis

- Specifies the contact address of GSWB

```
snmp-server contact <contact>
```

- Resets this setting to the default value

```
no snmp-server contact
```

(2) Options

- <contact>:

The string entered for the contact address consists of 1 to 64 en-size alphanumeric characters and symbols, which may include _ - . and @.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Example

- Specifies "hoge@hoge.co.jp" as the contact address of GSWB

```
Switch(config)# snmp-server contact hoge@hoge.co.jp
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: The specified [contact] is invalid.
Action: Enter a correct value.

5.2.17.4 snmp-server user

This command specifies a user to be connected from the server using SNMP v3. Unless snmp v3 is used, no user need be specified. By default, no user is specified.

- Maximum number of users: 8
- DES is used for encrypting packets.

(1) Synopsis

- Specifies a user to be connected from a server using SNMP v3

```
snmp-server user <user> { rw | ro } { noauth | auth {md5 | sha}
<password> | priv {md5 | sha} <password> <passphrase>}
```

- Deletes the specified user

```
no snmp-server user <user>
```

(2) Options

- <user>: Specifies a user name. The entered user name consists of 4 to 16 en-size alphanumeric characters and symbols, which may include - and _.
- { rw | ro }: Specifies the user privilege.
 - rw: Read/write privilege
 - ro: Read-only privilege
- { noauth | auth ... | priv ... }: Specifies the authentication level.
 - noauth: Authentication and encryption do not use passwords. (However, authentication by user name is performed.)
 - auth: Authentication uses passwords. No encryption is performed.
 - priv: Authentication and encryption use passwords.
- { md5 | sha }: The selected hash function is used for encrypting passwords.
 - md5
 - sha
- <password>: Specifies a password used for authentication. The entered password consists of 8 to 16 en-size alphanumeric characters.
- <passphrase>: Specifies the keyword for packet encryption. The entered passphrase consists of 8 to 16 en-size alphanumeric characters.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Examples

- Specifies that a user be set with the user name "a-sss", authentication level "noauth," and read-write privilege

```
Switch(config)# snmp-server user a-sss rw noauth
Switch(config)#
```

- Specifies that a user be set with the user name "1-sss", authentication level "auth," password encryption "md5," and read-only privilege

```
Switch(config)# snmp-server user 1-sss ro auth md5 zxcvbnmk
Switch(config)#
```

- Specifies that a user be set with the user name "b-sss", authentication level "priv," password encryption "sha," and read-only privilege

```
Switch(config)# snmp-server user b-sss ro priv sha asdfasdf iuytrewq
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)# show snmp-server user
Switch(config)#snmp-server user aaaaa1 ro noauth
Switch(config)#snmp-server user aaaaa2 ro noauth
Switch(config)#snmp-server user aaaaa3 ro noauth
Switch(config)#show snmp-server user
snmp-server user aaaaa1 ro noauth
snmp-server user aaaaa2 ro noauth
snmp-server user aaaaa3 ro noauth
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: The specified user name, authentication password, or encryption passphrase is incorrect.
Action: Specify the correct user name, authentication password, and encryption passphrase.

- Input parameter duplicate error.
Cause: Duplicated registration of the same user name was attempted.
Action: Check the user names already registered.
- Set count over.
Cause: Registration exceeding the maximum 8 people was attempted.
Action: Check the number of registered entries.
- Entry isn't existed.
Cause: Deleting an unregistered user name was attempted.
Action: Check the user names already registered.

5.2.17.5 snmp-server host

This command specifies the host whose MIB information is to be acquired or manipulated:

- The port number used for accessing MIB information is always 161.
- The maximum number of hosts that can be set is 8.
- Hosts with the same IP address but different SNMP versions can be registered simultaneously.

(1) Synopsis

- Specifies the host whose MIB information is to be acquired/manipulated

```
snmp-server host < host-address > version { 1 | 2c } <community-string>
{ro | rw }
```

- Deletes the specified host

```
no snmp-server host <host-address> version { 1 | 2c }
```

(2) Options

- <host-address>

Specifies the IP address of the host (target receiver).

Specifies the IP address in the form of XXX.XXX.XXX.XXX.

- version { 1 | 2c }

Specifies the SNMP version (1 or 2c).

- 1: Security model with the lowest security
- 2c: Security model with the 2nd lowest security

- <community-string>

Specifies the community string, whose function is similar to a password, to be transmitted in a notification action. The string consists of 1 to 20 en-size alphanumeric characters.

- { ro | rw }

Specifies the privilege for accessing MIB information.

- ro: Sets the access privilege to the MIB tree to Read-only.
- rw: Sets the access privilege to the MIB tree to Read/write.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Examples

- Specifies that the host be set with the host address 192.168.0.120, SNMP version 2c, community name "XXXYYYZZZ", and read-only access privilege

```
Switch(config)# snmp-server host 192.168.0.120 version 2c XXXYYYZZZ ro
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)# show snmp-server host
Switch(config)#snmp-server host 10.10.10.10 version 1 aaaaaaaa ro
Switch(config)#snmp-server host 10.10.10.11 version 1 aaaaaaaa ro
Switch(config)#snmp-server host 10.10.10.12 version 1 aaaaaaaa ro
Switch(config)#show snmp-server host
snmp-server host 10.10.10.10 version 1 aaaaaaaa ro
snmp-server host 10.10.10.11 version 1 aaaaaaaa ro
snmp-server host 10.10.10.12 version 1 aaaaaaaa ro
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid IP address or community string was specified.
Action: Specify the correct IP address and community string.
- Input parameter duplicate error.
Cause: Registering a host already registered was attempted.
Action: Check the hosts already registered.

- Set count over.

Cause: Registration exceeding the maximum 8 units was attempted.

Action: Check the number of registered entries.

- Entry isn't existed.

Cause: Deletion of an unregistered host was attempted.

Action: Check the hosts already registered.

5.2.17.6 snmp-server enable traps

This command enables trap transmission to the specified host and specifies the transmission notification type:

- The only port number used for trap transmission is 162.
- Up to eight trap notification destinations can be registered.
- Information transmission (inform) is not supported.
- DES is used for encrypting packets.
- Trap notification destinations with the same IP address but different SNMP versions can be registered simultaneously.

(1) Synopsis

- Enables trap transmission to the specified host and specifies the transmission notification type

```
snmp-server enable traps < host address > { version { 1 <community> |  
2c <community> | 3 <user> { noauth | auth {md5 | sha} <password> |  
priv {md5 | sha} <password> <passphrase> }
```

- Deletes the specified host

```
no snmp-server enable traps < host address > version { 1 | 2c | 3 }
```

(2) Options

- < host address >: Specifies the trap notification destination.
- { version { 1 <community> | 2c <community> | 3 <user > ... } }: Specifies the version of traps to be transmitted.
 - version 1 <community>: Transmits SNMP traps of version1.
<community>: Specifies the community-string used for authentication by the server that receives traps. The entered community string (1 to 20 en-size alphanumeric characters), whose function is similar to a password, is transmitted by a notification action.
 - version 2c <community>: Transmits SNMP traps of version2c.
<community>: Specifies the community-string used for authentication by the server that receives traps. The entered community string (1 to 20 en-size alphanumeric characters), whose function is similar to a password, is transmitted by a notification action.
 - version 3 <user> { noauth | auth { md5 | sha } <password> | priv { md5 | sha } <password> <passphrase> } : Transmits SNMP traps of version3. The authentication level is specified.
<user>: Specifies a user name (4 to 16 en-size alphanumeric characters including - and _).
noauth: Authentication and encryption do not use passwords. (However, authentication by user name is performed.)
auth: Authentication uses passwords. No encryption is performed.
{ md5 | sha } : The selected hash function is used for encrypting passwords.
<password>: Specifies the authentication password (8 to 16 en-size alphanumeric characters).
priv: Authentication and encryption use passwords.
{ md5 | sha } : The selected hash function is used for encrypting passwords.
<password>: Specifies the authentication password (8 to 16 en-size alphanumeric characters).
<passphrase>: Specifies the keyword for packet encryption (8 to 16 en-size alphanumeric characters).

(3) Command mode

Global

(4) See also

snmp-server engineID local

show snmp-server

(5) Examples

- Sets the snmp version1 trap

```
Switch(config)# snmp-server enable traps 192.168.0.100 version 1 aaasss
Switch(config)#
```

- Sets the snmp version 2c trap

```
Switch(config)# snmp-server enable traps 192.168.0.110 version 2c cccvvv
Switch(config)#
```

- Sets the snmp version 3 trap

```
Switch(config)# snmp-server enable traps 192.168.0.120 version 3 xxxyyy
priv md5 password passphrase
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)#
Switch(config)#show snmp-server enable traps
Switch(config)#snmp-server enable traps 10.10.10.10 version 1 aaaaaa
Switch(config)#snmp-server enable traps 10.10.10.11 version 1 aaaaaa
Switch(config)#snmp-server enable traps 10.10.10.12 version 1 aaaaaa
Switch(config)#show snmp-server enable traps
snmp-server enable traps 10.10.10.10 version 1 aaaaaa
snmp-server enable traps 10.10.10.11 version 1 aaaaaa
snmp-server enable traps 10.10.10.12 version 1 aaaaaa
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid IP address, community string, authentication password, or packet encryption keyword was specified.

Action: Specify valid IP address, community string, authentication password, and packet encryption keyword.

- Input parameter duplicate error.

Cause: A trap notification destination server already registered was specified.

Action: Check the trap notification destination servers already registered.

- Set count over.

Cause: Registration exceeding the maximum 8 units was attempted.

Action: Check the number of registered entries.

- Entry isn't existed.

Cause: Deletion of an unregistered trap notification destination server was attempted.

Action: Check the trap notification destination servers already registered.

5.2.18 LDAP

5.2.18.1 ldap server

This command specifies an ldap server:

- The maximum number of servers that can be specified is 2.
- [ldap_version] 3 is used.

(1) Synopsis

- Specifies the ldap server

```
ldap server <ip-address>
```

- Deletes the specified ldap server

```
no ldap server <ip-address>
```

(2) Options

- <ip-address>: Specifies the IP address of the ldap server.

(3) Command mode

Global

(4) See also

None

(5) Examples

- Sets the ldap server address to 192.168.2.1

```
Switch(config)# ldap server 192.168.2.1  
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)#  
Switch(config)#ldap server 10.10.10.10  
Switch(config)#ldap server 10.10.10.11  
Switch(config)#show ldap server  
ldap server 10.10.10.10  
ldap server 10.10.10.11  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid IP address was specified.
Action: Enter the correct IP address.
- Input parameter duplicate error.
Cause: An LDAP server already registered was specified.
Action: Check the LDAP servers already registered.
- Set count over.
Cause: Registration exceeding the maximum 2 units was attempted.
Action: Check the number of registered entries.

- Entry isn't existed.

Cause: Deletion of an unregistered LDAP server was attempted.

Action: Check the LDAP servers already registered.

5.2.18.2 ldap dn

This command specifies the base DN for searches.

The default setting is [dc=].

(1) Synopsis

- Specifies the base [DN] for searches

```
ldap dn <dn>
```

- Resets the base [DN] for searches to the default value

```
no ldap dn
```

(2) Options

- <dn>: Specifies the base DN in the form of "(attribute1)=(value1),(attribute2)=(value2),...". The entered data consists of 3 to 128 bytes and uses en-size alphanumeric characters and -, _, and =. Entering the space character causes an error.

Examples:

dc=example,dc=com Normal

dc = example,dc = com Error

dc=example, dc=com Error

(3) Command mode

Global

(4) See also

show ldap

(5) Examples

- Sets the base DN for searches

```
Switch(config)# ldap dn dc=example,dc=com
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid value was specified for [dn].

Action: Specify a correct value.

5.2.18.3 ldap ssl

This command enables ldap over ssl.

The hash algorithm is always DES.

(1) Synopsis

- Enables ldap over ssl

```
ldap ssl enable
```

- Disables ldap over ssl

```
no ldap ssl enable
```

(2) Options

None

(3) Command mode

Global

(4) See also

show ldap

(5) Examples

- Enables ldap over ssl

```
Switch(config)# ldap ssl enable
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.19 Telnet

5.2.19.1 Telnet enable

This command enables or disables Telnet. A connection cannot be established from a business LAN by only executing the Telnet enable command. Settings must be made with the remote-access command to allow connections.

Note: Only one connection can be established at a time.

(1) Synopsis

- Enables Telnet

```
telnet enable
```

- Disables Telnet (default)

```
no telnet enable
```

(2) Options

None

(3) Command mode

Global

(4) See also

remote-access

(5) Examples

- Enables Telnet

```
Switch(config)# telnet enable  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.20 SSH

5.2.20.1 SSH enable

This command enables the SSH server using the specified protocol:

- SSH connection is disabled by default.
- An operation command must be used to create a key file before SSH is enabled.
- User authentication supports only password authentication (the client side does not have the public key).
- The supported SSH protocol versions are RSA Version1, RSA Version2, and DSA Version2.
- If no parameter is specified in the SSH enable command, all authentication methods of rsa1, rsa, and dsa are enabled.
- If the SSH enable command is executed when no key file has been created, no error occurs, but no connection using SSH can be established. In such cases, create a key file by executing the SSH keygen command.
- If another SSH enable command is executed after a SSH enable command, the settings in the command executed last are used to enable SSH.
Example: If rsa1, rsa, and dsa are already enabled when the SSH enable rsa command is executed, the server is restarted with only rsa enabled.
- A connection cannot be established from a business LAN by only executing the SSH enable command. Setting must be made with the remote-access command to allow connections.
- Only one connection can be established at a time.
- If SSH is disabled when a connection using SSH has been established, the connection is not terminated.

(1) Synopsis

- Enables the SSH server using the specified protocol

```
ssh enable [rsa1] [rsa] [dsa]
```

- Disables SSH (default)

```
no ssh enable
```

(2) Options

- [rsa1] [rsa] [dsa]

Specifies the SSH protocol version.

- rsa1: RSA Version1
- rsa: RSA Version2
- dsa: DSA Version2

(3) Command mode

Global

(4) See also

SSH keygen

SSH keydel

show SSH

remote-access

(5) Examples

- Starts the SSH server with all SSH protocols supported

```
Switch(config)# ssh enable  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.21 ntp

5.2.21.1 ntp server

This command registers an NTP server and synchronizes the system clock with the NTP server:

- Three servers can be registered.
- The clock time is acquired from NTP servers in order of registration.
In other words, the order is as follows:
MMB#0 > MMB#1 > NTP server registered first > NTP server registered second > NTP server registered third
- NTP authentication is not supported.
- Setting based on received NTP broadcasts is not supported.
- NTP version 4 is used.
- Acquisition processing is not performed for the clock time from any NTP server registered after the clock time is successfully acquired.
- An inquiry is sent to the NTP server when the command is entered.
- Clock time adjustments may take up to six minutes.

(1) Synopsis

- Registers an NTP server and synchronizes the system clock with the NTP server

```
ntp server <ip-address>
```

- Deletes the specified NTP server from the registered servers

```
no ntp server <ip-address>
```

- Displays settings for checking

```
Switch(config)#show ntp server
Switch(config)#ntp server 10.10.10.10
Switch(config)#ntp server 10.10.10.11
Switch(config)#show ntp server
ntp server 10.10.10.10
ntp server 10.10.10.11
Switch(config)#
```

(2) Options

- <ip-address>

Specifies the IP address of an NTP server.

(3) Command mode

Global

(4) See also

ntp status

show ntp

(5) Examples

- Synchronizes the clock with NTP server 172.16.22.44

```
Switch(config)# ntp server 172.16.22.44
Switch(config)#
```

- Uses the show command to check settings

```
Switch(config)#show ntp server
Switch(config)#ntp server 10.10.10.10
Switch(config)#ntp server 10.10.10.11
Switch(config)#show ntp server
ntp server 10.10.10.10
ntp server 10.10.10.11
Switch(config)#
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit.
Alternatively, contact a certified service engineer.
- Input parameter error.
Cause: An invalid IP address was specified.
Action: Enter the correct IP address.
- Input parameter duplicate error.
Cause: Duplicated registration of the same ntp server was attempted.
Action: Check the ntp servers already registered.
- Set count over.
Cause: Registration of 4 or more ntp servers was attempted.
Action: Check the ntp servers already registered.
- Entry isn't existed.
Cause: Deletion of an unregistered ntp server was attempted.
Action: Check the ntp servers already registered.

5.2.21.2 ntp status

This command sets the interval of inquiries to an NTP server.

If multiple NTP servers are registered, the setting is made for all of the NTP servers.

Clock time adjustments may take up to six minutes.

Also, inquiries are sent to an NTP server at the following times:

- When the command is entered
- When the device is turned on and started
- When the device is restarted by the reload command

(1) Synopsis

- Specifies the interval of inquiries to an NTP server

```
ntp status <interval> <timeout>
```

- Resets the interval of inquiries to an NTP server to the default value

```
no ntp status
```

(2) Options

- <interval>
Specifies the interval of inquiries to an NTP server.
Specify the interval in a range of 1 to 24 hours. The default setting is one hour.
- <timeout>
Specifies the timeout time of an inquiry to the server.
Specify a time in a range of 1 to 15 seconds. The default setting is 3 seconds.

(3) Command mode

Global

(4) See also

ntp server

show ntp

(5) Example

- Sets the interval of inquiries to an NTP server

```
Switch(config)# ntp status 12 5  
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

5.2.22 Log

5.2.22.1 logging on

This command enables or disables message log (mlog) collection.

(1) Synopsis

<code>logging {on off}</code>

(2) Options

- {on | off}
 - on (default): Enables message log collection.
 - off: Disables message log collection.

(3) Command mode

Global

(4) See also

logging level

show logging

(5) Example

- Enables message log collection

```
Switch(config)# logging on
Switch(config)#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Internal communication error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.2.22.2 logging level

This command specifies the collection level of the message log (mlog).

mlog, tlog, llog cannot be saved during execution of this command.

(1) Synopsis

- Specifies the recording level of the message log

```
logging level {debug | info | notice | warning | error | crit | alert | emerg}
```

- Resets the collection level of the message log (mlog) to the default value

```
no logging level
```

(2) Options

When an option has been selected, all the messages that have a higher degree of urgency than the selected level are recorded.

The options are shown below. The lowest degree of urgency is at the right end, and the highest degree of urgency is at the right end. Each option is explained below.

- {debug | info | notice | warning | error | crit | alert | emerg}
 - debug: Debug message
 - info (default): General report message
 - notice: Notification message
 - warning: Warning message
 - error: Error message
 - crit: Fatal error message
 - alert: Message indicating that an immediate repair is required
 - emerg: Message to indicate a serious situation or an unstable system

(3) Command mode

Global

(4) See also

logging on

show logging

(5) Examples

- Records levels "emerg" to "info" in the log

```
Switch(config)# logging level info
Switch(config)#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- Input parameter error.

Cause: An invalid logging level was specified.

Action: Specify the correct logging level.

5.2.22.3 logging host

This command specifies the IP address of the log message (mlog) transfer destination.

The default setting is "0.0.0.0".

If the setting is the default setting, the message log is not transferred to an external device.

(1) Synopsis

- Specifies the IP address of the log transfer destination

```
logging host <ip-address>
```

- Resets the IP address of the log transfer destination to the default value (0.0.0.0)

```
no logging host
```

(2) Options

- <ip-address>

Specifies the IP address of the transfer destination syslog server.

(3) Command mode

Global

(4) See also

logging on

show logging

(5) Example

- Sets the IP address of the syslog transfer destination server to 172.16.22.44

```
Switch(config)# logging host 172.16.22.44
Switch(config)#
```

(6) Error Messages

- Input parameter error.
 - Cause: An invalid IP address was specified.
 - Action: Enter the correct IP address.
- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- Internal communication error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Input parameter error.
 - Cause: An invalid IP address was specified.
 - Action: Specify the correct IP address.

5.3 Operation Commands

This section describes the operation commands.

5.3.1 Console-related commands

This section describes the console-related commands.

5.3.1.1 clock set

This command sets the software clock. The setting values 0 to 9 for the month, day, hour, minute, and second are equivalent to 00 to 09.

Example:

```
switch#clock set 1:1:1 1 2 2003
Sat Feb 1 01:01:01 JST 2003
switch#clock set 01:01:01 01 02 2003
Sat Feb 1 01:01:01 JST 2003
switch#
```

(1) Synopsis

```
clock set <hh:mm:ss> <day> <month> <year>
```

(2) Options

- <hh:mm:ss>: Specifies the current time.
 - hh: Specifies the hour (0 to 23).
 - mm: Specifies the minute (0 to 59).
 - ss: Specifies the second (0 to 59).
- <day>: Specifies the day (1 to 31).
- <month>: Specifies the month (01 to 12).
- <year>: Specifies the year (1970 to 2037).

The hour, minute, second, day, and month can be entered as a one-digit or two-digit value.

The setting values 0 to 9 are equivalent to 00 to 09.

(3) Command mode

enabled exec

(4) See also

show clock

(5) Examples

- Changes the time (using the specified parameters)

```
Switch# clock set 19:29:00 13 2 2003
Thu Feb 13 19:29:00 JST 2003
Switch#
```

(6) Error messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- parameter error.
Cause: Invalid year, month, day, hour, minute, or second specified
Action: Specify a correct value.

5.3.1.2 show clock

This command displays the current time.

(1) Synopsis

```
show clock
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

clock set

(5) Examples

- Displays the time

```
Switch# show clock
16:57:41.274 JST Sun Mar 3 2002
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

5.3.1.3 show filelist

This command lists directory information from the file system.

(1) Synopsis

```
show filelist
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

None

(5) Examples

- Lists directory information

```
Switch# show filelist
  Filename      Size(byte)  Date
-----
chorus.RAM     2891776    2003/02/13 21:29:11
log.r          236832     2003/02/13 20:52:34
netstat.r      316192     2003/02/13 20:52:34
Number of files: 3
Switch#
```

Displayed items:

- Filename: File name
- Size: File size (Unit: bytes)
- Date: Gregorian calendar year, month, day, hour, minute, and second
- Number of files: Number of files in the directory

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

5.3.1.4 show history

This command lists the history of commands entered in the interactive shell.

Up to 32 commands can be listed. Commands entered before the last 32 commands entered are not displayed.

(1) Synopsis

```
[show] history
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Lists the commands that have been entered in the interactive shell

```
Switch> show history
1  show terminal status
2  show terminal list
3  show terminal pager off
4  show history
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

5.3.1.5 terminal pager

This command toggles the pager function setting of the terminal.

The default value is OFF.

(1) Synopsis

- Toggles ON/OFF the pager function

```
terminal pager {on | off}
```

(2) Options

- {on|off}
 - on: Sets the pager function to ON.
 - off (default value): Sets the pager function to OFF.

(3) Command Mode

user exec

enabled exec

(4) See also

show terminal

(5) Examples

- Toggles the pager function setting to ON

```
Switch>terminal pager on
Switch>
```

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.

5.3.1.6 show terminal

This command displays the basic settings for terminal output.

The window size setting of the terminal depends on the terminal type.

(1) Synopsis

- Displays terminal settings

```
show terminal [status]
```

- Displays information about the terminal users

```
show terminal list
```

- Displays ON/OFF information on the pager function

```
show terminal pager
```

- Displays information on the window size of the terminal

```
show terminal window
```

(2) Options

- status: Displays terminal settings.
- list: Displays information about the terminal users.
- pager: Displays ON/OFF information on the pager function.
- window: Displays the window size of the terminal.

(3) Command Mode

user exec

enabled exec

(4) See also

terminal pager

(5) Examples

- Displays terminal settings

```
Switch> show terminal status
```

```
-----
Attribute    Value
-----
```

```
Device       network
```

```
Column       80
```

```
Row          24
```

```
Type        vt100
```

```
Pager        On
-----
```

```
Switch>
```

Displayed items:

- Device: Output terminal name
 - Column: Maximum number of characters output per line
 - Row: Number of lines output by the pager function in one operation
 - Type: Output terminal type
 - Pager: Activation status of the pager function
- Displays information about the terminal users

```
Switch>terminal list
-----
Key User      Device
-----
263 user1     pts/0
260 user2     pts/1
-----
Switch>
```

Displayed items:

- Key: Task number
 - User: Login user
 - Device: Output terminal name
- Displays ON/OFF information on the pager function

```
Switch> show terminal pager
-----
Attribute     Value
-----
Pager         On
-----
Switch>
```

Displayed items:

- Pager: Pager function ON or OFF

- Displays the window size of the terminal

```
Switch> show terminal window
-----
Attribute      Value
-----
Column         80
Row            24
-----
Switch>
```

Displayed items:

- Column: Maximum number of characters output per line
- Row: Number of lines output by the pager function in one operation

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

5.3.1.7 quit

This command quits the active shell.

If a remote console is used and all shells are closed, the current session ends.

(1) Synopsis

```
quit
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Returns to the [login] prompt after quitting the shell

```
Switch> quit
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

5.3.1.8 Telnet

This command is used to communicate with other hosts using the Telnet protocol.

(1) Synopsis

```
telnet [<HOST>]
```

(2) Options

- <HOST>

Specifies the IP address of the Telnet server. If this parameter is omitted, Telnet subcommand mode is set.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Sets subcommand mode

```
Switch# telnet
telnet>
```

- Connects to the Telnet server (telnet <ip-address>)

```
Switch# telnet 128.9.6.10
Trying 128.9.6.10 . . .
Connection to 128.9.6.10.
Escape character is '^]'
Login:
```

- Switches to subcommand mode from the Telnet server prompt.
To return to the previous mode, the [Enter] key must be pressed without input.

```
Remotehost>          ([Ctrl]+[ ]) key input)
telnet>               ([Enter] key input)
Remotehost>
```

(6) Error messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Parameter error.
Cause: Invalid IP address specified in the Telnet command
Action: Enter the correct IP address.
- Telnet: Unable to connect to remote host: Network is unreachable
Cause: The destination server could not be found.
Action: Check the network connection to the destination server.
- Telnet: Unable to connect to remote host: Connection refused
Cause: The destination server refused the attempted connection.
Action: Check the destination server settings.
- Telnet: Unable to connect to remote host: No route to host
Cause: The destination server could not be found in the same network.

Action: Check the network connection to the destination server.

- ?Parameter error

Cause: Invalid parameter in the entered subcommand

Action: Enter the command string correctly.

- ?Invalid command

Cause: Invalid input subcommand

Action: Enter the command string correctly.

- ?Already connected to *.*.*.

Cause: The open subcommand was entered while *.*.*. was still connected.

Action: Terminate the connection, and then execute the subcommand.

- ?Need to be connected first.

Cause: The close subcommand was entered while no server was connected.

Action: Execute the subcommand when a connection to a server has been established.

- ?Invalid help command *

Cause: Invalid subcommand name [*] of help entered in Telnet command mode

Action: Connect to a server, and check the entered subcommand name of help.

- Internal error:*

Cause: An internal error occurred. [*] shows details.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.1.9 SSH

This command is used to communicate with other hosts using the SSH protocol.

Specify a user name consisting of up to 32 characters.

Uppercase and lowercase letters (case sensitive), digits, and the symbols listed below are the characters that can be used. Null characters cannot be used.

Symbols that can be used: #%&()=~-|~@;+*[]<>^.{ }'_-

(1) Synopsis

```
ssh [<HOST>]
```

(2) Options

- <HOST>: Specifies the IP address of the SSH server.

If this option is omitted, the host address input prompt is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Specifies no IP address for the SSH server

```
switch#ssh
host : 192.168.2.50
username : xxxxx
xxxxx@192.168.2.50's password:
```

- Specifies the IP address of the SSH server

```
switch#ssh 192.168.2.50
username : xxxxx
xxxxx@192.168.2.50's password:
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Parameter error
Cause: Invalid <HOST> or [username]
Action: Specify a correct value.
- Permission denied.
Cause: Invalid password
Action: Enter the correct password.
- SSH: connect to address *.*.* port 22: Network is unreachable
Cause: The destination server (IP address *.*.*) cannot be connected.
Action: Check the network environment.
- SSH: connect to address *.*.* port 22: Connection refused
Cause: The destination server (IP address *.*.*) refused the attempted connection.
Action: Check the destination server status.
- SSH: connect to address *.*.* port 22: No route to host
Cause: The destination server (IP address *.*.*) cannot be connected.
Action: Check the destination server.
- authentication failure: *
Cause: The server cannot be connected due to authentication error. [*] shows details.
Action: Check the destination server settings.
- Internal error:*
Cause: An internal error occurred. [*] shows details.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.1.10 tftp

This command transfers files to or from the tftp server using TFTP.

The default transfer mode is binary transfer mode.

Any 2-byte to 24-byte character string consisting of en-size alphanumeric characters, including '-', '_' and '.', can be entered for a file name in put/get.

The command cannot be executed during execution of any of the following commands: clear ramdisk, install, restore config, save config, tftp.

(1) Synopsis

```
tftp [ <HOST> ]
```

(2) Options

- <HOST>: Specifies the IP address of the tftp server.

If this option is omitted, the command will work as a tftp subcommand without connection to the server.

(3) Command mode

enabled exec

(4) See also

clear ramdisk

install

restore config

save config

(5) Examples

- Switches to the tftp subcommand

```
Switch# tftp  
tftp>
```

- Acquires an online file after connecting to the tftp server and terminates the tftp connection.

```
switch#tftp 10.10.10.10
tftp> get online
Received 12386112 bytes in 541.1 seconds
tftp> q
switch#
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Parameter error
Cause: An invalid parameter was entered.
Action: Enter the command string correctly.
- Command is already running.
Cause: The following commands are currently running.
clear ramdisk / install / restore config / save config / tftp
Action: Reenter the command after the current command exits.
- tftp: sendto: *
Cause: Data transmission to the tftp server failed. [*] shows details.
Action: Check the status of the network connection to the tftp server.
- tftp: rcvfrom: *
Cause: Data reception from the tftp server failed. [*] shows details.
Action: Check the status of the network connection to the tftp server.
- Transfer timed out.
Cause: The tftp server has not started at the connected host. Alternatively, connection is not allowed. Another possibility is that file transfer is not possible due to a connection error.
Action: Check the connection to the tftp server. Use the [show ether statistics] command to check for possible errors.
Check the interface settings of the business LAN.

- **Error code 1: ***
 - Cause: The specified file is not found in the tftp server.
 - Action: Check if the tftp server is running. Check if the specified file exists in the tftp server.
- **Error code 2: ***
 - Cause: An error occurred during access to the file in the server.
 - Action: Wait for a while and reexecute. Check the settings of the server.
- **Server error:***
 - Cause: An error occurred at the tftp server. [*] shows the error code.
 - Action: Wait for a while and reexecute. Check the settings of the server.
- **Invalid command**
 - Cause: Invalid command string entry in subcommand mode
 - Action: Enter the command string correctly.
- **No target machine specified.**
 - Cause: The put or get subcommand was entered without connecting to the server.
 - Action: Transfer the file after connecting to the server.
- **Open error.**
 - Cause: A non-existent file was specified for the put subcommand execution.
 - Action: Check the file name
- **Invalid help command *.**
 - Cause: An invalid subcommand name [*] was specified for the help subcommand execution.
 - Action: Check the subcommand name.
- **Internal error:***
 - Cause: An internal error occurred. [*] shows details.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2 Unit-related commands

This section describes the unit-related commands.

5.3.2.1 change

This command specifies the offline and online programs and configuration definition used in a restart.

This command cannot be executed during execution of the change, reload, or install command.

(1) Synopsis

<code>change {config offline online} {0 1}</code>

(2) Options

- {config | offline | online}
 - config: Specifies the configuration definition used in a restart.
 - offline: Specifies the offline program used in a restart.
 - online: Specifies the online program used in a restart.
- {0 | 1}: Specifies the bank.
 - 0: Bank 0
 - 1: Bank 1

(3) Command mode

enabled exec

(4) See also

install

show system information

reload

(5) Examples

- Specifies Bank 0 as the configuration definition used in a restart

```
Switch# change config 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

- Specifies Bank 0 as the offline program used in a restart

```
Switch# change offline 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

- Specifies Bank 0 as the online program used in a restart

```
Switch# change online 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Command is already running.
Cause: Execution of one of the following commands is in progress:
change, reload, install.
Action: Re-enter the command after the command currently being executed ends.

- Bank cannot be switched.

Cause: Banks cannot be switched.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.2 clear config

This command clears the configuration definition file. Configuration definition information is reflected only after the unit is restarted.

The command cannot be executed during execution of any of the following commands: clear config, save, save config, restore config.

(1) Synopsis

<code>clear config {0 1}</code>

(2) Options

- {0 | 1}: Specifies the configuration definition bank to be cleared.
 - 0: Configuration definition bank 0
 - 1: Configuration definition bank 1

(3) Command mode

enabled exec

(4) See also

save

save config

restore config

(5) Examples

- Clears the configuration definition

```
Switch# clear config 0
Are you sure? [y/n]: y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Command is already running.
Cause: Execution of one of the following commands is in progress:
change, reload, install.
Action: Re-enter the command after the command currently being executed ends.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.3 install

This command installs the offline or online program to an area that is not currently used for startup.

This command cannot be executed during execution of the clear ramdisk, install, show system information, tftp, change, or reload command.

The command cannot be interrupted by the [Ctrl]+[C] keys.

The command cannot be executed during execution of any of the following commands: clear ramdisk, install, show system information, tftp.

Do not turn off power during installation.

(1) Synopsis

- Installs the offline or online program to an area that is not currently used for startup

```
install {offline | online}
```

(2) Options

- {offline | online}
 - offline: Installs an offline program.
 - online: Installs an online program.

(3) Command mode

enabled exec

(4) See also

change
clear ramdisk
show system information
tftp
reload

(5) Examples

- Installs an offline program

```
Switch# install offline
Are you sure? [y/n]:y
Now perform...

ERASE mtd7
Erased 1024 Kibyte @ 0 -- 100% complete.

offline size:1048576byte
524288
1048576 complete

/dev/mtdblock7 write data sum check
Normal End
Switch#
```

- Installs an online program

```
Switch# install online
Are you sure? [y/n]:y

Now perform...
ERASE mtd1
Erased 1024 Kibyte @ 0 -- 100% complete.
kernel size:721048byte
524288
721048 complete
/dev/mtdblock1 write data sum check
ERASE mtd3

Erased 13312 Kibyte @ 0 -- 100% complete.
rootfs size:11665408byte
1048576
2097152
3145728
4194304
5242880
6291456
7340032
8388608
9437184
10485760
11534336
11665408 complete

/dev/mtdblock3 write data sum check
mtdblock5 len:176
Normal End
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- File error.
Cause: The specified file is corrupt.
Action: Download the correct file.
- Open error.
Cause: The file has not been downloaded yet.
Action: Download the correct file.
- Command is already running.
Cause: Execution of one of the following commands is in progress:
clear ramdisk, install, show system information, tftp, change, reload.
Action: Reenter the command after the current command exits.
- Bank cannot be switched.
Cause: Installation failed.
Action: Turn off power to the GSWB to shut it down, remove the GSWB from the cabinet, reinstall the GSWB in the cabinet, and then retry the operation.
If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.
- Two installed files or more exist.
Cause: There are two or more files to be installed.
Action: Execute the clear ramdisk command to delete the files.
Download the files again to the GSWB, and execute this command.

- The file name is not corresponding to the version.
 - Cause: The file name does not correspond to the version being used.
 - Action: Execute the clear ramdisk command to delete the file.
Confirm the file to be downloaded.
Download the file again to the GSWB, and execute this command.
- The version of the specified firmware does not support the parts number of this GSWB.
 - Cause: The file to be installed does not support the GSWB.
 - Action: Execute the clear ramdisk command to delete the file.
Before installing another file of the firmware, confirm that the file supports the GSWB.
Download the file to the GSWB, and execute this command again.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.4 reload

This command restarts the whole unit.

This command cannot be executed during execution of the change, reload, or install command.

(1) Synopsis

- Restarts the whole unit after diagnostics processing if specified

<code>reload [non-idiag idiag]</code>

(2) Options

- [non-idiag | idiag] (optional)

If non-idiag is specified, the device will be restarted without diagnosis. If idiag is specified, the device will be restarted after all diagnostic processing is performed. By default, the device will be restarted without diagnosis.

(3) Command mode

enabled exec

(4) See also

change

install

(5) Examples

- Restarts without diagnostics

```
Switch# reload
Are you sure? [y/n]:y
Now perform...
```

- Restarts after diagnostics processing is completed

```
Switch# reload iddiag
Are you sure? [y/n]:y
Now perform...
```

(6) Error Messages

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Command is already running.
Cause: Execution of one of the following commands is in progress:
change, reload, install
Action: Reenter the command after the command currently being executed ends.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.5 show globalmac

This command displays MAC information.

The global MAC address can also be displayed by the show system information command. (See [Section 5.3.2.8, "show system information"](#))

(1) Synopsis

```
show globalmac
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

show system information

(5) Examples

- Displays the global MAC address

```
Switch# show globalmac
Global MAC Address
00:00:0e:90:00:00
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- Mac address isn't set.

Cause: The MAC address has not been specified.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit or contact a certified service engineer.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.6 **show memory**

This command displays the status of each memory resource.

(1) Synopsis

<code>show memory</code>

(2) Options

None

(3) Command mode

enabled exec

(4) See also

None

(5) Examples

- Displays the memory resource status

```
Switch# show memory
Resource :   In Use /   Avail (   %)
-----
dynamic   : 197607424 / 458280960 ( 44%)
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.7 show processes

This command displays CPU usage.

The show processes detail command cannot be interrupted by the [Ctrl]+[C].

Up to 15 bytes of process names are displayed by the show processes detail command.

(1) Synopsis

```
show processes [detail]
```

(2) Options

- detail (optional)

Displays all PIDs and names of the processes running on the CPU.

If this option is omitted, the command will display CPU usage.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Displays CPU usage (the parameter is omitted)

```
Switch# show processes
CPU utilization for
1min.  5min.  15min.  ( %)
-----
      14      14      13
-----
Switch#
```

Displayed items:

- 1min: CPU usage in the last minute. If no information is available, "---" is displayed.
- 5min: CPU usage in the last 5 minutes. If no information is available, "---" is displayed.
- 15min: CPU usage in the last 15 minutes. If no information is available, "---" is displayed.

- Displays processes running on the CPU

```
Switch# show processes detail
-----
 1 init
 2 keventd
 3 ksoftirqd_CPU0
 4 kswapd
 5 bdflush
 6 kupdated
 7 mtddblockd
42 jffs2_gcd_mtd4
72 mlogd
148 insmod
152 ipmi
156 ipmi_ms
157 bcmDPC
158 ipmi_rc
162 bcmL2X.1
163 bcmL2X.0
165 bcmTC
166 bcmCNTR.
167 bcmRX.0
168 bcmRX.1
172 insmod
175 tunnel_thrd
377 bash
419 in.telnetd
420 gsh
3206 xinetd
3289 cron
3308 ipmi_rc
5750 ps
-----
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.8 show system information

This command displays the machine information (model, ID, serial No.), running information, program (bank) information, and optional information.

The global MAC address can also be displayed by the show globalmac command.

This command cannot be executed during execution of any of the following commands: install, show system information.

(1) Synopsis

<code>show system information</code>

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

change
install
save
show globalmac

(5) Examples

- Displays the system information (as specified in show system information)

```
Switch# show system information
Machine Information
  Hostname                : switch
  Board Information
    Mfg Date/Time         : 2005-03-03
    Board Manufacturer     : FUJITSU LIMITED
    Board Product Name    : GSWB_1G
    Board Serial No       : 0123456789
    Board Part No         : LA0123456789 99999
Running online   : online0  V01L01-A30 2005-05-16 19:03:34
Running config   : config0  0.1      2005-05-16 19:54:06
Running offline  : offline0  V001L003 2005-04-18 16:16:29
online Information
  *online0           : V01L01-A30 2005-05-16 19:03:34
  online1            : V01L01-A30 2005-05-16 19:03:34
  *config0           : 0.1      2005-05-16 19:54:06
[                                                             ]
  config1            : *** No File ***
[                                                             ]
Globalmac         : 00:33:44:55:66:77
offline Information
  offline0           : V001L003 2005-04-18 16:16:29
  *offline1          : V001L003 2005-04-18 16:16:29
Switch#
```

Displayed items:

- Machine Information: Unit information
 - Hostname: Unit name
 - Board Information: FRU information
- Running Online: Online firmware information at startup and firmware version number and creation date

- Running Config: Configuration definition file information at startup and creation date.
- Running Offline: Offline firmware information at startup and firmware version number and creation date
- online Information: Status of online0/1 and config0/1. "*" indicates the beginning of the current EEPROM information.
 - online0/1: Firmware version number and creation date.
If a firmware error is detected, "**** Invalid online ****" is displayed.
 - config0/1: Firmware version number and creation date.
Comments specified by the save config command are displayed between [and], under the date.
If no file is found, "**** No File ****" is displayed.
If the file header is missing, "**** Error File ****" is displayed.
- Globalmac: Global MAC address (XX:XX:XX:XX:XX:XX)
- offline Information:
 - Version number and creation date of the offline0/1 firmware. "*" indicates the firmware that is started the next time.
If a firmware error is detected, "**** Invalid offline ****" is displayed.

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Command is already running.
Cause: The following command is running.
install

Action: Reenter the command after the current command exits.

5.3.2.9 show system status

This command displays dynamic information about the unit.

(1) Synopsis

```
show system status
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

```
Switch# show system status
MODULE      STATUS SUBSTATUS  ERROR
SYSTEM      Online Active
Switch#
```

Displayed items:

- STATUS

- Online: Ready for operation
- Nouse: Not ready for operation
- Halt: Permanent failure
- Config: Configuration definition setting

- SUBSTATUS

- Normal: Processing was completed normally.
- Error: An error was detected.
- Active: Operating

- **ERROR**

- Config ERROR: A definition file error occurred.
- Hard ERROR: A hardware error occurred.

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.2.10 clear ramdisk

This command deletes files in the TFTP work area.

The command cannot be executed during execution of any of the following commands: install, clear ramdisk, restore config, save config, tftp.

(1) Synopsis

<code>clear ramdisk</code>

(2) Options

None

(3) Command mode

enabled exec

(4) See also

install
tftp
restore config
save config

(5) Examples

- Deletes files in the work area

```
Switch# clear ramdisk
Are you sure [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.
- Command is already running.
Cause: One of the following commands is running.
install / clear ramdisk / restore config / save config / tftp
Action: Reenter the command after the current command exits.

5.3.2.11 eeprominit

This command deletes SDR/SEL information.

(1) Synopsis

```
eeprominit
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

None

(5) Examples

```
Switch# eeprominit
Are you sure? [y/n]: y
Now Perform...
Switch#
```

(6) Error messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

5.3.3 Port-related commands

5.3.3.1 show interface status

This command displays interface status information.

(1) Synopsis

```
show interface status <interface-id>
```

(2) Options

- <interface-id>: Specifies the interface whose status is to be displayed.
 - GigabitEthernet 0/1-8
 - IOU 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7
 - port 1-35

(3) Command mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Processing with GigabitEthernet 0/1 specified

```
Switch# show interface status GigabitEthernet 0/1
17 GigabitEthernet 0/1
  Basic information:
  port type: 1000base-T
  MDI status: MDI
Configuration:
  Name: GigabitEthernet 0/1
  Port admin status: up
  Speed: auto
  Duplex: -
  Capabilities: 10half,10full,100half,100full,auto
  Broadcast storm status: Enable / threshold: 4096 packets/
second
  Multicast storm status: Enable / threshold: 1024 packets/
second
  DLF storm status: Disable
  Receive Frow control status: Enable
  Send Frow control status: Enable
  Current status:
  Link status:up
  Operation speed-duplex: 1000full
```

Displayed items:

- port type: Port type
 - 1000base-T
 - 10Gbase-LR
 - port-channel
- MDI status: MDI status
 - MDI: Normal MDI mode
 - MDI-X: Crossover MDI mode
 - -: Link Down

For IOU 0 0-7 1, TenGigabitEthernet 1/1-2, and port-channel 1-7
- NAME: Interface name
- Port admin status:
 - up: Interface ready for communication
 - down: Interface not ready for communication
 - hard err: Interface not available because of a hardware error

- Speed: Setup port speed (Unit: M)
 - 10
 - 100
 - auto
- Duplex: Setup duplex mode
 - half: Half duplex mode
 - full: Full duplex mode
 - -: Auto port speed
- Capabilities: Combination of the port speed and duplex mode that can be set
 - 10half
 - 10full
 - 100half
 - 100full
 - auto
 - - (Speed/duplex mode cannot be set)
- Broadcast storm status: Rate control status for a broadcast storm
 - Enable / threshold: Threshold packets/second
 - Disable
- Multicast storm status: Rate control status for a multicast storm
 - Enable / threshold: Threshold packets/second
 - Disable
- DLF storm status: Rate control status for a DLF storm
 - Enable / threshold: Threshold packets/second
 - Disable
- Receive Flow control status: Receive flow control status
- Send Flow control status: Send flow control status
- Link status: Client port status
 - up: Interface ready for communication
 - down: Interface not ready for communication
- Operation speed-duplex: Actual port speed and duplex mode

If the specified interface type is port-channel, the master port status is displayed.

(6) Error Messages

- Port-channel ** is not defined.

Cause: An undefined channel group is specified. [*] shows the port-channel port number.

Action: Check the channel group definition.

- % Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.3.2 show interface counters

This command displays statistical information about an interface.

The statistical information is cleared by the clear ether statistics command.

(1) Synopsis

<code>show interface counters <interface-id></code>

(2) Options

- <interface-id>: Specifies the interface whose statistical information is to be displayed.
 - IOU 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - port 1-35

(3) Command Mode

user exec

enabled exec

(4) See also

clear ether statistics

(5) Examples

- Displays the information, with GigabitEthernet 0/1 specified

```
Switch# show interface counters GigabitEthernet 0/1
17 GigabitEthernet 0/1
  Iftable stats:
    Octets input: 19648, Octets output: 714944
    Unitcast input: 0, Unitcast output: 0
    Discard input: 0, Discard output: 0
    Error input: 0, Error output: 0
    QLen output: 0
  Extended iftable stats:
    Multi-cast input: 0, Multi-cast output: 10524
    Broadcast input: 136, Broadcast output: 0
  Ether-like stats
    Alignment errors: 0, FCS errors: 0
    Single collosion frames: 0, Multiple collision frames: 0
    Deferred transmissions: 0
    Late collisions: 0, Excessive collisions: 0
    Internal mac transmit errors: 0
    Internal mac receive errors: 0
    Frame too longs: 0, Carrier sense errors: 0
  RMON status:
    Octets: 734720, Packets: 10661
    Broadcast pkts: 136, Multi-cast pkts: 10525
    Undersize pkts: 0, Oversize pkts: 0
    Fragments: 0, Jabbers: 0
    CRC align errors: 0, Collisions: 0
    Packet size == 64 octets: 9877
    Packet size 65 to 127 octets: 93
    Packet size 128 to 255 octets: 691
    Packet size 256 to 511 octets: 0
    Packet size 512 to 1023 octets: 0
    Packet size 1024 to 1518 octets: 0
Switch#
```

Displayed items:

- Iftable stats

- Octets input: Number of received octets
Octets output: Number of transmitted octets
- Unitcast input: Number of received unicast frames
Unitcast output: Number of transmitted unicast frames
- Discard input: Number of frames discarded without being received
Discard output: Number of frames discarded without being transmitted

- Error input: Number of received errors

The sum total of the following statistical information is displayed:

- Number of received frames with a length of less than 64 octets
- Number of received fragment frames
- Number of received FCS error frames
- Number of received oversize frames
- Number of received Jabber frames
- Error output: Number of transmitted errors.

The sum total of the following statistical information is displayed:

- Number of transmitted excessive collision frames
- Number of transmission aborted packets
- QLen output: Transmit queue length

- Extended iftable stats

- Multi-cast input: Number of received multicast frames
Multi-cast output: Number of transmitted multicast frames
- Broadcast input: Number of received broadcast frames
Broadcast output: Number of transmitted broadcast frames

- Ether-like stats

- Alignment errors: Number of alignment errors
- FCS errors: Number of FCS errors
- Single collision frames: Number of frames that failed to be transmitted in one attempt
- Multiple collision frames: Number of frames that failed to be transmitted in multiple attempts
- Deferred transmissions: Number of transmission attempts in which transmission was initially deferred because media was in use
- Late collisions: Number of times that a collision was detected
- Excessive collisions: Number of times that transmission failed because of excessive collisions

- Internal mac transmit errors: Number of frames that failed to be transmitted because of an external transmission error
- Internal mac receive errors: Number of frames that failed to be received because of an internal reception error
- Frame too longs: Number of transmitted frames whose length exceeds the maximum length
- Carrier sense errors: Number of times that carrier detection was lost during frame transfer
- RMON status:
 - Octets: Number of octets
 - Packets: Number of packets
 - Broadcast pkts: Number of broadcast packets
 - Multi-cast pkts: Number of multicast packets
 - Undersize pkts: Number of packets that are smaller than the minimum size
 - Oversize pkts: Number of packets that are larger than the maximum size
 - Fragments: Number of fragments
 - Jabbers: Number of Jabbers
 - CRC align errors: Number of CRC alignment errors
 - Collisions: Number of collisions
 - Packet size == 64 octets: Number of transmitted/received packets whose size is 64 octets
 - Packet size 65 to 127 octets: Number of transmitted/received packets whose size ranges from 65 to 127 octets
 - Packet size 128 to 255 octets: Number of transmitted/received packets whose size ranges from 128 to 255 octets
 - Packet size 256 to 511 octets: Number of transmitted/received packets whose size ranges from 256 to 511 octets
 - Packet size 512 to 1023 octets: Number of transmitted/received packets whose size ranges from 512 to 1023 octets
 - Packet size 1024 to 1518 octets: Number of transmitted/received packets whose size ranges from 1024 to 1518 octets

- Displays the information, with TenGigabitEthernet 1/1 specified

```
Switch# show interface counters TenGigabitEthernet 1/1
25 TenGigabitEthernet 1/1
  Iftable stats:
    Octets input: 19648, Octets output: 714944
    Unitcast input: 0, Unitcast output: 0
    Discard input: 0, Discard output: 0
    Error input: 0, Error output: 0
    QLen output: 0
  Extended iftable stats:
    Multi-cast input: 0, Multi-cast output: 10524
    Broadcast input: 136, Broadcast output: 0
  Ether-like stats
    FCS errors: 0, Frame too longs: 0
  RMON status:
    Octets: 734720, Packets: 10661
    Broadcast pkts: 136, Multi-cast pkts: 10525
    Undersize pkts: 0, Oversize pkts: 0
    Fragments: 0, CRC align errors: 0,
    Packet size == 64 octets: 9877
    Packet size 65 to 127 octets: 93
    Packet size 128 to 255 octets: 691
    Packet size 256 to 511 octets: 0
    Packet size 512 to 1023 octets: 0
Switch#
```

Displayed items:

- Octets input: Number of received octets
- Octets output: Number of transmitted octets
- Unitcast input: Number of received unicast frames
- Unitcast output: Number of transmitted unicast frames
- Discard input: Number of frames discarded without being received
- Discard output: Number of frames discarded without being transmitted
- Error input: Number of received errors

The sum total of the following statistical information is displayed:

- Number of received FCS error packets
- Number of received oversize packets
- Number of received length-out-of-range frames
- Number of received frames with a length of less than 64 octets
- Number of received fragment frames

- Error output: Number of transmitted errors.

The following statistical information is displayed:

- Number of transmission aborted packets
- QLen output: Transmit queue length
- Multi-cast input: Number of received multicast frames
- Multi-cast output: Number of transmitted multicast frames
- Broadcast input: Number of received broadcast frames
- Broadcast output: Number of transmitted broadcast frames
- FCS errors: Number of FCS errors
- Frame too longs: Number of transmitted frames whose length exceeds the maximum length
- Octets: Number of octets
- Packets: Number of packets
- Broadcast pkts: Number of broadcast packets
- Multi-cast pkts: Number of multicast packets
- Undersize pkts: Number of packets that are smaller than the minimum size
- Oversize pkts: Number of packets that are larger than the maximum size
- Fragments: Number of fragments
- CRC align errors: Number of CRC alignment errors
- Packet size == 64 octets: Number of transmitted/received packets whose size is 64 octets
- Packet size 65 to 127 octets: Number of transmitted/received packets whose size ranges from 65 to 127 octets
- Packet size 128 to 255 octets: Number of transmitted/received packets whose size ranges from 128 to 255 octets
- Packet size 256 to 511 octets: Number of transmitted/received packets whose size ranges from 256 to 511 octets
- Packet size 512 to 1023 octets: Number of transmitted/received packets whose size ranges from 512 to 1023 octets

(6) Error Messages

- Port-channel ** is not defined.

Cause: An undefined channel group is specified. [**] shows the port-channel port number.

Action: Check the channel group definition.

- % Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.3.3 show interface switchport

This command displays interface settings.

When the interface is in access mode, the access vlan id is displayed in Allowed VLAN and Native VLAN.

(1) Synopsis

```
show interface switchport <interface-id>
```

(2) Options

- <interface-id>: Specifies the interface whose settings are to be displayed.
 - GigabitEthernet 0/1-8
 - IOU 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7
 - port 1-33

(3) Command Mode

user exec

enabled exec

(4) See also

show vlan

show wrr-queue cos-map

(5) Examples

- Displays the settings, with the Interface in Access mode (port VLAN)

```
Switch# show interface switchport GigabitEthernet 0/1
GigabitEthernet 0/1
  VLAN membership mode: Access
  Native VLAN: 1
  Priority for untagged traffic: 0
  Allowed VLAN: 1
Switch#
```

- Displays the settings, with the Interface in Trunk mode (tag VLAN)

```
Switch# show interface switchport GigabitEthernet 0/1
GigabitEthernet 0/1
  VLAN membership mode: Trunk
  Native VLAN: 1
  Priority for untagged traffic: 0
  Allowed VLAN: 1 10 20
Switch#
```

Displayed items:

- VLAN membership mode: VLAN membership mode (Trunk/Access)
- Native VLAN: Native VLAN ID (1 to 4094)
When the membership mode is Access, the access vlan id is displayed.
- Priority for untagged traffic: Priority of traffic without a tag (0 to 7)
- Allowed Vlan: Permitted VLAN ID (1 to 4094)
In Trunk mode, all permitted VLAN IDs are displayed.
When the membership mode is Access, the access vlan id is displayed.

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

- % Not implement daughter card.

Cause: The specified interface id (port 25-26) does not exist.

Action: Specify an existing interface id.

5.3.3.4 show monitor session

This command displays port mirroring setting information.

(1) Synopsis

<code>show monitor session</code>

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

monitor session source

monitor session destination

(5) Examples

```
Switch# show monitor session
Source Ports:
  RX Only   : 19 GigabitEthernet 0/3,
              20 GigabitEthernet 0/4
  TX Only   : None
  Both      : 21 GigabitEthernet 0/5
Destination Port : 17 GigabitEthernet 0/1
```

Displayed items:

- Source Ports
 - RX Only: Interface for transmission monitoring
 - TX Only: Interface for reception monitoring
 - Both: Interface for transmission/reception monitoring
- Destination Port: Interface of the monitoring result output destination

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.3.5 show portstat

The command displays the statuses of the GigabitEthernet interface and TenGigabitEthernet interface.

(1) Synopsis

```
show portstat
```

(2) Options

None

(3) Command Mode

- user exec
- enabled exec

(4) See also

None

(5) Examples

```
Switch# show portstat
 1 IOU 0 0                : 1G/full/both    up
 2 IOU 0 1                : 1G/full/both    up
      :
16 IOU 7 1                : 1G/full/both    up
17 GigabitEthernet 0/1    :----/----/----  down
18 GigabitEthernet 0/2    : 10M/half/off     up
19 GigabitEthernet 0/3    :100M/full/both    up
20 GigabitEthernet 0/4    :100M/full/send    up
21 GigabitEthernet 0/5    :100M/full/recv     up
22 GigabitEthernet 0/6    : 1G/full/both     up
25 TenGigabitEthernet 1/1 : 10G/full/both     up
26 TenGigabitEthernet 1/2 : 10G/full/off      up
27 port-channel 1         :                   up
    23 GigabitEthernet 0/7 : 1G/full/both     up
    24 GigabitEthernet 0/8 :----/----/----  down
Switch#
```

Displayed items:

Interfaces whose information is displayed:

- IOU 0 0-7 1: Backpanel interface name
- GigabitEthernet 0/1-24: 1000Base-T interface name
- TenGigabitEthernet 1/1-2: 10GBase-LR interface name
- port-channel 1-7: port-channel name

Displayed names:

- speed/duplex/flow: Line speed, duplex mode, and flow control when communication is ready
 - Line speed (bps): 10M/100M/1G/10G
 - Duplex mode: FULL (full duplex) or HALF (half duplex)
 - Flow control: SEND (transmission), RECV (reception), BOTH (transmission/reception) or OFF (no control)
- up / down:
 - up: Communication ready
 - down: Communication not ready

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.3.6 show port-channel

This command displays port channel setting information.

(1) Synopsis

```
show port-channel [<channel-group-number>]
```

(2) Options

- < channel-group-number > (optional)

Specifies the channel group number of the port channel whose setting information is to be displayed. If this parameter is omitted, channel group numbers of all port channels are assumed.

(3) Command Mode

user exec

enabled exec

(4) See also

interface port-channel

channel-group

port-channel load-balance

(5) Examples

```
Switch# show port-channel
27 port-channel 1
  Load Balance: src-dst-mac
  Member Port:
    17  GigabitEthernet 0/1      :Master
    18  GigabitEthernet 0/2      :
    21  GigabitEthernet 0/5      :Anchor
28 port-channel 2
  Load Balance: src-dst-mac
  Member Port:
    19  GigabitEthernet 0/3      :Master
    20  GigabitEthernet 0/4      :Anchor
29 port-channel 3
  Load Balance: src-mac
  Member Port:
    25  TenGigabitEthernet 1/1   :Master/ Anchor
    26  TenGigabitEthernet 1/2   :
```

Displayed items:

- Load Balance: Load balance rule
 - src-mac: Uses hash for the source MAC address
 - dst-mac: Uses hash for the destination MAC address
 - src-dst-mac: Uses hash for the source/destination MAC addresses
 - src-ip: Uses hash for the source IP address
 - dst-ip: Uses hash for the destination IP address
 - src-dst-ip: Uses hash for the source/destination IP addresses

- **Member Port:** List of member ports

- **Master:** Master port

Each member port of the port channel inherits the attributes (speed, duplex, storm-control, and flowcontrol: only flowcontrol for TenGigabitEthernet) of this port.

- **Anchor:** Anchor port

Port that is the output destination of unlearned frames, autonomous frames, and broadcast frames addressed to the port channel

Among member ports that can be used for communication and excluding the master port, the port with the lowest port number is selected as the anchor port.

If the master port is the only port that can be used for communication, however, the master port is also the anchor port.

If the anchor port can no longer be used for communication or the member ports of the port channel are changed, the anchor port is reselected.

(6) Error Messages

- **Port-channel ** is not defined.**

Cause: An undefined channel group is specified. [**] shows the port-channel port number.

Action: Check the channel group definition.

- **% Incomplete command.**

Cause: Incomplete command input

Action: Enter the command string correctly.

- **% Invalid input detected at '^' marker.**

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- **System error.**

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4 IP-related commands

5.3.4.1 ip dhcp restart

This command retransmits a BOOTP or DHCP client request.

If you specify ip host bootp/dhcp, you need to execute this command.

(1) Synopsis

```
ip dhcp restart
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

ip host

(5) Examples

- Sends a Bootp/DHCP client request

```
Switch# configure
Switch(config)# ip host bootp/dhcp
Switch(config)# exit
Switch# ip dhcp restart
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- Can't get ip address.

Cause: IP address acquisition failed.

Action: Check the DHCP/BOOTP server and the network status.

5.3.4.2 clear arp

This command deletes dynamic entries from the ARP table. The ARP aging time is random (5 to 20 minutes).

(1) Synopsis

```
clear arp [<ip-address>]
```

(2) Options

- <ip-address> (optional)

Specifies the IP address of the dynamic ARP entry to be deleted.

If this parameter is omitted, all dynamic ARP entries are deleted.

Specify the IP address basically in the form of xxx.xxx.xxx.xxx. xxx is a decimal number ranging from 0 to 255.

(3) Command mode

enabled exec

(4) See also

show arp

(5) Examples

- Deletes the dynamic ARP entry whose IP address is 200.10.2.15 from the ARP table

```
Switch# clear arp 200.10.2.15  
Switch#
```

- Deletes all dynamic ARP entries from the ARP table

```
Switch# clear arp  
Switch#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.3 ping

This command determines whether communication is possible with the host at the specified IP address by transmitting ICMP (Echo Request) packets to the specified IP address and receiving ICMP (Echo Reply) packets.

The ping command does not support transmission to broadcast addresses. This unit returns the following ICMP messages:

- ICMP Echo Reply message
- ICMP Destination Unreachable (port unreachable) message

(1) Synopsis

- Determines whether communication is possible with the host at the specified IP address

```
ping <ip-address> {[cyclic [length <length> [count <counter>]]]  
| [timeout <seconds>]}
```

(2) Options

- <ip-address>

Host IP address used to determine whether communication is possible.

Specify the IP address basically in the form of xxx.xxx.xxx.xxx. xxx is a decimal number ranging from 0 to 255.

- cyclic (optional)

Displays the reply results after an ICMP (Echo Request) packet is transmitted at an interval of 1 second. If the cyclic option is specified, statistical information is displayed when all information has been gathered. If this option is specified, the icmp_seq sequence number, which is the transmission/reception count, is displayed. When the sequence number exceeds 65535, it is reset to 0. If this option is omitted, the command will send one ICMP packet.

- length <length> (optional)

ICMP data size. The ICMP header is not included. Specify a value ranging from 0 to 4500 bytes. If this option is omitted, the ICMP data size is 56 bytes. If 7 bytes or less is specified, the timer value is not displayed. If the specified length is in a range of 0 to 7, the time value indicating the response time is not displayed.

- count<counter> (optional)

Number of times that packets are transmitted. Specify a value ranging from 0 to 65535. If this option is omitted or 0 is specified, an infinite value is assumed with transmission terminated when the [Ctrl]+[C] keys are pressed.

- timeout <seconds> (optional)

Reply monitoring time. Specify a value ranging from 0 to 600 seconds. If 0 is specified, an infinite value is assumed with a timeout occurring when the [Ctrl]+[C] keys are pressed or an ICMP (Echo Reply) packet is received. The default value is 20 seconds.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Executes the ping command specifying only the IP address

```
Switch# ping 192.168.2.2

  192.168.2.2 is alive
Switch#
```

- Specifies [cyclic]

```
Switch# ping 192.168.2.2 cyclic
PING 192.168.2.2 (192.168.2.2): 56 octets data
64 octets from 192.168.2.2: icmp_seq=0 ttl=64 time=15.3 ms
64 octets from 192.168.2.2: icmp_seq=1 ttl=64 time=1.5 ms
64 octets from 192.168.2.2: icmp_seq=2 ttl=64 time=1.4 ms
^C
          (Press the [Ctrl]+[C] keys)

--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.5/2.8/5.6 ms
Switch#
```

- Specifies [length]

```
Switch# ping 192.168.2.2 cyclic length 100
108 octets from 192.168.2.2: icmp_seq=0 ttl=64 time=3.8 ms
108 octets from 192.168.2.2: icmp_seq=1 ttl=64 time=1.6 ms
108 octets from 192.168.2.2: icmp_seq=2 ttl=64 time=1.6 ms
^C
          (Press the [Ctrl]+[C] keys)

--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.6/2.3/3.8 ms
Switch#
```

- Specifies [length]0

```
Switch# ping 192.168.2.2 cyclic length 0
8 octets from 192.168.2.2: icmp_seq=0 ttl=64
8 octets from 192.168.2.2: icmp_seq=1 ttl=64
8 octets from 192.168.2.2: icmp_seq=2 ttl=64
^C
          (Press the [Ctrl]+[C] keys)

--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.6/2.3/3.8 ms
Switch#
```

- Specifies [count]

```
Switch# ping 200.10.2.15 cyclic length 100 count 3
PING 192.168.2.2 (192.168.2.2): 100 octets data
108 octets from 192.168.2.2: icmp_seq=0 ttl=64 time=2.0 ms
108 octets from 192.168.2.2: icmp_seq=1 ttl=64 time=18.7 ms
108 octets from 192.168.2.2: icmp_seq=2 ttl=64 time=1.6 ms

--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.6/7.4/18.7 ms
Switch#
```

- Specifies [timeout]

```
Switch# ping 192.168.2.2 timeout 5

    192.168.2.2 is alive
Switch#
```

- If no reply is received from the destination host after ping command execution

```
Switch# ping 192.168.2.3 timeout 5

Destination Host Unreachable
Switch#
```

- If the destination network is unreachable after ping command execution

```
Switch# ping 192.168.2.3

Destination Net Unreachable
Switch#
```

(6) Error Messages

- Destination Net Unreachable

Cause: The destination address is unreachable.

Action: Check the specified network.

- Destination Host Unreachable

Cause: The destination host is unreachable.

Action: Check the destination host status.

- parameter error

Cause: The specified parameter is invalid.

Action: Specify the correct parameter.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.4 show arp

This command displays entries in the ARP table. The ARP aging time is random (5 to 20 minutes).

The local host address is not displayed because it is not registered in the ARP table.

(1) Synopsis

show arp

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

clear arp

(5) Examples

- Displays ARP entries

```
Switch# show arp
IP Address      Mac address
-----
192.168.2.1     00:E0:00:26:00:02
192.168.2.2     00:90:FE:50:EC:88
192.168.2.20    00:02:03:03:02:01
Switch#
```

Displayed items:

IP Address and MAC Address are displayed for each entry.

- IP Address: IP address of an ARP entry
- MAC Address: MAC address

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.5 show ip

This command displays the IP host information and status and default gateway information.

The same information is displayed by the following commands:

- show ip host (See [Section 5.3.4.7, "show ip host."](#))
- show ip default-gateway (See [Section 5.3.4.6, "show ip default-gateway."](#))
- show ip socket (See [Section 5.3.4.8, "show ip socket."](#))
- show arp (See [Section 5.3.4.4, "show arp."](#))

(1) Synopsis

show ip

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

show ip host

show ip default-gateway

show ip socket

show arp

(5) Examples

```
Switch# show ip
address mode:  Static
IP address:    10.1.0.54
netmask:      255.255.255.0
VLAN ID:      1

ip default gateway: 10.1.0.254

Int Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address  Foreign Address  State
tcp    0    0 192.168.0.10:23      192.168.0.1:1305 ESTABLISHED
tcp    0 128 192.168.0.10:23      192.168.0.1:1741 ESTABLISHED
tcp    0    0 192.168.0.10:1082    192.168.0.1:6000 ESTABLISHED
tcp    0    0 192.168.0.10:1083    192.168.0.1:6000 ESTABLISHED
tcp    0    0 192.168.0.10:1084    192.168.0.1:6000 ESTABLISHED
tcp    0    0 192.168.0.10:23      192.168.0.1:1740 ESTABLISHED

IP Address      Mac address
-----
192.168.2.1     00:E0:00:26:00:02
192.168.2.2     00:90:FE:50:EC:88
192.168.2.20    01:02:03:03:02:01
Switch#
```

- IP host information and status: Same as the show ip host command
- Default gateway information: Same as the show ip default-gateway command
- Socket information and status: Same as the show ip socket command
- ARP table entries: Same as the show arp command

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.6 show ip default-gateway

This command displays the default gateway that is set on the unit.

If ip default-gateway has not been specified, nothing is displayed (the command does not display "0.0.0.0").

(1) Synopsis

<code>show ip default-gateway</code>

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ip default-gateway

(5) Examples

- Displays the default gateway

```
Switch# show ip default-gateway
ip default gateway: 10.1.0.254
Switch#
```

Displayed items:

ip default gateway: Default gateway

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.7 show ip host

This command displays the IP host interface settings. If Dynamic is specified, the address information acquired by Bootp/DHCP is displayed. If no address is specified or address acquisition by Bootp/DHCP failed, "0.0.0.0" is displayed as the IP address netmask value.

(1) Synopsis

```
show ip host
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ip dhcp restart

(5) Examples

- Displays the host interface settings and status

```
Switch# show ip host
address mode:  Static
IP address   :  10.1.0.54
netmask      :  255.255.255.0
VLAN ID     :   1
Switch#
```

Displayed items:

- address mode: Address setting mode (Static or Dynamic)
- IP address: IP address value
- Netmask: Netmask value
- VLAN ID: ID of the VLAN to which the host belongs

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.8 show ip socket

This command displays the socket information and status.

(1) Synopsis

```
show ip socket
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Displays the status of every socket

```
Switch# show ip socket
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address Foreign Address State
tcp 0 0 192.168.0.10:23 192.168.0.1:1305 ESTABLISHED
tcp 0 128 192.168.0.10:23 192.168.0.1:1741 ESTABLISHED
tcp 0 0 192.168.0.10:1082 192.168.0.1:6000 ESTABLISHED
tcp 0 0 192.168.0.10:1083 192.168.0.1:6000 ESTABLISHED
tcp 0 0 192.168.0.10:1084 192.168.0.1:6000 ESTABLISHED
tcp 0 0 192.168.0.10:23 192.168.0.1:1740 ESTABLISHED
Switch#
```

Displayed items:

- Active Internet Socket: Title
- Proto: Protocol type
 - tcp: IPv4 TCP
 - udp: IPv4 UDP
- Recv-Q: Receive queue size (Unit: bytes) (When the size exceeds 999999 bytes, "999999" is displayed.)
- Send-Q: Transmit queue size (Unit: bytes) (When the size exceeds 999999 bytes, "999999" is displayed.)
- Local Address: Local address
- Foreign Address: Remote address
- State: Connected state (displayed only with TCP)
 - CLOSE: No connection
 - LISTEN: Waiting for a connection request from a remote host
 - SYN_SENT: Waiting for a reply confirmation after transmitting a connection request
 - SYN_RECEIVED: Waiting for a connection reply confirmation after transmitting synchronization for a connection request
 - ESTABLISHED: Ready for data transmission after establishing a connection
 - CLOSE_WAIT: Waiting for disconnection from an application process
 - FIN_WAIT_1: Waiting for a disconnection request from a remote host or a reply confirmation to a transmitted disconnection request
 - FIN_WAIT_2: A TCP module is waiting for a disconnection request from a remote host.
 - CLOSING: Waiting for a disconnection request reply confirmation from a remote host
 - LAST_ACK: A TCP module is waiting for a reply confirmation to a disconnection request transmitted to a remote host.
 - TIME_WAIT: On standby while a remote host reliably receives a disconnection request reply confirmation

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.4.9 traceroute

This command examines the routes used to transfer packets to their destination.

Transmission to broadcast addresses is not supported.

(1) Synopsis

<code>traceroute <ip-address> [length <length>]</code>
--

(2) Options

- <ip-address>

Specifies the destination address.

Specify the IP address basically in the form of xxx.xxx.xxx.xxx (xxx is a decimal number ranging from 0 to 255).

- length <length> (optional)

Specifies the length of each packet to be transmitted (Unit: bytes).

You can specify a length between 40 and 1500 bytes. The packet length includes the IP header.

The default packet length is 40 bytes.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Specifies only the IP address

```
Switch#traceroute 192.168.4.2
traceroute to 192.168.2.2 (192.168.2.2), 30 hops max,
40 byte packets
 1 192.168.2.2 (192.168.2.2) 3.297 ms 14.432 ms 1.720 ms
 2 192.168.3.2 (192.168.3.2) 3.197 ms 14.332 ms 2.620 ms
 3 192.168.4.2 (192.168.4.2) 3.097 ms 15.231 ms 2.720 ms
Switch#
```

- Displays packet lengths

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.2 (192.168.4.2), 30 hops max,
1500 byte packets
 1 192.168.2.2 (192.168.2.2) 15.681 ms 3.430 ms 1.996 ms
 2 192.168.3.2 (192.168.3.2) 16.681 ms 4.420 ms 2.116 ms
 3 192.168.4.2 (192.168.4.2) 17.681 ms 4.450 ms 2.296 ms
Switch#
```

- If a transmission timeout occurs

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.4 (192.168.4.2), 30 hops max,
1500 byte packets
 1 * * *
 2 * * *
 3 * * *
.
.
.
```

- Forcibly ends if no reply is received from the destination host

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.4 (192.168.4.2), 30 hops max,
1500 byte packets
1 * * *
2 * * *
3 * * *
.
^C < Press the [Ctrl]+[C] keys
Switch#
```

- If notification that the destination host is unreachable is received from the adjacent gateway

```
Switch#traceroute 192.167.3.2
traceroute to 192.167.3.2 (192.167.3.2), 30 hops max,
40 byte packets
1 192.168.2.10 2993.150 ms !H 2998.817 ms !H 3000.131 ms !H
Switch#
```

- If notification that the network is unreachable is received from the adjacent gateway

```
Switch#traceroute 192.167.3.2
traceroute to 192.167.3.2 (192.167.3.2), 30 hops max,
40 byte packets
1 192.168.2.10 2993.150 ms !N 2998.817 ms !N 3000.131 ms !N
Switch#
```

(6) Error Messages

- Parameter error

Cause: The specified destination address is invalid.

Action: Check the destination address.

- Destination Net Unreachable

Cause: An unreachable destination network address was specified.

Action: Check the destination address.

Check the network configuration.

- Destination Host Unreachable

Cause: An unreachable destination host address was specified.

Action: Check the destination address.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.5 VLAN-related commands

5.3.5.1 show vlan

This command displays parameters of all VLANs defined on the switch or a specific VLAN (whose VLAN ID or name is specified) defined on the switch. If no port-channel port has been created, "none" is displayed for the corresponding interface. A VLAN can be displayed by the show vlan command only when the VLAN has been created and allocated by the switchport command.

(1) Synopsis

```
show vlan [id <vlan-id> | name <vlan-name>]
```

(2) Options

- [id <vlan-id>|name <vlan-name>] (optional)
If you specify id, specify vlan-id next. The range of values that can be specified for vlan-id is between 1 and 4094.
If you specify name, specify vlan-name next.
If this option is omitted, the command will display all configured VLANs.

(3) Command Mode

user exec

enabled exec

(4) See also

show interface switchport

(5) Examples

- If all interfaces belong to ID 1

```
Switch# show vlan
ID    Name           interface
-----
0001 default        IOU 0 0
                        IOU 0 1
                        IOU 1 0
                        .
                        GigabitEthernet 0/1
                        GigabitEthernet 0/2
                        GigabitEthernet 0/3
                        .
                        TenGigabitEthernet 1/1
                        TenGigabitEthernet 1/2
                        port-channel 1
                        .
Switch#
Switch#
```

- If GigabitEthernet 0/1 belongs to VLAN ID 10

```
Switch# show vlan
ID    Name           interface
-----
0001 default        IOU 0 0
                        IOU 0 1
                        IOU 1 0
                        .
                        .
0010 VLAN0010        GigabitEthernet 0/1
Switch#
```

- If GigabitEthernet 0/1 belongs to VLAN ID 10 (a VLAN ID is specified)

```
Switch# show vlan id 10
ID    Name           interface
-----
0010 VLAN0010        GigabitEthernet 0/1
Switch#
```

- If GigabitEthernet 0/1 belongs to VLAN ID 10 (a VLAN name is specified)

```
Switch# show vlan name VLAN0010
ID      Name                interface
-----
0010    VLAN0010            GigabitEthernet 0/1
Switch#
```

Displayed items:

- ID: VLAN ID (created VLAN ID)

VLAN ID 1 is always created by default during initialization of the unit. VLAN ID 1 cannot be deleted.

In the initial state, all interfaces belong to VLAN ID 1, but they can be specified to be removed from VLAN ID 1. The VLAN IDs range from 1 to 4094.

- Name: VLAN name, and the VLAN name corresponding to a VLAN ID

A VLAN name (up to 32 en-size alphanumeric characters) is specified when a VLAN is created. [default] is always ID 1.

- Interface: List of interfaces belonging to the corresponding VLAN ID

The displayed interface list does not include any port whose status is invalid, port-channel port (not created), or TenGigabitEthernet (not mounted).

The following interface types are available:

- GigabitEthernet 0/1-8
- IOU 0 0-7 1
- TenGigabitEthernet 1/1-2
- port-channel 1-7

(6) Error Messages

- vlan id doesn't exist.

Cause: A non-existent VLAN was specified.

Action: Specify an existing VLAN.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.6 Bridge-related commands

5.3.6.1 show bridge

This command displays the learning table contents.

The displayed contents include Dynamic entries and Static entries.

The command cannot be executed during execution of any of the following commands:

- clear bridge
- This command

Any change in the learning table is reflected in the displayed information after about 5 to 10 seconds.

(1) Synopsis

- Displays the learning table contents

```
show bridge [{<interface-id> | address <address> | vlan <vlan-id> | status  
<status> | chip <chip no> }]
```

(2) Options

- <interface-id> (optional): Specifies the interface of the contents to be displayed.
 - GigabitEthernet 0/1-8
 - IOU 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7

- port 1-33
- <address> (optional): Specifies the MAC address of the contents to be displayed.
- <vlan-id> (optional): Specifies the VLAN ID of the contents to be displayed (1 to 4094).
- status <status> (optional): Specifies the Status of the contents to be displayed.
 - static: Static entry
 - dynamic: Dynamic entry
- <chip no> (optional): Specifies the Chip No of the contents to be displayed (1 to 4).

If this parameter is omitted, all entry information is displayed.

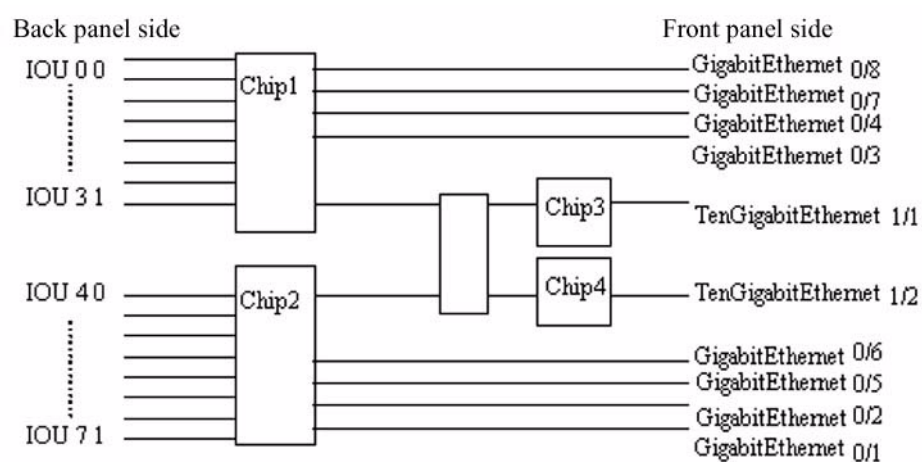


Figure 5.1 With a daughter

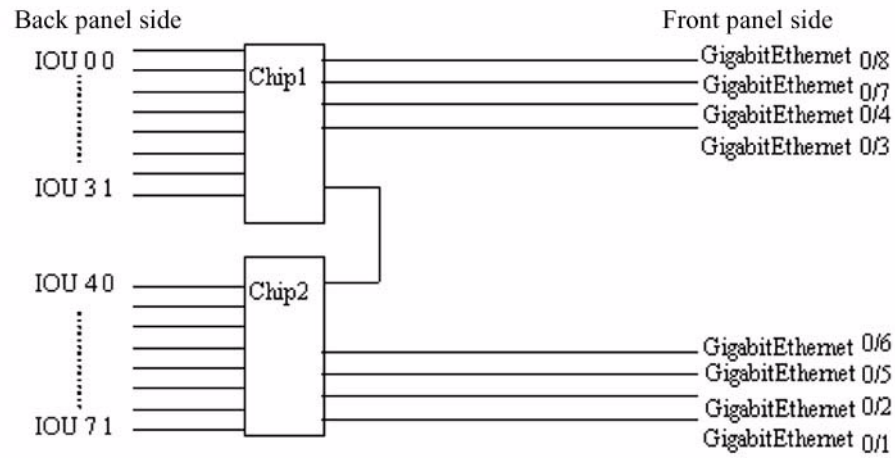


Figure 5.2 Without a daughter

(3) Command Mode

user exec

enabled exec

(4) See also

clear bridge

show bridge aging-time

(5) Examples

Switch# show bridge							
No.	Chip	Address	VLAN	Interface	Status	Action	
1	1	00:00:00:01:22:22	1	ALL	S	discard	
2	1	00:00:0E:D4:0C:B2	1	18 GigabitEthernet 0/2	D	forward	
3	1	00:00:C0:01:01:02	1	19 port-channel 1	D	forward	
4	1	00:00:C0:02:01:02	1	17 GigabitEthernet 0/1	D	forward	
5	1	00:10:11:12:FF:FF	1	Self	S	forward	
6	1	00:00:00:01:22:44	3	1 IOU 0 0	S	forward	
7	2	00:00:00:01:22:22	1	ALL	S	discard	
8	2	00:00:0E:D4:0C:B2	1	18 GigabitEthernet 0/2	D	forward	
9	2	00:00:C0:01:01:02	1	19 port-channel 1	D	forward	
10	2	00:00:C0:02:01:02	1	17 GigabitEthernet 0/1	D	forward	
11	2	00:10:11:12:FF:FF	1	Self	S	forward	
12	2	00:00:00:01:22:44	3	1 IOU 0 0	S	forward	
Switch#							

Displayed items:

- No: Entry number
- Chip: Chip number
- Address: MAC address
- VLAN: VLAN ID that has been learned
- Interface: Interface name that has been learned
 - [Self]: Local device entry
 - [Multicast]: Multicast entry
 - [ALL]: Entry with Discard setting
- Status: Entry
 - [S]: Status Static entry
 - [D]: Dynamic entry
- Action: Action taken when a destination frame is received
 - forward: Transfer
 - discard: Discard

(6) Error Messages

- % Not implement daughter card.
Cause: An unimplemented interface or an unimplemented chip was specified.
Action: Check the unit mounting status.
- Command is already running.
Cause: One of the following commands is running.
show bridge/clear bridge
Action: Reenter the command after the current command exits.
- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.6.2 show bridge summary

This command displays the number of entries registered in the learning table.

The displayed number of entries includes the MAC addresses used by the system.

Any change in the learning contents by hardware is reflected in the learning table contents after about 5 to 10 seconds.

(1) Synopsis

<code>show bridge summary [chip <chip no>]</code>

(2) Options

- <chip> (optional): Specifies the Chip No whose number of entries is to be displayed (1 to 4).

If this parameter is omitted, the total number of entries of all chips is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Displays the number of registered entries

```
Switch# show bridge summary
Registered station blocks : 7013
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.6.3 show bridge aging-time

This command displays the holding time in the MAC address table.

(1) Synopsis

```
show bridge aging-time
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

mac address-table static

mac address-table aging-time

show bridge

clear bridge

(5) Examples

- Displays the holding time in the MAC address table

```
Switch# show bridge aging-time
bridge aging-time : 300 sec
Switch#
```

Displayed items:

- bridge aging-time: Aging time (s)

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.6.4 clear bridge

This command deletes the learning table contents.

Only dynamic entries can be deleted; static entries cannot be deleted. To register or delete static entries, execute the mac address-table static command.

When this command has been entered, it cannot be interrupted by the [Ctrl]+[C] keys.

The command cannot be executed during execution of any of the following commands:

- show bridge
- This command

Any change in the learning contents by hardware is reflected in the learning table contents after about 5 to 10 seconds.

(1) Synopsis

<code>clear bridge</code>

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show bridge

show bridge aging-time

(5) Examples

```
Switch# clear bridge
Switch#
```

(6) Error Messages

- Command is already running.

Cause: One of the following commands is running.

show bridge/clear bridge

Action: Reenter the command after the current command exits.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.7 STP-related commands

5.3.7.1 show spanning-tree status

This command displays the STP status.

If this command is executed with an option specified, the command cannot be interrupted by the [Ctrl] + [c] keys.

(1) Synopsis

```
show spanning-tree status [bridge | interface <interface-id>]
```

(2) Options

- bridge (optional): Specifies bridge information.
- interface <interface-id> (optional)

Specifies the interface whose STP status is to be displayed. If this parameter is omitted, all [bridge] and [interface] information is displayed.

- GigabitEthernet 0/1-8
- IOU 0 0-7 1
- TenGigabitEthernet 1/1-2
- port-channel 1-7

If no port-channel port has been created or no TenGigabitEthernet is mounted, settings of the corresponding interface are displayed.

While the STP configuration is being changed (topology change), some bridge information is not displayed. When the topology has been changed, all bridge information is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

- Executes show spanning-tree status bridge (with the STP setting state enabled)
(Operation with a non-root bridge)

```
Switch# show spanning-tree status bridge
Bridge:
  status                  enable
  Bridge Identifier:
    priority              32768
    address               00:50:3e:8d:64:01
  Root Bridge Identifier:
    priority              16384
    address               00:60:70:4c:70:00
  Root port               24 GigabitEthernet 0/8
  cost of root path       38
  Topology change:
    flag                  not set
    detected flag         not set
  Times:
    hold                  1
    topology change       24
    notification          2
    hello                 2
    max age                14
    forward delay         10
  Configured Times:
    hello                 2
    max age                20
    forward delay         15
  Timers:
    hello                 ACTIVE
Switch#
```

- Executes show spanning-tree status bridge (with the STP setting state disabled)

```
Switch# show spanning-tree status bridge
Bridge:
  status                  disable
  bpdu filter             off
Switch#
```

- Executes show spanning-tree status bridge (with the STP setting state enabled and the topology is being changed)

```
Switch# show spanning-tree status bridge
Bridge:
  status                      enable
  Bridge Identifier:
    priority                   32768
    address                    00:50:3e:8d:64:01
  Root Bridge Identifier:
    priority                   32768
    address                    00:50:3e:8d:64:01
  Root port                    0
  cost of root path            0
  Topology change:
    flag                       set
Switch#
```

- Executes show spanning-tree status bridge (with the STP setting state enabled and topology convergence)
(Operation with a root bridge)

```
Switch# show spanning-tree status bridge
Bridge:
  status                      enable
  Bridge Identifier:
    priority                  32768
    address                   00:50:3e:8d:64:01
  Root Bridge Identifier:
    priority                  32768
    address                   00:50:3e:8d:64:01
  Root port                   0
  cost of root path           0
  Topology change:
    flag                      not set
    detected flag             not set
  Times:
    hold                      1
    topology change           35
    notification              2
    hello                     2
    max age                    20
    forward delay              15
  Configured Times:
    hello                     2
    max age                    20
    forward delay              15
  Timers:
    hello                     ACTIVE
Switch#
```

Displayed items:

- status: STP setting status (whether STP is enabled or disabled)
 - Enable: STP enabled
 - Disable: STP disabled
- Bridge Identifier: Unit identification information
 - priority: Bridge priority (bridge priority of this unit) (0 to 65535)
 - address: MAC address of this unit (delimited 6-byte hexadecimal value)

- **Root Bridge Identifier:** Root bridge information

This is information about the root bridge selected by STP.

If this unit is operating as the root bridge, information about the unit is displayed:

- priority: Bridge priority of the bridge unit defined as the root bridge (0 to 65535)
- address: MAC address of the bridge unit defined as the root bridge (delimited 6-byte hexadecimal value)

- **Root port:** Root port information

This is information about the interface selected as the root port.

The port with the lowest path cost among ports linked to the root bridge is selected as the root port.

Root port information is displayed in the form of "port number interface name":

- Port number: 0 to 33
- Interface name: Interface name displayed following selection from GigabitEthernet 0/1-8, IOU 0 0-7 1, TenGigabitEthernet 1/1-2, and port-channel 1-7.

If this unit is operating as the root bridge, "0" is displayed as the port number and no interface name is displayed.

- **cost of root path:** Path cost from this unit to the root bridge

This path cost is calculated by totaling the link costs from the root port to the root bridge selected by STP. The cost ranges from 0 to 2147483647.

If this unit is operating as the root bridge, "0" is displayed as the path cost.

- **Topology change:** Flag (set or not set)

- flag: Topology change flag

This flag is set when this unit receives a topology change message from the switch unit that constitutes STP and detects a topology change based on the message contents. The flag is cleared when the topology becomes stable.

- detected flag: Topology change detection flag

This flag is set when this unit detects a topology change.

The flag is cleared when the topology becomes stable.

- **Times:** Timer value in use

This is the timer value used (executed) by this unit.

- hold: Config BPDU transmission holding time
1 second (fixed)
- topology change: Topology change timer value

This is the time between topology change detection and topology convergence:
[max age] time + [forward delay] time

- notification: TCN BPDU transmission interval when a topology change is detected
This value is the same as the hello time.
- hello: Config BPDU transmission interval
If this unit is operating as the root bridge, the setting of this unit is reflected.
If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- max age: Maximum aging time
If this unit is operating as the root bridge, the setting of this unit is reflected.
If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- forward delay: Transfer delay time
If this unit is operating as the root bridge, the setting of this unit is reflected.
If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- Configured Times: Settings based on the configuration definition
 - hello: Config BPDU transmission interval (1 to 10)
 - max age: Maximum aging time (6 to 40)
 - forward delay: Transfer delay time (6 to 40)
- Timers: Timer operating status flag (ACTIVE or INACTIVE)
 - hello: Hello time timer
"ACTIVE" is displayed when the hello time timer is operating, and
"INACTIVE" is displayed when it is not operating. If this unit is operating as the root bridge, the hello time timer is operating because BPDU frames are transmitted from this unit.
If this unit is operating as a non-root bridge, the hello time timer is not operating because BPDU frames received from the root bridge are transferred. Therefore, "INACTIVE" is always displayed when this unit is operating as a non-root bridge.
- bpdu filter: BPDU filter setting status (ON/OFF)
This item is displayed only if the STP status is Disable.
 - on: Enables the bpdu filter (enable: Transfer bpdu frames)
 - off: Disables the bpdu filter (disable: Do not transfer bpdu frames)

- Example of output when show spanning-tree status interface has been executed

```
Switch# show spanning-tree status interface GigabitEthernet 0/1
Interface:
  17 GigabitEthernet 0/1
  Port status                forwarding
  Port path cost              19(auto)
  Port priority               64
  Port Identifier             17.64
  Designated root:
    priority                  16384
    address                   00:60:70:4c:70:00
  Designated bridge:
    priority                   32768
    address                   00:e0:4f:ac:b0:00
  Designated port id          17.64
  designated path cost        19
  Timers:
    forward delay             ACTIVE
    hold                      ACTIVE
Switch#
```

- Example of executing show spanning-tree status interface (with the STP setting state disabled)

```
Switch# show spanning-tree status interface GigabitEthernet 0/1
Interface:
  17 GigabitEthernet 0/1
  Port status                disabled
  Port path cost              4(auto)
  Port priority               128
  Port Identifier             17.128
  Designated root:
    priority                  0
    address                   00:00:00:00:00:00
  Designated bridge:
    priority                   0
    address                   00:00:00:00:00:00
  Designated port id          00.00
  designated path cost        4
  Timers:
    forward delay             INACTIVE
    hold                      INACTIVE
Switch#
```

Displayed items:

- **Interface:** Interface information
 17 GigabitEthernet 0/1: Port number interface name
 - Port number: Port number (1 to 33).
 - Interface name: Interface name displayed following selection from GigabitEthernet 0/1-8, IOU 0 0-7 1, TenGigabitEthernet 1/1-2, port-channel 1-7, and none.
 If no port-channel port has been created or no TenGigabitEthernet is mounted, "none" is displayed for the interface name.
- **Port status:** Port status
 - listening: Listening status
 Receiving BPDU frames
 - learning: Learning status
 Preparing to transfer data traffic
 - forwarding: Forwarding status
 Ready to transfer data traffic
 - blocking: Blocking status
 Data traffic blocked
 - disable: Disabled
 STP not managed (STP disabled)

Table 5.47 Availability of functions depending on the port status

	BPDU reception	BPDU transmission	Address learning	Frame transfer
disable	N	N	Y	Y
blocking	Y	N	N	N
listening	Y	Y	N	N
learning	Y	Y	Y	N
forwarding	Y	Y	Y	Y

- **Port path cost:** Port path cost value
 The port path cost value ranges from 0 to 65535.
 xx(auto) indicates the path cost value, which is calculated automatically and depends on the link speed.
 auto: The calculated master-port link speed minus 1 is set for the 10Mbps-100, 100Mbps-19, 1Gbps-4, 10Gbps-2, and port-channel ports.
- **Port priority:** Port priority
 The port priority ranges from 0 to 255.

- **Port Identifier:** Port identifier
The port identifier is a combination of the port number and port priority.
The port identifier is used as follows:
Port_number.port_priority
- **Designated root:** Root bridge information
This is information about the root bridge selected by STP.
If this unit is operating as the root bridge, information about the unit is displayed:
 - priority: Priority
 - address: MAC address
- **Designated bridge:** Designated bridge information
This is information about the designated bridge selected by STP.
If this unit is operating as the designated bridge, information about the unit is displayed:
 - priority: Priority
 - address: MAC address
- **Designated port id:** Designated port ID
- **designated path cost:** Designated path cost (If this is not for the designated port, it is the Config BPDU designated path cost.)
- **Timers:** Flag indicating whether the timer is operating (ACTIVE or INACTIVE)
 - forward delay: Forward delay timer
 - hold: Hold timer

(6) Error Messages

- **% Incomplete command.**
Cause: Incomplete command input
Action: Enter the command string correctly.
- **% Invalid input detected at '^' marker.**
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- **System error.**
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.7.2 show spanning-tree statistics

This command displays STP statistical information.

(1) Synopsis

```
show spanning-tree statistics [bridge | interface <interface-id>]
```

(2) Options

- bridge (optional)
Displays unit statistical information.
- interface <interface-id> (optional)
Displays interface statistical information.
This option specifies the interface whose STP statistical information is to be displayed:
 - GigabitEthernet 0/1-8
 - IOU 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7

If these options are omitted, all unit and interface statistical information is displayed.

If only <interface-id> is omitted, all interface statistical information is displayed.

The clear spanning-tree command deletes all statistical information displayed by this command.

(3) Command Mode

user exec

enabled exec

(4) See also

clear spanning-tree

(5) Examples

- Displays output of show spanning-tree statistics bridge

```
# show spanning-tree statistics bridge
Bridge:
  topology changes          0
  last change occurred      01:53:48
  forwarding-db deleted     1
  changed to root bridge    0
  changed to not root bridge 0
Switch#
```

Unit statistical information

- topology changes: Topology change count
The number of times that the topology was changed is displayed.
- last change occurred: elapsed time after the last topology change
The elapsed time since the last topology change is displayed.
If the clock time of this unit is changed after a change in the topology, the displayed elapsed time may be incorrect. After the clock time is corrected, the correct value is displayed again when the topology is changed.
- forwarding-db deleted: Learning table deletion count
The number of times that the learning table was deleted is displayed.
- changed to root bridge: Root bridge count
The number of changes into the root bridge is displayed.
- changed to not root bridge: Non-root bridge count
The number of changes into a non-root bridge is displayed.

- Displays output of show spanning-tree statistics interface

```
# show spanning-tree statistics interface GigabitEthernet 0/1
Interface:
 17 GigabitEthernet 0/1
changed to root port                1
changed to designated port          0
changed to forwarding state         1
message age timer timeout           0
port request enable                 1
port request disable                0
Config BPDU:
  sent                              3
  received                          3417
  discarded                          0
  TC flag ON Config BPDU received   0
TCN BPDU:
  sent                              3
  received                          3417
  discarded                          0
BPDU discarded by system error       0
Trigger for changing to root bridge:
  message age timeout                0
  port down                          0
Trigger for changing to not root bridge:
  new Config BPDU received           0
#
```

Interface statistical information

- Interface information:

The port number and interface name are displayed:

- The port number ranges from 1 to 33.
- Interface name

The interface name is displayed following selection from GigabitEthernet 0/1-8, IOU 0 0-7 1, TenGigabitEthernet 1/1-2, port-channel 1-7, and none.

If no port-channel port has been created or no TenGigabitEthernet is mounted, "none" is displayed for the interface name.

- changed to root port: Root port count
The number of changes into the root port is displayed.
- changed to designated port: Designated port count
The number of changes into the designated port is displayed.

- changed to forwarding state: Forwarding count
The number of changes into the forwarding state is displayed.
- message age timer timeout: Message age timer timeout count
The number of times that the message age timer timeout occurred is displayed.
- port request enable: Port-up count
The number of times that port-up occurred is displayed.
- port request disable: Port-down count
The number of times that port-down occurred is displayed.
- Config BPDU: Config BPDU statistical information
Statistical information about the configuration message (Config BPDU) is displayed:
 - sent: Transmission count
 - received: Reception count
 - discarded: Reception discard count
 - TC flag ON Config BPDU received: Count of Config BPDU reception with the topology change flag ON
- TCN BPDU: TCN BPDU statistical information
Topology change message statistical information.
Statistical information about the topology change message (TCN BPDU) is displayed:
 - sent: Transmission count
 - received: Reception count
 - discarded: Reception discard count
- BPDU discarded by system error: Count of BPDU discard events due to a system error
The number of times that the BPDU message was discarded because of a system error is displayed.
- Trigger for changing to root bridge: Trigger for a change into the root bridge
 - message age timeout: Message age timer timeout
The number of times that a message age timer timeout was the trigger is displayed.
 - port down: Port-down
The number of times that port-down was the trigger is displayed.
- Trigger for changing to not root bridge: Trigger for a change into a non-root bridge
 - new Config BPDU received: New Config BPDU reception
The number of times that reception of a new configuration message was the trigger is displayed.

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.7.3 clear spanning-tree

This command clears statistical STP information.

(1) Synopsis

```
clear spanning-tree
```

(2) Options

None

This command clears all contents displayed by the show spanning-tree statistics command.

(3) Command mode

enabled exec

(4) See also

show spanning-tree statistics

(5) Examples

```
Switch# clear spanning-tree
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8 Log-related commands

5.3.8.1 clear logging error

This command deletes the stored error log contents.

(1) Synopsis

- Deletes the stored error log contents

```
clear logging error
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging error

(5) Examples

- Deletes all the stored error log contents

```
Switch# clear logging error
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.2 clear logging line

This command deletes the stored line log contents.

(1) Synopsis

```
clear logging line
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging line

(5) Examples

- Deletes all the stored line log contents

```
Switch# clear logging line
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.3 clear logging message

This command deletes the stored message log contents.

(1) Synopsis

```
clear logging message
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging message

(5) Examples

- Deletes all the stored message log contents

```
Switch# clear logging message
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.4 clear logging trap

This command deletes the stored trap log contents.

(1) Synopsis

```
clear logging trap
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging trap

(5) Examples

- Deletes all the stored trap log contents

```
Switch# clear logging trap
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- **System error.**

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.5 show logging error

This command displays the stored error log contents.

(1) Synopsis

```
show logging error [detail] [tail <number>]
```

(2) Options

- detail: Displays log details.
- tail: Displays the specified number of last log items.
 - <number>: Specifies the number of log items to be displayed (1 to 62).

(3) Command mode

enabled exec

(4) See also

clear logging error

(5) Examples

- Displays all the stored error log contents

```
Switch# show logging error
seq    date (ver/make)           code    message
-----
00001  2001-01-01 00:15:05        eeee
      (V01L01-A09 2005-01-11 18:12:13)
00002  2001-01-01 00:03:17        eeee
      (V01L01-A09 2005-01-11 18:12:13)
Switch#
```

Displayed items:

- seq: Error log sequence number (1 to the current maximum value)
- date: Log collection date and time
- message: Message
- code: Error code
- (ver/make): Executable file version number and creation date

- Displays all error log details

```

Switch# show logging error detail
seq    date (ver/make)      code message
-----
00001  2001-01-01 00:15:05 eeee
      (V01L01-A09 2005-01-11 18:12:13)
      V1 Rst_cd=0x02 [Err_code=eeee Err_info=0000]
      pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
      ccr:84022822 tra_fact:00000800
      r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
      r4:00000014 r5:c714bcbc r6:c677f604 r7:caf107cf
      r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
      r12:24022822 r13:100b4714 r14:00000000 r15:00000000
      r16:00000000 r17:00000000 r18:00000000 r19:00000000
      r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
      r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
      r28:00000014 r29:ffffffef r30:00000000 r31:c714bcbc
      DCR:00000000 :00000000 :00000000 :00000000
      :00000000 :00000000 :00000000
      :00000000 :0700a002 :0700a002 :0700a002
      :00000000 :eec00004 :0c000000
      :ff801c18 :00000000 :00000000
00002  2001-01-01 00:03:17 eeee
      (V01L01-A09 2005-01-11 18:12:13)
      V1 Rst_cd=0x02 [Err_code=eeee Err_info=0000]
      pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
      ccr:84022822 tra_fact:00000800
      r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
      r4:00000014 r5:c714bcbc r6:c677f804 r7:caf107cf
      r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
      r12:24022822 r13:100b4714 r14:00000000 r15:00000000
      r16:00000000 r17:00000000 r18:00000000 r19:00000000
      r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
      r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
      r28:00000014 r29:ffffffef r30:00000000 r31:c714bcbc
      DCR:00000000 :00000000 :00000000 :00000000
      :00000000 :00000000 :00000000
      :00000000 :0700a002 :0700a002 :0700a002
      :00000000 :eec00004 :0c000000
      :ff801c18 :00000000 :00000000
Switch#

```

- Displays details about the latest error log item

```
Switch# show logging error detail tail 1
seq    date (ver/make)      code    message
-----
00002  2001-01-01 00:03:17  eeee
      (V01L01-A09 2005-01-11 18:12:13)
      V1 Rst_cd=0x02 [Err_code=eeee Err_info=0000]
      pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
      ccr:84022822 tra_fact:00000800
      r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
      r4:00000014 r5:c714bcbc r6:c677f804 r7:caf107cf
      r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
      r12:24022822 r13:100b4714 r14:00000000 r15:00000000
      r16:00000000 r17:00000000 r18:00000000 r19:00000000
      r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
      r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
      r28:00000014 r29:ffffffef r30:00000000 r31:c714bcbc
      DCR:00000000 :00000000 :00000000 :00000000
           :00000000 :00000000 :00000000
           :00000000 :0700a002 :0700a002 :0700a002
           :00000000 :eec00004 :0c000000
           :ff801c18 :00000000 :00000000
Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- Management data error.
Cause: User log management data is destroyed.
Action: Execute clear logging error.
- System error.
Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.6 show logging line

This command displays the stored line log contents.

(1) Synopsis

```
show logging line [<interface-id>] [tail <number>]
```

(2) Options

- <interface-id>

Displays the line log of the specified interface. The following interfaces can be specified:

- IOU 0 0-7 1
- GigabitEthernet0/1-8
- TenGigabitEthernet1/1-2
- port 1-33

If this parameter is omitted, the line log of all interfaces are displayed.

- tail: Displays the specified number of last log items.
 - number: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging line

(5) Examples

- Displays the line log of all ports

```
Switch# show logging line
seq    date                hostname interface-id          message
-----
0001 1970-01-01 09:00:16 (none) : 35 FastEthernet 2/2  Port is up[100M,full]
0002 2001-01-01 00:00:01 (none) : 1 IOU 0 0           Enable
0003 2001-01-01 00:00:01 (none) : 2 IOU 0 1           Enable
0004 2001-01-01 00:00:01 (none) : 3 IOU 1 0           Enable
0005 2001-01-01 00:00:01 (none) : 4 IOU 1 1           Enable
0006 2001-01-01 00:00:01 (none) : 5 IOU 2 0           Enable
0007 2001-01-01 00:00:01 (none) : 6 IOU 2 1           Enable
.....
Switch#
```

Displayed items:

- seq: Message log sequence number
- date: Collection date and time
- hostname: Host name
- interface-id: Interface name
- message: Message
- Displays the GigabitEthernet0/1 line log

```
switch#show logging line GigabitEthernet 0/1
seq    date                hostname interface-id          message
-----
0025 2001-01-01 00:00:01 (none) : 17 GigabitEthernet 0/1  Enable
0042 2001-01-01 00:00:37 switch : 17 GigabitEthernet 0/1  Port is up[100M,full]
switch#
```

- Displays the latest two line log items

```
switch#show logging line tail 2
seq    date                hostname interface-id          message
-----
0259 2004-12-27 17:02:30 switch : 16 IOU 7 1           Port is up[1G,full]
0260 2004-12-27 17:02:30 switch : 4 IOU 1 1           Port is up[1G,full]
switch#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.7 show logging message

This command displays the stored message log contents.

(1) Synopsis

```
show logging message [tail <number>]
```

(2) Options

- tail: Displays the specified number of last log items.
 - <number>: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging message

(5) Examples

- Displays all the message log contents

```
switch#show logging message
seq  date                      hostname message
-----
0001 1970-01-01 09:00:11 (none) : IF-4400-0002 I2C-M24256 .. Driver regist ok.
0002 1970-01-01 09:00:11 (none) : IF-4400-000b I2C-PCA9559 .. Driver regist ok.
0003 1970-01-01 09:00:11 (none) : IF-4b00-0009 EFR .. Driver regist ok. Major = 240
0004 1970-01-01 09:00:13 (none) : IF-4800-7301 IFM_LIB <init_module Ver1.01>
0005 1970-01-01 09:00:14 (none) : DE-8501-0000 PORT: data module init start
0006 1970-01-01 09:00:14 (none) : DE-8501-0000 PORT: data module init end
0007 1970-01-01 09:00:14 (none) : IF-8502-0001 PORT: proc_mkdir_gswb /proc/gswb
                                create now !!
0008 1970-01-01 09:00:14 (none) : IF-8500-0003 PORT: /proc/gswb/port/private create
0008 1970-01-01 09:00:14 (none) : IF-8500-0003 PORT: /proc/gswb/port/private create
```

Displayed items:

- seq: Message log sequence number
- date: Collection date and time
- hostname: Host name
- message: Message

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.8 show logging trap

This command displays the stored trap log contents.

(1) Synopsis

```
show logging trap [tail <number>]
```

(2) Options

- tail: Displays the specified number of last log items.
 - number: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging trap

(5) Examples

- Displays all the message log contents

```
switch#show logging trap
seq  date                hostname logid code messages
----
0001 2001-01-01 00:00:32 switch : 8500 0001 LinkUp <1>
0002 2001-01-01 00:00:32 switch : 8500 0001 LinkUp <2>
0003 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <3>
0004 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <4>
0005 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <5>
0006 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <6>
```

- Displays the last message log item

```
switch#show logging trap tail 1
seq  date                hostname logid code messages
----
0474 2004-12-27 17:45:16 switch : 8400 0003 TopologyChange
switch#
```

Displayed items:

- seq: Trap log sequence number
- date: Collection date and time
- hostname: Host name
- logid: Trap issuer ID
- code: Trap issuance status
 - 0001: Discarded because a trap occurred before coldStart/warmStart was issued. Alternatively, this is the status of the first coldStart/warmStart that occurred after a reboot.
 - 0002: Transmitted trap
 - 0003: Trap that failed to be transmitted
- messages: Message

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.8.9 show logging

This command displays message log settings.

(1) Synopsis

show logging

(2) Options

None

(3) Command mode

enabled exec

(4) See also

logging on

logging level

logging host

(5) Examples

- Displays message log settings

```
switch#show logging
mlog logging      : enable
mlog logging level : 3(error)
transfer host     : 192.168.100.100
switch#
```

Displayed items:

- mlog logging: mlog enabled or disabled
- mlog logging level: Level of mlog collection
- transfer host: IP address of the mlog transfer destination host

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.9 Filtering/QoS-related commands

5.3.9.1 show remote-access

This command displays the conditions of a host or network to which a remote connection can be established.

(1) Synopsis

```
show remote-access
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

remote-access

(5) Examples

```
Switch# show remote-access
telnet:192.168.100.0/255.255.255.0
telnet:192.168.0.190
all:192.168.1.100
ssh:192.168.120.0/255.255.255.0
telnet:all
Switch#
```

Displayed items:

- protocol: Protocol for which the conditions are set

- IP Address: IP address or the network address to which a connection can be established
- Netmask: Subnet mask when a network address is specified in an IP address

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.9.2 show storm-control

This command displays information on broadcast/multicast/DLF storm control in units and interfaces (ports).

If the parameter is omitted, information about all interfaces is displayed.

(1) Synopsis

```
show storm-control [<interface-id>]
```

(2) Options

- <interface-id> (optional): Specifies the interface whose information is to be displayed.
 - IOU 0 0-7 1
 - GigabitEthernet 0/1-8
 - port 1-24

If this parameter is omitted, information about all interfaces is displayed.

(3) Command mode

user exec

enabled exec

(4) See also

storm-control

(5) Examples

- Displays the storm control setting of the specified interface

```
Switch# show storm-control interface GigabitEthernet 0/1
Port Interface          Broadcast Multicast DLF
-----
 17 GigabitEthernet 0/1  500          Disable  Disable
Switch#
```

Displayed items:

- Port: Port
- Interface: Interface ID
- Broadcast: Threshold (pkts/sec) of broadcast storm control. If disabled, "Disable" is displayed.
- Multicast: Threshold (pkts/sec) of multicast storm control. If disabled, "Disable" is displayed.
- DLF: Threshold (pkts/sec) of dlf storm control. If disabled, "Disable" is displayed.
- Displays setting information about all interfaces

```
Switch# show storm-control
Port Interface          Broadcast Multicast DLF
-----
 1 IOU 0 0              Disable  Disable  Disable
    :
16 IOU 7 1              Disable  Disable  Disable
17 GigabitEthernet 0/1  500          Disable  Disable
18 GigabitEthernet 0/2  Disable  Disable  500
19 GigabitEthernet 0/3  Disable  123        Disable
20 GigabitEthernet 0/4  Disable  Disable  Disable
    :
24 GigabitEthernet 0/8  Disable  Disable  Disable
Switch#
```

(6) Error Messages

- parameter error.
Cause: The specified parameter is invalid.
Action: Specify a correct parameter.
- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.9.3 show wrr-queue cos-map

This command displays mapping of the Class of Service (CoS: Service Class) priority queue.

(1) Synopsis

```
show wrr-queue cos-map
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

wrr-queue cos-map

(5) Examples

- Displays output of show wrr-queue cos-map

```
Switch# show wrr-queue cos-map
CoS Value      : 0 1 2 3 4 5 6 7
Priority Queue  : 0 0 1 1 2 2 3 3
Switch#
```

- CoS Value
CoS value (always in a range of 0 to 7)
- Priority Queue
Queue ID of the CoS priority queue. This setting (range of 0 to 3) is for a CoS value (range of 0 to 7).

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.10 Statistics management commands

5.3.10.1 show ether statistics

This command displays statistical information about an interface.

If there is no daughter, internal ports C to H are not displayed.

(1) Synopsis

```
show ether statistics [<interface-id>]
```

(2) Options

- <interface-id> (optional): Specifies the interface.
 - IOU 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - port-channel 1-7
 - InternalPort 1-8
 - port 1-33

If this parameter is omitted, statistical information about all interfaces is displayed.

If the InternalPort 1-8 option is specified, statistical information on internal ports at the locations shown below is displayed.

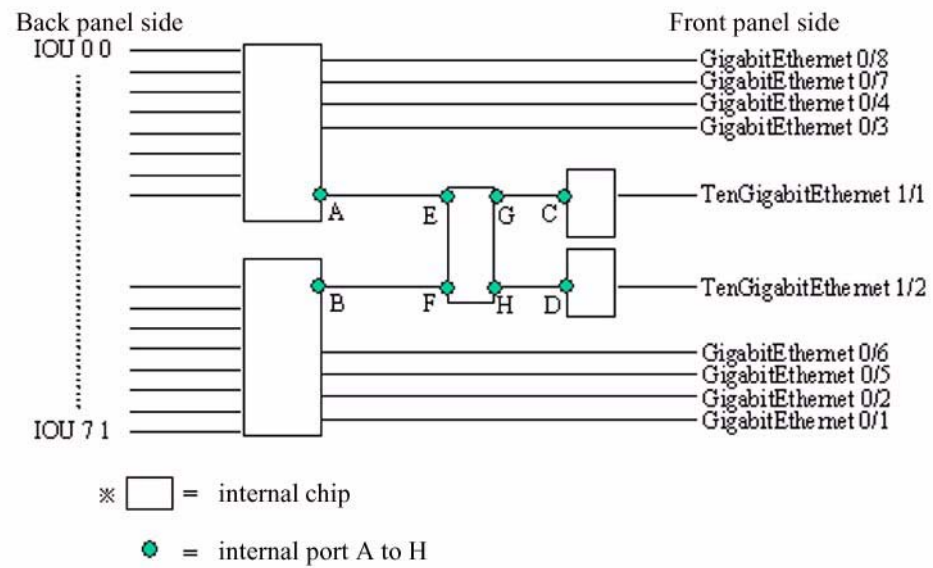


Figure 5.3 With a daughter

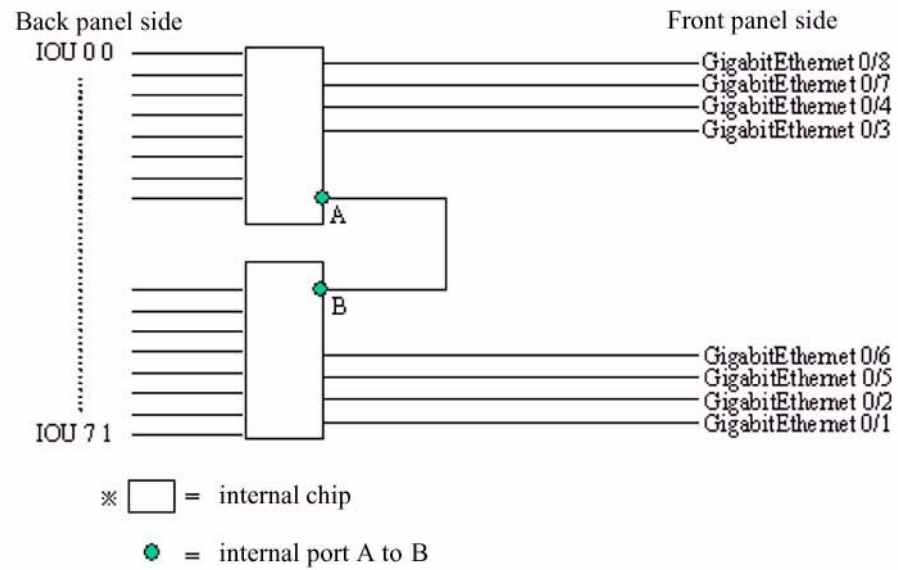


Figure 5.4 Without a daughter

Table 5.48 Port and displayed statistical information

Option	Displayed statistical information
InternalPort 1	A
InternalPort 2	B
InternalPort 3	C
InternalPort 4	D
InternalPort 5	E
InternalPort 6	F
InternalPort 7	G
InternalPort 8	H

(3) Command mode

user exec

enabled exec

(4) See also

clear ether statistics

(5) Examples

- Specifies GigabitEthernet

```
Switch# show ether statistics GigabitEthernet 0/1
Ethernet statistics.
Time : 2004.05.31.mon.13:58:47
17 GigabitEthernet 0/1

xxxxxxxxxxxxxxxxxxxx Transmit and Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 512-1023 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 1024-1518 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 1519-1522 (or 1519-1526 if
stack Link) Byte Good VLAN Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 1522-2047 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 2048-4095 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 4096-9216 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxxxx Receive Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive FCS Error Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Control Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Pause Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Alignment Error Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Code Error Counter
xxxxxxxxxxxxxxxxxxxx Receive False Carrier Counter
xxxxxxxxxxxxxxxxxxxx Receive Oversize Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Jabber Frame Counter
xxxxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxxxxx Number of multicast packets dropped in the mac
domain by ingress
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive Discard
Packet Counter
xxxxxxxxxxxxxxxxxxxx Packets dropped by FFP Counter
xxxxxxxxxxxxxxxxxxxx PortInDiscard Counter
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 04
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 05
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 06
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 07
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 08
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 09
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 10
```

```

xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 11
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 12
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 13
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 14
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter For All Packets
xxxxxxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Jabber Counter
xxxxxxxxxxxxxxxxxxxxx Transmit FCS Error Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Control Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Single Deferral Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Multiple Deferral Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Single Collision Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Multiple Collision Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Late Collision Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Excessive Collision Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Total Collision Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Tagged VLAN Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Aborted Packet Counter
xxxxxxxxxxxxxxxxxxxxx Number of multicast packets dropped in the egress
xxxxxxxxxxxxxxxxxxxxx Number of packets dropped by egress because CFI set
and (vlan tag removed or ipmc)
xxxxxxxxxxxxxxxxxxxxx Transmit Cell Error Counter
Switch#

```

Displayed items:

- Transmit and Receive 64 Byte Frame Counter: Number of transmitted/received frames whose frame length is 64 bytes
- Transmit and Receive 65-127 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 65 to 127 bytes
- Transmit and Receive 128-255 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 128 to 255 bytes
- Transmit and Receive 256-511 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 256 to 511 bytes
- Transmit and Receive 512-1023 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 512 to 1023 bytes
- Transmit and Receive 1024-1518 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 1024 to 1518 bytes

- Transmit and Receive 1519-1522 (or 1519-1526 if stack Link) Byte Good VLAN Frame Counter: Number of transmitted/received VLAN frames whose length ranges from 1519 to 1522 bytes
- Transmit and Receive 1522-2047 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 1522 to 2047 bytes
- Transmit and Receive 2048-4095 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 2048 to 4095 bytes
- Transmit and Receive 4096-9216 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 4096 to 9216 bytes
- Receive Frame Counter: Number of received frames
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Byte Counter: Number of received bytes
- Receive Multicast Frame Counter: Number of received multicast frames
- Receive Broadcast Frame Counter: Number of received broadcast frames
- Receive FCS Error Frame Counter: Number of received FCS error frames
- Receive Control Frame Counter: Number of received control frames
- Receive Pause Frame Counter: Number of received pause frames
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Alignment Error Frame Counter: Number of received alignment error frames
- Receive Length Out of Range Frame Counter: Number of received length-out-of-range frames
- Receive Code Error Counter: Number of received code errors
- Receive False Carrier Counter: Number of received false carriers
- Receive Oversize Frame Counter: Number of received oversize frames
- Receive Jabber Frame Counter: Number of received Jabber frames
- Number Of IPMC Packets Which Are Bridged: Number of bridged IP Multicast packets
- Number of multicast packets dropped in the mac domain by ingress: Number of discarded multicast packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Receive Unicast Counter: Number of received unicasts
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets

- Packets dropped by FFP Counter: Number of packets discarded by FFP
- PortInDiscard Counter: Number of PortInDiscards
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 0 0)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 4 0)
- Receive Discard Packet Counter 02: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 0 1)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 4 1)
- Receive Discard Packet Counter 03: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 1 0)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 1 0)
- Receive Discard Packet Counter 04: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 1 1)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 5 1)
- Receive Discard Packet Counter 05: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 2 0)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 6 0)
- Receive Discard Packet Counter 06: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 2 1)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 6 1)
- Receive Discard Packet Counter 07: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 3 0)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 7 0)

- Receive Discard Packet Counter 08: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO Unit 3 1)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 7 1)
- Receive Discard Packet Counter 09: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/8)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/6)
- Receive Discard Packet Counter 10: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/4)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/2)
- Receive Discard Packet Counter 11: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/7)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/5)
- Receive Discard Packet Counter 12: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/3)
(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/1)
- Receive Discard Packet Counter 13: Number of received and discarded packets during transfer
(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: InternalPort 1)

(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: InternalPort 2)

- Receive Discard Packet Counter 14: Number of received and discarded packets during transfer

(Destination for IO Unit 0 0-IO Unit 3 1; GigabitEthernet0/3, 4, 7, 8: CPU)

(Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: CPU)

- Receive Discard Packet Counter For All Packets: Number of received packets discarded because the destination was missing
- Transmit Frame Counter: Number of transmitted frames
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit Jabber Counter: Number of transmitted Jabbers
- Transmit FCS Error Counter: Number of transmitted FCS errors
- Transmit Control Frame Counter: Number of control frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Single Deferral Frame Counter: Number of transmitted single deferral frames
- Transmit Multiple Deferral Frame Counter: Number of transmitted multicast deferral frames
- Transmit Single Collision Frame Counter: Number of transmitted single collision frames
- Transmit Multiple Collision Frame Counter: Number of transmitted multicast collision frames
- Transmit Late Collision Frame Counter: Number of transmitted late collision frames
- Transmit Excessive Collision Frame Counter: Number of transmitted excessive collision frames
- Transmit Fragment Counter: Number of transmitted fragment frames
- Transmit Total Collision Counter: Number of total transmission collisions
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Tagged VLAN Packet Counter: Number of transmitted tagged VLAN packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Transmit Aborted Packet Counter: Number of transmission aborted packets

- Number of multicast packets dropped in the egress: Number of transmitted and discarded multicast packets
- Number of packets dropped by egress because CFI set and (vlan tag removed or ipmc): Number of discarded CFI packets
- Transmit Cell Error Counter: Number of transmitted cell errors
- TenGigabitEthernet

```
Switch# show ether statistics TenGigabitEthernet 1/1
Ethernet statistics.
Time : 2004.05.31.mon.15:34:27
25 TenGigabitEthernet 1/1

xxxxxxxxxxxxxxxxxxxxx Receive 64 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 65-127 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 128-255 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 256-511 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Packet
xxxxxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Packets dropped by FFP Counter
```

```

xxxxxxxxxxxxxxxxxxxx Port In Discard Counter
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter For All Packets
xxxxxxxxxxxxxxxxxxxx Transmit 64 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 65-127 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 128-255 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 256-511 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 1523-txMaxSize byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxxx Transmit Multicast Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Broadcast Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxx Transmit Tagged VLAN Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Aborted Packet Counter
xxxxxxxxxxxxxxxxxxxx Number of multicast packets dropped in the
egress
xxxxxxxxxxxxxxxxxxxx Number of packets dropped by egress because
CFI set and (vlan tag removed or ipmc)
xxxxxxxxxxxxxxxxxxxx Packets dropped for this port
Switch#

```

Displayed items:

- Receive 64 byte packet counter: Number of received packets whose frame length is 64 bytes
- Receive 65-127 byte packet counter: Number of received packets whose length ranges from 65 to 127 bytes
- Receive 128-255 byte packet counter: Number of received packets whose length ranges from 128 to 255 bytes
- Receive 256-511 byte packet counter: Number of received packets whose length ranges from 256 to 511 bytes

- Receive 512-1023 byte packet counter: Number of received packets whose length ranges from 512 to 1023 bytes
- Receive 1024-2047 byte packet counter: Number of received packets whose length ranges from 1024 to 2047 bytes
- Receive 2048-4095 byte packet counter: Number of received packets whose length ranges from 2048 to 4095 bytes
- Receive 4096-8191 byte packet counter: Number of received packets whose length ranges from 4096 to 8191 bytes
- Receive 8192-16383 byte packet counter: Number of received packets whose length ranges from 8192 to 16383 bytes
- Receive 1523-rxMaxSize byte packet counter: Number of received packets whose length ranges from 1523 bytes to the jumbo frame setting value
- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet: Number of received FCS error packets
- Receive Multicast Packet Counter: Number of received multicast packets
- Receive Broadcast Packet Counter: Number of received broadcast packets
- Receive Control Packet Counter: Number of received control packets
- Receive PAUSE Packet Counter: Number of received pause packets
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Packet Counter: Number of received oversize packets
- Receive Length Out of Range Frame Counter: Number of received length-out-of-range frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMulticast packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Receive Unicast Counter: Number of received unicasts

- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Packets dropped by FFP Counter: Number of packets discarded by FFP
- Port In Discard Counter: Number of PortInDiscards
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: TenGigabitEthernet1/1)

(Destination for TenGigabitEthernet1/2: TenGigabitEthernet1/2)

- Receive Discard Packet Counter 02: Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: InternalPort 3)

(Destination for TenGigabitEthernet1/2: InternalPort 4)

- Receive Discard Packet Counter 03

Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: CPU)

(Destination for TenGigabitEthernet1/2: CPU)

- Receive Discard Packet Counter For All Packets: Number of received packets discarded because the destination was missing
- Transmit 64 byte packet counter: Number of transmitted packets whose frame length is 64 bytes
- Transmit 65-127 byte packet counter: Number of transmitted packets whose length ranges from 65 to 127 bytes
- Transmit 128-255 byte packet counter: Number of transmitted packets whose length ranges from 128 to 255 bytes
- Transmit 256-511 byte packet counter: Number of transmitted packets whose length ranges from 256 to 511 bytes
- Transmit 512-1023 byte packet counter: Number of transmitted packets whose length ranges from 512 to 1023 bytes
- Transmit 1024-2047 byte packet counter: Number of transmitted packets whose length ranges from 1024 to 2047 bytes
- Transmit 2048-4095 byte packet counter: Number of transmitted packets whose length ranges from 2048 to 4095 bytes
- Transmit 4096-8191 byte packet counter: Number of transmitted packets whose length ranges from 4096 to 8191 bytes

- Transmit 8192-16383 byte packet counter: Number of transmitted packets whose length ranges from 8192 to 16383 bytes
- Transmit 1523-txMaxSize byte packet counter: Number of transmitted packets whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Transmit Packet Counter: Number of transmitted packets
- Transmit PAUSE Packet Counter: Number of transmitted pause control packets
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Packet Counter: Number of transmitted multicast packets
- Transmit Broadcast Packet Counter: Number of transmitted broadcast packets
- Transmit Fragment Counter: Number of transmitted fragment frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Tagged VLAN Packet Counter: Number of transmitted tagged VLAN packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Transmit Aborted Packet Counter: Number of transmission aborted packets
- Number of multicast packets dropped in the egress: Number of transmitted and discarded multicast packets
- Number of packets dropped by egress because CFI set and (vlan tag removed or ipmc): Number of discarded CFI packets
- Packets dropped for this port: Number of transmitted cell errors

- Specifies InternalPort 1 (similar for InternalPort 2)

```

Switch# show ether statistics InternalPort 1
Ethernet statistics.
Time : 2004.05.31.mon.13:58:47
36 InternalPort 1

xxxxxxxxxxxxxxxxxxxxx Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 512-1023 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 1024-1522 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize Byte Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Control Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Pause Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Oversize Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxxxxx Receive Error Byte Frame
xxxxxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Undefined Opcode or Other Error Discarded
Packet Counter
xxxxxxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 04
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 05
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 06

```

```

xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 07
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 08
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 09
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 10
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 11
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 12
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 13
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 14
xxxxxxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet
Counter
Switch#

```

Displayed items:

- Receive 64 Byte Frame Counter: Number of received frames whose frame length is 64 bytes
- Receive 65-127 Byte Frame Counter: Number of received frames whose length ranges from 65 to 127 bytes
- Receive 128-255 Byte Frame Counter: Number of received frames whose length ranges from 128 to 255 bytes
- Receive 256-511 Byte Frame Counter: Number of received frames whose length ranges from 256 to 511 bytes
- Receive 512-1023 Byte Frame Counter: Number of received frames whose length ranges from 512 to 1023 bytes
- Receive 1024-1522 Byte Frame Counter: Number of received frames whose length ranges from 1519 to 1522 bytes
- Receive 1523-rxMaxSize Byte Frame Counter: Number of received frames whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Receive Frame Counter: Number of received frames
- Receive FCS(CRC) Error Frame Counter: Number of received FCS (CRC) error frames
- Receive Multicast Frame Counter: Number of received multicast frames
- Receive Broadcast Frame Counter: Number of received broadcast frames

- Receive Control Frame Counter: Number of received control frames
- Receive Pause Frame Counter: Number of received pause frames
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Frame Counter: Number of received oversize frames
- Receive Length Out of Range Frame Counter: Number of received length-out-of-range frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Frame: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Undefined Opcode or Other Error Discarded Packet Counter: Number of received unsupported Opcode frames
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMulticast packets
- Receive Unicast Counter: Number of received unicasts
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer
(Destination for InternalPort1: IO Unit 0 0)
(Destination for InternalPort2: IO Unit 4 0)
- Receive Discard Packet Counter 02: Number of received and discarded packets during transfer
(Destination for InternalPort1: IO Unit 0 1)
(Destination for InternalPort2: IO Unit 4 1)
- Receive Discard Packet Counter 03: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 1 0)

(Destination for InternalPort2: IO Unit 1 0)

- Receive Discard Packet Counter 04: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 1 1)

(Destination for InternalPort2: IO Unit 5 1)

- Receive Discard Packet Counter 05: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 2 0)

(Destination for InternalPort2: IO Unit 6 0)

- Receive Discard Packet Counter 06: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 2 1)

(Destination for InternalPort2: IO Unit 6 1)

- Receive Discard Packet Counter 07: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 3 0)

(Destination for InternalPort2: IO Unit 7 0)

- Receive Discard Packet Counter 08: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 3 1)

(Destination for InternalPort2: IO Unit 7 1)

- Receive Discard Packet Counter 09: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/8)

(Destination for InternalPort2: GigabitEthernet0/6)

- Receive Discard Packet Counter 10: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/4)

(Destination for InternalPort2: GigabitEthernet0/2)

- Receive Discard Packet Counter 11: Number of received and discarded packets during transfer
(Destination for InternalPort1: GigabitEthernet0/7)
(Destination for InternalPort2: GigabitEthernet0/5)
- Receive Discard Packet Counter 12: Number of received and discarded packets during transfer
(Destination for InternalPort1: GigabitEthernet0/3)
(Destination for InternalPort2: GigabitEthernet0/1)
- Receive Discard Packet Counter 13: Number of received and discarded packets during transfer
(Destination for InternalPort1: InternalPort 1)
(Destination for InternalPort2: InternalPort 2)
- Receive Discard Packet Counter 14: Number of received and discarded packets during transfer
(Destination for InternalPort1: CPU)
(Destination for InternalPort2: CPU)
- Transmit Frame Counter: Number of transmitted frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted fragment frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress

- Specifies InternalPort 3 (similar for InternalPort 4)

```

Switch# show ether statistics InternalPort 3
Ethernet statistics.
Time : 2004.05.31.mon.13:58:47
38 InternalPort 3

xxxxxxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxxxxx Receive Undersize Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxxxxx Receive 64 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 65-127 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 128-255 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 256-511 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Undefined Opcode or Other Error Discarded
Packet Counter
xxxxxxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter

```

```

xxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxx Transmit 64 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 65-127 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 128-255 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 256-511 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
#Switch

```

Displayed items:

- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet Counter: Number of received FCS (CRC) error packets
- Receive Multicast Packet Counter: Number of received multicast packets
- Receive Broadcast Packet Counter: Number of received broadcast packets
- Receive Control Packet Counter: Number of received control packets
- Receive PAUSE Packet Counter: Number of received pause packets
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Packet Counter: Number of received oversize packets
- Receive Length Out of Range Frame Counter: Number of received length-out-of-range frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Packet Counter: Number of received packets whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received

- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Receive 64 byte packet counter: Number of received packets whose frame length is 64 bytes
- Receive 65-127 byte packet counter: Number of received packets whose length ranges from 65 to 127 bytes
- Receive 128-255 byte packet counter: Number of received packets whose length ranges from 128 to 255 bytes
- Receive 256-511 byte packet counter: Number of received packets whose length ranges from 256 to 511 bytes
- Receive 512-1023 byte packet counter: Number of received packets whose length ranges from 512 to 1023 bytes
- Receive 1024-2047 byte packet counter: Number of received packets whose length ranges from 1024 to 2047 bytes
- Receive 2048-4095 byte packet counter: Number of received packets whose length ranges from 2048 to 4095 bytes
- Receive 4096-8191 byte packet counter: Number of received packets whose length ranges from 4096 to 8191 bytes
- Receive 8192-16383 byte packet counter: Number of received packets whose length ranges from 8192 to 16383 bytes
- Receive 1523-rxMaxSize byte packet counter: Number of received packets whose length is 1523 bytes
- Receive Discard Packet Counter: Number of received and discarded packets
- Undefined Opcode or Other Error Discarded Packet Counter: Number of received unsupported Opcode packets
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMulticast packets
- Receive Unicast Counter: Number of received unicasts
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

(Destination for InternalPort3: TenGigabitEthernet1/1)

(Destination for InternalPort4: TenGigabitEthernet1/1)

- Receive Discard Packet Counter 02: Number of received and discarded packets during transfer
(Destination for InternalPort3: InternalPort3)
(Destination for InternalPort4: InternalPort3)
- Receive Discard Packet Counter 03: Number of received and discarded packets during transfer
(Destination for InternalPort3: CPU)
(Destination for InternalPort4: CPU)
- Transmit Frame Counter: Number of transmitted frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted fragment frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit 64 byte packet counter: Number of transmitted packets whose frame length is 64 bytes
- Transmit 65-127 byte packet counter: Number of transmitted packets whose length ranges from 65 to 127 bytes
- Transmit 128-255 byte packet counter: Number of transmitted packets whose length ranges from 128 to 255 bytes
- Transmit 256-511 byte packet counter: Number of transmitted packets whose length ranges from 256 to 511 bytes
- Transmit 512-1023 byte packet counter: Number of transmitted packets whose length ranges from 512 to 1023 bytes
- Transmit 1024-2047 byte packet counter: Number of transmitted packets whose length ranges from 1024 to 2047 bytes
- Transmit 2048-4095 byte packet counter: Number of transmitted packets whose length ranges from 2048 to 4095 bytes
- Transmit 4096-8191 byte packet counter: Number of transmitted packets whose length ranges from 4096 to 8191 bytes
- Transmit 8192-16383 byte packet counter: Number of transmitted packets whose length ranges from 8192 to 16383 bytes

- Transmit 1523-rxMaxSize byte packet counter: Number of transmitted packets whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Specifies InternalPort 5 (similar for InternalPort 6 to 8)

```
Switch# show ether statistics InternalPort 5
Ethernet statistics.
Time : 2004.05.31.mon.13:58:47
40 InternalPort 5

xxxxxxxxxxxxxxxxxxxx Transmit Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxxx Transmit Multicast Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Broadcast Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 512-1023 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit and Receive 1024-1522 Byte Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Jabber Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS0
```

```
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS1
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS2
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS3
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS4
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS5
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS6
xxxxxxxxxxxxxxxxxxxxx Discard Packet destined for CoS7
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
#Switch
```

Displayed items:

- Transmit Multicast Packet Counter: Number of transmitted multicast packets
- Transmit Broadcast Packet Counter: Number of transmitted broadcast packets
- Transmit Fragment Counter: Number of transmitted fragment frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit and Receive 64 Byte Frame Counter: Number of transmitted/received frames whose frame length is 64 bytes
- Transmit and Receive 65-127 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 65 to 127 bytes
- Transmit and Receive 128-255 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 128 to 255 bytes
- Transmit and Receive 256-511 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 256 to 511 bytes
- Transmit and Receive 512-1023 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 512 to 1023 bytes
- Transmit and Receive 1024-1522 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 1024 to 1522 bytes
- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet Counter: Number of received FCS (CRC) error packets
- Receive Multicast Packet Counter: Number of received multicast packets
- Receive Broadcast Packet Counter: Number of received broadcast packets
- Receive Control Packet Counter: Number of received control packets
- Receive PAUSE Packet Counter: Number of received pause packets
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames

- Receive Jabber Frame Counter: Number of received Jabber frames
- Receive Oversize Packet Counter: Number of received oversize packets
- Receive Length Out of Range Frame Counter: Number of received length-out-of-range frames
- Receive Byte Counter: Number of received packets
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Discard Packet destined for CoS0: Number of packets discarded because the CoS0 output queue was full
- Discard Packet destined for CoS1: Number of packets discarded because the CoS1 output queue was full
- Discard Packet destined for CoS2: Number of packets discarded because the CoS2 output queue was full
- Discard Packet destined for CoS3: Number of packets discarded because the CoS3 output queue was full
- Discard Packet destined for CoS4: Number of packets discarded because the CoS4 output queue was full
- Discard Packet destined for CoS5: Number of packets discarded because the CoS5 output queue was full
- Discard Packet destined for CoS6: Number of packets discarded because the CoS6 output queue was full
- Discard Packet destined for CoS7: Number of packets discarded because the CoS7 output queue was full
- Receive Discard Packet Counter: Number of received and discarded packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress

(6) Error Messages

- Port-channel ** is not defined.

Cause: An undefined channel group is specified. **[**]** shows the port-channel port number.

Action: Check the channel group definition.

- % Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.10.2 clear ether statistics

This command deletes statistical information about the interface.

(1) Synopsis

<code>clear ether statistics [<interface-id>]</code>
--

(2) Options

- <interface-id> (optional): Specifies the interface.
 - IOU 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - port-channel 1-7
 - InternalPort 1-8

- port 1-33

If this parameter is omitted, statistical information about all interfaces is deleted.

(3) Command mode

user exec

enabled exec

(4) See also

show ether statistics

show interface counter

(5) Examples

- Specifies all slots

```
Switch# clear ether statistics
Switch#
```

- Specifies the connector

```
Switch# clear ether statistics GigabitEthernet 0/1
Switch#
```

(6) Error Messages

- Port-channel ** is not defined.

Cause: An undefined channel group is specified. [**] shows the port-channel port number.

Action: Check the channel group definition.

- % Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the device implementation status.

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.11 IGMP snooping-related commands

5.3.11.1 show ip igmp snooping

This command displays the IGMP snooping setting.

(1) Synopsis

```
show ip igmp snooping [vlan <vlan-id>]
```

(2) Options

- [vlan <vlan-id>] (optional): Specify the VLAN ID to be displayed.
If this option is omitted, the command will display all VLANs on the switch.

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

(5) Examples

- Displays the setting of all VLANs

```
Switch# show ip igmp snooping

IGMP Status           : Enable
The Number of Enable  : 2

Vlan  Status
----  -
1      Enable
2      Disable
3      Enable

Switch#
```

- Displays the setting of the specified VLAN

```
Switch# show ip igmp snooping vlan 1

IGMP Status           : Enable
The Number of Enable  : 1

Vlan  Status
----  -
1      Enable

Switch#
```

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.11.2 show ip igmp snooping mrouter

This command displays information about the multicast router interface that has been dynamically learned or manually set.

(1) Synopsis

```
show ip igmp snooping mrouter [vlan <vlan-id>]
```

(2) Options

- vlan <vlan-id> (optional):

Specifies the VLAN ID whose interface information is to be displayed.

If this parameter is omitted, the interface information on all VLANs defined on the switch is displayed.

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

(5) Examples

- Displays information on multicast router ports of all VLANs

```
Switch# show ip snooping mrouter
Vlan  Ports
-----
1      18 GigabitEthernet 0/2(static)
1      19 GigabitEthernet 0/3(dynamic)
2      20 GigabitEthernet 0/4(static)
2      21 GigabitEthernet 0/5(dynamic)
Switch#
```

- Displays information on multicast router ports of the specified VLAN

```
Switch# show ip igmp snooping mrouter vlan 1
Vlan  Ports
-----
1      18 GigabitEthernet 0/2(static)
1      19 GigabitEthernet 0/3(dynamic)
Switch#
```

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.11.3 show mac address-table multicast

This command displays layer-2 multicast entries of a switch or VLAN.

(1) Synopsis

```
show mac address-table multicast [vlan <vlan-id>]  
[igmp-snooping | user]
```

(2) Options

- **vlan <vlan-id> (optional)**
Specifies VLAN ID of the entries to be displayed.
If this parameter is omitted, entries of all VLANs defined on the switch are displayed.
- **igmp-snooping | user (optional)**
 - **igmp-snooping:** Displays only entries learned via IGMP snooping (available only in enabled exec mode).
 - **user:** Displays only the multicast entries set by the user (available only in enabled exec mode).

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

(5) Examples

- Displays VLAN1 layer-2 multicast entries

```
Switch# show mac address-table multicast vlan 1

The Number of Multicast Address Entry : 4

Vlan  Multicast Address  Type Ports
-----
1      01:00:5e:00:01:28  IGMP 17 GigabitEthernet 0/1
1      01:00:5e:00:01:28  IGMP 18 GigabitEthernet 0/2
1      01:00:5e:01:11:11 USER 17 GigabitEthernet 0/1
1      01:00:5e:01:11:13 IGMP 18 GigabitEthernet 0/2

Switch#
```

- Displays VLAN1 layer-2 multicast entries learned via IGMP snooping

```
Switch# show mac address-table multicast vlan 1 igmp-snooping

The Number of Multicast Address Entry : 3

Vlan  Multicast Address  Type Ports
-----
1      01:00:5e:00:01:28  IGMP 17 GigabitEthernet 0/1
1      01:00:5e:00:01:28  IGMP 18 GigabitEthernet 0/2
1      01:00:5e:01:11:13 IGMP 18 GigabitEthernet 0/2

Switch#
```

- Displays VLAN1 layer-2 multicast entries set by the user

```
Switch# show mac address-table multicast vlan 1 user

The Number of Multicast Address Entry : 1

Vlan  Multicast Address  Type Ports
-----
1      01:00:5e:01:11:11 USER 17 GigabitEthernet 0/1

Switch#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.11.4 show ip igmp snooping statistics

This command displays statistical information on IGMP Snooping.

The number of received packets is displayed only for a VLAN for which IGMP Snooping is enabled. If IGMP Snooping is disabled for the whole unit, the number of received packets is not displayed for any VLAN.

(1) Synopsis

```
show ip igmp snooping statistics [vlan <vlan-id>]
```

(2) Options

- vlan <vlan-id> (optional)

Specifies the VLAN ID whose statistical information is to be displayed.

If this parameter is omitted, statistical information on all VLANs defined on the switch is displayed.

(3) Command mode

enabled exec

user exec

(4) See also

clear ip igmp snooping statistics

(5) Examples

- Displays statistical information on all VLANs

```
Switch# show ip igmp snooping statistics

Vlan    GE Query    SP Query    Report    Leave Group
-----
1        5           2           10        3
3        3           2           4         2

Switch#
```

Displayed items:

Vlan: VLAN ID of the created VLAN

GE Query: Number of received General Queries

SP Query: Number of received Specific Queries

Report: Number of received Reports

Leave Group: Number of received Leave Groups

If IGMP Snooping is disabled in VLANs, however, the number of received packets is not displayed.

- Displays statistical information on VLAN1

```
Switch# show ip igmp snooping statistics vlan 1

Vlan    GE Query    SP Query    Report    Leave Group
-----
1        5           2           10        3

Switch#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.11.5 clear ip igmp snooping statistics

This command clears statistical information on IGMP Snooping.

(1) Synopsis

```
clear ip igmp snooping statistics [vlan <vlan-id>]
```

(2) Options

- vlan <vlan-id> (optional)
Specifies VLAN ID whose IGMP Snooping statistical information is to be cleared.
If this parameter is omitted, IGMP Snooping statistical information on all VLANs defined on the switch is cleared.

(3) Command mode

enabled exec

user exec

(4) See also

show ip igmp snooping statistics

(5) Examples

- Clears IGMP Snooping statistical information on all VLANs

```
Switch# clear ip igmp snooping statistics  
Switch#
```

- Clear IGMP Snooping statistical information on vlan 1

```
Switch# clear ip igmp snooping statistics vlan 1
Switch#
```

(6) Error Messages

- % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

- % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.12 LDAP-related commands

5.3.12.1 show ldap

This command displays ldap setting information.

(1) Synopsis

```
show ldap
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ldap server

ldap dn

ldap ssl

(5) Examples

```
switch#show ldap
Ldap Server : 10.10.10.10 10.10.10.11
DN : dc=my-domain,dc=com
SSL : enable
switch#
```

Displayed items:

- Ldap Server: IP address of the ldap server
- DN: Base DN for searching
- SSL: Indication of whether ldap over ssl is enabled or disabled

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.13 SNMP-related commands

5.3.13.1 show snmp-server

This command displays snmp setting information.

(1) Synopsis

- Displays SNMP setting information

<pre>show snmp-server { engine location contact user host trap }</pre>
--

(2) Options

- engine: Displays the engine ID.
- location: Displays installation location.
- contact: Displays contact information.
- user: Displays user information.
- host: Displays host information.
- trap: Displays the trap setting.

(3) Command mode

user exec

enabled exec

(4) See also

snmp-server location

snmp-server contact

snmp-server engineID local

snmp-server user

snmp-server host

snmp-server enable traps

(5) Examples

- Displays location information

```
Switch# show snmp-server location
Location : where
Switch#
```

- Displays contact information

```
Switch# show snmp-server contact
contact : hoge@hoge.co.jp
Switch#
```

- Displays engine information

```
Switch# show snmp-server engine
engine : 0000000000000001234567890
Switch#
```

- Displays user information

```
Switch# show snmp-server user
a-sss      : rw : noauth :
1-sssaaaa  : ro : auth   : MD5
b-sss      : ro : priv   : SHA
Switch#
```

Displayed items:

- User name: Name of the user connected via SNMP V3
- Access privilege: Access privilege to the MIB tree
 - ro: read only
 - rw: read/write
- Authentication method: Authentication level of SNMP messages
 - noauth: No authentication/encryption performed with passwords
 - auth: Authentication performed with passwords
 - priv: Authentication/encryption performed with passwords
- Encryption method:

Hash function used for encrypting the password:

- MD5: MD5
- SHA: SHA

- Displays host information

```
Switch# show snmp-server host
192.168.0.120 : 1 : XXXYYZZZ : ro
192.168.1.100 : 2c : AAAABBBBCCCC : rw
Switch#
```

Displayed items:

- Host IP address: IP address of snmp manager
- Version: SNMP version
 - 1: snmp v1
 - 2c: snmp v2c
- Community string: Community string
- Access privilege: Access privilege to the MIB tree
 - ro: read only
 - rw: read/write

- Displays trap information

```
Switch# show snmp-server trap
192.168.0.100 : 1 : XXXXX
192.168.0.110 : 2c : YYYY
192.168.0.120 : 3 : ZZZZ : priv : md5
Switch#
```

Displayed items:

- For SNMP version 1/2c: [IP address:version:community string]
 - IP address: Trap notification destination IP address
 - Version: SNMP version
 - 1: snmp v1
 - 2c: snmp v2c
 - Community string: Displays the community string
- SNMP version3: [IP address:version:user name:authentication method:encryption method]
 - IP address: Trap notification destination IP address
 - Version: SNMP version
 - 3: snmp v3
 - User name: snmp v3 user name
 - Authentication method: Authentication level of SNMP messages
 - noauth: No authentication/encryption performed with passwords
 - auth: Authentication performed with passwords
 - priv: Authentication/encryption performed with passwords
 - Encryption method: Hash function used for encrypting the password
 - md5: MD5
 - sha: SHA

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.14 SSH-related commands

5.3.14.1 SSH keygen

This command generates the RSA key/DSA key used by SSH:

- Three types of keys can be created: rsa1, rsa, dsa.
- One type of key file can be set for a server.
- If the key type specified by this command is set and the key specified by the SSH server is used for activation, an error occurs.
- If the user executes this command at the same time as the command is executed on another terminal, an error occurs.
- The time required for generating a key may be much longer depending on the GSWB operating status.

Table 5.49 Guide to key generation time

No	Key type	Number of bits	Time (s)
1	rsa1	1024	1 - 40
2		2048	10 - 200
3	rsa	1024	1 - 40
4		2048	10 - 320
5	dsa	1024	10 - 240
6		2048	60 - 1200

(1) Synopsis

```
ssh keygen <numbit> { rsa1 | rsa | dsa }
```

(2) Options

- <numbit>: Specifies the number of bits in the key.
 - 1024
 - 2048
- { rsa1 | rsa | dsa }: Specifies the key type.
 - rsa1: Creates an RSA key (SSH protocol Version1)
 - rsa: Creates an RSA key (SSH protocol Version2)
 - dsa: Creates a DSA key (SSH protocol Version2)

(3) Command mode

enabled exec

(4) See also

SSH enable

SSH keydel

(5) Examples

```
Switch# ssh keygen 1024 rsa
Switch#
```

(6) Error Messages

- Application running
 - Cause: Key creation was attempted while the SSH server is running.
 - Action: Stop the SSH server.
- Command is already running.
 - Cause: The following command is running.
SSH keygen
 - Action: Reenter the command after the current command exits.
- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.
- System error.
 - Cause: An internal error occurred.
 - Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.14.2 SSH keydel

This command deletes the RSA key or DSA key used by SSH.

If the SSH server is operating with the key type specified by this command, an error occurs. In such cases, disable the SSH server by executing the no SSH enable command for the configuration definition, and then execute this command.

(1) Synopsis

- Deletes the RSA key or DSA key used by SSH

```
ssh keydel { rsa1 | rsa | dsa }
```

(2) Options

- { rsa1 | rsa | dsa }: Specifies the key file to be deleted.
 - rsa1: Deletes the RSA key (SSH protocol Version1)
 - rsa: Deletes the RSA key (SSH protocol Version2)
 - dsa: Deletes the DSA key (SSH protocol Version2)

(3) Command mode

enabled exec

(4) See also

SSH enable, SSH keygen

(5) Examples

```
Switch# ssh keydel rsa  
Switch#
```

(6) Error messages

- Application running
 - Cause: An attempt was made to delete a key while the SSH server was operating.
 - Action: Stop the SSH server.
- RSA Key(ver1) not exist
 - Cause: No RSA Key (ver1) file was found.
 - Action: Check the key status.

- **RSA Key(ver2) not exist**
Cause: No RSA Key (ver2) file was found.
Action: Check the key status.
- **DSA Key(ver2) not exist**
Cause: No DSA Key (ver2) file was found.
Action: Check the key status.
- **% Incomplete command.**
Cause: Incomplete command input
Action: Enter the command string correctly.
- **% Invalid input detected at '^' marker.**
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- **System error.**
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.14.3 show SSH

This command displays the SSH server status, SSH protocol version used by SSH, and bit length of the RSA key or DSA key.

(1) Synopsis

show ssh

(2) Options

None

(3) Command mode

enabled exec

(4) See also

SSH enable, SSH keygen

(5) Examples

```
Switch# show ssh
SSH :enable
rsa1:enable :2048
rsa :disable:
dsa :disable:
Switch#
```

Displayed items:

- SSH server status: Displays whether the server is enabled or disabled.
 - enable: SSH server enabled
 - disable: SSH server disabled
- SSH protocol version: Displays the SSH protocol version.
 - rsa1: RSA Version1
 - rsa: RSA Version2
 - dsa: DSA Version2
- Status: Displays whether a key file is set for the SSH server.
 - enable: Set
 - disable: Not set
- Bit length
 - Displays the bit length of the key for each protocol. If no key file for the protocol has been created, this item is blank.
 - 1024: 1024-bit length
 - 2048: 2048-bit length

(6) Error Messages

- % Incomplete command.
 - Cause: Incomplete command input
 - Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
 - Cause: Invalid character detected at '^' marker in the entered command string
 - Action: Enter the command string correctly.

- System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

5.3.15 NTP-related command

5.3.15.1 show ntp

This command outputs NTP setting information.

(1) Synopsis

```
show ntp
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ntp server

ntp status

(5) Examples

```
Switch# show ntp
Server:
192.168.0.100
192.168.0.110
192.168.0.120
timeout :10
interval:24
Switch# show ntp
```

Displayed items:

- Server: Displays the IP address of the NTP server.
- timeout: Displays the timeout time of a query to the server. (in seconds)
- interval: Displays the interval of queries to the NTP server. (in hours)

(6) Error Messages

- % Incomplete command.
Cause: Incomplete command input
Action: Enter the command string correctly.
- % Invalid input detected at '^' marker.
Cause: Invalid character detected at '^' marker in the entered command string
Action: Enter the command string correctly.
- System error.
Cause: An internal error occurred.
Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

CHAPTER 6 GSWB Messages

6.1 Reading Messages

The display of GSWB messages varies depending on the log type. This section describes how to read stored messages.

- **Message log (mlog)**

The message log stores messages and error codes for errors that occurred in GSWB firmware running on the device. The [Message Log] window of the MMB Web-UI displays a list of entries from the log. Also, the log file can be downloaded from the [Message Log] window.

- **Error log (elog)**

The error log stores error information on GSWB hardware problems that occurred. The [Error Log] window of the MMB Web-UI displays a list of entries from the log. Also, the log file can be downloaded from the [Error Log] window.

- **Line log (llog)**

The line log stores information including the linkup and linkdown states of the GSWB interface. The [Line Log] window of the MMB Web-UI displays a list of entries from the log. Also, the log file can be downloaded from the [Line Log] window.

- **Trap log (tlog)**

The trap log stores the trap information to be reported to SNMP Manager. The [Trap Log] window of the MMB Web-UI displays a list of entries from the log. Also, the log file can be downloaded from the [Trap Log] window.

6.1.1 Message log

This section describes the [Message Log] window and explains the displayed items of the log file.

Displaying the message log in an MMB window

- 1 Select [Switch] → [GSWB#0] or [GSWB#1] → [System] → [Message Log].
- 2 Specify [Sort by Event] for the sort order.
- 3 Click the [Show] button.

The message log is displayed.

Remarks: The message log can be displayed by executing the show logging message command from the command line interface (CLI).

The message log can be cleared by executing the clear logging message command from the CLI.

The message log can be downloaded by clicking the [Download] button.

Sequence number	Date and time of occurrence	Host name	Log number	Message
<div> <div>Message Log (GSWB#0)</div> <div>Help</div> </div>				
Seq	Date	Host	ID	Message
1668	2005-06-08 10:17:52	GSWB_test_gswb1_	IF-6400-0000	Install edit configuration command.
1669	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install exec command.
1670	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install configuration command.
1671	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install edit configuration command.
1672	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install exec command.
1673	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install configuration command.
1674	2005-06-08 10:17:53	GSWB_test_gswb1_	IF-6400-0000	Install edit configuration command.
1675	2005-06-08 10:17:54	GSWB_test_gswb1_	IF-6400-0000	Install exec command.
1676	2005-06-08 10:17:54	GSWB_test_gswb1_	IF-6400-0000	Install configuration command.
1677	2005-06-08 10:17:54	GSWB_test_gswb1_	IF-6400-0000	Install edit configuration command.
1678	2005-06-08 10:17:54	GSWB_test_gswb1_	IF-6400-0000	Install exec command.
<div> <div>Sort by Event</div> <div> <input checked="" type="radio"/> Old <input type="radio"/> New </div> <div> <div>Show</div> <div>Clear</div> <div>Download</div> </div> </div>				

Figure 6.1 [Message Log] window

Table 6.1 Displayed contents of the [Message Log] window

Display	Meaning	Description.
Seq	Sequence numbers assigned in the order of occurrence of log events.	Four digits are displayed, with the count starting from 0001 and continuing to 9999, when it starts from 0001 again.
Date	The collection time of message log information is displayed.	The display format for the date is year - month - date hours:minutes:seconds. Remarks: After the start of GSWB time management, if the log is saved before time synchronization is completed, a value such as "0000000000000000044" is displayed.
Host	A host name is displayed.	
ID	The log numbers are displayed.	The display format is AA-BBBB-CCCC: <ul style="list-style-type: none"> • AA (The order of priority is HE, SE, AL, IF, and PI.) <ul style="list-style-type: none"> • HE (Hardware Error) Saved as a log entry when a hardware error is detected. • SE (Software Error) Saved as a log entry when a software error is detected. • AL (Alarm) Does not affect operation and is saved as a log entry when the device detects an error. • IF (Information) Saved as a log entry when software processing causes a change in the device status. • PI (Port Information) Saved as a log entry when the status of a port is changed. • BBBB Log information output component number • CCCC Message identification number in an output component
Message	The log message contents are displayed.	Each message describes the contents of log information.

Downloading the log file

1 Click the [Download] button.

Save is done with [Sort by Event] set to [Old].

Display format

The following is the display format in the CLI:

```
switch#show logging message
seq  date                hostname      message
-----
0233 2001-01-01 09:15:43 switch      : IF-6400-0000 Install exec command.
0234 2001-01-01 09:15:43 switch      : IF-6400-0000 Install configuration command.
0235 2001-01-01 09:15:43 switch      : IF-6400-0000 Install edit configuration command.
0236 2001-01-01 09:15:43 switch      : IF-6400-0000 Install exec command.
0237 2001-01-01 09:15:43 switch      : IF-6400-0000 Install configuration command.
0238 2001-01-01 09:15:43 switch      : IF-6400-0000 Install edit configuration command.
0239 2001-01-01 09:15:44 switch      : IF-6400-0000 Install exec command.
0240 2001-01-01 09:15:44 switch      : IF-6400-0000 Install configuration command.
0241 2001-01-01 09:15:44 switch      : IF-6400-0000 Install edit configuration command
switch#
```

The message display format is AA-BBBB-CCCC: Message-txt. For the message list, see Section 6.2, "mlog List."

- AA: Message type (The order of priority is HE, SE, AL, IF, and PI.)
 HE (Hardware Error): Logged when an abnormal hardware event is detected.
 SE (Software Error): Logged when an abnormal software event is detected.
 AL (Alert): Does not affect operation and is logged when a device event is detected.
 IF (Information): Logged when software detects a device status change.
 PI (Port Information): Logged when the status of a port is changed.
 DE (Debug): Debug information log
- BBBB: Log information output component number in Table 6.2.
- CCCC: Message identification number in an output component
- Message txt: Message that describes the contents of log information

Table 6.2 Log information output component numbers

Classification	Component number	Component name
Configuration definition file	0x1***	Configuration definition file management
Management module	0x21**	Device management
	0x2d**	Trap daemon
Driver	0x43**	I2C driver
	0x47**	LAN-C driver
	0x48**	IFM driver
	0x4B**	Expansion register driver

Classification	Component number	Component name
Application	0x61**	Protocol (configuration definition)
	0x62**	Protocol (command)
	0x63**	Configuration definition management
	0x64**	Command management
	0x65**	IPMI management
	0x66**	Statistical information management (MIB)
	0x67**	Port control
	0x68**	General application
Kernel	0x81**	Protocol (INET)
	0x82**	Protocol (IGMP)
	0x83**	Protocol (VLAN)
	0x84**	Protocol (STP)
	0x85**	Port control

6.1.2 Error log

This section describes the [Error Log] window and explains the displayed items of the log file.

Displaying the error log in an MMB window

- 1 Select [Switch] → [GSWB#0] or [GSWB#1] → [System] → [Error Log].
 - 2 In [Log Type], select [Detail] for detailed display of the log, or select [Normal] for normal display. Specify [Sort by Event] for the display order.
 - 3 Click the [Show] button.
- The error log is displayed.

Remarks: The error log can be displayed by executing the show logging error command from the command line interface (CLI).

The error log can be cleared by executing the clear logging error command from the CLI.

The error log can be downloaded by clicking the [Download] button.

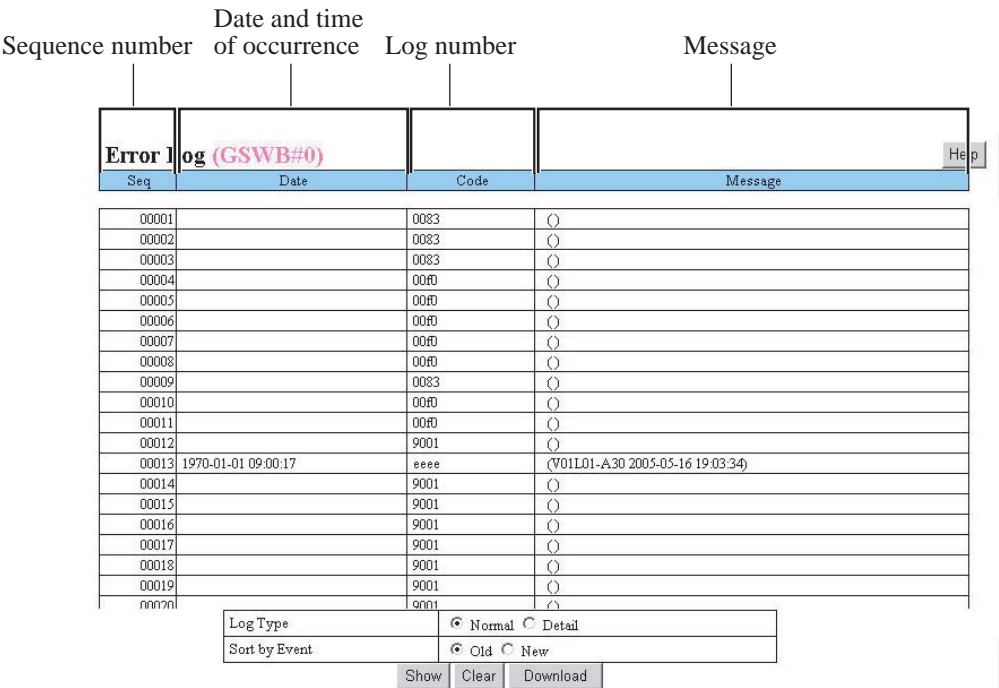


Figure 6.2 [Error Log] window

Table 6.3 Displayed contents of the [Error Log] window

Display	Meaning	Description
Seq	Sequence numbers assigned in the order of occurrence of error log events	The numbers 1 to 62 are assigned in order as events occur.
Date	The collection time of error log information is displayed.	The display format for the date is year - month - day hours:minutes:seconds. Remarks: If the log is saved before the start of GSWB time management, the Date part is left blank.
Code	The log numbers are displayed.	
Message	The firmware version and error message are displayed.	

Downloading the log file.

- 1 Make a setting in [Log Type].
- 2 Click the [Download] button. Saving is performed with [Log Type] set to [Detail] and [Sort by Event] set to [Old].

Display format

The following is the display format in CLI.

```
switch#show logging error
seq   date   (ver/make)   code message
-----
00001 2005-06-08 15:17:50 eeee
      (V01L01-A31 2005-05-31 10:06:33)
V1 Rst_cd=0x02 [Err_code=eeee Err_info=0000]
pc:ca8edcd0 msr:00009030 ctr:c000f19c lr:cacb2ba8
ccr:24022822 tra_fact:00000800
r0:0000000c r1:c653fc80 r2:c653c000 r3:00000003
r4:00000016 r5:c653fc98 r6:c5b8d204 r7:cacc6213
r8:0000001a r9:00000058 r10:00000000 r11:c653f520
r12:48022842 r13:100b4714 r14:00000000 r15:00000000
r16:00000000 r17:00000000 r18:00000000 r19:00000000
r20:00009032 r21:0653ff30 r22:00000000 r23:c0002bb4
r24:c0002920 r25:00000001 r26:c653fd74 r27:c653fd70
r28:00000016 r29:00000003 r30:c60b8140 r31:00000011
DCR:00000000 :00000000 :00000000 :00000000
      :00000000 :00000000 :00000000
      :00000000 :0700a002 :0700a002 :0700a002
      :00000000 :eec00004 :0c000000
      :040009cb :00000000 :00000000
switch#
```

The code and message are displayed instead of "eeee" in the above display format.
For the message list, see Section 6.3, "elog List."

6.1.3 Line log

This section describes the [Line Log] window and explains the displayed items of the log file.

Displaying the line log in an MMB window

- 1 Select [Switch] → [GSWB#0] or [GSWB#1] → [System] → [Line Log].
- 2 In [Log Type], select [Detail] for detailed display of the log, or select [Normal] for normal display. Specify [Sort by Event] for the display order.
- 3 Click the [Show] button.
The line log is displayed.

Remarks: The line log can be displayed by executing the show logging line command from the command line interface (CLI).

The line log can be cleared by executing the clear logging line command from the CLI.

The line log can be downloaded by clicking the [Download] button.

Sequence number	Date and time of occurrence	Host name	Interface	Message
Seq	Date	Host	Interface	Message
0001	1970-01-01 09:00:15	(none)	34 FastEthernet 2/1	Port is up[100M,full]
0002	2001-01-01 09:00:03	(none)	1 IOU 0 0	Enable
0003	2001-01-01 09:00:03	(none)	2 IOU 0 1	Enable
0004	2001-01-01 09:00:03	(none)	3 IOU 1 0	Enable
0005	2001-01-01 09:00:03	(none)	4 IOU 1 1	Enable
0006	2001-01-01 09:00:03	(none)	5 IOU 2 0	Enable
0007	2001-01-01 09:00:03	(none)	6 IOU 2 1	Enable
0008	2001-01-01 09:00:03	(none)	7 IOU 3 0	Enable
0009	2001-01-01 09:00:03	(none)	8 IOU 3 1	Enable
0010	2001-01-01 09:00:03	(none)	9 IOU 4 0	Enable
0011	2001-01-01 09:00:03	(none)	10 IOU 4 1	Enable
0012	2001-01-01 09:00:03	(none)	11 IOU 5 0	Enable
0013	2001-01-01 09:00:03	(none)	12 IOU 5 1	Enable
0014	2001-01-01 09:00:03	(none)	13 IOU 6 0	Enable
0015	2001-01-01 09:00:03	(none)	14 IOU 6 1	Enable
0016	2001-01-01 09:00:03	(none)	15 IOU 7 0	Enable
0017	2001-01-01 09:00:03	(none)	16 IOU 7 1	Enable
0018	2001-01-01 09:00:03	(none)	17 GigabitEthernet 0/1	Enable
0019	2001-01-01 09:00:03	(none)	18 GigabitEthernet 0/2	Enable
0020	2001-01-01 09:00:03	(none)	19 GigabitEthernet 0/3	Enable
0021	2001-01-01 09:00:03	(none)	20 GigabitEthernet 0/4	Enable

Figure 6.3 [Line Log] window

Table 6.4 Displayed contents of the [Line Log] window

Display	Meaning	Description.
Seq	Sequence numbers assigned in the order of occurrence of line log events	Four digits are displayed, with the count starting from 0001 and continuing to 9999, when it starts from 0001 again.
Date	The collection time of line log information is displayed.	The display format for the date is year - month - day hours:minutes:seconds. Remarks: After the start of GSWB time management, if the log is saved before time synchronization is completed, a value such as "0000000000000000044" is displayed.
Host	A host name is displayed.	
Interface	An interface ID is displayed.	
Message	A line message is displayed.	

Downloading the log file

- 1 Click the [Download] button. Save is done with [Sort by Event] set to [Old].

Display format

The following is the display format in CLI.

```
switch#show logging line
seq  date          hostname          interface-id      message
-----
0001  1970-01-01 09:00:14 (none)          : 34 FastEthernet 2/1      Port is up[100M,full]
0002  2001-01-01 09:00:03 (none)          : 1 IOU 0 0              Enable
0003  2001-01-01 09:00:03 (none)          : 2 IOU 0 1              Enable
0004  2001-01-01 09:00:03 (none)          : 3 IOU 1 0              Enable
0005  2001-01-01 09:00:03 (none)          : 4 IOU 1 1              Enable
0006  2001-01-01 09:00:03 (none)          : 5 IOU 2 0              Enable
0007  2001-01-01 09:00:03 (none)          : 6 IOU 2 1              Enable
0008  2001-01-01 09:00:03 (none)          : 7 IOU 3 0              Enable
0009  2001-01-01 09:00:03 (none)          : 8 IOU 3 1              Enable
0010  2001-01-01 09:00:03 (none)          : 9 IOU 4 0              Enable
0011  2001-01-01 09:00:03 (none)          : 10 IOU 4 1             Enable
0012  2001-01-01 09:00:03 (none)          : 11 IOU 5 0             Enable
0013  2001-01-01 09:00:03 (none)          : 12 IOU 5 1             Enable
0014  2001-01-01 09:00:03 (none)          : 13 IOU 6 0             Enable
0015  2001-01-01 09:00:03 (none)          : 14 IOU 6 1             Enable
0016  2001-01-01 09:00:03 (none)          : 15 IOU 7 0             Enable
0017  2001-01-01 09:00:03 (none)          : 16 IOU 7 1             Enable
0018  2001-01-01 09:00:03 (none)          : 17 GigabitEthernet 0/1  Enable
0019  2001-01-01 09:00:03 (none)          : 18 GigabitEthernet 0/2  Enable
0020  2001-01-01 09:00:03 (none)          : 19 GigabitEthernet 0/3  Enable
switch#
```

In the above display format, the interface is displayed instead of "interface-id" and the message is displayed instead of "message". For the message list, see [Section 6.4, "log List."](#)

6.1.4 Trap log

This section describes how to display the [Trap Log] window and explains the displayed items of the log file.

Displaying the trap log in an MMB window

- 1 Select [Switch] → [GSWB#0] or [GSWB#1] → [System] → [Trap Log].
- 2 Specify [Sort by Event] for the sort order.
- 3 Click the [Show] button.

The trap log is displayed.

Remarks: The trap log can be displayed by executing the show logging trap command from the command line interface (CLI).

The trap log can be cleared by executing the clear logging trap command from the CLI.

The trap log can be downloaded by clicking the [Download] button.

Sequence number	Date and time of occurrence	Host name	Log ID	Error code	Message
Trap Log (GSWB#0)					
Seq	Date	Host	Log-ID	Ecode	Message
0001	2001-01-01 09:00:11	GSWB_test_gswbl	8500	0001	LinkUp <5>
0002	2001-01-01 09:00:11	GSWB_test_gswbl	8500	0001	LinkUp <6>
0003	2001-01-01 09:00:11	GSWB_test_gswbl	8500	0001	LinkUp <7>
0004	2001-01-01 09:00:11	GSWB_test_gswbl	8500	0001	LinkUp <8>
0005	2001-01-01 09:00:11	GSWB_test_gswbl	8500	0001	LinkUp <9>
0006	2001-01-01 09:00:13	GSWB_test_gswbl	8500	0001	LinkUp <17>
0007	2001-01-01 09:00:26	GSWB_test_gswbl	8500	0001	LinkDown <5>
0008	2001-01-01 09:00:26	GSWB_test_gswbl	8500	0001	LinkDown <6>
0009	2001-01-01 09:00:27	GSWB_test_gswbl	8500	0001	LinkUp <5>
0010	2001-01-01 09:00:27	GSWB_test_gswbl	8500	0001	LinkUp <6>
0011	2001-01-01 09:00:28	GSWB_test_gswbl	8500	0001	LinkDown <9>

Figure 6.4 [Trap Log] window

Table 6.5 Displayed contents of the [Trap Log] window

Display	Meaning	Description.
Seq	Sequence numbers assigned in the order of occurrence of trap log events	The count starts from 0001 and continues to 9999, when it starts from 0001 again.
Date	The collection time of trap log information is displayed.	The display format for the date is year - month - day hours:minutes:seconds. Remarks: After the start of GSWB time management, if the log is saved before time synchronization is completed, a value such as "0000000000000000044" is displayed.
Host	A host name is displayed.	
Log-ID	The log numbers are displayed.	See the description about the log information output component numbers of mlog.
Ecode	An error code is displayed.	
Message	An trap message is displayed.	

Downloading the log file

- 1 Click the [Download] button. Save is done with [Sort by Event] set to [Old].

Display format

The following is the display format in CLI.

```
switch#show logging trap
seq  date          hostname          logid  code  messages
-----
0001 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <1>
0002 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <2>
0003 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <3>
0004 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <4>
0005 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <7>
0006 2001-01-01 09:00:12 switch          : 8500 0001 LinkUp <8>
0007 2001-01-01 09:00:45 switch          : 8500 0001 LinkDown <3>
0008 2001-01-01 09:00:46 switch          : 8400 0001 NewRoot
0009 2001-01-01 09:00:52 switch          : 8500 0001 LinkDown <7>
0010 2001-01-01 09:00:58 switch          : 8500 0001 LinkDown <4>
0011 2001-01-01 09:01:00 switch          : 2101 0001 ColdStart
0012 2001-01-01 09:01:02 switch          : 8500 0002 LinkDown <8>
0013 2001-01-01 09:01:03 switch          : 8500 0002 LinkDown <1>
0014 2001-01-01 09:01:13 switch          : 8500 0002 LinkDown <2>
0015 2001-01-01 09:08:09 switch          : 8500 0002 LinkUp <3>
switch#
```

The ID, error code, and message are displayed instead of "logid code message" in the above display format. For the message list, see [Section 6.5, "tlog List."](#)

6.2 mlog List

6.2.1 HE-type messages

HE-2102-0001 System initialize Error [xxxxxxxx]

Description: Device initialization processing failed.
xxxxxxxx: Error code
Business LAN communication is no longer possible.

Corrective action: Contact your Fujitsu certified service engineer.

HE-2102-0002 Fatal System error

Description: Device initialization processing failed.
Business LAN communication is no longer possible.

Corrective action: Contact your Fujitsu certified service engineer.

HE-4300-108 I2C-LIB .. IOCTL Error. ret = xxx

Description: An ioctl call failed.
xxx: The return value of the ioctl function
The I2C Dip Switch (PCA9559) cannot be accessed.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0118 I2C-LIB .. IOCTL Error. ret = xxx

Description: An ioctl call failed.
xxx: The return value of the ioctl function
The I2C Dip Switch (PCA9559) cannot be accessed.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0301 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to the EEPROM area without checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0302 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to the EEPROM area without checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0303 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to the EEPROM area without checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0304 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be read from the EEPROM area without checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0305 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0306 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.

Influence Data cannot be read from the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0307 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be read from the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0308 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to or read from the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0309 I2C-LIB .. M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be written to or read from the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0539 M24256 ioctl Error

Description: An ioctl call failed.
Data cannot be read from the EEPROM area with checksum.

Corrective action: Restart the system. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0610 I2C-LIB .. IOCTL Error. ret = xxx

Description: An ioctl call failed.
xxx: The return value of the ioctl function
The I2C IO port (PCA9555) cannot be accessed.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4300-0611 I2C-LIB .. IOCTL Error. ret = xxx

Description: An ioctl call failed.
xxx: The return value of the ioctl function
The I2C IO port (PCA9555) cannot be accessed.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-0004 IFM_LAN: bank select NG

Description: SMC91111 access failed.
Unable to communicate with the MMB.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-0005 IFM_LAN: bank select NG

Description: SMC91111 access failed.
 Unable to communicate with the MMB.

Corrective action: The hardware needs to be replaced. Contact your
 Fujitsu certified service engineer.

HE-4800-000d "IFM_LAN : R/W Diag err REG:Unit=X,Bank=Y,ID=ZZ"

Description: The initial diagnosis of the SMC91111 failed.
 X: Unit number
 Y: Register bank number
 ZZ: Register ID number
 Unable to communicate with the MMB.

Corrective action: The hardware needs to be replaced. Contact your
 Fujitsu certified service engineer.

HE-4800-000e IFM_LAN : LoopBack Diag err :Unit=X

Description: The initial diagnosis of the SMC91111 failed.
 X: Unit number

Corrective action: The hardware needs to be replaced. Contact your
 Fujitsu certified service engineer.

HE-4800-32 IFM_MAN: DIAG ERR UnitYY ZZZZ**

Description: The initial diagnosis of the BCM chip (register
 diagnosis) failed.
 YY: Unit number
 ZZZZ: Register name
 Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your
 Fujitsu certified service engineer.

HE-4800-3302 IFM_MAN >> DIAG ERR UnitZZ UNICAST TABLE

Description: The initial diagnosis of the BCM5671 (unicast table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3303 IFM_MAN >> DIAG ERR UnitZZ MULTICAST TABLE

Description: The initial diagnosis of the BCM5671 (multicast table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3304 IFM_MAN >> DIAG ERR UnitZZ VLAN TABLE

Description: The initial diagnosis of the BCM5671 (VLAN table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3402 IFM_MAN >> DIAG ERR UnitZZ L2_MC

Description: The initial diagnosis of the BCM5671 (L2 table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3403 IFM_MAN >> DIAG ERR UnitZZ PORT_TABLE

Description: The initial diagnosis of the BCM5673 (port table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3404 IFM_MAN >> DIAG ERR UnitZZ VLAN_TABLE

Description: The initial diagnosis of the BCM5673 (VLAN table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3405 IFM_MAN >> DIAG ERR UnitZZ STG_TABLE

Description: The initial diagnosis of the BCM5673 (STG table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3406 IFM_MAN >> DIAG ERR UnitZZ TRUNK_GROUP

Description: The initial diagnosis of the BCM5673 (trunk group table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3502 IFM_MAN >> DIAG ERR UnitZZ L2_TABLE

Description: The initial diagnosis of the BCM5692 (L2 table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3503 IFM_MAN >> DIAG ERR UnitZZ L2_MC

Description: The initial diagnosis of the BCM5692 (multicast table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3504 IFM_MAN >> DIAG ERR UnitZZ PORT_TABLE

Description: The initial diagnosis of the BCM5692 (port table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3505 IFM_MAN >> DIAG ERR UnitZZ VLAN_TABLE

Description: The initial diagnosis of the BCM5692 (VLAN table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3506 IFM_MAN >> DIAG ERR UnitZZ STG_TABLE

Description: The initial diagnosis of the BCM5692 (STG table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3507 IFM_MAN >> DIAG ERR UnitZZ TRUNK_GROUP

Description: The initial diagnosis of the BCM5692 (trunk group table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-3508 IFM_MAN >> DIAG ERR UnitZZ TRUNK_BITMAP

Description: The initial diagnosis of the BCM5692 (trunk bitmap table diagnosis) failed.

ZZ: Unit number

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-350a IFM_MAN >> DIAG ERR UnitXX PHY5464 YY ZZ

Description: The initial diagnosis of the BCM5464 (register diagnosis) failed.

XX: Unit number

YY: PHYID

ZZ: PHY address

Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-440* IFM_MAN >> DIAG ERR UnitXX X2

Description: A register diagnosis of the optical module failed.

XX: Unit number

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-450d "IFM_IPT: Link Timeout Error UnitXX, PortYY"

Description: Linkup at the time of IPT failed.

XX: Unit number

YY: Port number

Corrective action: Confirm the cable connection for the external loop test. If no improvement is observed, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-4601 IFM_IPT: LANC LPBK RX Timeout NG IDXX PortYY

Description: Receive processing in the loop test of the private LAN at the time of IPT failed.

XX: IPT ID number

YY: Port number

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-4602 IFM_IPT: BCM LPBK RX Timeout NG IDXX PortYY

Description: Receive processing in the loop test of the business LAN at the time of IPT failed.

XX: IPT ID number

YY: Port number

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-d002 IFM_INTR: BCM PCI Parity Error UnitXX

Description: A PCI parity error was detected in the BCM chip.
 XX: Unit number
 Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-d003 IFM_INTR: BCM PCI Fatal Error UnitXX

Description: A PCI fatal error was detected in the BCM chip.
 XX: Unit number
 Business LAN communication is impossible.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-e00a IFM_NET:LPBK DIAG ERR UnitXX PortYY PointZZ

Description: A loopback diagnosis of the BCM chip failed.
 XX: Unit number
 YY: Port number
 ZZ: Test number

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4800-e00b IFM_NET: X2 Module not installation. UnitXX PortYY

Description: A required optical module is not installed.
 XX: Unit number
 YY: Port number

Corrective action: Remove the GSWB from its cabinet, and confirm that it contains the optical module. If the problem persists, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4b00-0001 EFR .. Writing error generation.

Description: Writing to the expansion register failed.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

HE-4b00-0002 EFR .. Read error.

Description: An abnormality occurred in reading of extended registers.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified engineer.

HE-4b00-0003 EFR .. Hardware error.

Description: An abnormality occurred in diagnosis of extended registers.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified engineer.

6.2.2 SE-type messages**SE-1***-**** *******

Description: This is a configuration definition file error.

Sending and receiving across the business LAN is not possible.

Corrective action: Correct the configuration definition file, and restart the system. If the problem persists, contact your Fujitsu certified service engineer.

SE-21-**** *******

Description: An error occurred in device management.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-2d-******

Description: An error occurred in the SNMP trap daemon.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-43-******

Description: An error occurred in the I2C driver.

Communication across the business LAN and private LAN is not possible.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-47-******

Description: An error occurred in the LAN-C driver.

Communication across the private LAN is not possible.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-48-******

Description: An error occurred in the IFM driver.

Business LAN communication is impossible.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-4B-******

Description: An error occurred in the expansion register driver.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-61-.******

Description: An error occurred in the configuration definition processing block of the protocol used.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-62-.******

Description: An error occurred in the command processing block of the protocol used.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-63-.******

Description: An error occurred in configuration definition management.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-64-.******

Description: An error occurred in command management.
A command cannot be entered.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-65-.******

Description: An error occurred in IPMI management.
Communication with the MMB via the IPMI is not possible.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-66_******

Description: An error occurred in statistical information management.

Information cannot be obtained with SNMP.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-67_******

Description: An error occurred in port control.

An interface-related setting cannot be changed.

Corrective action: Retry. If the problem persists, collect logs and reset the device.
If the problem persists, contact your Fujitsu certified service engineer.

SE-68_******

Description: An error occurred in Telnet or SSH.

Telnet or SSH cannot be used.

Corrective action: Retry. If the problem persists, collect logs and reset the device.
If the problem persists, contact your Fujitsu certified service engineer.

SE-81_******

Description: An error occurred in a protocol (INET).

The GSWB host function is not working.

Corrective action: Retry. If the problem persists, collect logs and reset the device.
If the problem persists, contact your Fujitsu certified service engineer.

SE-82-.******

Description: An error occurred in a protocol (IGMP Snooping).
The IGMP snooping function is not working normally.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-83-.******

Description: An error occurred in a protocol (VLAN).
The VLAN settings cannot be enacted normally.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-84-.******

Description: An error occurred in a protocol (STP).
STP is not working normally.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

SE-85-.******

Description: An error occurred in port control.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

6.2.3 AL-type messages

AL-2101-0065 --0xYYYYYYYY MemoryPatrol:ECC error

Description: A correctable error occurred during memory patrol operation.

YYYYYYYY: Address of the error location

Corrective action: None required.

AL-2101-0066 --0xYYYYYYYY MemoryPatrol:RECOVER ECC error

Description: A correctable error occurred during memory patrol operation, and it recurred during recovery processing.

YYYYYYYY: Address of the error location

Corrective action: None required.

AL-2102-0102 NTP time set error.

Description: NTP time adjustment failed.

The device time became incorrect.

Corrective action: Execute the ping command to check whether communication with the NTP server is possible.

If no connection can be established, specify another NTP server. If the problem persists, contact your Fujitsu certified service engineer.

AL-2102-0200 System resource is insufficient.

Description: System memory is insufficient.

Device behavior became unstable.

Corrective action: Monitor the problem. If the problem occurs frequently, collect log information, and reset the device.

If the problem persists, contact your Fujitsu certified service engineer.

AL-2102-0300 time count write error [XX]

Description: The process of writing statistical values in EEPROM at 12-hour intervals failed.

XX: error code

Corrective action: Continue monitoring. If this error occurs frequently, collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

AL-2102-0301 time count write error [XX]

Description: The process of writing statistical values in EEPROM at 12-hour intervals failed.

XX: error code

Corrective action: Continue monitoring. If this error occurs frequently, collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

AL-4300-0209 I2C-LIB .. Write Count Warning data[xxx] = yyy

Description: This is a warning concerning the write count.

"xxx: management block number, yyy: write count"

The values after the data written to the EEPROM cannot be guaranteed.

Corrective action: The hardware needs to be replaced immediately. Contact your Fujitsu certified service engineer. If the problem persists, contact your Fujitsu certified service engineer.

AL-4300-0226 I2C-LIB .. Write Count Warning data[xxx] = yyy

- Description: This is a warning concerning the write count.
 "xxx: management block address, yyy: write count"
 The values after the data written to the EEPROM cannot be guaranteed.
- Corrective action: The hardware needs to be replaced immediately.
 Contact your Fujitsu certified service engineer.
 If the problem persists, contact your Fujitsu certified service engineer.

AL-4800-d001 IFM_SDK: L2 Table Full Unit=X

- Description: An L2 Table Full interrupt occurred.
 X: Unit number
 Unlearned frames cannot be learned.
- Corrective action: Check the network environment. If the problem persists, contact your Fujitsu certified service engineer.

AL-4800-e003 to e008 IFM_NET: tx alloc error tx dropp count XX

- Description: Acquisition of a transmission buffer failed.
 discarded transmission count
 A frame cannot be sent from the GSWB across the business LAN.
- Corrective action: The business LAN network status must be monitored. If the problem persists, contact your Fujitsu certified service engineer.

AL-4801-4001 Drop %lld trap entry

Description: %lld items of trap information were lost. However, issuing of traps has been resumed.

Any of the following traps was lost before being issued: linkUp, linkDown, topologyChange, newRoot, or AddressTableFull.

Corrective action: Check the network environment.

- If a port is repetitively toggling between linkUp and LinkDown, check the cable connection.
 - If newRoot has been issued many times, adjust the STP response.
 - If the trap send destinations include a nonexistent host, delete the host.
 - If the trap send destinations include a poorly responsive host, delete the host or use the v1 setting.
- If the problem persists, contact your Fujitsu certified service engineer.

AL-6800-2153 SSH server key not exist

Description: The SSH server was started when there was no key file for the SSH server.

Operation with the SSH client is not possible.

Corrective action: Generate the key file.

- Execute the SSH keygen command to generate an SSH server key.
- If the problem persists, contact your Fujitsu certified service engineer.

AL-8200-4066 Number of Multicast Table = ***

Description: Though the maximum number of multicast tables has been reached, an attempt was made to register a multicast table.
The target multicast frame in the same VLAN is flooded even if the IGMP snooping function is enabled.

Corrective action: Review the multicast network environment of the business LAN network. If the problem persists, contact your Fujitsu certified service engineer.

AL-8200-40a5 Join failed:vid=[*],maddr=[***],port=[*]:err=[*]**

Description: Since the system is in the L2 Table Full state, no attempt to register a multicast table is accepted.

Corrective action: Review the network environment of the business LAN network. If the problem persists, contact your Fujitsu certified service engineer.

6.2.4 PI-type messages**PI-8500-0011 PORT: Private-LAN port %d link status:%d speed:%d duplex:%d**

Description: The private LAN status was changed.

Corrective action: None required.

PI-8500-0012 PORT: Physical port %d link status:%d speed:%d duplex:%d

Description: The business LAN status was changed.

Corrective action: None required.

PI-8501-2020 PORT: ON RECV STP STABILIZATION

Description: The STP state was recognized as stable.

Corrective action: None required.

6.2.5 IF-type messages

IF-**_****** *********

Description: Firmware information message

Corrective action: None required.

6.2.6 DE-type message

DE-**_****** *********

Description: This is a debug message.

Corrective action: None required.

6.3 elog List

- | | |
|----------|---|
| 1 | (No message)
Description: A Machine Check Instruction exception occurred.
No device can be accessed.
Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer. |
| 2 | (No message)
Description: A Machine Check Data exception occurred.
No device can be accessed.
Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer. |
| 3 | (No message)
Description: An error occurred in DataStorage.
Recovery is impossible and the process cannot be continued.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |
| 4 | (No message)
Description: An error occurred in Instruction Storage.
Recovery is impossible and the process cannot be continued.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |

5 (No message)

Description: An Alignment exception occurred.
Recovery is impossible and the process cannot be continued.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

6 (No message)

Description: A program exception occurred.
Recovery is impossible and the process cannot be continued.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

9 (No message)

Description: A WatchDog timeout occurred.
Recovery is impossible and the process cannot be continued.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

10 (No message)

Description: DataTLBMiss occurred.
Recovery is impossible and the process cannot be continued.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

- 11 (No message)**
- Description: InstructionTLBMiss occurred.
- Recovery is impossible and the process cannot be continued.
- Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.
- 12 (No message)**
- Description: An uncorrectable ECC error occurred.
- Memory cannot be accessed.
- Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.
- 13 (No message)**
- Description: A PCI parity error interrupt occurred.
- Recovery is impossible and the process cannot be continued.
- Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.
- 14 (No message)**
- Description: A PCI system error interrupt occurred.
- Recovery is impossible and the process cannot be continued.
- Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.
- 16 BCM PCI Fatal Error**
- Description: A PCI fatal error interrupt occurred.
- Recovery is impossible and the process cannot be continued.
- Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

81 (No message)

Description: An initial diagnosis error (EEPROM) occurred.
Communication is impossible at the business LAN side.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

82 (No message)

Description: An initial diagnosis error (GPIO) occurred.
Communication is impossible at the business LAN side.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

83 (No message)

Description: An initial diagnosis error (BootFlash sub side) occurred.
Communication is impossible at the business LAN side.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

00b0 Reset Count Over

Description: A duplicated reboot occurred.

Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

00b1

Description: A panic occurred.

Corrective action: Collect log information, and reset the device. If this does not solve the problem, contact your Fujitsu certified service engineer.

00b2**Flash CRC Error**

Description: A CRC error occurred in the file system.

Corrective action: Reinstall the firmware in online operation. If the problem persists, the hardware needs to be replaced. Contact your Fujitsu certified engineer.

00c0**(No message)**

Description: A duplicated abort occurred.

Phenomenon An abort occurred during abort processing.
Recovery is impossible and the process cannot be continued.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

00d0**X2 Module detach**

Description: The optical module was removed while the GSWB was in operation.

Corrective action: Remove the GSWB from its cabinet, and check whether an optical module is mounted. If it is mounted, the hardware needs to be replaced. Contact your Fujitsu certified service engineer.

00f0**Error*******

Description: An IPL error occurred.

Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

4700**PrivateLAN 0 Diag Error**

Description: An abnormality occurred in diagnosis of private lan0.

Corrective action : The hardware needs to be replaced. Contact your Fujitsu certified service engineer.

-
- | | |
|-------------|---|
| 4701 | PrivateLAN 1 Diag Error
Description: An abnormality occurred in diagnosis of private lan1.
Corrective action: The hardware needs to be replaced. Contact your Fujitsu certified service engineer. |
| 4710 | PrivateLAN 0 Communication Timeout
Description: Communication is impossible in private lan0.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |
| 4711 | PrivateLAN 1 Communication Timeout
Description: Communication is impossible in private lan1.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |
| 4720 | PrivateLAN 0 Reset
Description: Private lan0 was reset.
Corrective action: None required. |
| 4721 | PrivateLAN 1 Reset
Description: Private lan1 was reset.
Corrective action: None required. |
| 6500 | PrivateLAN 0 IPMI Retry Error
Description: A communication problem occurred in private lan0.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |
| 6501 | PrivateLAN 1 IPMI Retry Error
Description: A communication problem occurred in private lan1.
Corrective action: Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer. |

9001	(No message)
Description:	An executed reset by the MMB was detected.
Corrective action:	None required.
9002	(No message)
Description:	The EEPROM was switched to the MMB side at GSWB startup.
Corrective action:	None required.
9003	(No message)
Description:	12C I/O port initialization error
Corrective action:	The hardware needs to be replaced. Contact your Fujitsu certified engineer.
9004	(No message)
Description:	12D Dipswitch read error
Corrective action:	The hardware needs to be replaced. Contact your Fujitsu certified engineer.
eeee	(No message)
Description:	An exception other than those described above occurred. Recovery is impossible and the process cannot be continued.
Corrective action:	Collect logs and reset the device. If the problem persists, contact your Fujitsu certified service engineer.

6.4 llog List

Enable

Description: The port blockage state was canceled.

Disable

Description: The port blockage state was set.

Port is down

Description: Communication through the port is no longer possible.

Port is up[10M,full]

Description: Communication through the port became possible (10 Mbps/full).

Port is up[10M,half]

Description: Communication through the port became possible (10 Mbps/half).

Port is up[100M,full]

Description: Communication through the port became possible (100 Mbps/full).

Port is up[100M,half]

Description: Communication through the port became possible (100 Mbps/half).

Port is up[1G,full]

Description: Communication through the port became possible (1 Gbps/full).

Port is up[10G,full]

Description: Communication through the port became possible (10 Gbps/full).

6.5 tlog List

ColdStart

Description:	Description: The device started normally after power-on.
Corrective action:	None required.

WarmStart

Description:	Description: The device started normally after a reset.
Corrective action:	Not required.

LinkDown<(1)>

Description:	Communication through the target port (1) has become impossible.
Corrective action:	Check the condition of port (1). If the problem persists, contact your Fujitsu certified service engineer.

LinkUp<(1)>

Description:	Communication through the target port (1) has become possible.
Corrective action:	Not required.

AuthenticastionFailure

Description:	An MIB request frame was received from a node with failed authentication.
Corrective action:	Refer to the device configuration definition subject to corrective action, and check whether the authentication data matches that on the monitoring device side. If the configuration definition is correct, an unauthorized node may be trying to get MIB access. If the problem persists, contact your Fujitsu certified service engineer.

NewRoot

- Description: There was a report that the device became a root bridge.
- Corrective action: If this message is output more than once, another device that was a root bridge may no longer be recognized by the device, such as because of power-off or a defective cable. If necessary, check for a network problem. If the problem persists, contact your Fujitsu certified service engineer.

TopologyChange

- Description: There was a report that the representative bridge of each branch line was changed (local machine <=> another machine).
- Corrective action: If this is a natural change arising from conditions such as the power-on sequence of bridge devices, there is no problem. Otherwise, this message indicates that an error may have occurred, such as a device error or defective cable. If necessary, check for a network problem. If the problem persists, contact your Fujitsu certified service engineer.

RisingAlarm<(1), (2), (3), (4), (5)>

Description: There was a report that the statistical value of the MIB subject to monitoring (alarmRisingThershold) exceeded the specified threshold.

- (1) alarmIndex: Index value for the alarm group
- (2) alarmVariable: OID value of the MIB subject to monitoring
- (3) alarmSampleType: absoluteValue(1) and deltaValue(2) that specify the monitoring method
- (4) alarmValue: Value of the MIB subject to monitoring
- (5) alarmRisingThreshold: Upper threshold value

Corrective action: Check the statistics of the target of supervision or monitoring.

FallingAlarm<(1), (2), (3), (4), (5)>

Description: There was a report that the statistical value of the MIB subject to monitoring (alarmFallingThershold) decreased below the specified threshold.

- (1) alarmIndex: Index value for the alarm group
- (2) alarmVariable: OID value of the MIB subject to monitoring
- (3) alarmSampleType: absoluteValue(1) and deltaValue(2) that specify the monitoring method
- (4) alarmValue: Value of the MIB subject to monitoring
- (5) alarmRisingThreshold: Upper threshold value

Corrective action: Check the statistics of the target of supervision or monitoring.

AddressTableFull

- Description: There was a report that the Layer 2 address table is full.
- Corrective action: Split the network. If the problem persists, contact your Fujitsu certified service engineer.

6.6 Screen Display Error Messages

50000 Not Logged in.

Description: Automatic logout occurred because of a timeout.

Corrective Action: Log in again.

Severity: Information

50001 Permission denied.

Description: You do not have the user privilege required for screen display.

Corrective Action: Log out, and then log in to an account with the user privilege required for screen display.

Severity: Error

50003 GSWB is 'Not-present'.

Description: The specified GSWB is not mounted.

Corrective Action: Select [System] → [System Status] to check whether the GSWB is mounted. If the GSWB is mounted, contact your Fujitsu certified service engineer.

Severity: Error

50004 Cannot open connection to GSWB.

Description: An error occurred during communication with the GSWB.

Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50005**Cannot close connection to GSWB.**

Description: An error occurred during communication with the GSWB.

Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50006**Cannot get GSWB configuration.**

Description: An error occurred during communication with the GSWB.

Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50007**Cannot set GSWB configuration.**

Description: An error occurred during communication with the GSWB.

Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50008**GSWB is busy. Please retry later.**

Description: Processing failed because the GSWB is being used by another user.

Corrective Action: Retry after the other user finishes using the GSWB.

Severity: Information

- 50009 GSWB command failed.**
- Description: An error occurred during communication with the GSWB.
- Corrective Action: Make sure that the GSWB status is Online, and reexecute. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error
-
- 50011 Specified file is NOT a GSWB Firmware.**
- Description: The specified file is not a GSWB firmware file.
- Corrective Action: Check whether you specified the correct file.
- Severity: Error
-
- 50012 Internal communication error.**
- Description: A communication error occurred.
- Corrective Action: Contact your Fujitsu certified service engineer.
- Severity: Error
-
- 50013 Not Logged in.**
- Description: Cookies could not be obtained.
- Corrective Action: Check the browser settings to see whether cookies are enabled.
- Severity: Information
-
- 50015 An error occurred while the configuration file is being restored.**
- Description: An error occurred during restoration of the configuration definition file.
- Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error

50016**The configuration file is not found.
Please upload the configuration file in advance.**

Description: Restore processing failed because the specified configuration definition file was not found in the GSWB.

Corrective Action: Upload the configuration definition file and then perform restoration.

Severity: Error

50019**GSWB is not ready.**

Description: The GSWB status is not Online.

Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50020**Internal communication error.**

Description: A communication error occurred.

Corrective Action: Retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Error

50024**The specified interface is 'Not-present'.**

Description: The specified interface number does not exist or is undefined.

Corrective Action: If "10 Gigabit" was specified, make sure that GSWB_XG is being used. If "port-channel" was specified, make sure that "port-channel" is defined.

Severity: Information

- 50025 The specified channel group is not defined.**
- Description: The specified channel group cannot be deleted because it has not been defined.
- Corrective Action: Confirm that the specified channel group has been defined.
- Severity: Information
-
- 50026 The 'SSH Server Key' generation has been completed successfully.**
- Description: An SSH key has been generated successfully.
- Corrective Action: No action is required.
- Severity: Information
-
- 50028 GSWB power status is 'Off'.**
- Description: The GSWB status is Standby.
- Corrective Action: To perform processing, turn on the GSWB.
- Severity: Information
-
- 50029 The SSH key generation process has already done.**
- Description: SSH key generation was canceled but an SSH has already been generated.
- Corrective Action: If the SSH key is unnecessary, delete it using the SSH Status window.
- Severity: Information
-
- 50031 The GSWB power status has already 'On'.**
- Description: The GSWB power is already on.
- Corrective Action: No action is required.
- Severity: Information

- 50036** **There is no partition.**
- Description: No items to be displayed exist because no partition is defined.
- Corrective Action: No action is required.
- Severity: Information
-
- 50038** **An error occurred while the GSWB firmware is being transported.**
- Description: A communication error occurred during firmware transfer.
- Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error
-
- 50039** **The GSWB power status has already 'Off'**
- Description: The GSWB power is already on.
- Corrective Action: No action is required.
- Severity: Information
-
- 50040** **The configuration file has been copied successfully.**
- Description: The configuration definition file has been copied successfully.
- Corrective Action: No action is required.
- Severity: Information
-
- 50041** **An error occurred while the configuration file is being copied.**
- Description: An error occurred during copying of the configuration definition file.
- Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error

- 50042 GSWB status is 'Not-present' or 'Power Off'.**
- Description: The specified GSWB is not mounted or is powered off.
- Corrective Action: Select [System] → [Status] to check whether the GSWB is mounted. If the GSWB is mounted, turn it on and then retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Information
-
- 50043 The specified VLAN ID does not exist.
You must define the VLAN in advance.**
- Description: A MAC address cannot be added because the specified VLAN is undefined.
- Corrective Action: To add the MAC address, define the VLAN in advance, or specify an already defined VLAN.
- Severity: Information
-
- 50044 IGMP VLAN status is 'Disable'.
You must configure the specified IGMP VLAN status as 'Enable' in advance.**
- Description: A MAC address cannot be added because the IGMP VLAN Status is set to Disable.
- Corrective Action: To add the MAC address, change the IGMP VLAN Status to Enable in advance.
- Severity: Information
-
- 50045 Specified file is NOT a GSWB configuration file.**
- Description: The specified file is not a GSWB configuration definition file.
- Corrective Action: Check whether you specified the correct file.
- Severity: Information

- 50046 The configuration file has been uploaded successfully.**
- Description: The configuration definition file has been uploaded successfully.
- Corrective Action: No action is required.
- Severity: Information
-
- 50047 An error occurred while the configuration file is being uploaded.**
- Description: An error occurred while the configuration definition file was being uploaded.
- Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error
-
- 50048 The configuration file has been saved successfully.**
- Description: The configuration definition file has been saved successfully.
- Corrective Action: No action is required.
- Severity: Information
-
- 50049 An error occurred while the configuration file is being saved.**
- Description: An error occurred while the configuration definition file was being saved.
- Corrective Action: Make sure that the GSWB status is Online, and retry the operation. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error

50050**The configuration file is not found.
Please save the configuration file in advance.**

Description: The configuration definition file has not been saved.
First save the configuration definition file.

Corrective Action: Save the configuration definition file and then
execute downloading.

Severity: Error

50051**The configuration file has been restored successfully.
The reboot of the GSWB is required for reflection of the
new configuration.**

Description: The configuration definition file has been restored
successfully. The GSWB needs to be rebooted to
apply the restored configuration definition file to the
GSWB operation.

Corrective Action: To apply the restored configuration definition file to
the GSWB operation, change the bank of the
configuration definition used to the restored
configuration definition and reboot the GSWB. The
GSWB need not be rebooted unless the restored
configuration definition file is applied to the GSWB
operation.

Severity: Information

50052**IGMP Snooping status is 'Disable'.
You must configure the specified IGMP Snooping status in
advance.**

Description: A Multicast Mac address cannot be added because
the IGMP Snooping status is set to Disable.

Corrective Action: To add the Multicast Mac address, change the IGMP
Snooping status to Enable in advance.

Severity: Information

50053 The copy, save, restoration, or update of the configuration file is in progress. Please retry later.

Description: An execution attempt was rejected because another user was performing configuration definition-related processing (Copy, Save, Restore, or Upload).

Corrective Action: Retry later after confirming that no other user is executing configuration definition-related processing.

Severity: Information

50055 GSWB firmware is being updated now.

Description: Another user is updating GSWB firmware.

Corrective Action: Wait until GSWB firmware updating by the other user is finished.

Severity: Information

50056 The specified VLAN does not exist.

Description: The specified VLAN is not defined.

Corrective Action: Make sure that the specified VLAN is defined.

Severity: Error

50057 The specified VLAN does not exist.

Description: The specified VLANs include at least one that is not defined.

Corrective Action: Make sure that the specified VLANs are all defined.

Severity: Error

50058 The specified entry has already been registered.

Description: The specified entry cannot be set because it has already been set in the GSWB.

Corrective Action: Confirm that the specified entry has been set in the GSWB.

Severity: Error

50059 The specified entry is not registered.

Description: The specified entry cannot be deleted because it is not set in the GSWB.

Corrective Action: Confirm that the specified entry is not set in the GSWB.

Severity: Error

50061 Source/Destination cannot be registered at the same port.

Description: The same interface cannot be specified for both the destination and source mirroring ports.

Corrective Action: Check the destination and source settings of the mirroring port.

Severity: Error

50069 IGMP multicast static address or IGMP Multicast router port entry has to be deleted before disabling status.

Description: The IGMP Snooping Status of the entire unit cannot be set to Disable because an IGMP MAC address or IGMP router port is registered.

Corrective Action: Check for IGMP MAC address entries and IGMP router ports. If MAC address entries or router ports exist, delete them all and then change the setting.

Severity: Error

50070 IGMP VLAN registration is full.

Description: IGMP Snooping can longer be set to Enable because IGMP Snooping is already registered for the maximum number of VLANs.

Corrective Action: If IGMP Snooping is enabled for unnecessary VLANs, disable it.

Severity: Error

50072	IGMP Multicast static address or IGMP Multicast router port, static MAC address entry of the specified channel-group exists. Therefore, the specified channel-group cannot be deleted.
Description:	The specified channel group cannot be deleted because an IGMP Multicast static address or IGMP Multicast router port, static MAC address is set for it.
Corrective Action:	Delete the IGMP Multicast static address or IGMP Multicast router port, static MAC address that are set for the channel group to be deleted.
Severity:	Error
50074	IGMP multicast static address or IGMP Multicast router port entry of the specified VLAN has to be deleted before disabling status.
Description:	The IGMP VLAN Snooping Status cannot be set to Disable because the IGMP MAC address or IGMP router port of the specified VLAN is registered.
Corrective Action:	Check for IGMP MAC address entries and IGMP VLAN router ports for the VLAN for which IGMP Snooping is to be set to Disable. If entries or router ports are found, delete them all.
Severity:	Error
50101	One of the following errors occurred. - The specified entry has already been registered. - The number of maximum registration was exceeded.
Description:	One of the following errors occurred: <ul style="list-style-type: none">- The specified entry has already been registered in the GSWB.- The specified entry cannot be added because the maximum allowable number of GSWB entries has already been set.
Corrective Action:	Check whether the specified entry has already been registered, and whether the maximum number has been reached.
Severity:	Error

50102**One of the following errors occurred.**

- **The specified entry has already been registered.**
- **The number of maximum registration was exceeded.**
- **The specified VLAN does not exist.**
- **The specified interface is not a member of the VLAN.**
- **MAC address table is full.**

Description: One of the following errors occurred:

- The specified entry has already been registered in the GSWB.
- The specified entry cannot be added because the maximum allowable number of GSWB entries has already been set.
- The specified VLAN is not defined.
- The specified interface is not a member of the specified VLAN.
- The MAC address table is full.

Corrective Action: Check for entries, the VLAN definition, and the MAC address table status.

Severity: Error

50103**One of the following errors occurred.**

- **The specified VLAN does not exist.**
- **The specified interface membership mode has to be 'Trunk'.**

Description: One of the following errors occurred:

- The specified VLAN is not defined.
- The VLAN membership mode of the specified interface is not Trunk.

Corrective Action: Check the VLAN definition.

Severity: Error

50104**One of the following errors occurred.**

- The interface has already been registered to a channel group.
- The master port has to be deleted at the last.
- The specified interface number has to be smaller than master-port's.
- The interface type (IOU, GigabitEthernet, 10GigabitEthernet) is mismatch.

Description:

One of the following errors occurred:

- The specified interface is registered in another channel group.
- The specified interface is a master port. The master port must be deleted lastly.
- The type of the interface to be added differs from that of the interface already registered in the specified channel group.

Corrective Action: Check the channel group settings.

Severity:

Error

50106**One of the following errors occurred.**

- The specified interface is not a member of the VLAN.
- IGMP Snooping status has to be 'Enable'.
- IGMP VLAN status for the specified VLAN has to be 'Enable'.

Description:

One of the following errors occurred:

- The specified interface is not a VLAN member.
- The IGMP Snooping status should be set to Enable but is not.
- The IGMP VLAN status of the specified VLAN should be set to Enable but is not.

Corrective Action: Check the VLAN definition and IGMP Snooping status.

Severity:

Error

- 50107** **One of the following errors occurred.**
- The specified entry has already been registered.
 - The number of maximum registration was exceeded.
 - The specified interface is not a member of the VLAN.
- Description: One of the following errors occurred:
- The specified entry is already registered in the GSWB.
 - No entry can be added because the maximum number of GSWB entries has already been reached.
 - The specified interface is not a VLAN member.
- Corrective Action: Check the VLAN definition and Static MAC address setting.
- Severity: Error
-
- 50153** **An error occurred during partition reconfiguration.**
- Description: The Partition Dependence setting was changed but could not be reflected in the GSWB setting.
- Corrective Action: Make sure that the GSWB status is Online, and reexecute. If the same error recurs, contact your Fujitsu certified service engineer.
- Severity: Error
-
- 50160** **The configuration file is not found.**
Please save the 'Running Configuration' in advance.
- Description: Copy processing cannot be continued because the GSWB configuration definition file has not been saved.
- Corrective Action: Save the configuration definition file in advance from the copy source GSWB.
- Severity: Information

50161**The GSWB#0 is not ready.**

Description: Copying was executed while the GSWB#0 was not Online.

Corrective Action: Confirm that the GSWB#0 status is Online and then reexecute copying. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Information

50162**The GSWB#1 is not ready.**

Description: Copying was executed while the GSWB#1 was not Online.

Corrective Action: Confirm that the GSWB#1 status is Online and then reexecute copying. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Information

50163**The GSWB#0 became not-ready.**

Description: The GSWB#0 status was changed from Online during copying.

Corrective Action: Confirm that the GSWB#0 status is Online and then reexecute copying. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Information

50164**The GSWB#1 became not-ready.**

Description: The GSWB#1 status was changed from Online during copying.

Corrective Action: Confirm that the GSWB#1 status is Online and then reexecute copying. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Information

50165

The GSWB#0 and the GSWB#1 are not ready.

Description: Copying was executed while the GSWB#0 and GSWB#1 were not Online.

Corrective Action: Confirm that the GSWB#0 status and GSWB#1 status are both Online and then reexecute copying. If the same error recurs, contact your Fujitsu certified service engineer.

Severity: Information

Appendix A List of Default Values

Refer to the tables below when a problem has occurred or you want to revert the settings back to their default during operation.

A.1 Default Values for GSWB

Table A.1 Default value list

Major category	Minor category	Setting item	Default value	Possible values	Remarks
Host		VLAN ID	1	1-4094	Only for defined VLANs
		Host Name	switch	Specify a comment to be added to the configuration definition file in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (- _ / # *).	
		IP Address	Blank	1-223.0-255.0-255.0-255	
		Subnet Mask	Blank	0-255.0-255.0-255.0-255	
		Default Gateway	Blank	1-223.0-255.0-255.0-255	
Upload Configuration		Upload Configuration File	config0	<ul style="list-style-type: none"> config0 config1 	
		Remote PC File		File path	
		Upload File Location (at CE privilege)	Upload from Remote PC	<ul style="list-style-type: none"> Upload from MMB Upload from Remote Upload from Remote PC + file path 	
Download Configuration		Download Configuration File	config0	<ul style="list-style-type: none"> config0 config1 	
Save Configuration		Save Configuration File	config0	<ul style="list-style-type: none"> config0 config1 	
		comment	None	Specify a comment to be added to the configuration definition file in up to 63 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols (space characters ! " # \$ % & ' () * + ' - . / : ; < = > @ [\] ^ _ ` { } ~).	? cannot be specified.
Restore Configuration		Restore Configuration File	config0	<ul style="list-style-type: none"> config0 config1 	
Active Image Change		Configuration File		<ul style="list-style-type: none"> config0 config1 	

Appendix A List of Default Values

Major category	Minor category	Setting item	Default value	Possible values	Remarks
Error log		Log Type	Normal	<ul style="list-style-type: none"> Normal Detail 	
		Sort by Event	Old	<ul style="list-style-type: none"> Old New 	
Line log		Sort by Event	Old	<ul style="list-style-type: none"> Old New 	
Message log		Sort by Event	Old	<ul style="list-style-type: none"> Old New 	
Trap log		Sort by Event	Old	<ul style="list-style-type: none"> Old New 	
Log Setting		Status	Enable	<ul style="list-style-type: none"> Enable Disable 	
		Level	Info	<ul style="list-style-type: none"> Debug Info Notice Warning Error Critical Alert Emergency 	
		Forward IP Address	Blank	1-223. 0-255. 0-255.0-255	
SNMP	SNMP Community	Location	none	Up to 64 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols '_-@.'	
		Contact	none	Up to 64 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols '_-@.'	
		IP Address	Blank	1-223. 0-255. 0-255. 0-255	SNMP host setting. Up to 8 entries can be added.
		Community String		Up to 20 alphanumeric characters (0 to 9, a to z, A to Z)	
		Access Mode		<ul style="list-style-type: none"> Read-Write Read-Only 	
		SNMP Version		<ul style="list-style-type: none"> 1 2 	
	SNMP v3 Configuration	Engine ID String	0x0000000000000000	Character string representing a hexadecimal 10 to 24 digit-number (0 to 9, a to f, A to F)	No need to set when SNMP v3 is not used
		User Name	Blank	4 to 16 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols '_-'	Up to 8 users can be registered.
		Access Mode		<ul style="list-style-type: none"> Read-Write Read-Only 	
		Password		8 to 16 alphanumeric characters (0 to 9, a to z, A to Z)	Authentication password
		Passphrase		8 to 16 alphanumeric characters (0 to 9, a to z, A to Z)	Packet encryption keyword

Major category	Minor category	Setting item	Default value	Possible values	Remarks
SNMP		Authentication		<ul style="list-style-type: none"> • noauth • auth • priv • md5 • sha 	
	SNMP Trap	IP Address	Blank	1-223. 0-255. 0-255. 0-255	Up to 8 entries can be added.
		SNMP Version		<ul style="list-style-type: none"> • 1 • 2 • 3 	
		Community String		Up to 20 alphanumeric characters (0 to 9, a to z, A to Z)	If SNMP version 1 or 2 is specified:
		User Name		4 to 16 alphanumeric characters (0 to 9, a to z, A to Z) and/or symbols '-_'	If SNMP version 3 is specified:
		Authentication		<ul style="list-style-type: none"> • noauth • auth • priv • md5 • sha 	If SNMP version 3 is specified:
		Password		8 to 16 alphanumeric characters (0 to 9, a to z, A to Z)	
		Passphrase		8 to 16 alphanumeric characters (0 to 9, a to z, A to Z)	
Telnet		Status	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Timeout	300 (sec)	0-900 (sec)	If 0 sec is specified, no timeout occurs.
SSH Status		SSH Status	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Timeout	300 (sec)	0-900 (sec)	If 0 sec is specified, no timeout occurs.
SSH Key Generate		SSH Protocol	RSA1	<ul style="list-style-type: none"> • RSA • RSA1 • DSA 	
		Key	1024	<ul style="list-style-type: none"> • 1024 • 2048 	
Remote Access		Protocol		<ul style="list-style-type: none"> • All • Telnet • SSH 	Up to 100 entries can be added.
		IP Address		<ul style="list-style-type: none"> • All • Host • Network • 0-255. 0-255. 0-255. 0-255 	
		Subnet Mask		0-255. 0-255. 0-255. 0-255	
Port Configuration	IOU (Back Panel Port)	Status	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
	External (Front Panel Port)	Status	Enable	<ul style="list-style-type: none"> • Enable • Disable 	
		Speed/Duplex	Auto	<ul style="list-style-type: none"> • Auto • 10M/Full • 10M/Half • 100M/Full • 100M/Half 	
	Port Channel	Status	Enable	<ul style="list-style-type: none"> • Enabled • Disabled 	

Appendix A List of Default Values

Major category	Minor category	Setting item	Default value	Possible values	Remarks
Port Mirroring	Destination Port	Mirroring Status	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Target		<ul style="list-style-type: none"> • IOU (00 - 71) • Gigabit (1 - 8) • 10Gigabit (1 - 2) 	
	Source Port	Source Port	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Direction		<ul style="list-style-type: none"> • Rx • Tx • Both 	
Port Statistics		Interface	Gigabit 1	<ul style="list-style-type: none"> • IOU (0 0 - 7 1) • Gigabit (1 - 8) • 10 Gigabit (1 - 2) • port-channel(1-7) 	
Flow Control		Flow Control Status Receive	Off	<ul style="list-style-type: none"> • On • Off 	
		Flow Control Status Send	Off	<ul style="list-style-type: none"> • On • Off 	
Rate Control (Broadcast/ Multicast/DLF Storm Control)		Broadcast	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Broadcast Threshold		<ul style="list-style-type: none"> • 1-14880 (10M) • 1-148800 (100M) • 1-262143 (1000M) 	
		Multicast	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		Multicast Threshold		<ul style="list-style-type: none"> • 1-14880 (10M) • 1-148800 (100M) • 1-262143 (1000M) 	
		DLF	Disable	<ul style="list-style-type: none"> • Enable • Disable 	
		DLF Threshold		<ul style="list-style-type: none"> • 1-14880 (10M) • 1-148800 (100M) • 1-262143 (1000M) 	
Jumbo Frame		Jumbo Frame Status	Disable	<ul style="list-style-type: none"> • Enable • Disable 	

Major category	Minor category	Setting item	Default value	Possible values	Remarks
MAC Bridge	Aging Time	Aging Time	300 (sec)	<ul style="list-style-type: none"> 0 10-1,000,000 (sec) 	If 0 is specified, no dynamic entry is deleted from the MAC address table.
	Static MAC Address	MAC Address		0x00-0xFF	Only for unicast addresses. Up to 128 entries can be added.
		VLAN ID		1-4094	
		Action	Forward	<ul style="list-style-type: none"> Forward Discard 	
		Interface	IOU 0 0	<ul style="list-style-type: none"> IOU (0 0 - 7 1) Gigabit (1 - 8) 10 Gigabit (1 - 2) port-channel (1-7) 	
	MAC Address Table	All			
		Chip Number	1	1-4	
		Interface	IOU 0 0	<ul style="list-style-type: none"> IOU (0 0 - 7 1) Gigabit (1 - 8) 10 Gigabit (1 - 2) port-channel (1-7) 	
		VLAN ID		1-4094	
		MAC Address		0x00-0xFF	
		Status	Static	<ul style="list-style-type: none"> Static Dynamic 	
Spanning Tree	Global Setting	Spanning Tree Protocol	Enable	<ul style="list-style-type: none"> Enable Disable 	
		BPDU forwarding	Disable	<ul style="list-style-type: none"> Enable Disable 	A modification can be made only when [Spanning Tree Protocol] is [Disable].
		Bridge Priority	32768	0 - 65535	
		Max Age	20 (sec)	6 - 40 (sec)	
		Hello Time	2 (sec)	1 - 10 (sec)	
		Forward Time	15 (sec)	4 - 30 (sec)	
	Interface Setting	Port Priority	128	0 - 255	
		Cost	Auto	Auto, 1 - 65535	
		Spanning Tree	Internal port: Disable External port-channel: Enable	<ul style="list-style-type: none"> Enable Disable 	
	STP Status	Target	Bridge	<ul style="list-style-type: none"> Bridge Interface 	
		Interface		<ul style="list-style-type: none"> IOU (0 0 - 7 1) Gigabit (1 - 8) 10 Gigabit (1 - 2) port-channel (1-7) 	
	STP Statistics	Target	Bridge	<ul style="list-style-type: none"> Bridge Interface 	
		Interface		<ul style="list-style-type: none"> IOU (0 0 - 7 1) Gigabit (1 - 8) 10 Gigabit (1 - 2) port-channel (1-7) 	

Appendix A List of Default Values

Major category	Minor category	Setting item	Default value	Possible values	Remarks
VLAN	VLAN ID Select	VLAN ID	New	<ul style="list-style-type: none"> New 1-4094 	
	VLAN Configuration	VLAN ID		2-4094	When a VLAN is created
		VLAN Name		Up to 32 alphanumeric characters (0 to 9, a to z, A to Z)	Optional
		VLAN Config	None	<ul style="list-style-type: none"> None Access Tag 	Always None for a new VLAN
	Native VLAN	VLAN ID	1	1-4094	If Tag VLAN is set:
Priority Queuing	Default Priority	Priority	0	0-7	Priority assignment to untagged frames
	CoS Queue Map		List of CoS Queue IDs 0 to 3 for User Priorities 0 to 7		
Channel Group (Link Aggregation)	Channel Group	Channel Group		1-7	
		Operation		<ul style="list-style-type: none"> Add Delete 	
		Member Port		<ul style="list-style-type: none"> Gigabit 10Gigabit 	If an IOU is specified, specify this parameter through the GSWB CLI.
		Load Balance	src-mac	<ul style="list-style-type: none"> src-mac dst-mac src-dst-mac src-ip dst-ip src-dst-ip 	Load Balance is set to src-mac by default when the channel group is defined.
IGMP Snooping	Global Setting	IGMP Snooping	Disable	<ul style="list-style-type: none"> Enable Disable 	IGMP snooping enabled or disabled for the entire unit
	VLAN Setting	VLAN ID	1	1-4094	Specify the interface (VLAN) that uses IGMP
		Status	Disable	<ul style="list-style-type: none"> Enable Disable 	Used to enable or disable IGMP Snooping for each VLAN. IGMP Snooping can be enabled on up to 110 VLANs.
		Multicast Router Port		<ul style="list-style-type: none"> IOU Gigabit 10Gigabit port-channel 	
	MAC Address	VID		1-4094	Up to 252 entries can be added.
		MAC Address		0x00 - 0xFF	Only multicast addresses
		Interface	IOU 0 0	<ul style="list-style-type: none"> IOU (0 0 - 7 1) Gigabit (1 -8) 10 Gigabit (1 - 2) port-channel (1-7) 	
Partition		Partition Dependence	Off	<ul style="list-style-type: none"> On Off 	

Major category	Minor category	Setting item	Default value	Possible values	Remarks
Power Control		Power Supply		<ul style="list-style-type: none"> On Off 	
Reset		Reset	Do not perform initial diagnosis	<ul style="list-style-type: none"> Perform initial diagnosis Do not perform initial diagnosis 	
Configuration Copy		Select the direction of copy		<ul style="list-style-type: none"> Copy from GSWB#0 to GSWB#1 Copy from GSWB#1 to GSWB#0 	Available only when two GSWB units are mounted
		Select the configuration file ID		<ul style="list-style-type: none"> config0 config1 	"configuration copy" is saved as the comment.

Appendix B Status Confirmation from LED

PRIMEQUEST has a function for indicating the power-on or off state of each component, whether an error exists, and the physical location of such an error by using LEDs. More detailed state information on each component can be confirmed by using the MMB Web-UI.

When the resident power supply unit is turned on to supply power to components, the Alarm LEDs for all the components go on. This is not indicative of a fault or error. When the components are verified as being normal, the Alarm LEDs go off.

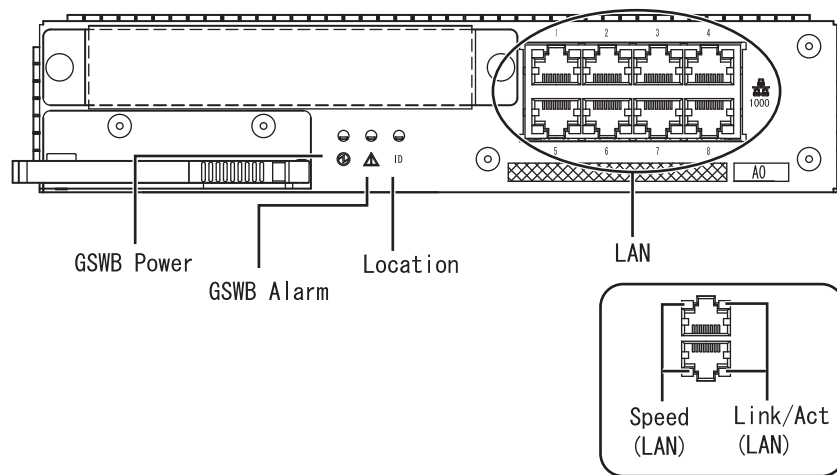


Figure B.1 LED display of the GSWB

The GSWB is equipped with the following LEDs:

- **Power-LED (Green)**

Indicates the power state within the GSWB or indicates that hot swapping of the GSWB is being performed. Also, when this LED is off, hot swapping (hot removal) of the GSWB can be performed.

- **Alarm-LED (Orange)**

Indicates whether an error has occurred in a component.

- **Location-LED (Blue)**

Indicates the mounting location of the component. This LED includes a display function for assisting hot swapping work. The terminal operator can identify the GSWB location by specifying the LED to blink or go on.

● LAN (Green/Orange)

- Link/Act

Indicates the operation status of the GSWB.

- Speed

Indicates the data transfer speed.

Table B.1 LED list (PRIMEQUEST)

Board, component	LED	Color	Number	State	Meaning
GSWB	GSWB Power	green	1	On	48V supplied in the GSWB
				Blinking	Hot swapping being performed
	GSWB Alarm	orange	1	On	An error in the GSWB
	Location	blue	1	On	A component identified
				Blinking	A component identified
LAN 1000BASE-T	Link/Act (*1)	green/ orange	1/LAN port	Off	Network disconnected
				green On	Network connected
				green Blinking	Data being transferred
				orange On	Port blocked by STP
	Speed	green/ orange	1/LAN port	Off	Operation being performed at 10 Mbps
				orange On	Operation being performed at 100 Mbps
				green On	Operation being performed at 1000 Mbps

(*1) When port_disable is instructed from CLI, the orange LED is off.

Glossary

ACS (AC Section)

AC power input section

ASIC (Application Specific Integrated Circuit)

Integrated circuit (IC) designed and manufactured for specific applications

API (Application Program Interface)

A set of instructions and functions used for developing operating systems and middleware

BIOS (Basic Input Output System)

Part of the operating system (OS) function. The BIOS is the system that controls input/output to devices. For the PRIMEQUEST-series machine, BIOS is a general term for PAL, SAL, and EFI.

BMC (Baseboard Management Controller)

The BMC is a system management controller that continuously monitors the system for serious hardware errors and notifies the OS of such errors.

BMM (BMC Module)

Board on which legacy I/O ports such as BMC, VGA, USB, and COM ports are mounted

BP (Backplane)

The backplane is connected to SBs, IO Units, and other devices. Together with the XAI and XDI, it constitutes the memory and I/O interconnect (crossbar).

Business LAN

LAN used to configure a user business system

CLI (Command Line Interface)

This interface with UNIX or DOS allows the user to enter commands and optional arguments to communicate with the OS.

COM Port (Communication Port)

RS-232C serial port for PC/AT compatible machines. A COM port is also called an "RS-232C port." Most PC/AT compatible machines each have two COM ports, which are often used to connect a modem, terminal adapter, or scanner. Most of these ports use D-Sub 25-pin or D-Sub 9-pin connectors. A COM port enables an interface with the OS.

CPCB (Clock and PCI_Box Control Board)

Board equipped with a system clock oscillator and a PCI_Box control interface

Crossbar

This concept covers the address crossbar and data crossbar that transfer data and control the data transfer between SBs and IO Units. Memory and I/O interconnect has the same meaning as crossbar.

DDR2 (Double Data Rate 2)

Standards for the next generation of memory that operates at higher speeds and consumes less power than conventional DDR memory

DIMM (Dual Inline Memory Module)

This compact memory module has pins on both sides and is mainly used in notebook PCs.

DVD-ROM (Digital Versatile Disc-Read-Only Memory)

Digital format for high-volume storage of data on optical disks

ECC (Error Checking Correction)

Error correction code or a method of using the error correction code to check for and correct errors

EFI (Extensible Firmware Interface)

Specifications for an interface between an OS and firmware. Instead of the BIOS, EFI is used for hardware control.

FC (Fibre Channel)

One of the serial interface standards. The Fibre Channel standard uses fibre cables as the transmission medium.

Firmware

Built-in software for basic hardware control

FWH (Firmware Hub)

LSI device from Intel Corporation. FWH is flash memory that stores SAL (BIOS). The PRIMEQUEST-series machine uses two types of FWH: one type is mounted on an SB and the other is mounted in an IO Unit.

GAC (Global Address Controller)

One of the ASICs developed by Fujitsu for the PRIMEQUEST-series machine

GbE (Gigabit Ethernet)

Ethernet standards for high-speed communication of up to 1 Gbps

GDS

Abbreviation for PRIMECLUSTER GDS

GDX (Global Data Xbar)

One of the ASICs developed by Fujitsu for the PRIMEQUEST-series machine

GLS

Abbreviation for PRIMECLUSTER GLS

GSWB (Gigabit Switch Board)

Board with a switching hub function and a connector that receives Gigabit Ethernet interface output from an IO Unit via the BP and outputs it to a destination outside the cabinet

HBA

Abbreviation for a host bus adapter

HDD (Hard Disk Drive)

Device that reads a hard disk. HDD may also be an abbreviation for the hard disk itself.

Hot Plug

Method of replacing components while power is on

HTTP (Hypertext Transfer Protocol)

Protocol used by Web servers and clients for data transmission

I2C (Inter Integrated Circuit)

Protocol used for high-speed communication between integrated circuits (ICs)

IA (Intel Architecture)

Generic term for the basic design (architecture) of Intel's microprocessors

IFT (Instruction Fetch)

Mechanism for reading instructions stored in memory

IHV (Independent Hardware Vendor)

This hardware provider has no special relationship with a particular hardware or OS maker.

IO Unit

Input/Output control unit that contains PCI card slot, HDD, SCSI controller, GbE controller, and other I/O interfaces

IP (Internet Protocol Address)

Identification number assigned to each computer connected to an IP network, such as the Internet and intranets

IPMI (Intelligent Platform Management Interface)

Standardized interface specifications established so that SNMP and server management software can monitor server hardware independently of specific hardware systems and OSs

ISV (Independent Software Vendor)

This application software provider has no special relationship with a particular hardware or OS maker.

KVM (KVM interface unit)

Unit used to select the USB interface for keyboard and mouse, or the VGA interface, for external output from a partition

LAN (Local Area Network)

Using optical fibre, for example, this network allows data to be transferred among computers and printers connected in a facility.

LDAP (Lightweight Directory Access Protocol)

Protocol used to access directory databases in a TCP/IP network, such as the Internet and intranets

LDX (Local Data Xbar)

One of the ASICs developed by Fujitsu for the PRIMEQUEST-series machine

LED

Abbreviation for a light emitting diode

MAC address (Media Access**Control Address)**

Unique address assigned to each network interface device, switch, or router mounted on a network interface card (NIC) or motherboard

Management LAN

This LAN connects the MMB to partitions and to LANs outside the cabinet so that the PRIMEQUEST system can be managed.

MIB (Management Information Base)

Information released by a network device managed by SNMP in order to post the device status to an external destination

Middleware

Software that runs under an OS and provides application software with more advanced and detailed functions than the OS. It is positioned between the OS and application software in terms of its characteristics.

MMB (Management Board)

This server management board is a system control unit whose tasks include control and monitoring of cabinet hardware, partition management, and system initialization.

NIC (Network Interface Controller)

Hardware that supports network functions

NTP (Network Time Protocol)

Standard time information protocol used on the Internet. Highly precise time information with consideration of line speeds and load changes in paths can be obtained with this protocol.

PAL (Physical Abstract Layer)

Firmware that provides platform initialization and operating system boot functions

Partition

System equipped with the functions of a processing unit. Each partition contains software resources such as an OS and applications as well as hardware resources such as SBs and IO Units.

PCI_Box

Device used for PCI slot expansion

PCI Hot Plug

Technology that enables PCI cards to be mounted and removed while the system is operating

PCI (Peripheral Component Interconnect)

Bus architecture established by PCI SIG for connecting PC components

PCIU (PCI Unit)

Unit that is mounted in a PCI_Box

Platform

OS type or environment that is the basis for operation of application software

POST (Power-On Self Test)

Hardware test that is automatically run when the computer is powered on

Private LAN

LAN used for internal control, under which firmware programs installed on hardware components communicate with one another. MMB firmware, GSWB firmware, and BMC firmware installed on IO Units can use a private LAN for communication with one another. OSs and applications cannot use a private LAN.

PSA (PRIMEQUEST Server Agent)

Software that performs hardware error monitoring and configuration management over PRIMEQUEST partitions

PSU (Power Supply Unit)

Component that converts AC voltage to DC voltage as a DC power supply

RAID (Redundant Array of Independent Disks)

Technology that increases reliability and processing speeds by using multiple hard disks as a single disk

REMCS (Remote Customer Support System)

Fujitsu's remote customer support service

Reserved SB

Standby SB reserved for possible failures

RHEL (Red Hat Enterprise Linux)

Linux distribution released by Red Hat, Inc.

SAF-TE

Abbreviation for a SCSI accessed fault-tolerant enclosure

SAL (System Abstraction Layer)

Firmware that supports processor initialization and error recovery functions

SAN (Storage Area Network)

Dedicated network for connections between a server and storage devices

SB (System Board)

Board on which a CPU and memory are mounted

SCSI (Small Computer System

Interface)

Standards for connections between PCs and peripherals. SCSI was established by the American Standards Association.

SDRAM (Synchronous DRAM)

Memory standard for access speeds that are higher than those of DRAM

SEL (System Event Log)

Information on the processing parameters, processing, and processing results logged during hardware and software operations

SERDES (Serializer Deserializer)

Parallel-to-serial converter (from low speeds to high speeds)

SIRMS (Software Product Information Collection for Remote Maintenance Support)

Software that collects configuration information on software installed in PRIMEQUEST partitions

S.M.A.R.T. (Self-Monitoring Analysis Reporting Technology)

Function that enables a hard disk to monitor its own conditions and notify the BIOS of any error detected

SMP (Symmetric Multiple Processor)

Parallel processing system in which all processors work together through common memory resources

SNMP (Simple Network Management Protocol)

TCP/IP-compliant protocol for managing devices in a network

SSL (Secure Sockets Layer)

Protocol under which information is encrypted for transmission. SSL was developed by Netscape Communications Corp.

System Mirror

Mechanism for duplicating memory, system interconnects, and internal hardware components of chipsets so that operation can continue with another component in the event that one of duplicated components fails

Systemwalker

One of Fujitsu's middleware products. Systemwalker is integrated operation management software.

Telnet

Protocol or standard method for remote control of computers connected to a TCP/IP network, such as the Internet and intranets

UPS (Uninterruptible Power Supply)

Power supply unit that stores power and protects against possible damage and loss of computer data from a momentary voltage drop or unexpected power failure

USB (Universal Serial Bus)

One of the standards on connecting peripheral devices such as keyboards and mice

VLAN (Virtual LAN)

Function that logically groups the ports of one switching hub so each group works as an independent LAN

Web UI (Web User Interface)

Interface that uses a Web browser for displaying information to users and for user operations

XAI (Xbar Address Interconnect Board)

Board that transfers address information and controls the information transfer between SBs and IO Unit boards

XDI (Xbar Data Interconnect Board)

Board that transfers data and controls the data transfer between SBs and IO Unit boards

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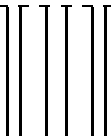
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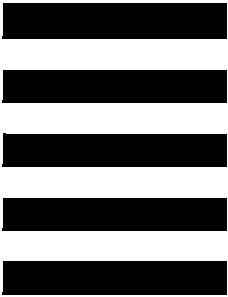


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