XG700

User's Guide

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Preface

You have purchased the XG700, a compact, 12-port 10 Gigabit Ethernet layer 2 switch that achieves unsurpassed standards of high throughput and low-latency performance.
This guide describes the XG700 functions, installation procedures, configuration operations, and maintenance procedures and should be read and understood before you start using your XG700.

June, 2006

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About this Manual

This section describes target readers, contents, notations, etc. of this guide.

Target Readers and Required Knowledge

This guide has been written for administrators, who are in charge of network construction, maintenance, and management.
To use this guide, the following knowledge is required.
- Basic knowledge of networks, the Internet, and intranet
- Basic knowledge of system security
  This guide omits explanations of network protocol terms.

Contents

This guide to the XG700 is composed of the following chapters.

Chapter 1. Features and Functions
Describes the features and functions.

Chapter 2. Using the CLI
Describes operating environment of CLI and how to operate CLI.

Chapter 3. Installation
Describes the necessary installation procedures.

Chapter 4. Functions and Procedures for Setting Functions
Describes how to use the console screen.

Chapter 5. Command References
Describes how to use the commands.

Chapter 6. Managing the XG700
Describes the management of the XG700.

Chapter 7. Troubleshooting
Describes how to solve problems in the XG700.

Appendix A. Event Logs
Describes the contents of messages reported by the XG700 and actions to be taken for each message.

Appendix B. SNMP Traps
Describes message format of SNMP traps.

Appendix C. List of MIBs
Describes the list of MIBs supported by the SNMP agent

Related Manuals

The following are XG700 related manuals. Use these manuals as necessary.
- XG700 Series Hardware Guide
  Describes the hardware of the XG700.

Symbols Used in This Guide

The symbols used in this guide have the following meanings.

Point
indicates useful information related to using the XG700.

Note
indicates precautions which must be taken when using the XG700.

Hint
indicates supplementary information.

Information
indicates related matters such as operation procedures, etc.

Contents

Chapter 1 Features and Functions

This chapter describes the features and functions of the XG700.

1.1 Features

The XG700 is a compact, 12-port 10 Gigabit Ethernet Layer 2 switch, which provides the world's highest level throughput and least delay.

Special features of the XG700 are shown below:

Item	Function	Features
Basic Switch Functions	Throughput	240Gbit/s
	Latency	450ns
	Switching mode	Either store-and-forward or cut-through is selectable.
	MAC address learning table size	8192 entries
	MAC address learning	SVL (Shared VLAN Learning), IVL (Independent VLAN Learning), user selectable.
	Jumbo frame support	Up to 15KB.
	Flow control	IEEE802.3x compliant pause frame control. Possible to specify flow control options for each port: send/receive or receive only.
	Storm control	Detects the broadcast storm status to prevent the traffic from overflowing the network and avoid degrading overall system performance.
	Port security	Possible to restrict port access based on a source MAC address.
	Ingress rate control	Supports by-port ingress rate control.
	Port mirroring	Possible to monitor the incoming/outgoing traffic by port mirroring.
	Link pass through	Possible to synchronize the link state of a monitored port with the link state of a single or multiple ports.
Scalability	Link aggregation (Static and LACP)	Possible to increase bandwidth and redundancy. (Up to 6 ports for each link). Also supports IEE802.3ad LACP.
	Uplink Filter	Filtering multicast, broadcast and unlearned unicast frames from leaf nodes to uplink. Possible to configure fat tree using several XG series.
Redundancy	IEEE802.1D STP, IEEE802.1w RSTP	Possible to make redundant and loop-free network using Rapid Spanning Tree Protocol (upward compatible with Spanning Tree Protocol).
VLAN support	IEEE802.1Q VLAN	Max. 128 groups.
	Filtering	Ingress/egress filtering
	Multiple VLAN	Possible to create multiple Tag-based VLAN, with user VLAN tag identifier.
QoS	IEEE802.1p QoS DiffServ	Supports output queue priority control based on VLAN priority or DSCP (DiffServ Code Point) of IPv4/IPv6.
Multi-cast support	IGMP snooping	Prevents unnecessary forwarding of multicast traffic to ports to reduce unnecessary multicast traffic.
Network Management	Traffic statistics	Possible to analyze traffic and errors, using traffic statistics.
	SNMP agent	Can be used in conjunction with an SNMP manager, supporting MIBs, including Standard MIB, Bridge MIB, and RMON MIB.
Operation management	Console by serial/management LAN	The security of the XG700 is maintained from the serial interface or dedicated management LAN interface that is independent from the 10 Gigabit ports.
	CLI	Allows the user to provide environment settings and operation management using command line interface (CLI).

Chapter 2 Using the CLI

This chapter describes how to use the command line interface (CLI) to operate the XG700.

2.1 Overview of the CLI

This section describes how to use the command line interface (CLI) for the XG Series.

2.1.1 Operating Environment for CLI

There are two ways to access the XG700 to run commands. Up to 4 terminal sessions can access the XG700 concurrently.

● Serial connection
Connect to the serial port of the XG700 using RS232C cable.
The available terminal type is VT100.
When initially connecting a terminal to the XG700, configure the serial port on the client side as shown below.

Item	Setting value
Baud rate	9600 bps (can be changed)
Character size	8 bit
Parity	None
Stop bits	1 bit
Flow control	None
Emulation	VT100
Character set	ASCII
Line feed code	Transmission: CR (carriage return) only Reception: LF is added

The baud rate can be changed to one of 9600, 19200, 38400 and 57600 (bps) using the "baud-rate" command.

● Remote connection via management LAN port
Connect a terminal to the management LAN port of the XG700 using a telnet client (TCP port of 23 is used for the default telnet connection).
The following tables list the factory defaults.

Management LAN Interface initial settings

Item	Setting value
IP address	None (must be set when using the management LAN)
Subnet address	None (must be set when using the management LAN)

Telnet server initial settings

Item	Setting value
Use telnet	Disable (can be changed)
Port number	23(TCP)
Emulation	VT100/VT200/xterm
BackSpace key	Delete
Character set	ASCII

To use the remote connection via management LAN port, use the "management-lan ip" command to configure the management LAN port for the XG700 and use the "telnet-server" command to enable the telnet service.
VT100, VT200, and xterm can be used as a terminal.

2.1.2 Command Modes and Mode Switching

The following table shows a hierarchy of command modes and mode switching.

Command Modes and Prompt Text (host name for XG700: xg)	Outline
Operator class	The initial-level operating mode entered upon logging into the system.
Operator EXEC mode Prompt: `xg>`	Allows access to commands that have no effect on the switch operations. With the XG700, this mode is mainly used to view its status. The prompt changes to "xg>".
Administrator class	To enter this level, use the "enable" command in the operator class or type the administrator's authentication password.
Administrator EXEC mode Prompt: `xg#`	Allows users to perform operations that are related to the system management of the XG700, such as date/time setting and firmware update, in addition to those operations that are performed in the operator EXEC mode. The prompt changes to "xg#".
Global configuration mode Prompt: `xg(config)#`	To switch to the global configuration mode, enter the "configure terminal" command in the administrator EXEC mode. This mode allows the user to define the environment settings for the XG700 that are to be saved in a configuration file. The prompt changes to "xg(config)#".
Interface edit mode Prompt: `xg(config-if)#` or `xg(config-agg)#`	To enter the interface edit mode, enter the "interface" command in the global configuration mode. This mode allows the user to configure each port of the switch. The interface edit mode is represented by prompt "xg(config-if)#", while the edit mode for a port that is created with link aggregation function is represented by prompt "xg(config-agg)#".
Terminal edit mode Prompt: `xg(config-line)#`	To enter the serial terminal edit mode, enter the "line console" command in the global configuration mode. The prompt changes to "xg(config-line)#". Baud rate of the serial terminal and screen display size can be set.
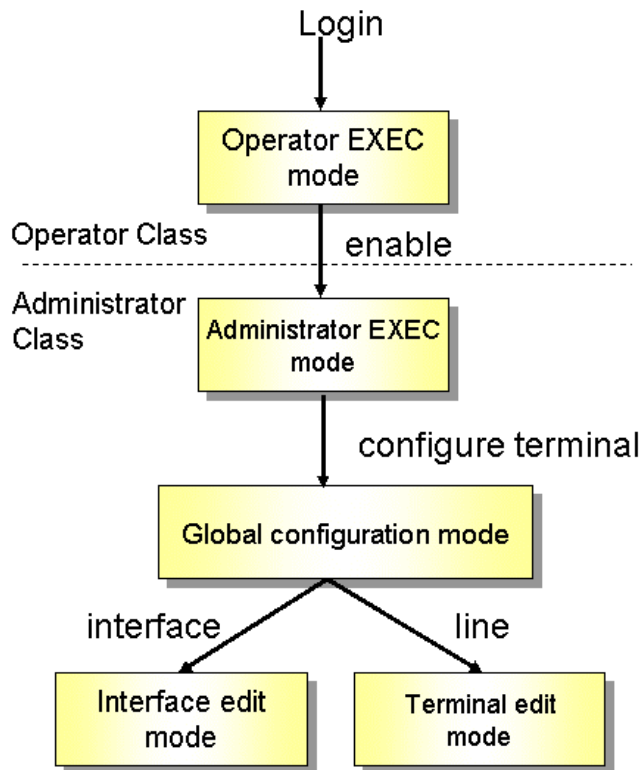
Entering a specific command allows switching from one mode to another. Entering the "exit" command will always take you back to the previous mode.
Entering "end" command or pressing [Ctrl] and [Z] simultaneously in the global configuration, interface edit or terminal edit mode allows you to enter the administrator EXEC mode.
An example is given below.

`Login: admin` `password: ********`	Switch to operator EXEC mode by performing a login operation. By default, the login username is "admin" and password "password".
`xg> enable`	Use the "enable" command to switch to administrator EXEC mode.
`xg# configure terminal`	Use the "configure terminal" command to switch to global configuration mode.
`xg(config)# interface port 1`	Use the "interface" command to switch to interface edit mode.
`xg(config-if)# exit`	Use the "exit" command to return to global configuration mode.
`xg(config)# exit`	Use the "exit" command to return to administrator EXEC mode.
`xg# copy running-config startup-config`	Copy the current configuration file in memory to the startup-config in the nonvolatile memory.
`xg# exit`	User is logged out and session is disconnected.

Point
- Multiple users can use the operator and administrator EXEC modes concurrently. (Up to 4 terminals)
- Only one terminal can switch to one of either global configuration, interface edit and terminal edit modes. It is not possible for multiple terminals to simultaneously switch to global configuration mode.

2.1.3 startup-config and running-config

The XG700 configuration information is saved to startup-config and running-config files.
This section describes the functions of the startup-config and running-config files.

● startup-config
Startup-config is the configuration file that stores the environment settings that are enabled upon XG700 startup. The startup-config is saved in non-volatile memory and read the next time the XG700 begins to be used for the initial settings on the operating environment.

● running-config
Running-config is a file stored in volatile memory that represents the operating environment of the system on which the XG700 is currently running.   The information stored in the running-config will be lost when the system is restarted.
To reflect the system configuration that is active in the current running-config the next time the system is started, use the "copy" command to save them to the startup-config file.

```
xg# copy running-config startup-config
```

The contents of the startup-config and running-config match immediately after the XG700 is started.

● How to upload startup-config and running-config
To download the configuration information that was uploaded to the TFTP server as startup-config, run the "copy" command.

```
xg# show running-config | tftp HOST REMOTE-FILE
or
xg# show startup-config | tftp HOST REMOTE-FILE
```

● How to download startup-config
To download the configuration information that was uploaded to the TFTP server as startup-config, run the "copy" command.

```
xg# copy tftp HOST REMOTE-FILE startup-config
```

To enable the settings downloaded to startup-config, restart the XG700 using the "reset" command.

Point

● Be sure to upload the contents of the startup-config file to a TFTP server because the contents will be overwritten.
● Refer to "Uploading/Downloading Configuration File" for details on uploading and downloading configuration.

2.2 Using the CLI

2.2.1 How to Enter Commands

● Command Entry Format
Separate each command, subcommand and argument with a single space.
    <command> <subcommand> <argument 1> <argument 2> ... (" " indicates a space.)

```
xg(config)# management-interface ip 192.168.1.10/24 default-gw 192.168.1.150
xg(config)# management-interface dns-server 192.168.1.150
```

● Characters that can be entered:
  – Any letter (A-Z, a-z) and digit (0-9)
  – Space (ASCII code: 0x20)
  – Symbols: !, ". #, $, %, `, ', (,   ), _, -, ~, ^, ¥, {, }, :, +, ,, ., @, =, [,], &, *, ;, /, ?, |, >

Command and option separators are recognized by one or more space characters (ASCII code: 0x20). Enclose a parameter in quotes if it contains a blank space.
The commands are not case-sensitive. Note that some entries (password, etc.) are case-sensitive.

2.2.2 Context-Sensitive Help

Entering a question mark "?" during command entry displays a list of commands available for each command mode. You can also get a list of any command's associated keywords and parameters with the context-sensitive help.

● A list of commands that are available in the current mode
Entering a question mark "?" at the system prompt displays a list of commands and brief descriptions available for the current command mode.

```
xg # ?
Exec commands:
  boot-system   Select system to restart
  clear         Reset functions
  configure     Enter configuration mode
  copy          Copy from one file to another
  date          Display or set current date-time
  delete        Delete local files
  dir           Display local files
     :
  (The rest is omitted.)
xg#
```

● Word help
If you type a question mark "?" in the middle of a command name, the CLI lists possible command completions that forward-match the letters you have typed. The prompt will show the letters that you typed. You only have to type in the rest of the letters to complete the command entry.

```
xg # co?
Exec commands:
  configure     Enter configuration mode
  copy          Copy from one file to another
xg# co
```

The CLI lists all possible commands that begin with "co".

● A list of options that are available in the current entry position
If you type a question mark "?" following a space after typing a command name, the CLI lists the names of commands that can be entered at the current option position.   For option 2 and 3 positions, the CLI also lists options that can be entered at these positions. The prompt will show the letters that you typed. You only have to type in the rest of the letters to complete the command entry.

```
xg# configure ?
terminal   Configure from the terminal

xg# configure
```

CLI lists possible options that follow the "configure" command.

The <cr> symbol appears in the list to indicate that you can execute the command without entering any subsequent options. Parameters enclosed in square brackets can be omitted and, therefore, the <cr> symbol does not appear.

2.2.3 Command Completion

If you enter part of a command or option and press the [Tab] key, the CLI displays the remaining command or option characters.

```
xg# con<TAB>
              ↓
xg# configure
```

For example, the only command that begins with "con" is "configure", so the CLI completes the command name as "configure". If you press the [TAB] key, the CLI lists all possible command or option names.

```
xg# con<TAB>
configure copy
xg# co
```

Since there are two commands that begin with "co" - "configure" and "copy" - the CLI lists these two.

2.2.4 Command Abbreviation

Commands and options can be abbreviated to the minimum number of characters as long as command or option names are unique and forward-match the entered letters.

```
xg# con t
```

For example, you can abbreviate the "configure" command to "con" because "configure" is the only command that begins with "con", and "terminal" to "t" because "terminal" is the only command that begins with "t".

2.2.5 Command-Line Error Messages

The table below shows error messages that appear when you incorrectly enter a command. The "configure terminal" command is used as an example below:

Error Message	Explanation
`xg# co t` `% Ambiguous command: "co t"`	You did not enter enough characters for the CLI to recognize the command. Re-enter the correct command string.
`xg# configure` `% Incomplete command.`	You did not enter all of the options or values required by this command entry. Set all necessary options and values.

`xg# configure aerminal`
`              ^`
`% Invalid input detected at '^' marker`
	You entered a command improperly. A caret symbol (^) indicates the incorrect entry.
	Change incorrect entries and execute the command again.

`xg# coc?` `% Unrecognized command`	You typed part of a command that is not found with the context-sensitive help. Re-enter the correct command string.

2.2.6 Scrolling Down or Up a Line or a Page

When the information displayed by a command is wider than the console screen, a "--More--" prompt is displayed at the bottom of the screen and the CLI waits for a user entry.

```
xg# show running-config
!
interface port 0
    :
    :
(The rest is omitted.)
    :
--More--
```

● Scrolling Up a Line
  To scroll up one line, press the [Enter] key.
● Scrolling Up a Page
  To scroll up one page, press the [Space] bar.
● Finishing Displaying
  To finish displaying, press the [q] or [Q] key.
The following table shows the combinations of shortcut keys, function keys or the [Ctrl] key used to edit commands.

Combinations of keys	Description
"↑" or [Ctrl] + [P]	Recalls the previous command.
"↓" or [Ctrl] + [N]	Recalls the next command.
"←" or [Ctrl] + [B]	Moves the cursor back one character.
"→" or [Ctrl] + [F]	Moves the cursor forward one character.
[Home] or [Ctrl]+[A]	Moves the cursor to the first character in line.
[End] or [Ctrl]+[E]	Moves the cursor to the last character in line.
[Esc] + [B]	Moves the cursor back one word (to the beginning of a parameter).
[Esc] + [F]	Moves the cursor forward one word (to the beginning of a parameter).
[Backspace]	Erases the character to the left of the cursor and moves the cursor back one character.
[Delete] or [Ctrl]+[D]	Deletes the character to the right of the cursor.
[Ctrl]+[W]	Records the character to the left of the cursor before deleting.
[Ctrl]+[U]	Records the command line before deleting.
[Ctrl]+[K]	Records all characters to the left of the cursor before deleting.
[Ctrl]+[Y]	Pastes a string recorded by [Ctrl]+[W], [U] or [K].
[Ctrl]+[L]	Erases the current screen.
[Ctrl]+[C]	Runs command result and aborts output.
[Enter], [Ctrl]+[J], or [Ctrl]+[M]	Completes a command entry.
[Ctrl]+[T]	Transposes the character located at the cursor with the character to the left of the cursor.

Hint

If any of the above key combinations or command completion using the [TAB] key does not take effect, VT100, VT200 or xterm may not be selected for the terminal type.

2.2.7 Command History

Command history is a function that records command lines you have entered so that you can reuse them.
It is useful for repeatedly entering the same command line or for entering a similar command.

- To display the previous command line in the history:
  Press the up arrow key or [Ctrl]+[P] to recall the previous command in the history to the prompt.
  Repeat the key sequence to recall successively older commands.
- To display a more recent command line:
  Press the down arrow key or [Ctrl]+[N] to bring up the next line from the command history to the prompt.
  Repeat the key sequence to bring up successively more recent commands.
- To list the command history:
  Use the "show history" command to view the list of commands saved in the history:
  For each login up to 100 lines of command history can be registered.

2.2.8 Aborting Command

An executing command can be aborted by pressing the [Ctrl]+[C]. Note that this key sequence may not be effective for some commands.

2.2.9 No Form of Commands

Almost every configuration command has a no form. In general, the no form is used to cancel the settings with a configuration command or restore default values.
Type "no" before entering a command name.
For details of parameters and meanings that differ depending on commands, refer to " Command Reference".

2.2.10 Filtering show Command Output

This function allows you to filter show command outputs to extract the lines that satisfy specific conditions (filter for strings). This function is useful in excluding unnecessary information from a large amount of output.

To use it, a "show" command must be followed by a keyword (pipe (|), begin, include or exclude) and a regular expression (filtering condition).

```
Syntax
show ······ | {begin | include | exclude} regular-expression
```

Keyword for filtering output	Meaning
begin	Begins output starting at the first line that matches given regular expression parameters.
exclude	Displays output lines that do not contain those lines that match given regular expression parameters.
include	Displays output lines that match given regular expression parameters.

```
xg# show history | begin 2
...skipping
2 configure terminal
3 show running-config
4 show history
5 show history | begin 2
```
```
xg# show history | exclude 2
1 enable
3 show users
4 show history
```
```
xg# show history | include 2
2 configure terminal
5 show history | begin 2
```


Hint

Regular expressions are case sensitive.
For example, if you enter "| exclude strings", lines that include "String" are output, but those that include "strings" are not.

2.2.11 Redirecting show Command Output

You can redirect the output of "show" commands to a file in volatile memory using ">" or "| redirect".

```
Syntax (To redirect the output of a show command to a file in volatile memory:)
show ······ > FILE-NAME
show ······ | redirect FILE-NAME
```

● FILE-NAME
Specify a file name in the volatile memory to which the output of the command is redirected.

"| tftp" allows you to directly redirect the output of a show command to a file in a TFTP server.

```
Syntax (To directly redirect the output of a show command to a file in a TFTP server:)
show ······ | tftp HOST REMOTE-FILE
```

● HOST
Specify a host name or IP address of the TFTP server.
● REMOTE-FILE
Specify the file name in the TFTP server to which the output of the command is redirected.

In the following example, the current startup-config is redirected as filename "startup_09302005", the running-config file is redirected as filename "running_09302005", and system information is redirected as filename "system_09302005".
The results of the redirection are confirmed with the "ls" command.
Then, using the "tftp" command, each of these files is moved to the TFTP server.

```
xg# show startup-config > startup_09302005
xg# show running-config > running_09302005
xg# show system information > system_09302005
xg# ls
```
```
(ls command output)
  Update-time          File-size  File-name
- 2005/09/30 11:57:27       872   system_09302005
- 2005/09/30 11:54:01     2,310   startup_09302005
- 2005/09/30 11:55:58     2,437   running_09302005
```
```
xg# tftp put remote-host1 startup_09302005 restore_startup_09302005
xg# tftp put remote-host1 running_09302005 restore_running_09302005
xg# tftp put remote-host1 system_09302005 restore_system_09302005
```

In the following example, show command output is directly redirected to TFTP server "remote-host1" using "| tftp".

```
xg# show startup-config | tftp remote-host1 restore_ startup_09302005
xg# show running-config | tftp remote-host1 restore_running_09302005
xg# show system information | tftp remote-host1 restore_system_09302005
```

2.2.12 Displaying using monitor Command

For screens that are displayed using the monitor screen, you can perform operations, such as update and move, via specific keys.

The following table shows the keys used to perform screen-related operations.

Displayed item	Meaning
ESC:exit	Press the [Esc] key to close the monitor screen.
F:refresh	Press the [F] or [f] key to refresh the screen.
U:page up	Press the [U] or [u] key to scroll up to the previous page. If the current page contains all lines, this item will not appear.
D:page down	Press the [U] or [u] key to scroll up to the next page. If the current page contains all lines, this item does not appear.
L:page left	Press the [L] or [l] key to scroll the screen to the left. If the current page contains all columns, this item will not appear.
R:page right	Press the [R] or [r] key to scroll the screen to the right. If the current page contains all columns, this item will not appear.

Chapter 3 Installation

This chapter describes the installation procedures for the XG700.
Refer to "Using the CLI" for details on using CLI.
Refer to "Command Reference" for details on commands.

3.1 Workflow to Prepare the XG700

This section describes the procedures to setup the XG700

1. **Prepare an operation terminal**
   Prepare a terminal for the configuration.
2. **Setting Up Serial Interface**
   Connect the XG700 and terminal with an RS232C cable. The initial setting of baud rate is 9,600bps.
3. **Turn on the XG700 to start the system.**
   Turn on the terminal and the XG700 to start the system.
4. **Configure Management LAN Interface**
   The initial setting of management LAN interface is disabled.
   To use the following functions, set up the management LAN interface.
   - Telnet connection
   - SNMP manager connection
   - System log transmission
   - Time synchronization using an NTP server
   - Configuration file upload/download
   - Firmware update
   - Collection of maintenance information
5. **Telnet Connection via Management LAN Interface (Optional)**
   The initial setting of the Telnet connection via management LAN interface is disabled.
   Enable telnet connection if necessary.
6. **SNMP Configuration (Optional)**
   The initial setting of SNMP agent configuration is not set.
   Set the SNMP configuration as needed.
7. **This is the end of the preparation procedure**
   Proceed to setting switches.

3.1.1 Setting Up Serial Interface

Connect the XG700 and terminal with an RS232C cable. The initial setting of baud rate is 9,600bps.
Refer to "Operating Environment for CLI" for details on settings.

For serial interface settings, only baud rate can be changed. To change the serial interface settings, carry out the following procedure.

Command	Task
`xg login: admin` `Password: ********`	Log in to the XG700 frame the serial terminal. The default user name is "admin". The default password is "password".
`xg> enable`	Switch to administrator EXEC mode.
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# line console`	Switch to serial terminal edit mode.
`xg(config-line)# baud-rate {9600	19200	38400	57600}`	Change serial baud rate. The baud rate is changed after the logout.
`xg(config-line)# exit`	Exit to global configuration mode.
`xg(config)# terminal timeout console MINUTES`	(Optional) Set a monitoring period (in minutes) during which the serial connection remains idle.
`xg(config-line)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.

3.1.2 Configure Management LAN Interface

The management LAN interface is initially disabled.
To use the following functions, configure the management LAN interface.

- − Telnet connection
- − SNMP manager connection
- − System log transmission
- − Time synchronization using an NTP server
- − Configuration file upload/download
- − Firmware update
- − Collection of maintenance information

To configure the management LAN interface, carry out the following procedure.

Command	Task
`xg login: admin` `Password: ********`	Log in to the XG700 from the serial terminal. The default user name is "admin". The default password is "password."
`xg> enable`	Switch to administrator EXEC mode.
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# management-lan ip A.B.C.D/M` `[ default-gw A.B.C.D]`	Set the IP address, subnet, and default gateway of the management LAN interface.
`xg(config)# management-lan dns-server A.B.C.D`	(Optional) Set up DNS servers. Up to 4 DNS servers can be set up. Priority is assigned to DNS servers in the order they are defined. To change their order, delete them using no command before doing so.
`xg(config)# management-lan domain DOMAIN-NAME`	(Optional) Set the name of the network domain.
`xg(config)# remote-host A.B.C.D HOST-NAME`	(Optional) Register the remote host name and IP address with the associated table. This allows you to specify a remote IP address using a host name without relying on a DNS server.
`xg(config)# exit`	Exit to administrator EXEC mode.

3.1.3 Telnet Connection via Management LAN Interface (Optional)

The "Telnet server function" via management LAN interface is initially disabled.
To set up Telnet connection, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# telnet-server`	Enable Telnet connection,
`xg(config)# terminal timeout vty <0-60>`	(Optional) Set a monitoring period (in minutes) during which the Telnet connection remains idle.
`xg(config)# exit`	Exit to administrator EXEC mode.

3.1.4 SNMP Configuration (Optional)

To operate in conjunction with an SNMP manager, the SNMP agent must be configured.
To configure the SNMP agent, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.

`xg(config)# hostname HOST-NAME`
`xg(config)# snmp-server location`
`  SYSTEM-LOCATION`
`xg(config)# snmp-server contact`
`SYSTEM-CONTACT`
	Set the system name (HOST-NAME), system's location (SYSTEM-LOCATION), and contact (SYSTEM-CONTACT).

`xg(config)# snmp-server access host` `{A.B.C.D|HOSTNAME} community COMMUNITY-NAME`	Set the IP address (host name) from which the SNMP manager can access the host and community name.

`xg(config)# snmp-server trap host`
`{A.B.C.D|HOSTNAME} community COMMUNITY-NAME`
`[protocol {v1|v2c}]`
	Set the IP address (host name) of the host that is notified of SNMP traps and community name, if SNMP trap notification is enabled.

`xg(config)# exit`	Exit to administrator EXEC mode.

3.2 10GBASE-CX4 Cable Connection

The switch chip installed in this device is incorporated with an equalizer that optimizes Rx signals.
The use of up to 15m of cable becomes possible by using this function.

3.2.1 Rx Signal Equalizer

The equalizer incorporated in the switch chip installed in this device automatically optimizes Rx signals. Optimization is performed every time a signal is detected.
The optimization of Rx signals makes the use of 15m of cable possible.

3.2.2 Precautions During Linkup

It takes about 15 seconds to complete signal optimization, and then link becomes up.

Chapter 4 Functions and Procedures for Setting Functions

This chapter describes the functions of the XG700 and how to set the functions.
Refer to "Operating Environment for CLI" for details on using CLI.
Refer to "Command Reference" for details on commands.

4.1 Basic Switch Functions

This section describes the basic switch functions.

4.1.1 Switching Mode

The XG700 provides the following two switching modes.
- Store-and-forward switching mode
  After the XG700 has finished receiving a frame, it checks the FCS (Frame Check Sequence) and performs a validity check (on packet size, etc.) before forwarding the frame. If the switch receives a frame with an error frame, it discards it.
- Cut-through switching mode
  The XG700 transmits the frame to the destination as soon as the first 64 bytes of the frame are received with no errors. Since the XG700 starts transmitting the frame before it has received the entire frame, this mode allows forwarding at low latency.

To change the switching modes, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# bridge forward-mode {cut-through | store-and-forward } xg(config)# no bridge forward-mode	Select the cut-through (or store-and-forward) for the switching mode.
xg(config)# exit	Exit to administrator EXEC mode.

4.1.2 MAC Address Table Management

MAC address table is a database used for managing the association between address information and destination ports.
The XG700 can learn up to 8912 entries of MAC addresses.
- MAC address table management
  The XG700 has two management methods for MAC address table management.
  - SVL(Shared VLAN Learning)
    The XG700 learns MAC addresses common to all VLANs. Different VLAN with identical MAC addresses are treated as identical entries.
  - IVL(Independent VLAN Learning)
    The XG700 learns MAC addresses separately for each VLAN. Identical MAC addresses with different VLANs are treated as separate entries.

  To change the MAC address table management modes, carry out the following procedures in the management EXEC mode.

Command	Task
xg# configure terminal	Switch to the global configuration mode.
xg(config)# bridge learn-mode { ivl | svl } xg(config)# no bridge learn-mode	Select IVL or SVL for the MAC address table management mode.
xg(config)# exit	Exit to administrator EXEC mode.
xg# copy running-config startup-config	Save the current settings of the XG700 to nonvolatile memory.
xg# reset	If the MAC address table management mode is changed, the new setting becomes enables after the XG700 is restarted.

- Dynamic MAC address learning
  The XG700 dynamically learns MAC addresses from a received frame. If MAC addresses are not uploaded for a period by the aging function, they will be removed frame MAC address table.

  To disable the dynamic learning, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# interface port 1 2 3 xg(config)# interface port range 1 3	Switch to the interface edit mode for the port for which you want to change the configuration. In this example, the global interface configuration mode is selected for ports 1 through 3.
xg(config-if)# suppress-address-learning xg(config-if)# no suppress-address-learning	Disable (or enable) the dynamic MAC address learning.
xg(config-if)# exit	Exit to global configuration mode.
xg(config)# exit	Exit to administrator EXEC mode.

● Static unicast address
By registering a unicast MAC address to which a frame is forwarded with the MAC address table, you can forward a specific unicast frame to a specified port. Static unicast addresses are not subject to MAC address removal controlled by aging function.
To register, change or delete a static unicast address, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# bridge mac-address-table static MAC [vlan <1-4094>] {[port <1-12>] | [agg-port <1-6>]} xg(config)# no bridge mac-address-table static MAC [vlan <1-4094>]	Register a static unicast address and destination port with the MAC address table (or remove them from it).
xg(config)# exit	Exit to administrator EXEC mode.

● Static multicast address
By registering a multicast MAC address to which a frame is forwarded with the MAC address table, you can forward a specific multicast frame to a designated port.
To register, change or delete a multicast address, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# bridge mac-address-table static MAC [vlan <1-4094>] [port <1-12> [<1-12> ・・・]] [agg-port <1-6> [<1-6> ・・]] xg(config)# no bridge mac-address-table static MAC [vlan <1-4094>]	Register (or remove) a static multicast address table and destination port. For a multicast MAC address, multiple ports can be specified.
xg(config)# exit	Exit to administrator EXEC mode.

4.1.3 Jumbo Frame Support

The XG700 can transmit jumbo frames of up to 15KB (15360 bytes).
To configure jumbo frame support, carry out the following procedure in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# bridge jumbo-frame [{9216 | 12288 | 15360}] xg(config)# no bridge jumbo-frame	Enable (or disable) jumbo frame support.
xg(config)# exit	Exit to administrator EXEC mode.

> **Note**
> ● If the maximum jumbo frame size is set to 15360, flow control is set to "only-receive" and unable to be set to "send-receive".

4.1.4 Flow Control

Flow control is a function to prevent frame loss when the receive buffer in the switch overflows due to temporary traffic overload by using a PAUSE frame.
When XG700 has received a PAUSE frame, it temporarily stops sending frames at the receive port. If space in the receive buffer runs out, it is possible to restrict frame transmission from the connected device by sending a PAUSE frame.
For each port, it is possible to select whether or not to send a PAUSE frame. Select the mode depending on whether the destination can control a PAUSE frame.
To change the flow control mode, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# interface port 1 2 3 xg(config)# interface port range 1 3	Switch to the interface edit mode for the port for which you want to change the flow control mode. In this example, the global interface configuration mode is selected for ports 1 through 3.
xg(config-if)# flowcontorol { only-receive | send-receive }	Set the flow control mode.
xg(config-if)# exit	Exit to global configuration mode.
xg# exit	Exit to administrator EXEC mode.

> **Note**
> ● If the maximum jumbo frame size is set to 15360, flow control is set to "only-receive" and unable to be set to "send-receive".

4.1.5 Storm Control

The XG700 discards broadcast frames when the number of received broadcast frames is over a given threshold to prevent unnecessary waste of bandwidth due to retained broad cast frames on the network. This function is called "Storm Control". For each port, it is possible to configure storm control.
When broadcast frames are discarded by Storm Control, error logs are output, after which storm control logging is disabled. To re-enabled logging, violations must be cleared with "clear violation".
To configure Storm Control, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.

`xg(config)# interface port 1 2 3`
 	
`xg(config)# interface port range 1 3`
	Switch to the interface edit mode for the port for which you want to change the flow control mode.
	In this example, the global interface configuration mode is selected for ports 1 though 3.

`xg(config-if)# storm-control`	Enable storm control.
`xg(config-if)# exit`	Exit to global configuration mode.
`xg# exit`	Exit to administrator EXEC mode.

4.1.6 Port Security

Port security blocks connections attempted by unregistered hosts. When a host MAC address is registered, the XG700 receives only those frames that use permitted MAC addresses as source address.
For each port, it is possible to configure port security. To register a MAC address for a host, use the "bridge mac-address-table static". The port to which the host is connected must be registered as a member port. In Independent VLAN Learning mode, this must be done for all VLANs that permit transmission.
Either of the following two modes can be specified for a security-violating (unregistered) frame the XG700 receives.

- Restrict mode
  Filters violating frames only, forwarding permitted frames.
- Shutdown mode
  Filters all frames upon reception of a violating frame.

Once a security violation is detected, an error log is recorded. No further detection of a violating frame will cause an error log to be recorded until security violations are reset by "clear violation".
To configure Port Security, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.

`xg(config)# interface port 1 2 3`
 	
`xg(config)# interface port range 1 3`
	Switch to the interface edit mode for the port for which you want to change the flow control mode.
	In this example, the global interface configuration mode is selected for ports 1 though 3.

`xg(config-if)# port-security violation {restrict	shutdown}`	Enable Port Security.
`xg(config_if)# clear violation`	Clear security violations.
`xg(config-if)# exit`	Exit to global configuration mode.
`xg# exit`	Exit to administrator EXEC mode.

4.1.7 Ingress Rate Control

It is possible to set ingress rate limiting value for each port in approximately 40Mbps increments.
To set an ingress rate limiting value, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.

`xg(config)# interface port 1 2 3`
 	
`xg(config)# interface port range 1 3`
	Switch to the interface edit mode for the port for which you want to change the flow control mode.
	In this example, the global interface configuration mode is selected for ports 1 though 3.

`xg(config-if)# ingress-bandwidth <40-10000>`	Specify an ingress rate limiting value.
`xg(config-if)# exit`	Exit to global configuration mode.
`xg# exit`	Exit to administrator EXEC mode.

> **Note**
>
> The ingress rate is measured at 100us time intervals. Should burst transfer take place at intervals of 100us or over, the ingress rate the XG700 actually allows may be less than the specified value.

4.2 Port Mirroring

It is possible to monitor the traffic by mirroring the frames sent or received by a port.

To configure Port Mirroring, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.

`xg(config)# mirror monitored-port <1-12>`
`  [rx-mirroring-port <1-12>]`
`  [tx-mirroring-port <1-12>]`
	Configure the ports to be monitored and mirror ports.

`xg(config)# exit`	Exit to administrator EXEC mode.
`xg# show mirror`	View the status of port mirroring.

4.3 Link Pass Through

Link Pass Through is a function that monitors the status of a link for a specified port and notifies the device connected to a port (to which a link status notification is sent) of the link status of a monitored port by synchronizing the monitored port with the link status of that port.

(1)When Link Pass Through is not used
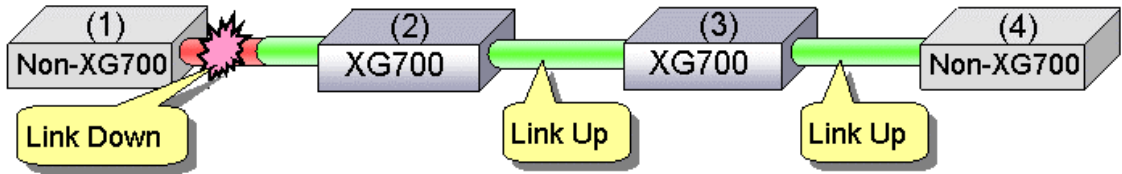
(2)When Link Pass Through is used
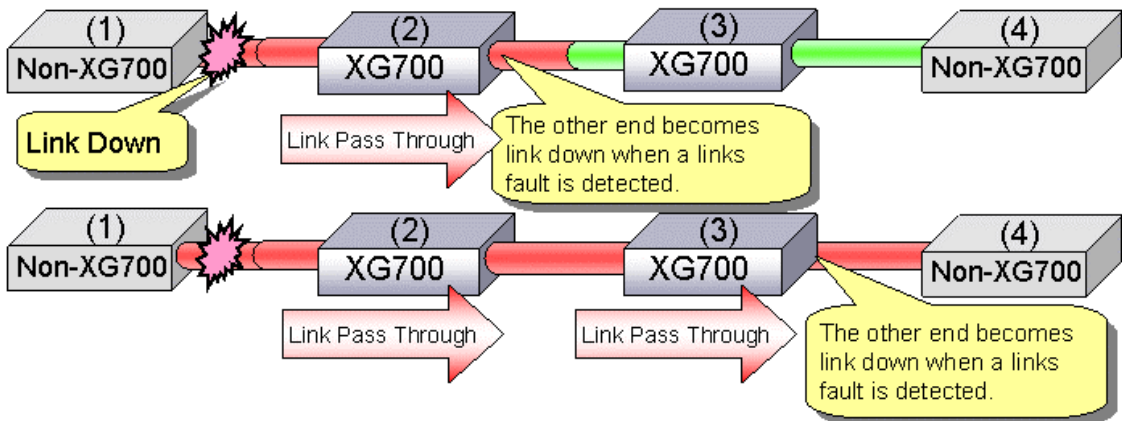
Link Pass Through

This function allows the XG700 to notify the port to which link status notification is sent of a link fault if it is detected in a monitored port. Link pass through indicates the link fault status to the other port by sending a remote fault (RF) signal, as prescribed in IEEE802.3ae LFS (Link Fault Signaling). When the link status of the monitored port is restored to normal, the other port is also restored to normal, the network line having been recovered.

To configure Link Pass Through, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# link-pass-through { monitored-port <1-12>	monitored-agg-port <1-6>} [domino-port <1-12> [<1-12> ・・・]] [domino-agg-port <1-6> [<1-6> ・・・]]`	Set the relationship between the ports to be monitored and ports to which link status notification is sent.
`xg(config)# exit`	Exit to administrator EXEC mode.

4.4 Link Aggregation

Link aggregation is a function that combines multiple ports into a single logical link. A set of ports that comprise a logical link is called an Aggregation Group.
Link aggregation provides:

● Increased bandwidth
By grouping multiple physical ports into a single logical link (an aggregation group), you can balance network traffic (data to send and receive) across the physical ports, which provides increased bandwidth.
● Redundancy
Multiplexing ports allows uninterrupted network operations should one of the multiple ports fail or a failure occurs.
Since the link status of the logical aggregation groups remains unchanged, there are no fluctuations in the network, the effect of a fault having been minimized.

Up to 6 ports can be used to create a single link aggregation group using Link Aggregation. Up to 6 aggregation groups can be created.
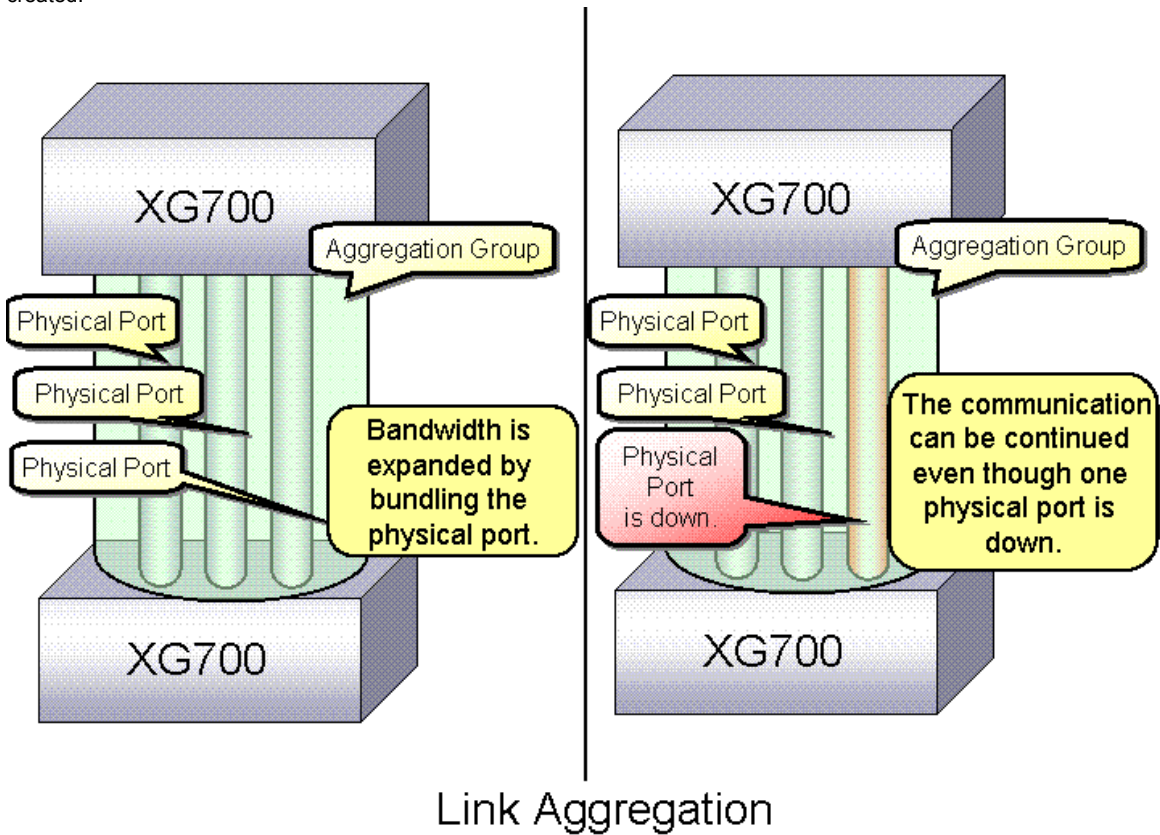
Link Aggregation

4.4.1 Configuring Link Aggregation

Either static or dynamic (also known as LACP) configuration can be selected for Link Aggregation.

● Static configuration
Configures aggregation groups statically.
● LACP
Configures link aggregation using Aggregation Control Protocol (LACP). The LACP is a switch-to-switch control protocol that enables dynamic configuration of aggregation groups and is standardized by the IEEE802.3ad. The LACP facilitates determination of consistency with devices connected.
Either "active" or "passive" LACP mode can be selected.
　　– **active**
　　　The XG700 starts LACP negotiation. Since the active mode allows the reception of LACP control frames, it is possible to connect the XG700 with "active" mode.
　　– **passive**
　　　The XG700 responds to LACP control frames but does not start LACP negotiation.

To configure static link aggregation, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# link-aggregation agg-port <1-6> protocol none port <1-12> <1-12> ・・・`	Set numbers you assign to the aggregation groups to be created (agg-port) and numbers you assign to ports that make up link aggregation (port). Specify "none" in "protocol" for static configuration.
`xg(config)# interface agg-port <1-6>`	To change the setting of the aggregation group created, switch to the interface edit mode for the aggregation group using the "interface agg-port" command. The prompt changes to "config-agg".
`xg(config-agg)# port-vlan-id vlan 2`	(Optional) Change the setting of the aggregation group. In this example, default VLAN ID is set to 2.
`xg(config-agg)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.

To configure LACP link aggregation, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# link-aggregation agg-port <1-6> protocol lacp lacp-mode {active | passive } port <1-12> <1-12> ・・・`	Set numbers you assign to the aggregation groups to be created (agg-port) and numbers you assign to ports that make up link aggregation (port). Specify "lacp" in "protocol" for LACP link aggregation and specify the desired negotiation operational mode in "lacp-mode".
`xg(config)# interface agg-port <1-6>`	To change the setting of the aggregation group created, switch to the interface edit mode for the aggregation group using the "interface agg-port" command. The prompt changes to "config-agg".
`xg(config-agg)# port-vlan-id vlan 2`	(Optional) Change the setting of the aggregation group. In this example, default VLAN ID is set to 2.
`xg(config-agg)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.

4.4.2 Frame Distribution Methods in Link Aggregation

How frames are distributed to physical ports that make up an aggregation group is determined by contents of a frame (source and destination MAC addresses).
There are three ways to specify how frames are distributed:

- Frame distribution based on destination MAC address (dst-mac)
  The destination port is determined based on the destination MAC address of the frames.
- Frame distribution based on source MAC address (src-mac)
  The destination port is determined based on the source MAC address of the frames.
- Frame distribution based on destination and source MAC addresses (dst-src-mac)
  The destination port is determined based on the destination and source MAC addresses of the frames.

> **Point**
>
> - If there are not many MAC addresses to be distributed on an aggregation group, the distribution among the destination ports tends to become biased. To reduce such bias, use a distribution method that uses more MAC addresses.
>   For example, if a server is connected to an aggregation group and a client is connected to a different port, it is recommended that you use either "src-mac" or "dst-src-mac".

To set a distribution method, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# link-aggregation agg-port <1-6>` `protocol {none	lacp}` `load-balance dst-mac|src-mac|dst-src-mac}` `port <1-12> <1-12> ・・・`	Specify a distribution method in the load-balance parameter of the "link-aggregation" command.
`xg(config)# exit`	Exit to administrator EXEC mode.

4.4.3 The Number of Ports That Require Linkup

It is possible to specify the number of ports in a linkup state as conditions for enabling linkup for an aggregation group. If the number of ports that make up an aggregation group in a linkup state is less than the specified number of ports, the aggregation group changes to a linkdown state.

- For static link aggregation
  If the number of ports that make up an aggregation group in a linkup state no longer satisfies the specified number of ports, the aggregation group changes to a linkdown state.

- For LACP link aggregation
  If the number of ports that make up an aggregation group for LACP has been established no longer satisfied the specified number of ports, the aggregation group changes to a linkdown state.

To set the number of ports in the aggregation group, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# link-aggregation agg-port <1-6>` ` protocol {none	lacp} minimum-port <1-12>` ` port <1-12> <1-12> ・・・`	Specify the required number of ports in "minimum-port" parameter of the "link-aggregation" command. The default value for "minimum-port" parameter is 1.
`xg(config)# exit`	Exit to administrator EXEC mode.

4.4.4 Notes on Link Aggregation

The port in aggregation group whose number is the smallest serves as a master port.
The setting of an aggregation group immediately after the establishment of link aggregation take over the same settings as those for the master port, excluding the portion of it. The setting that is not taken over from those for the master port are:

- "link-pass-through"
  Set for the ports to be configured is cleared.
- The information registered in MAC address table
  All entries which will become port members that configure aggregation are cleared.
- "spanning-tree port-path-cost"
  Will be adjusted to match the number of ports that configures aggregation.

When changing the settings for aggregation group that has already been created, the aggregation group changes to a linkdown state, and then to a linkup state if one of the following conditions satisfied.

- A master port has been removed
- A master port has been changed
- The "protocol" or "lacp-mode" parameter has been changed

4.5 Uplink Filter

When an uplink domain is defined, the domain's uplink domain port filters (drops) multicast, broadcast and unlearned (flooding) unicast frames from non-membership downlink ports. However it does not filter learned unicast frames that are forwarded based on MAC table.
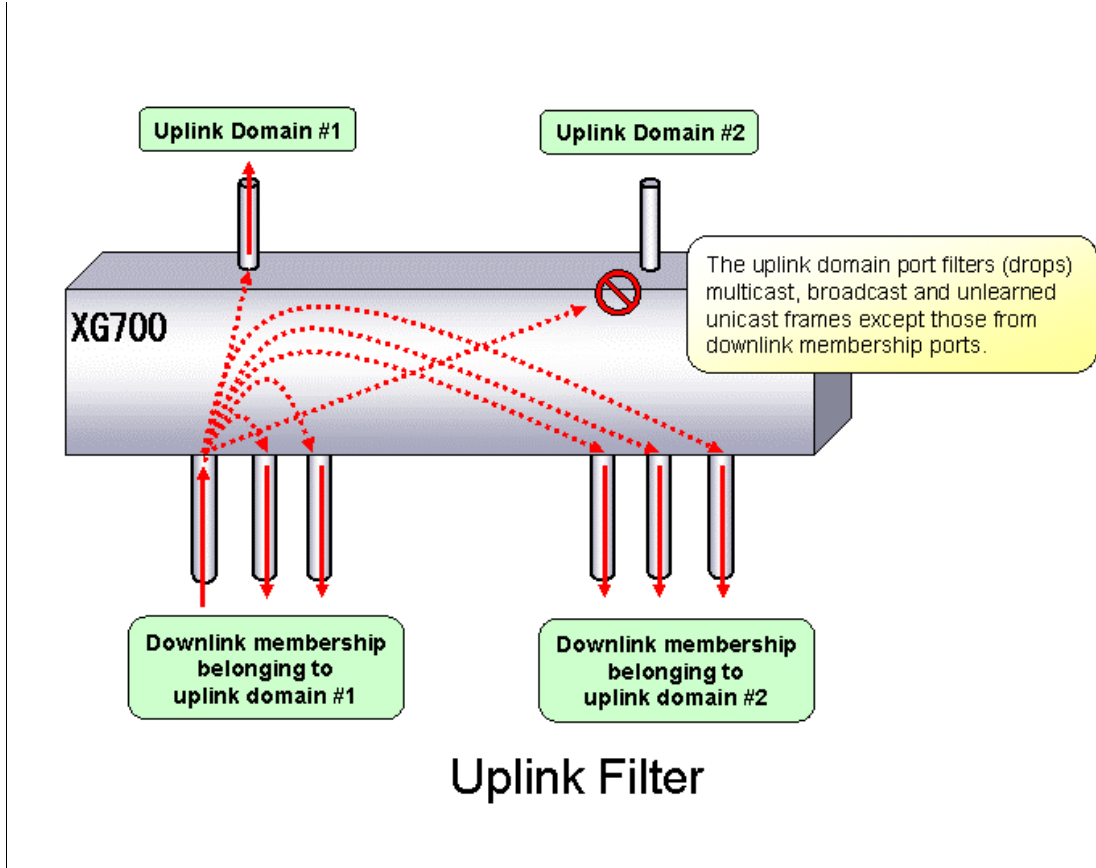
Uplink Filter

The uplink filter is useful in configuring large networks with multiple paths, such as a fat tree network, by cascading multiple XG series switches.

To configure an uplink filter, specify an uplink domain whose membership consists of one or more downlink ports and one or more uplink ports. For example, in the fat tree network, an uplink domain is configured such that ports connected to switches are designated as uplink ports, and leaf nodes as downlink ports. The uplink domain will then block multicast, broadcast and flooding unicast frames to other uplink domains configured within the switch and only distribute traffic from the downlink to the uplink ports within that domain.

If an uplink filter is specified to have multiple uplink ports, link aggregation and redundancy are provisioned within that domain. The uplink filter differs from link aggregation in that the uplink ports within the uplink domain can be connected to different switches or equipment to ensure redundancy within the various uplink ports.
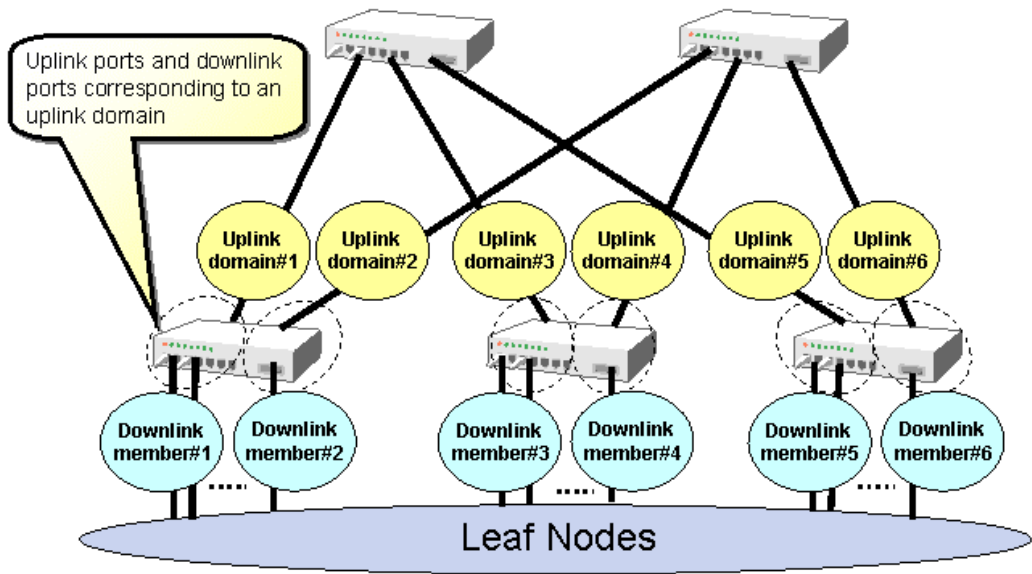
Fat tree network without redundancy

When specifying multiple uplink ports within an uplink domain, frame distribution among the uplink ports is performed as equally from port to port and not by type of frame. Frame distribution changes automatically when a fail-over or fail-back occurs, providing uplink redundancy.
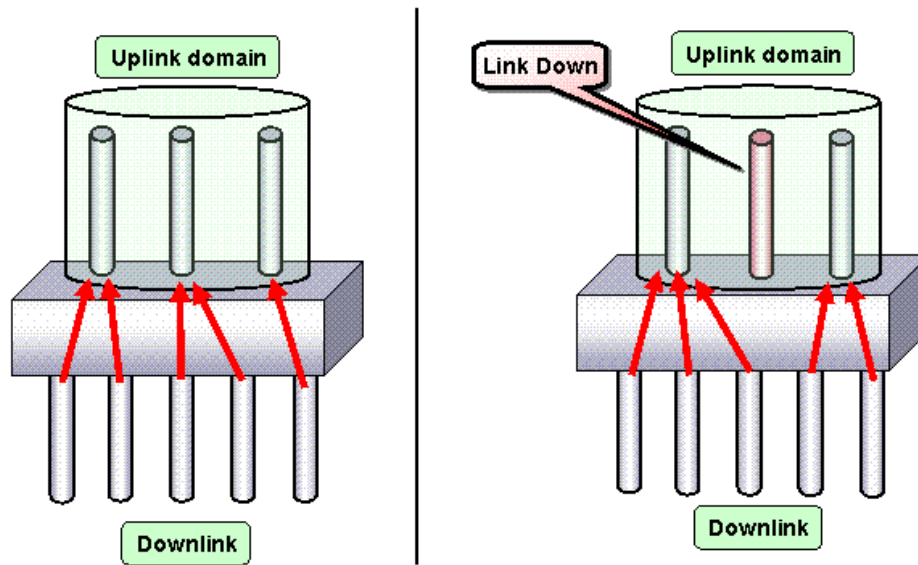
Frame distribution in uplink domain

The following is an example of a fat tree configuration with network redundancy.
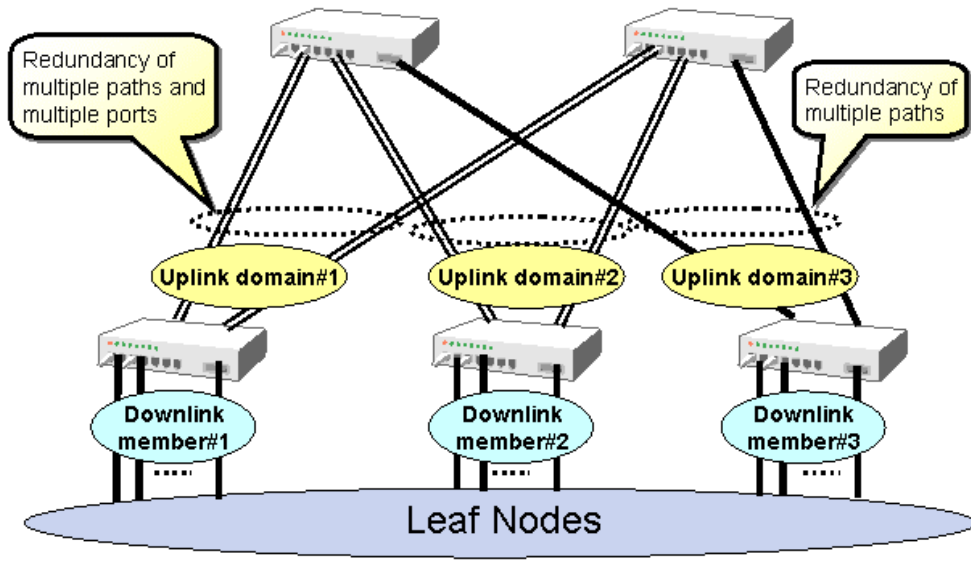
Fat tree network with redundancy

To configures uplink filter, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# uplink-domain 1 port 11 12`	Create a uplink domain that consists of port 11 and 12.
`xg(config)# interface port 1 2 3` `(interface port range 1 3)`	Switch to interface edit mode to configure uplink for port. In this example, the global interface configuration mode is selected for ports 1 through 3.
`xg(config-if)# downlink allowed uplink-domain 1`	Register each port as downlink of the uplink domain.
`xg(config-if)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.
`xg# show uplink`	View the state of the uplink.

Note

● Multicast, broadcast and unlearned unicast frames are filtered by uplink filter. But both statically and dynamically learned unicast frames that are forwarded to a specified port is not filtered.
● A member of uplink port consisting of uplink domain is not allowed to be a member of link aggregation group.
● STP has to be disabled on uplink ports.
● IGMP snooping and uplink function cannot be used at the same time.

4.6 Spanning Tree Protocol (STP)

The Spanning Tree Protocol (STP) is a function that prevents loops from occurring on a network. It is also possible to provide network redundancy by intentionally creating a loop.

STP exclusively uses only one active path between network devices, and shuts out other paths, to avoid network loops. An active path is selected by comparing path costs defined on each path. After the comparison, the lowest cost path will be selected. If the selected path becomes disabled, STP will activate the lowest cost path among the paths remaining.

The XG700 supports IEEE802.1w RSTP (Rapid Spanning Tree Protocol). The RSTP is upward compatible with IEEE802.1D STP (Spanning Tree Protocol) and serves as an STP if the destination device supports the STP only.
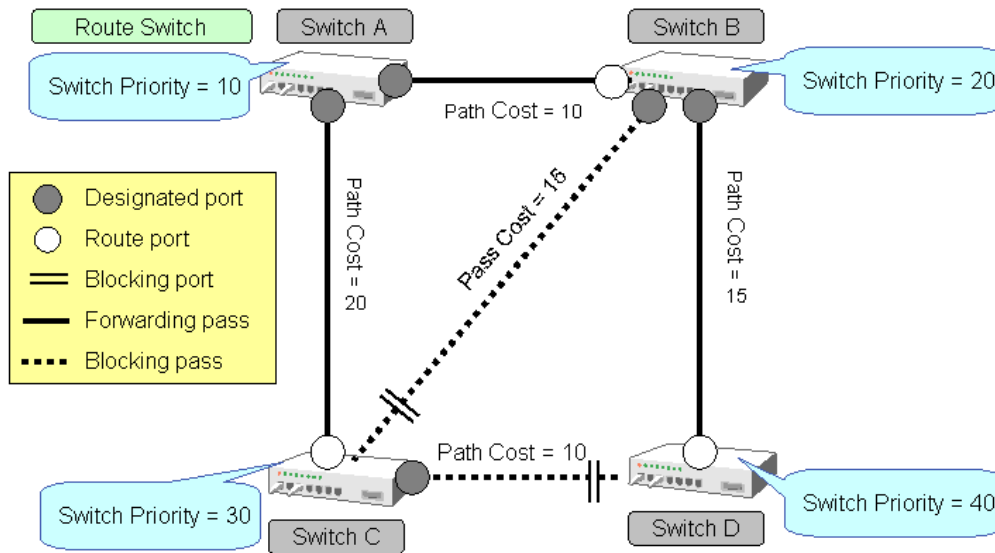
Physical Topology
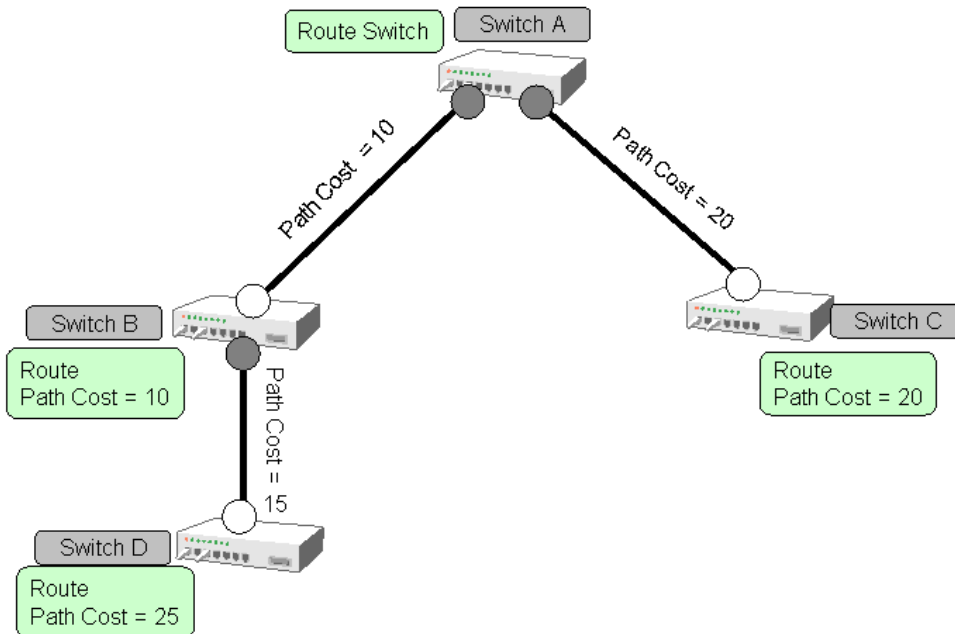
Logical Topology by STP

4.6.1 Port Roles Based on Spanning Tree

The RSTP assigns one of these port roles to individual ports:
- Root port
  Provides the best path (lowest cost) when the switch forwards packets to the root switch.
- Designated port
  Connects to the designated switch toward the leaves of the spanning tree. The port of the specified switch to connect the designated port serves as a root port.
- Alternate Port
  Provides an alternative port with the second lowest path cost. In the event that the root port becomes a linkdown state, alternative port serves as a root port. It does not always send or receive any frames while it is in the blocking state.
- Backup Port
  Provides an alternative path of the path specified by the specific path. In the event that the specified port becomes a linkdown state, backup port serves as a designated port. It does not always send or receive any frames while it is in the blocking state.
- Disabled Port
  Disabled port, it does not send or receive any frames.

4.6.2 Spanning Tree Protocol Port States

The port states defined by the STP are:
- Discard
  Shows the port is in "discarding state. BPDUs only are received.
- Learn
  Shows the port is in "learning" state. A port in the learning state learns the destination MAC address of the receive frames but does not participate in frame forwarding.
- Forward
  Shows the port is ready to transmit data traffic.

The STP states "blocking" and "listening" have been merged into a unique RSTP "discarding" state. The correspondence between STP port states and RTSTP port states is shown below.

Display Format	STP(IEEE802.1D)	RSTP(IEEE802.1w)
Discard	Blocking	Discarding
Discard	Listening	Discarding
Learn	Learning	Learning
Forward	Forwarding	Forwarding

4.6.3 Configuring Spanning Tree

To configure the spanning tree protocol, carry out the following procedure in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# spanning-tree enable`	Enable Spanning Tree Protocol.

`xg(config)# spanning-tree priority <0-61440>`
`xg(config)# spanning-tree hello-time <1-10>`
`xg(config)# spanning-tree max-age <6-40>`
`xg(config)# spanning-tree forward-time <4-30>`
	Configure Spanning Tree Protocol parameters on the XG700.
	● Switch priority
	● Hello time
	● Maximum aging time (max-age)
	● Forward delay time (forward-time)

`xg(config)# interface port 1 2 3`
 	
`xg(config)# interface port range 1 3`
	Switch to interface edit mode to configure spanning tree-related parameters for port.
	In this example, the global interface configuration mode is selected for ports 1 through 3.

`xg(config-if)# spanning-tree protocol { rstp | none }`	Set a spanning tree protocol mode that corresponds to each port.

`xg(config-if)# spanning-tree port-priority <0-240>`
 	
`xg(config-if)# spanning-tree port-path-cost <1-200000000>`
	Configure the following parameters related to the spanning tree topology:
	● Port priority
	● Path cost

`xg(config-if)# spanning-tree portfast`	(Optional) If the port is configured as an edge port(*), it is possible to make settings that can reduce the time taken to transit into forwarding state. * It is available only when the port is directly connected to an end terminal that has no influence on the spanning tree configuration.
`xg(config-if)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.
`xg# show spanning-tree [ detail ]`	View the state of the spanning tree.

4.7 VLAN

VLAN (Virtual LAN) is a technology that divides a single network into virtually separated networks.
VLAN divides a network into multiple network segmentations, without changing the network physically. This configures a network domain independent from other VLANs. VLAN can change network configuration easily without changing physical cable connections, It can create a flexible network system.
As a VLAN protocol, port-based VLAN or Tag-based (IEEE802.1Q) VLAN is available for the XG700.

4.7.1 Port-Based VLAN

Port-based VLAN is a method to configure a VLAN for each port, with forwarding based on the destination MAC addresses and related port.
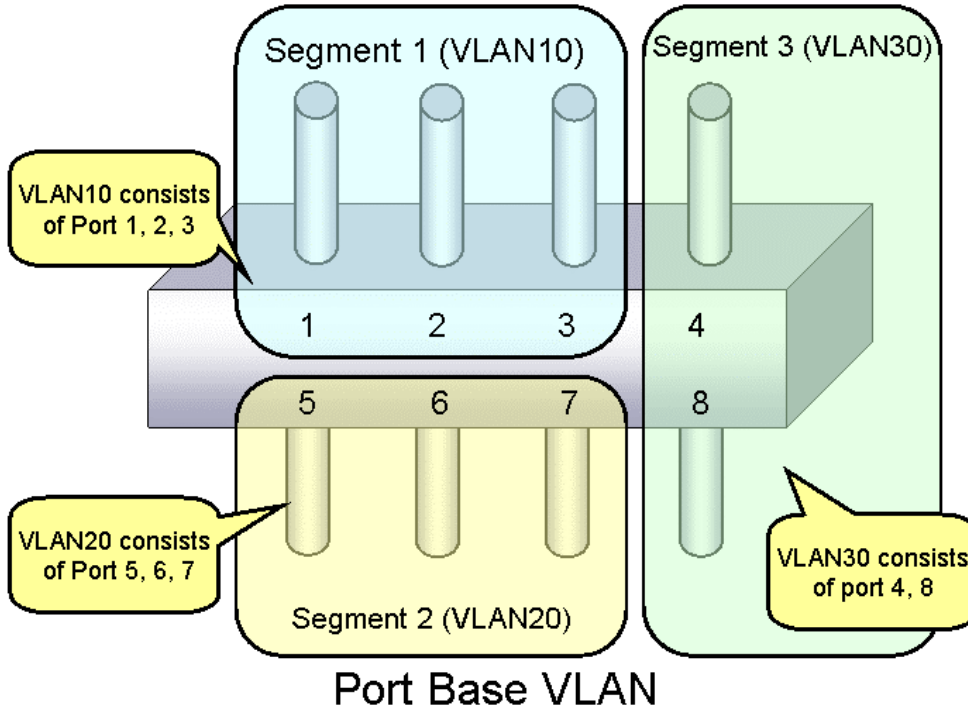
To configure a port-based VLAN, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# vlan <1-4094> [name VLAN_NAME]	Create a VLAN to use.
xg(config)# vlan-statistics collection <1-4094> [<1-4094> ・・・・・]	(Optional) Configure a VLAN that collects statistics.
xg(config)# interface port 1 2 3 (interface port range 1 3)	Switch to interface edit mode for the port for which you want to configure the port-based VLAN. In this example, the global interface configuration mode is selected for ports 1 through 3.
xg(config-if)# port-vlan-id vlan <1-4094>	Set the default port VLAN ID for each port.
xg(config-if)# ingress-filter tagged-frame xg(config-if)# ingress-filter untagged-frame	(Optional) Define a filter on frames received (tagged and untagged frames) if necessary.
xg(config-if)# exit	Exit to global configuration mode.
xg(config)# exit	Exit to administrator EXEC mode.
xg# show interface	View the port state. Check the information displayed in [Port Default Vlan ID] under command output [Vlan Information].
xg# show vlan	View the port's VLAN membership state.

4.7.2 Tag-Based (IEEE802.1Q) VLAN

Tag-based VLAN is a method to configure VLANs so that the frame forwarding decision is based on the extra tag in the MAC header which identifies the VLAN membership. It adds 4 bytes of information called a VLAN tag to a frame, and identifies the VLAN to which the frame belongs. Using VLAN tag enables a configuration that allows a single physical link to be shared by multiple VLANs.

XG700's tag-based VLAN function is based on the IEEE 802.1Q standard.

The following figure shows an Ethernet frame format including a VLAN tag that is specified by the IEEE 802.1Q.

- TPID (Tag Protocol identifier) (0x8100)
- TCI (Tag Control Information)
    - User Priority (3bit) : Priority of Frames (Higher priority to larger number from 0 to 7)
    - CFI (Canonical Format Indicator)(1bit): "1" when RIF field exists. Normally "0".
    - VLAN ID(12bit) : VLAN identifier (0~4095. 0 and 4095 are reserved ID)

Tag VLAN Frame Format

To configure a tag-based VLAN, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# vlan <1-4094> [name VLAN_NAME]	Create a VLAN to use.
xg(config)# vlan-statistics collection <1-4094> [<1-4094> ·····]	(Optional) Configure a VLAN that collects statistics.
xg(config)# interface port 1 2 3 (interface port range 1 3)	Switch to interface edit mode for the port for which you want to configure the tag-based VLAN. In this example, the global interface configuration mode is selected for ports 1 though 3.
xg(config-if)# vlan-member allowed vlan { <1-4094> | all } { egress-untagging | egress-tagging }	Register a VLAN to which the port belongs.
xg(config-if)# ingress-filter tagged-frame xg(config-if)# ingress-filter untagged-frame	(Optional) Define a filter on frames received (tagged and untagged frames) for the port, if necessary.
xg(config-if)# exit	Exit to global configuration mode.
xg(config)# exit	Exit to administrator EXEC mode.
xg# show vlan	View the port's VLAN membership state.

4.7.3 Multiple VLAN

Identifier or TPID: Tag Protocol Identifier is 0x8100 in IEEE 802.1Q.
With the user-defined VLAN tag protocol identifier, the IEEE 802.1Q standard tag can be replaced with a user-defined VPID, allowing for encapsulation in a multiple-tag VLAN.

> **Information**
> For the frame format, refer to TPID (Tag Protocol Identifier) in "Tag VLAN Frame Format".

Using Multiple VLAN (also known as double tagging or Q in Q) allows a service provider to transparently forward customers' VLAN traffic even if the service provider assigns customers traffic to different VLANs.
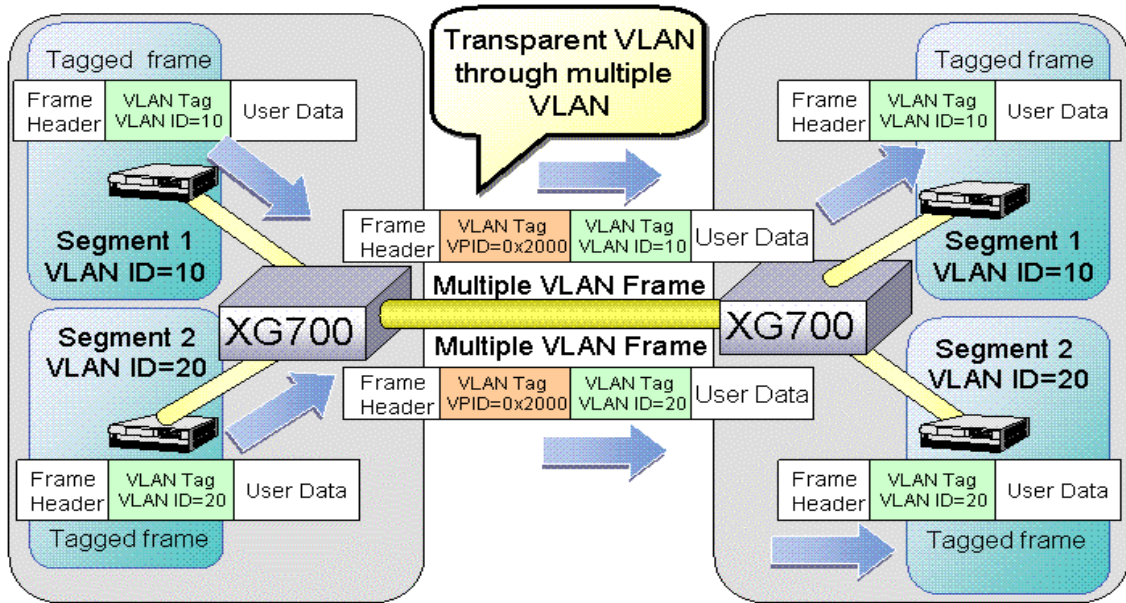
Multiple VLAN

To configure multiple VLAN using user-defined VLAN tag protocol identifier, carry out the following procedures in the administrator EXEC mode.

Command	Task
`xg# configure terminal`	Switch to global configuration mode.
`xg(config)# vlan <1-4094> [ name VLAN_NAME ]`	Create a VLAN to use.
`xg(config)# vlan-statistics collection <1-4094> [ <1-4094> ・・・・・・]`	(Optional) Configure a VLAN that collects statistics.
`xg(config)# interface port 1`	Switch to interface edit mode for the port for which you want to configure the multiple VLAN. In this example, the global interface configuration mode is selected for port 1.
`xg(config-if)# user-vlan-protocol-id <0x05DD ~ 0xFFFF>`	Set the user-defined VLAN tag protocol identifier.
`xg(config-if)# vlan-member allowed vlan { <1-4094>	all } { egress-untagging	egress-tagging }`	Register a VLAN to which the port belongs. Specify "egress-tagging" for the port that is output with the tag of the user-defined VLAN tag protocol identifier added. Specify "egress-untagging" for the port that is output with the tag of the user-defined VLAN tag protocol identifier removed.

`xg(config-if)# ingress-filter tagged-frame`
 	
`xg(config-if)# ingress-filter untagged-frame`
	(Optional)
	Define a filter on frames received (tagged and untagged frames) for the port, if necessary.

`xg(config-if)# exit`	Exit to global configuration mode.
`xg(config)# exit`	Exit to administrator EXEC mode.
`xg# show interface` `xg# show vlan`	View the port state and VLAN membership state for each port.

An example of Multiple VLAN and the movement of frames when the outgoing port is a VLAN member (VLAN-tagged frame), is shown below.

(1) VLAN configurations

User VPID	0x7100
VLAN Membership	VLAN Member (tagged)

XG700

User VPID	0x7100
VLAN Membership	VLAN Member (untagged)

(2) VLAN tagging

Header	User Data

Judged to tagged frame

Header	VLAN Tag TPID=0x7100	User Data

User VPID (0x7100) tag is attached

Header	VLAN Tag TPID=0x8100	User Data

Header	VLAN Tag TPID=0x7100	VLAN Tag TPID=0x8100	User Data

Header	VLAN Tag TPID=0x7100	User Data

Judged to tagged frame

Header	VLAN Tag TPID=0x7100	User Data

Tagged frame is sent on without change
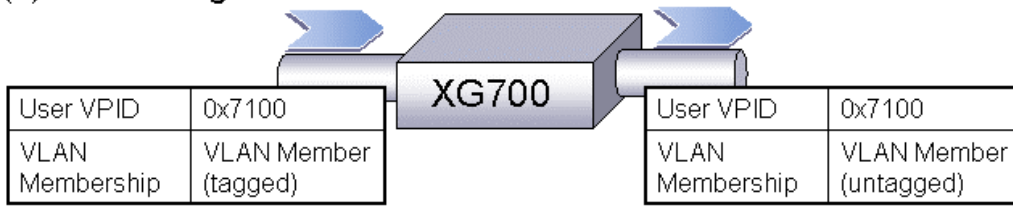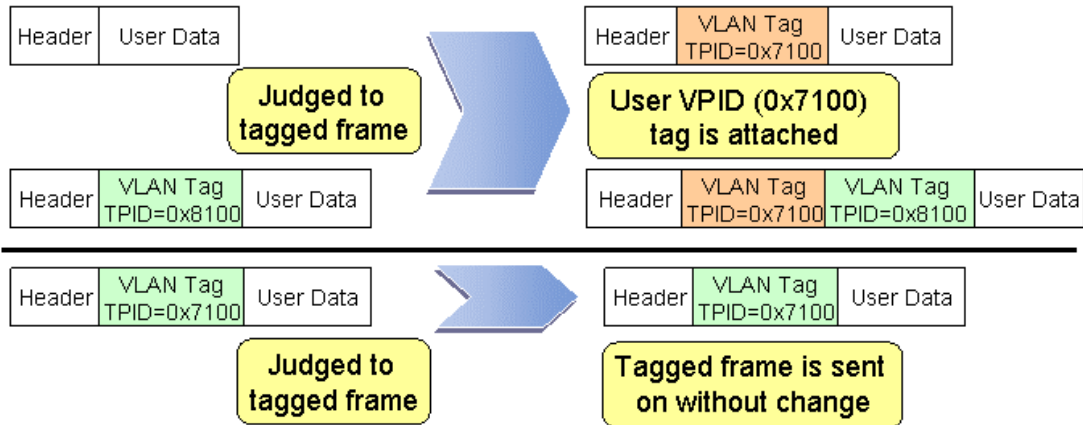
An example of multiple VLAN settings and egress rule (1)

An example of Multiple VLAN and the movement of frames when the outgoing port is a VLAN member (VLAN-untagged frame), is shown below.

(1) VLAN configurations

User VPID	0x7100
VLAN Membership	VLAN Member (tagged)

XG700

User VPID	0x7100
VLAN Membership	VLAN Member (untagged)

(2) VLAN tagging

Header	VLAN Tag TPID=0x7100	User Data

Judged to have tagged frame

Header	User Data

User VPID (0x7100) tag is attached

Header	VLAN Tag TPID=0x7100	VLAN Tag TPID=0x8100	User Data

Header	VLAN Tag TPID=0x8100	User Data

Header	VLAN Tag TPID=0x8100	User Data

Judged to tagged frame

Header	VLAN Tag TPID=0x8100	User Data

Untagged frame is sent on without change
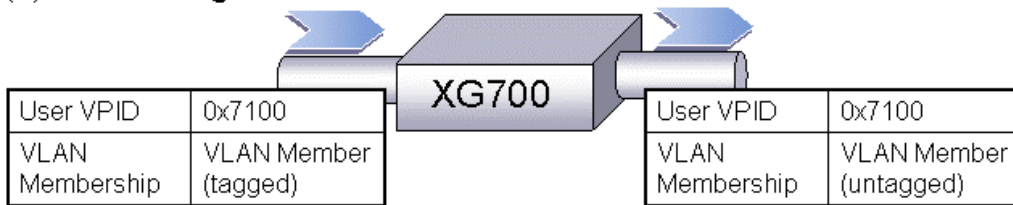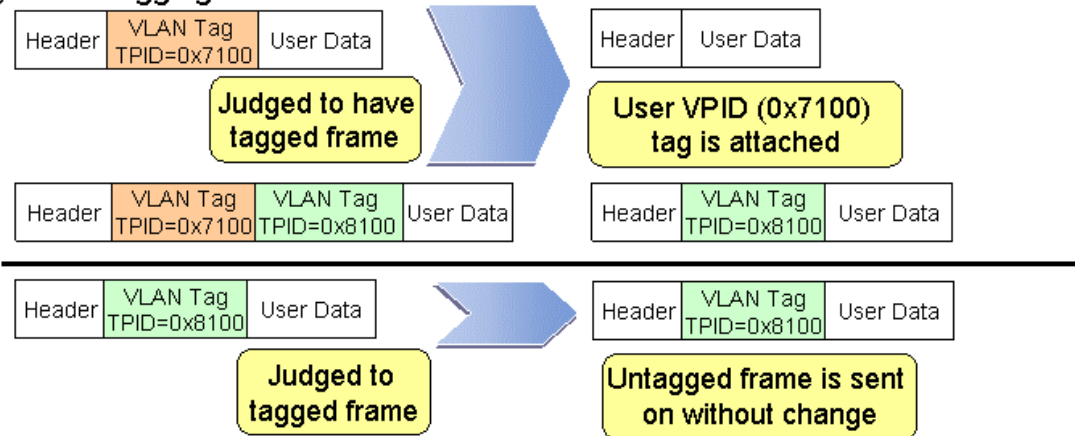
An example of multiple VLAN settings and egress rule (2)

An example of Multiple VLAN and the movement of frames when the user-defined VPID of the incoming and outgoing port differ and the outgoing port is a VLAN member (VLAN-tagged frame), is shown below.

(1) VLAN configurations

User VPID	0x7100
VLAN Membership	VLAN Member (untagged)

XG700

User VPID	0x7100
VLAN Membership	VLAN Member (tagged)

(2) VLAN tagging

| Header | VLAN Tag TPID=0x8100 | User Data |

Judged to untagged frame

| Header | VLAN Tag TPID=0x9100 | VLAN Tag TPID=0x8100 | User Data |

User VPID (0x9100) tag is attached

| Header | VLAN Tag TPID=0x9100 | User Data |

| Header | VLAN Tag TPID=0x9100 | VLAN Tag TPID=0x9100 | User Data |

| Header | VLAN Tag TPID=0x7100 | User Data |

Judged to tagged frame

| Header | VLAN Tag TPID=0x7100 | User Data |

Tagged frame is sent on without change
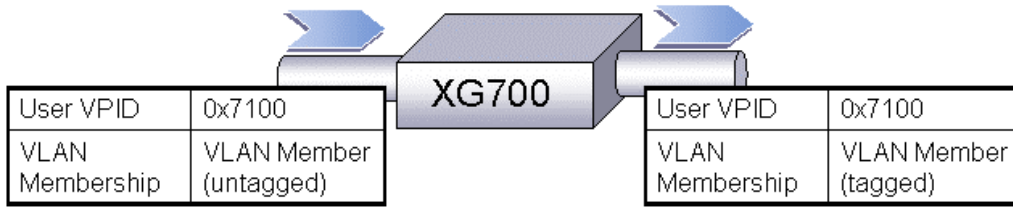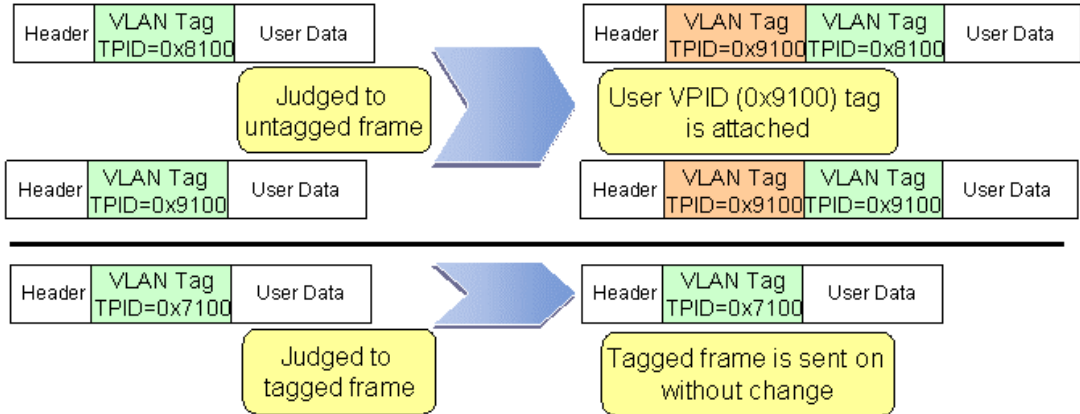
An example of multiple VLAN settings and egress rule (3)

An example of multiple VLAN and the movement of frames when the user-defined VPID of the incoming and outgoing port differ and the outgoing port is not a VLAN member (VLAN-untagged frame), is shown below.

(1) VLAN configurations

User VPID	0x9100
VLAN Membership	VLAN Member (tagged)

XG700

User VPID	0x7100
VLAN Membership	VLAN Member (untagged)

(2) VLAN tagging

| Header | VLAN Tag TPID=0x8100 | User Data |

Judged to untagged frame

| Header | VLAN Tag TPID=0x8100 | User Data |

Untagged frame is sent on without change

| Header | VLAN Tag TPID=0x7100 | User Data |

| Header | VLAN Tag TPID=0x7100 | User Data |

| Header | VLAN Tag TPID=0x9100 | VLAN Tag TPID=0x8100 | User Data |

Judged to tagged frame

| Header | VLAN Tag TPID=0x7100 | User Data |

Tagged frame is sent on without change

An example of multiple VLAN settings and egress rule (4)

4.8 Quality of Service (QoS)

The XG700 provides Quality of Service (QoS) that is based on the IEEE802.1p standard.

The XG700 QoS determines the priority of frames at the ingress side using DiffServ, VLAN tag (including priority tag) or port's default priority. Their priorities are mapped to 4 output queues. These queues are processed in the precedence order. The QoS transmits frames in order of their priority.

With the XG700, you can set:

● DiffServ
  Select the QoS using the IPv4 header or DiffServ Code Point included in the IPv6 header.
● Default priority
  Set default priority of 0 to 7 for each port.
  For frames whose priority has not been set (VLAN-untagged frames). the default priority is assigned as the priority value of the frame.
● Mapping to output queues
  The XG700 is equipped with four output queues with different levels (0 to 3). Frames are transmitted in order of output queue priority.
  Each priorities are mapped to specified output queue.

To set the default priority and output queue mapping, carry out the following procedure in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# interface port 1 2 3 xg(config)# interface port range 1 3	Switch to interface edit mode for the port for which you want to set the default QoS priority. In this example, the global interface configuration mode is selected for ports 1 though 3.
xg(config-if)# qos default-priority <0-7>	Set the frame's default priority when a frame whose priority has not been set (VLAN-untagged frame) arrives.
xg(config-if)# exit	Exit to global configuration mode.
xg(config)# bridge diffserv-tos {ipv4 | ipv6}	(Optional) Used to enable QoS based on DiffServ Code Point.
xg(config)# qos-map priority <0-7> output-priority <0-3>	Set the level of output queue you want to map to each frame that has its own priority value when forwarding them.
xg(config)# exit	Exit to administrator EXEC mode.
xg# show qos [{ default-priority | qos-map }]	Show the QoS setting status.

4.9 IGMP Snooping

IP multicast is often used to distribute multimedia data, including video and voice, over a network.

A general layer 2 switch floods multicast frames, causing absorption of unnecessary network bandwidth. A layer 3 switch that supports Internet Group Management Protocol (IGMP) manages multicast groups using IGMP packets. The XG700 controls to forward IP multi packets to required ports only by snooping IGMP packets between these layer 3 switches, preventing unnecessary flooding. This function is called "IGMP Snooping".

The XG700 supports IGMP snooping for IGMP v1/v2/v3.

> **Note**
> ● IGMP v3 does not support source IP addressing and filtering.
> ● IGMP snooping and uplink filter function cannot be used at the same time.

IGMP Snooping
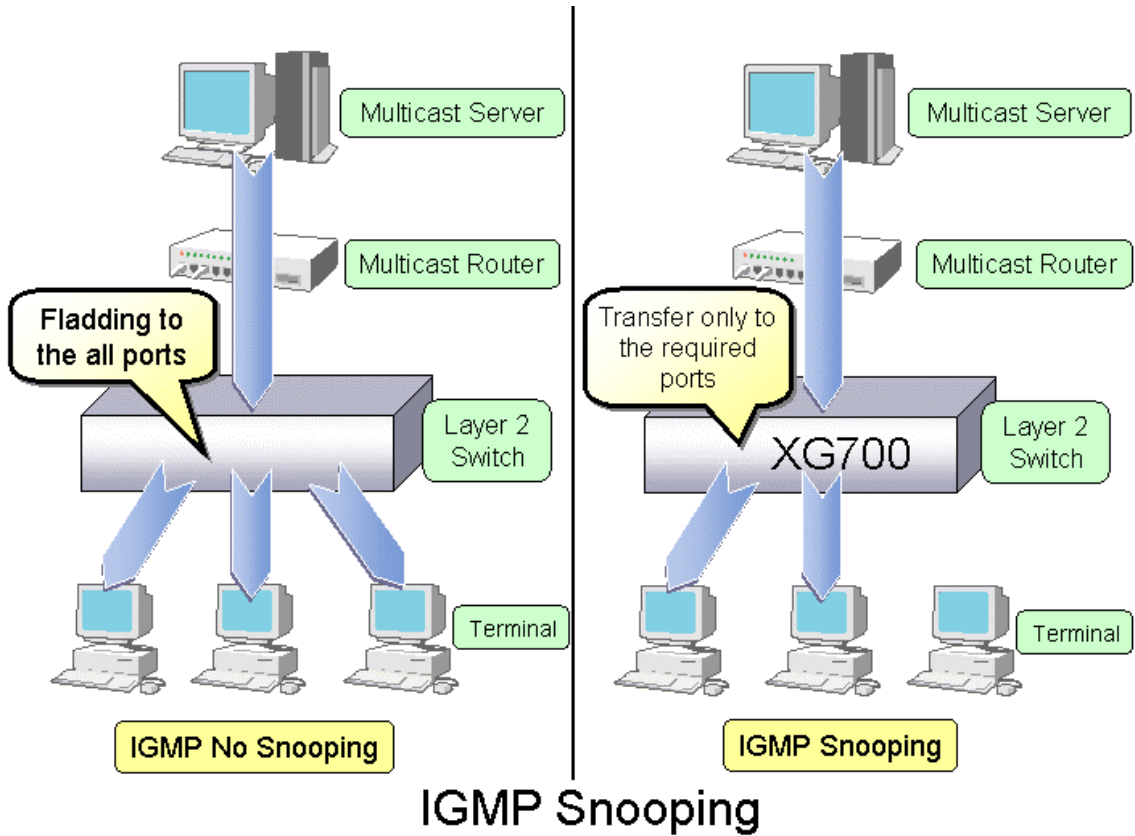
4.9.1 Registering Group Members

Upon reception of an IGMP Report message, the XG700 registers a multicast MAC address with the MAC address table for the port that received the IGMP Report message and the port to which a multicast router is connected.
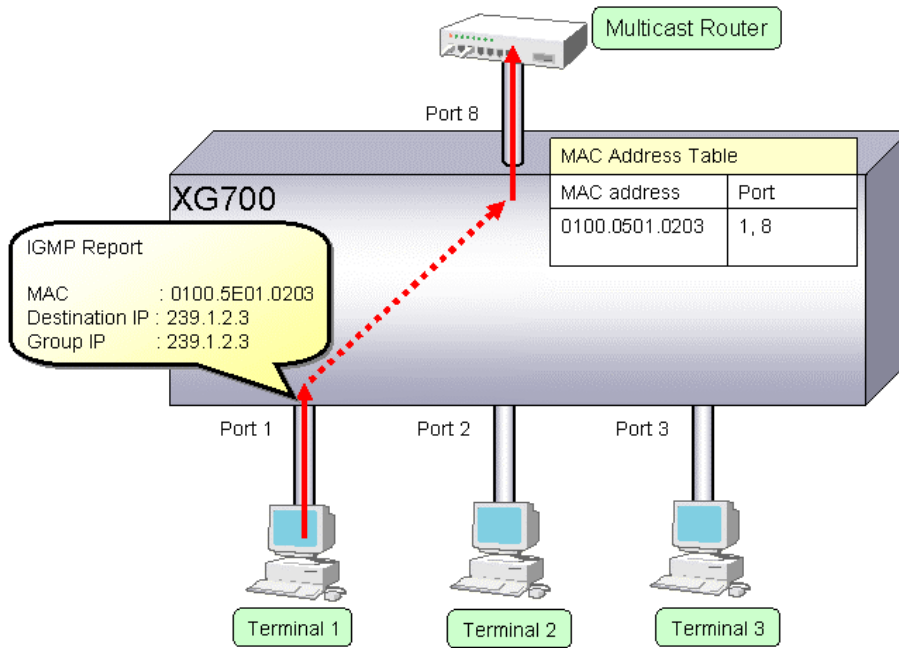
Registering Group Members

The following figure shows the relationship between the registered IP multicast address and the multicast MAC address. MAC addresses that are registered with IGMP snooping are between 0100.5E00.0000 and 0100.5E7F.FFFF. An IP multicast address is 32 bits, of which the first 4 bits are always 1110, which are followed by 28 bits to represent its own address information. Of these 28 bits, the lower order 23 bits are mapped to a MAC address and the data in the higher order 5 bits is not used. Therefore 32 IP multicast addresses are mapped to the same single MAC address.
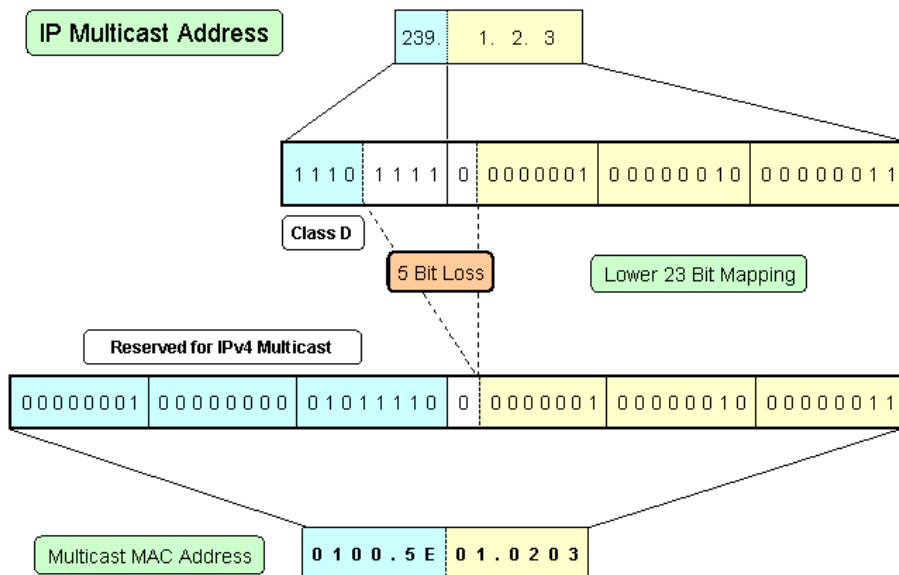
Multicast Address

4.9.2 Removing Group Members

The group members registered by IGMP snooping are removed under the following status.
- If after receiving an IGMP Report message for group registration, the group member interval expires before the XG700 receives another IGMP Report message, it removes that group member. The default setting for the group member interval is 260 seconds.
- If an IGMP Leave message is sent from a host, the multicast router sends out an IGMP Specific Query (GSQ) message to determine that the host has left the group.
  If after receiving the IGMP Leave message, the last member interval expires before the XG700 receives another IGMP Report message, it removes that group member. The default setting for the last member interval is 2 seconds.

Removing Group Members (1)

Removing Group Members (2)
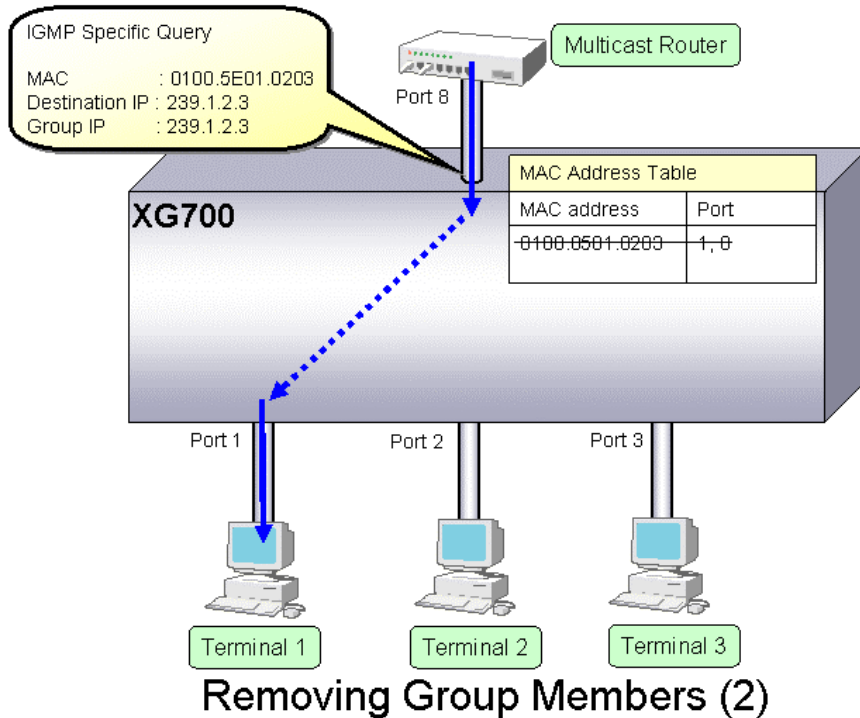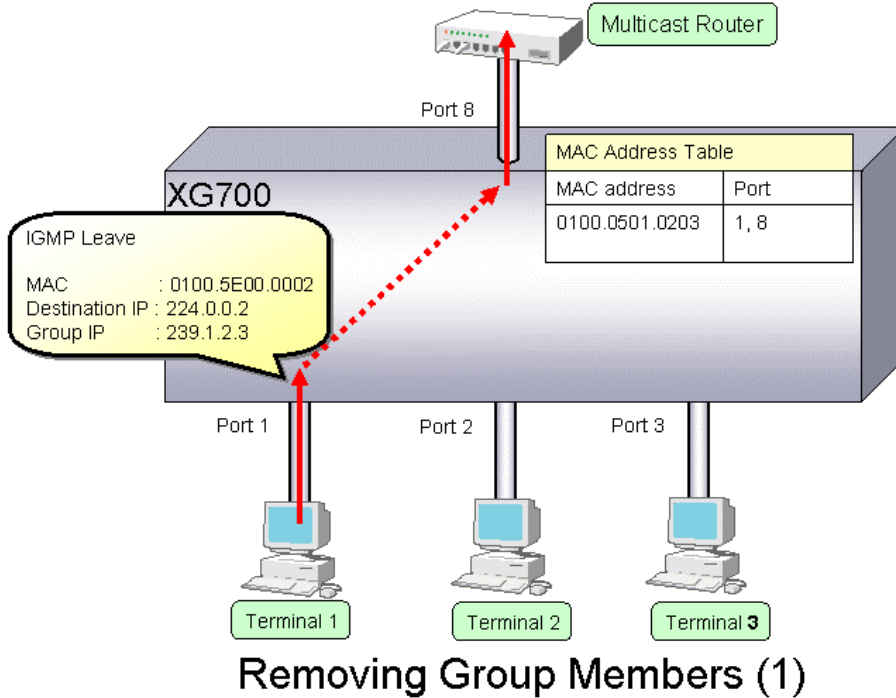
4.9.3 Managing Group Members

When network congestion causes Leave message loss or there is a terminal that uses IGMPv1, the multicast router does not receive Leave messages. The multicast router sends out an IGMP General Query message to all terminals (IP address: 224.0.0.1) at intervals (query interval) to determine membership information.

Upon reception of an IGMP General Query message, a terminal, a member of the group, returns an IGMP Report message to maintain membership to the group.
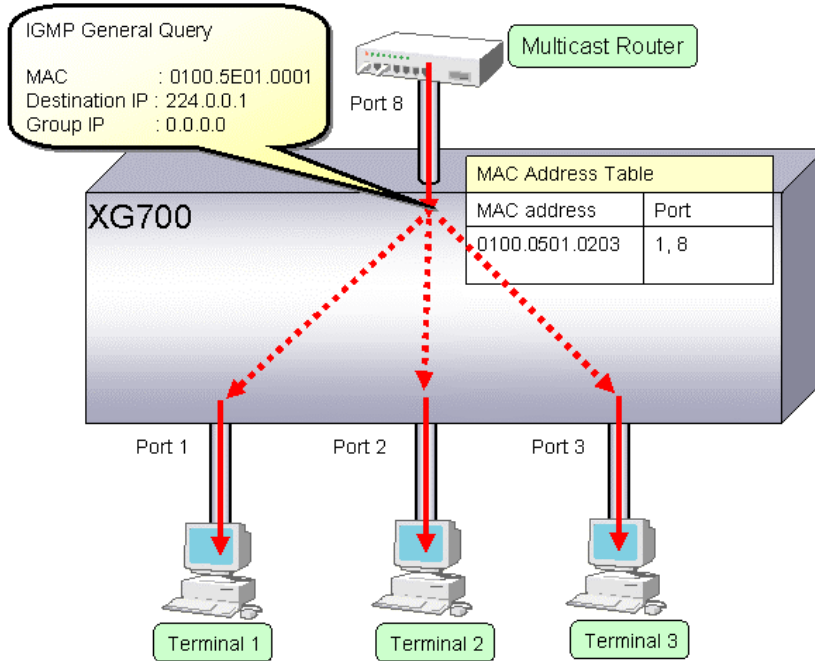
Managing Group Members

In consideration of General Query or Report message loss caused by network congestion, it is recommended that the value that satisfies the following equation be taken as the group member interval for the XG700.

● Group member interval = (query interval for multicast router) $\times$ 2 + 10 (seconds)

Since RFC defines the default query interval for multicast router as 125 seconds, the XG700 uses 260 seconds for the default group member interval.

4.9.4 IGMP Querier

In a general network configuration, the multicast router periodically sends out an IGMP General Query message to determine if the hosts on the network are members of any multicast groups by receiving a response from the hosts.
IGMP Querier is a function that acts as a proxy for a multicast router when it is not included in a network segment to send an IGMP General Query message to all terminals.
The number of Query messages issued is configured using the "ip snooping vlan send-query-count" command.
The frequency at which the General Query messages are sent (query interval) is automatically calculated by the following equation based the frequency at which the Query messages are sent and the group member interval.

- Query interval = (Group membership interval - 10)/send query count (seconds)

The default setting for the Query interval is 125 seconds.
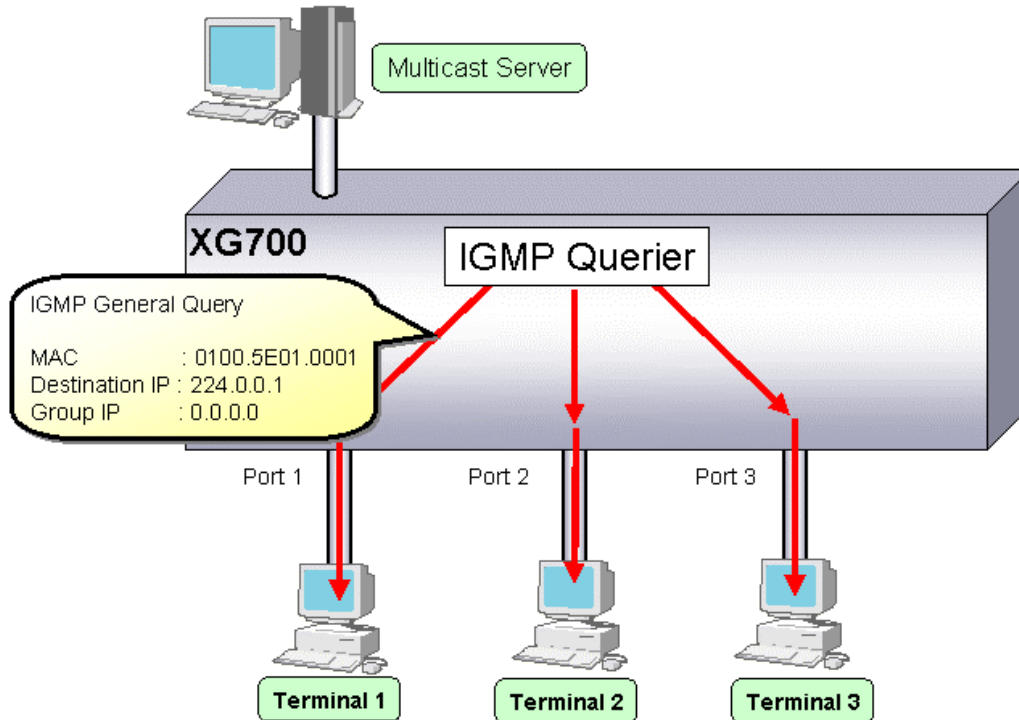
IGMP Querier

Upon reception of an IGMP Leave message, the XG700 sends an IGMP Specific Query (GSQ) message to determine that the host is interested in leaving the group.
If an IGMP Specific Query message is sent as many times as specified by the send query count and a terminal does not respond with an IGMP Report message, that group is removed.

> **Note**
> - Generally, IGMP Querier uses "0.0.0.0" for the source IP address when sending a Query message. Since some client software does not return a response for a Query message with the source IP address being set to "0.0.0.0", it is recommended that an address other than "0.0.0.0" be used.
> - If multicast router exists, XG700 does not send Query message even if IGMP Querier is valid.

4.9.5 Configuring IGMP Snooping

To configure IGMP snooping, carry out the following procedure in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# ip snooping protocol igmp	Enable global IGMP snooping on the XG700.
xg(config)# ip snooping vlan <1-4094>	Enable IGMP snooping for each VLAN separately.
xg(config)# ip snooping vlan <1-4094> group-member-interval <60-600>	(Optional) Change the group member interval.
xg(config)# ip snooping vlan <1-4094> mrouter { port <1-12> | agg-port <1-6> }	(Optional) Register a port on which a multicast router resides statically.
xg(config)# ip snooping vlan <1-4094> mrouter suppress-learning	(Optional) Suppress dynamic registration of port on which a multicast router resides.
xg(config)# ip snooping vlan <1-4094> last-member-interval <1-9>	(Optional) Change the last member interval.
xg(config)# ip snooping vlan <1-4094> send-query-count <1-3>	(Optional) Change the frequency at which a Query message is sent.
xg(config)# ip snooping vlan max-group <10-128>	(Optional) Change the number of multicast addresses that can be registered with IGMP snooping for each VLAN.
xg(config)# ip snooping vlan <1-4094> fast-leave	(Optional) Set the fast-leave mode used when receiving an IGMP Leave message.
xg(config)# exit	Exit to administrator EXEC mode.

To enable IGMP query, carry out the following procedure in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# ip snooping protocol igmp	Enable global IGMP snooping on the XG700.
xg(config)# ip snooping vlan <1-4094>	Enable IGMP snooping for each VLAN separately.
xg(config)# ip snooping vlan <1-4094> group-member-interval <60-600>	(Optional) Change the group member interval.
xg(config)# ip snooping vlan <1-4094> last-member-interval <1-9>	(Optional) Change the last member interval.
xg(config)# ip snooping vlan <1-4094> send-query-count <1-3>	(Optional) Change the frequency at which a Query message is sent.
xg(config)# ip snooping vlan <1-4094> querier ip A.B.C.D	Enable IGMP query and set the source IP address for a Query message.
xg(config)# exit	Exit to administrator EXEC mode.

4.10 Network Management

4.10.1 Traffic Statistics

The XG700 can display traffic statistics to analyze network operations such as traffic, errors, etc.
The following are the Traffic Statistics information XG700 provides.

- Displays traffic information on outgoing and incoming frames for each port.
- Displays traffic information on incoming frames by frame size range for each port.
- Displays traffic information on incoming frames for each VLAN.
- Displays incoming traffic information by QoS priority for each port.
- Displays information related to data flow for each port.
- Displays information about errors that occur during transmission/reception for each port.

To display traffic statistics, monitor and show commands are provided.

- "monitor" command
  Displays real-time traffic statistics.
- "show statistics" command

Outputs details of the current traffic statistics.

> Enter this command followed by "> FILE_NAME" or "| redirect FILE_NAME" to output the results to a file in volatile memory.

To display the traffic statistics, run the following commands in the operator EXEC mode or in the administrator EXEC mode.

Command	Task

`xg> monitor traffic-counts`
`{ current | total } [interval <3-60>]`
`xg> monitor traffic-bytes`
`{ current | total } [interval <3-60>]`
	View incoming and outgoing traffic statistics (number of frames and number of bytes) for each port.

`xg> show statistics traffic-counts` `xg> show statistics traffic-bytes`	
`xg> monitor framesize-traffic-counts` `{ current | total } [interval <3-60>]`	View traffic statistics (number of frames) by frame size range for each port.
`xg> show statistics framesize-traffic-counts`	

`xg> monitor vlan-traffic-counts`
`{ current | total } [interval <3-60>]`
`xg> monitor vlan-traffic-bytes`
`{ current | total } [interval <3-60>]`
	View traffic statistics (number of frames and number of bytes) on incoming frames for each VLAN.

`xg> show statistics vlan-traffic-counts` `xg> show statistics vlan-traffic-bytes`	

`xg> monitor qos-priority-traffic-counts`
`{ current | total } [interval <3-60>]`
`xg> monitor qos-priority-traffic-bytes`
`{ current | total } [interval <3-60>]`
	View incoming traffic statistics (number of frames and number of bytes) by QoS priority for each port.

`xg> show statistics`
`qos-priority-traffic-counts`
`xg> show statistics`
`qos-priority-traffic-bytes`	

`xg> monitor dataflow`
`{ current | total } [interval <3-60>]`
`xg> show statistics dataflow`
	View traffic statistics (number of frames) that are related to data flow during frame forwarding for each port.

`xg> monitor error`
`{ current | total } [interval <3-60>]`
`xg> show statistics error`
	View information about errors that occur during transmission/reception for each port.

`xg> enable` `xg# clear statistics`	Clear cumulative traffic statistics collected after system startup.

4.10.2 SNMP Agent

SNMP (Simple Network Management Protocol) is a protocol that manages network devices via a network.
The XG700 supports the SNMP (v1/v2c) function to collect management information (MIB) from a remote network manager (SNMP manager). For operations via SNMP manager, only read-only operations are allowed. For the MIB supported, refer to Appendix C. The XG700 can set up to 4 SNMP managers and up to 4 SNMP trap destinations.
To configure the SNMP agent, carry out the following procedures in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# hostname HOST-NAME xg(config)# snmp-server location SYSTEM-LOCATION xg(config)# snmp-server contact SYSTEM-CONTACT	Set the system name (HOST-NAME), system's location (SYSTEM-LOCATION), and contact (SYSTEM-CONTACT).
xg(config)# snmp-server access host HOST community COMMUNITY-NAME	Set the IP address (host name) from which the SNMP manager can access the host and community name.
xg(config)# snmp-server trap host HOST community COMMUNITY-NAME [protocol {v1|v2c}]	Set the SNMP trap receiver IP address (host name) and community name.
xg(config)# exit	Exit to administrator EXEC mode.

4.10.3 RMON

Remote Monitoring (RMON) is a function provided to monitor communications over a network, such as traffic and errors. RMON, used in conjunction with the SNMP agent, allows you to remotely monitor the traffic on a LAN segment.
The XG700 supports 4 RMON groups (Statistics, History, Alarm and Even).

● Statistics group
Collects traffic statistics for each port.
● History group
Records traffic statistics of each port at specified time intervals.
● Alarm group
Monitors MIB at specified time intervals and, if the monitored MIB exceeds or falls below a specified threshold, a RMON event is executed.
● Event group
Specifies an event operation that is executed by an alarm. Possible event operations include creation of log entry and generation of SNMP trap.

To configure RMON, carry out the following procedure in the administrator EXEC mode.

Command	Task
xg# configure terminal	Switch to global configuration mode.
xg(config)# rmon collection history <1-65535> port <1-12> [buckets <1-20>] [interval <1-3600>] [owner OWNERNAME]	(Optional) Enable a RMON history group.
xg(config)# rmon alarm <1-65535> VARIABLE interval <2-65535> {absolute | delta} rising-threshold <0-2147483647> [<1-65535>] falling-threshold <0-2147483647> [<1-65535>] [owner OWNERNAME]	(Optional) Enable a RMON alarm group.
xg(config)# rmon event <1-65535> [log] [trap COMMUNITY] [description DESCRIPTION-STRING] [owner OWNERNAME]	(Optional) Enable a RMON event group.
xg(config)# exit	Exit to administrator EXEC mode.

Chapter 5 Command Reference

5.1 About Command Reference

This section describes how to read command references.

5.1.1 Command System

The following is the system of commands provided in the XG700:

Item	Function
Management LAN Interface Configuration commands	They are used to set items related to management LAN interface.
Serial/telnet configuration commands	They are used to set items related to serial and telnet connections.
System Basic Operation commands	They are necessary for system operation such as system time setting and password setting, and file operation.
Configuration Information Operation commands	They are used for operation related to configuration information (running-config and startup-config) of the XG700.
Switch Basic Configuration commands	They are used to set the basic settings of the XG700 switches in general.
Link Aggregation Configuration commands	They are used to create/delete aggregation groups.
Switch Port Configuration commands	They are used to set items related to operating characteristics of each switch port.
Spanning Tree Protocol (STP) Setup commands	They are used to set items related to STP (Spanning Tree Protocol).
Virtual LAN (VLAN) Configuration commands	They are used to set items related to virtual LAN (VLAN).
Quality of Service (QoS) Setup commands	They are used to set QoS (Quality of Service) configuration.
Port Mirroring Setup commands	They are used to set port mirroring.
IGMP Snooping Setup commands	They are used to set items related to IGMP Snooping.
Statistics commands	They are used to display various statistics.
SNMP Configuration commands	They are used to set items related to SNMP.
RMON Configuration commands	They are used to set items related to RMON.
System Status Display commands	They are used to display the system status of the XG700 or operational status of the hardware.
Maintenance commands	They are necessary for maintenance.

5.1.2 Configuration of Command Reference

This section describes the configuration of command reference and descriptive content.

Function

Explains the functions of the commands.

Prompt

Indicates the prompt of the operation mode, in which commands can be entered.

Command syntax

Describes the command syntax. The notation of the command syntax is as follows:

Notation	Meaning	Example of description
Lower-case characters	Indicate fixed strings such as command names and keyword names.	enable
Upper-case characters	Indicate parameters specifying any strings.	delete FILE-NAME
[ ] (Enclosed in a pair of square brackets)	Indicate omissible parameters.	date [YYYYMMDD-hhmmss]
{ | } (Enclosed in a pair of curly brackets with a vertical line in-between)	Indicate parameters, from which at least one alternative must be chosen.	baudrate { 9600|19200|38400|57600 }
< > (Enclosed in a pair of angle brackets)	Indicate parameters with a condition of numerical range.	interface port <1-12>

Parameter

Explains how to specify command parameters, and their meanings.

Command type

Indicates configuration commands (those which retain configuration information in startup-config and running-config) or operation management commands (those which are related to configuration of the XG700, such as status display or time setting).

Default

Indicates the factory default of this command.

Output form

Explains the meaning of output (or input) results, when there is a command output (or input).

Message

Explains messages displayed when executing a command, their solution, and significance.

Note

Explains notes for commands.

Example

Describes how to use commands, using examples.

5.2 Management LAN Interface Configuration Commands

This section explains configuration commands related to the Management LAN Interface.

5.2.1 management-lan ip

Function

Sets the IP address and default gateway, when the Management LAN Interface is used.
Use the no form to disable the Management LAN Interface.

Prompt

xg(config)#

Command syntax

```
management-lan ip A.B.C.D/M [default-gw A.B.C.D]
no management-lan ip
```

Parameter

● ip A.B.C.D/M
Specifies the IP address and subnet mask bit length of the Management LAN Interface in the A.B.C.D/M format.
Specifies an IP address to A.B.C.D, and a subnet mask bit length to M.
IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
● default-gw A.B.C.D
Specifies the IP address of the default gateway.

Command type

Configuration command

Default

None

Message

`% Invalid IP-address.`
Explanation
The specified format of the IP address or specified content is incorrect.
Solution
Specify the IP address in a correct format and execute it again.

Note

● When the IP address is changed from a telnet terminal using this command, telnet connection will be disconnected. Connect again with a new address.

Example

Make the Management LAN Interface usable by setting IP address to "12.34.56.25," subnet mask bit length to "24" (255.255.255.0), and default gateway address to "12.34.56.1".
```
xg(config)# management-lan ip 12.34.56.25/24 default-gw 12.34.56.1
```

5.2.2 management-lan dns-server

Function

Registers the IP address of DNS (Domain Name Service) server, which is used for name resolution of the host name. Up to three DNS servers can be registered.
Use the no form to delete registered DNS servers.

Prompt

xg(config)#

Command syntax

```
management-lan dns-server A.B.C.D
no management-lan dns-server [A.B.C.D]
```

Parameter

- dns-server A.B.C.D
  Sets the IP address to register as a DNS server in A.B.C.D format.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- (no management-lan) dns-server [A.B.C.D]
  Deletes registered DNS server(s). Specifies IP address in A.B.C.D format.
  When IP address is omitted, all registered DNS servers will be deleted.

Command type

Configuration command

Default

None

Message

% Not exist IP-address of DNS server
>   **Explanation**
>   The specified IP address is not found.
>   **Solution**
>   Specify the IP address of a registered DNS server.

% Number of DNS server is over (max=3)
>   **Explanation**
>   The upper limit of the number of registerable DNS servers has been surpassed.
>   **Solution**
>   After deleting unnecessary DNS server information, execute it again.

% Invalid IP-address.
>   **Explanation**
>   The specified format of the IP address or specified content is incorrect.
>   **Solution**
>   Specify the IP address in a correct format and execute it again.

Note

- Since DNS server(s) must be connected via the Management LAN Interface, it is necessary to have configured the Management LAN Interface by management-lan ip.

Example

Register DNS servers with IP addresses "12.34.56.76" and "12.34.56.77".

```
xg(config)# management-lan dns-server 12.34.56.76
xg(config)# management-lan dns-server 12.34.56.77
```

Delete all registered DNS servers.

```
xg(config)# no management-lan dns-server
```

5.2.3 management-lan domain

Function

Sets the default domain name when referring to DNS (Domain Name Service) server.
For example, when the host name is "hostname1," and "abc.jp" is specified to the default domain name, perform a search for the address with an FQDN (Fully Qualified Domain Name) name of "hostname1.abc.jp."
Use the no form to delete the set domain name.

Prompt

xg(config)#

Command syntax

```
management-lan domain DOMAIN-NAME
no management-lan domain
```

Parameter

● domain DOMAIN-NAME
Specifies the default domain name.

Point

Follow the rules below for the domain name:
- Characters usable for the name
  Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), hyphen (-), and period (.)
- First characters
  Alphabet ([a - z], [A - Z])
- Last characters
  Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), and period (.)

Command type

Configuration command

Default

None

Example

Specify "corp.co.jp" for the default domain name when referring to the DNS server.
Then, return to the operator exec mode, specify "hostname1" for TFTP server name, and execute the "tftp" command. At this time, the default domain name is added to "hostname1," and the IP address can be referenced from the DNS server with the FQDN name of "hostname1.corp.co.jp."

```
xg(config)# management-lan domain corp.co.jp
xg(config)# exit
xg# tftp get hostname1 remotefile localfile
```

5.2.4 hostname

Function

Changes the hostname of the XG700.
Use the no form to return to the default ("xg").

Prompt

xg(config)#

Command syntax

```
hostname HOST-NAME
no hostname
```

Parameter

● HOST-NAME
Specifies the hostname of the XG700. Specify the hostname using 63 characters or less, with an alphabet character at the beginning.

Point

Follow the rules below for the hostname and domain name:
- Characters usable for the name
  Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), hyphen (-), and period (.)
- First characters
  Alphabet ([a - z], [A - Z])
- Last characters
  Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), and period (.)

Command type

Configuration command

Default

"xg"

Example

Specify the hostname of the XG700 to be "xg2."
The beginning of the prompt character will change to "xg2."
Also, when switching to the administrator exec mode and displaying the system status, you can confirm that the System Name has been changed to "xg2."

```
xg(config)# hostname xg2
xg2(config)# exit
xg2# show system information
```

```
System Information  2005/08/22-11:04:54
======================================
 System Name (hostname)  :  xg2
 System Location         :  (none)
  ・・・
  ・・・
```

5.2.5 remote-host

Function

Registers remote host information, which shows the relationship between the remote hostname and IP address.
By registering the IP address of a remote host, which is used frequently, the name can be specified instead of the IP address, which leads to improved convenience. The relationship between the registered hostname and IP address is given priority over the DNS server configuration.
Use the no form to delete registered remote host information.

Prompt

xg(config)#

Command syntax

```
remote-host A.B.C.D HOST-NAME
no remote-host [ A.B.C.D ]
```

Parameter

- A.B.C.D
  Specifies the IP address of a remote host in A.B.C.D format.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- HOST-NAME
  Specifies the hostname to register. Specify the hostname using 63 characters or less, with an alphabet character at the beginning.

> **Point**
>
> Follow the rules below for the hostname and domain name:
> - Characters usable for the name
>   Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), hyphen (-), and period (.)
> - First characters
>   Alphabet ([a - z], [A - Z])
> - Last characters
>   Alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), and period (.)

- (no remote-host) [A.B.C.D]
  Deletes the information of a registered remote host. Specifies IP address in A.B.C.D format.
  When IP address is omitted, all registered remote hosts will be deleted.

Command type

Configuration command

Default

None

Message

% Invalid IP-address.
Explanation
The specified format of the IP address or specified content is incorrect.
Solution
Specify the IP address in a correct format and execute it again.
% Number of remote-host is over (max=10)
Explanation
The upper limit of the number of registerable remote hosts has been surpassed.
Solution
After deleting unnecessary hosts, execute it again.
% Already exist name of remote host
Explanation
A hostname with the same IP address has already been registered.
Solution
Change the hostname of the IP address to the correct name, or register it again after deleting it.
% Not exist IP-address of remote host
Explanation
The specified host definition is not registered.
Solution
Specify a registered IP address and execute it again.

Example

Register the IP address "11.22.33.45" as the hostname of "HOST005," and then "11.22.33.46" as the hostname of "HOST006." Using the show remote-host command, registration of "HOST005" and "HOST006" can be confirmed.

```
xg(config)# remote-host 11.22.33.45 HOST005
xg(config)# remote-host 11.22.33.46 HOST006
xg(config)# exit
xg# show remote-host
Remote Host  2005/08/22-11:45:46
================================
IP Address      Host Name
---------- ----------------------------------------
11.22.33.45     HOST005
11.22.33.46     HOST006
```

5.3 Serial/telnet Configuration Commands

This section explains configuration commands related to serial connection/telnet connection.

5.3.1 terminal pager

Function

Enables or disables the pager function of the serial/telnet terminal.

Prompt

xg>, xg#

Command syntax

```
terminal pager { on | off }
```

Parameter

- pager { on | off }
  Specifies enable/disable of the pager.
  - on
    Enables the pager.
  - off
    Disables the pager.

Command type

Operation management commands

Default

on

Note

- This command is effective until the terminal is disconnected.

5.3.2 line

Function

Switches to the terminal edit mode

Prompt

xg(config)#

Command syntax

```
line console
```

Parameter

- console
  Switches to the terminal edit mode of serial connection.

Command type

Configuration command

Example

Switch from the administrator exec mode to the terminal edit mode with the serial interface.

```
xg# configure terminal
xg(config)# line console
```

5.3.3 baud-rate

Function

Sets serial baud rate (bps).

Prompt

xg(config-line)#

Command syntax

```
baud-rate { 9600 | 19200 | 38400 | 57600 }
```

Parameter

● { 9600 | 19200 | 38400 | 57600 }
Specifies any of 9600/19200/38400/57600 as the serial baud rate (bps).

Command type

Configuration command

Default

9600

Note

● When the serial baud rate is newly set, it will become valid after logging out the serial terminal in use and connecting it again.

Example

Switch from the global configuration mode to the terminal edit mode using the "line console" command. And then change the serial baud rate to 38400bps.

```
xg(config)# line console
xg(config-line)# baud-rate 38400
```

5.3.4 terminal timeout

Function

Sets the monitoring period during which serial connection or telnet connection with the XG700 remains idle.
When there is no operation from the terminal within the monitoring time specified with this command, the terminal will be logged out automatically.
Use the no form to return to the Default setup.

Prompt

xg(config)#

Command syntax

```
terminal timeout { console | vty } <0-60>
no terminal timeout { console | vty }
```

Parameter

● timeout { console | vty }
Specifies the type of the terminal for setting the monitoring period during which operation remains idle.
 – **console**
 Sets the monitoring period during which serial connection remains idle.
 – **vty**
 Sets the monitoring period during which telnet connection remains idle.
● <0-60>
Specifies the monitoring period in minutes during which operation remains idle. It can be specified in the range of 0 to 60.
When 0 is specified, no-operation monitoring is not performed, and the terminal will not be logged out automatically.

Command type

Configuration command

Default

10 minutes.

Note

● While the "monitor" command or the "update-system" command is being executed, no-operation monitoring is deterred.

Example

Set the monitoring periods, during which the serial connection and Telnet connection remain idle, to 10 minutes and 5 minutes respectively.

```
xg# configure terminal
xg(config)# terminal timeout console 10
xg(config)# terminal timeout vty 5
```

5.3.5 telnet-sever

Function

Enables telnet connection with the XG700.
Use the no form to disable telnet connection.

Prompt

xg(config)#

Command syntax

```
telnet-server
no telnet-server
```

Command type

Configuration command

Default

Disabled

Example

Enable telnet connection to the XG700.

```
xg(config)# telnet-server
```

5.3.6 terminal window

Function

Sets the screen display size in the serial connection terminal.
Use the no form to return to the default setup.
Also, in telnet connection, the screen size will be obtained automatically from the software in the client terminal.

Prompt

(config-line)#

Command syntax

```
terminal window <50-200> <12-100>
```

Parameter

- <50-200>
  Specifies the number of columns (horizontal) of the screen. It can be set in the range of 50 to 200
- <12-100>
  Specifies the number of lines (vertical) of the screen. It can be set in the range of 12 to 100.

Command type

Configuration command

Default

80 columns by 24 lines

5.4 System Basic Operation Commands

This section explains the basic commands, which are necessary when using CLI operation of the XG700.

5.4.1 enable

Function

Switches from the operator exec mode to the administrator exec mode.
When a password is set to the "enable" command, entering the password is required. When there is an error in entering the password, entering of the password will be prompted up to three times. Additionally, after successful authentication of the password, and switching to the administrator exec mode, entering the password for the enable command will not be prompted while logged in.

Prompt

xg>

Command syntax

```
enable
```

Command type

Operation management commands

Example

Switch from the operator exec mode to the administrator exec mode using the "enable" command.
The prompt character will change to "xg#."

```
xg> enable
xg#
```

When a password is set to the "enable" command, enter the password.
When password authentication is successful, it switches to the administrator exec mode, and the prompt character will change to "xg#."

```
xg> enable
Password:                    ←Enter the password to "enable."
xg#                          (The entered password is not displayed.)
```

5.4.2 disable

Function

Switches from the administrator exec mode to the operator exec mode.

Prompt

xg#

Command syntax

```
disable
```

Command type

Operation management commands

Example

Switch from the administrator exec mode to the operator exec mode using the "disable" command.
The prompt character will change to "xg>."

```
xg# disable
xg>
```

5.4.3 configure terminal

Function

Switches from the administrator exec mode to the global configuration mode.

Prompt

xg#

Command syntax

```
configure terminal
```

Command type

Operation management commands

Message

```
Configuration is locked by other.
```

Explanation

A switch in state is not possible because a terminal switching to global configuration mode exists.

Solution

After switching the terminal switching to global configuration mode to administrator EXEC mode, re-execute the command in this terminal.

Example

Switch from the administrator exec mode to the global configuration mode using the "configure terminal" command.
The prompt character will change to "xg(config)#."

```
xg# configure terminal
xg(config)#
```

5.4.4 exit

Function

Returns one level from the current command mode.
The relationship between the current command mode and the command mode switching status after executing the "exit" command is as follows:

Current command mode	Status after switch/ mode
Operator exec mode	Log out
Administrator exec mode	Log out
Global configuration mode	Administrator exec mode
Interface	Global configuration mode
Terminal edit mode	Global configuration mode

Prompt

xg>, xg#, xg(config)# , xg(config-if)# , xg(config-agg)# , xg(config-line)#

Command syntax

```
exit
```

Command type

Operation management commands

Example

Switch from the global configuration mode to the administrator exec mode using the "exit" command.
The prompt character will change to "xg#."

```
xg#(config)# exit
xg#
```

5.4.5 logout

Function

Logs out and disconnects the session of the terminal.

Prompt

xg>, or xg#

Command syntax

```
logout
```

Command type

Operation management commands

Example

Log out and disconnect the session of the terminal.

```
xg# logout
Connection closed by foreign host.
```

5.4.6 do

Function

Executes administrator exec mode commands from the global configuration mode.
Using this command saves the trouble of having to return to the administrator exec mode.

Prompt

xg(config)#

Command syntax

```
do LINE
```

Parameter

- LINE
  Specifies the command line of the administrator exec mode to execute.

Command type

Operation management commands

Message

```
Can't execute this command.
```
Explanation
The specified command cannot be executed with the do command.
Solution
Execute a command in an appropriate mode without using the do command.

Example

Set "bridge aging-time" from the global configuration mode. And then, without returning to the administrator exec mode, check the setting status using the "show bridge" command.

```
xg(config)# bridge aging-time 200
xg(config)# do show bridge
Switch Basic Information                     2005/08/22-12:16:17
================================================================
Aging Time               : 200 (sec)
Cut-through Switching     : Enabled
Jumbo Frame Support       : Enabled  Max Frame Size: 9216 (byte)
Independent-vlan-learning: Enabled
DiffServ ToS             : Disabled
================================================================
```

5.4.7 help

Function

Displays help on how to use CLI.

Prompt

xg>, xg#, xg(config)# , xg(config-if)# , xg(config-agg)# , xg(config-line)#

Command syntax

```
Help
```

Command type

Operation management commands

5.4.8 password

Function

Change the login password to the XG700.

Prompt

xg#

Command syntax

```
Password
```

Command type

Operation management commands

Default

"password"

Message

```
Bad password: too short.
```
    Explanation
        The password is too short.
    Solution
        Specify the password using five or more characters.

```
Bad password: too long.
```
    Explanation
        The password is too long.
    Solution
        Specify the password using 16 or less characters.

Note

- Specify the password length in the range of 5 to 16 characters.
- Make a note of the changed password and retain it. If you forget the password, you cannot login the next time.
- Login password information is not included in the configuration information. Therefore, even when the configuration information is downloaded in another device, the password information will not be reflected.

Example

Change the login password.

```
xg# password
Changing password for admin
Old password:******      ← Enter the password.
                            (The entered password is not displayed.)
Enter the new password (minimum of 5, maximum of 16 characters)
Please use a combination of upper and lower case letters and numbers.
Enter new password:******        ← Enter the password.
                                    (The entered password is not displayed.)
Re-enter new password:*****  ← Enter the new password again for confirmation.
Password changed.               (The entered password is not displayed.)
```

5.4.9 reset

Function

Restarts the XG700.

Prompt

xg#

Command syntax

```
reset [ factory-default ]
```

Parameter

● **[factory-default]**
When this parameter is specified, the contents of startup-config, log, and login password will be returned to the factory default.

Command type

Operation management commands

Note

● When the system is restarted without saving the information of running-config in startup-config, the information set in running-config will be lost.
● When the XG700 is restarted, connected telnet will be disconnected. Reconnect it after restart of the system is complete.

Example

Start XG700 using the "reset" command.
When the "reset" command is executed, the confirmation message is displayed.

```
xg# reset
Do you restart system? (y/n) :  Confirmation message is displayed.
```

When "y" or "Y" is entered for the confirmation message, reboot process will be performed. When "n" or "N" is entered for the confirmation message, reboot process will be cancelled.

5.4.10 system shutdown

Function

Stops the system of the XG700 and prepares it for power off.
After executing this command, when STATUS-LED goes out, turn off the power of the XG700.

Prompt

xg#

Command syntax

```
system shutdown
```

Command type

Operation management commands

Note

● When the power of the XG700 is turned off without executing the system shutdown command, the maintenance information will not be stored normally. Furthermore, if the power is turned off while data is being written in the nonvolatile memory, it may be destroyed, and the system may not be started.
● When the system is shut down without saving the information of running-config in startup-config, the information set in running-config will be lost.

Example

When the "system shutdown" command is executed, the confirmation message is displayed.

```
xg# system shutdown
Do you shutdown system? (y/n) :  ←  Confirmation message is displayed.
```

When "y" or "Y" is entered for the confirmation message, system shutdown process will be performed. When "n" or "N" is entered for the confirmation message, system shutdown process will be canceled.

5.4.11 date

Function
Displays the date/time of the current system clock.

Prompt
xg>, or xg#

Command syntax
```
date
```

Command type
Operation management commands

Output form
The current date and time is displayed in the form of "year/month/date-hour:minute:second."
```
xg2# date
2005/08/22-14:31:02
```

5.4.12 date set

Function
Changes the date/time of the current system clock.

Prompt
xg#

Command syntax
```
date set DATE-TIME
```

Parameter
- DATE-TIME
  Enter the date and time in the form of "MMDDhhmm[[CC]YY][.ss]."
    - **MM**
      Specify the month to set in the range of 1 to 12.
    - **DD**
      Specify the day to set in the range of 1 to 31.
    - **hh**
      Specify the hour to set in the range of 0 to 23.
    - **mm**
      Specify the minute to set in the range of 0 to 59.
    - **[[CC]YY]**
      Specify the first two digits of the four digits of the year for CC. When it is omitted 20 will be specified.
      Specify the last two digits of the four digits of the year for YY.
      If CC and YY are both omitted, the year will not be changed.
    - **[.ss] (second <0 - 59>)**
      Specify the second to set in the range of 0 to 59.

Command type
Operation management commands

Message
```
% invalid date %1$.
```
    Explanation
      The specified parameter of the date and time is incorrect.
      [[Inserted string]]%1$: specified date and time
    Solution
      Check that no mistakes have been made in the specifications for the parameter of date and time.

Example
Set the date and time of the system to 20:25:30, June 30, 2005.
```
xg# date set 06302025.30          (Year omitted)
or
xg# date set 0630202505.30          (Year specified with the last two didits)
or
xg# date set 063020252005.30     (Year specified with four didits)
```

5.4.13 date timezone

Function

Sets the time zone of the XG700.
Use the no form to return to the default setup.

Prompt

xg>, or xg#

Command syntax

```
Date timezone gmt OFFSET
No date timezone
```

Parameter

- gmt [OFFSET]
  Specifies the time difference from GMT (Greenwich mean time) and sets the time zone.
  The time difference from GMT is specified in the form of "+hhmm" (+ can be omitted) when setting forward from GMT.
  It is specified in the form of "-hhmm" when setting backward from GMT.
    - **hh**
      Specifies the hour difference from GMT.
    - **mm**
      Specifies the minute difference from GMT.
  It can be set in the range of -1200 to +1300.

Command type

Operation management commands

Default

0000

Message

% invalid input %1$.
  Explanation
  The specified parameter of the time difference is incorrect.
  [[Inserted string]]%1$: specified time difference
  Solution
  Check that no mistakes have been made in the specifications for the parameter of time difference.

Note

- The setting will be valid after restarting the system.
- Use the "show system information" command to confirm the settings.
- The setting will not be included in the configuration information. Therefore, even if the configuration information was restored at another device, the setting of the timezone will be invalid.

Example

Set the time zone to +9:00 (JST: Japan Standard Time) from GMT.

```
xg# date timezone gmt +0900
or
xg# date timezone gmt 0900
```

Then set the time zone to -1:30 from GMT.

```
xg# date timezone gmt -0130
```

5.4.14 date summer-time

Function

Sets the Day Light Saving Time.
Use the no form to return to the default setup.

Prompt

xg#

Command syntax

```
date summer-time START DAY[/TIME] END DAY[/TIME] [OFFSET]
```

Parameter

● START_DAY[/TIME]
Specifies the day/time to start the Day Light Saving Time in any form of "Mm.w.d/hhmm," "Jn/hhmm," or "n/hhmm."

- **Mm.w.d**
Specifies the day to start the Day Light Saving Time in m, w, and d.
Specify month for m (1 to 12), week for w (1 to 5), and day of the week for d (0 to 6).
w = 1 means the first week where d exists, and w = 5 means the last week.
d = 0 means Sunday.

- **Jn**
Specifies the day to start the Day Light Saving Time in day of year (Julian day). In leap years, February 29th is not counted. Specify a number in the range of 1 to 365 for n.

- **n**
Specifies the day to start the Day Light Saving Time in day of year. In leap years, February 29th is counted. Specify a number in the range of 1 to 365 for n.
Specifies the following values, for the first day of each month in "Jn" specification and "n" specification.

Month/Day	Jn specification	specification	
		Common year	Leap year
January 1st	J1	1	1
February 1st	J32	32	32
March 1st	J60	60	61
April 1st	J91	91	92
May 1st	J121	121	122
June 1st	J152	152	153
July 1st	J182	182	183
August 1st	J213	213	213
September 1st	J244	244	245
October 1st	J274	274	275
November 1st	J305	305	306
December 1st	J335	335	336

- **hh**
Specifies the hour to start the Day Light Saving Time.
- **mm**
Specifies the minute to start the Day Light Saving Time.
When hhmm is omitted, "0100" (an hour) is specified.

● END_DAY[/TIME]
Specifies the day/time to end the Day Light Saving Time. The description format is the same as "START_DAY/TIME."

● OFFSET
Specifies the time to set forward in the period of the Day Light Saving Time in the form of "hhmm."

- **hh**
Specifies the hour to set forward in the period of the Day Light Saving Time with a two-digit number. It can be set in the range of 00 to 23.
- **mm**
Specifies the minute to set forward in the period of the Day Light Saving Time with a two-digit number. It can be set in the range of 00 to 59.
When this parameter is omitted, "0100" (an hour) is specified.

Command type

Operation management commands

Default

None

Message

% DATE '%1$' is invalid
Explanation
The specification of date/time is incorrect.
[[Inserted string]]%1$: incorrect parameter value is displayed.
Solution
Correct the error of the parameter, and execute it again.

```
% OFFSET '%1$' is invalid
```
Explanation

The specification of OFFSET is incorrect.

[[Inserted string]]%2$: incorrect parameter value is displayed.

Solution

Correct the error of the parameter, and execute it again.
```
% Parameter '%1$' is too long
```
Explanation

Specification of the parameter is too long.

[[Inserted string]]%1$: incorrect parameter value is displayed.

Solution

Correct the error of the parameter, and execute it again.
```
% DATE '%1$' is too long
```
Explanation

Specification of the date is too long.

[[Inserted string]]%1$: incorrect parameter value is displayed.

Solution

Correct the error of the parameter, and execute it again.
```
% Type of start-day and end-day is inconsistency
```
Explanation

Different forms of dates are specified for the start date and end date to the parameters of the Day Light Saving Time.

Solution

Make the forms of dates of the start date and end date of the Day Light Saving Time (Mm.w.d/ Jn/ n) consistent, and execute it again.

Note

● The setting will be valid after restarting the system.
● Use the "show system information" command to confirm the settings.
● The setting will not be included in the configuration information. Therefore, even if the configuration information was restored at another device, the setting of the timezone will be invalid.

Example

Set the Day Light Saving Time (from 2:00 on Sunday of the first week in April to 02:00 on Sunday of the fifth week in October, with the time difference of an hour).

```
xg# date summer-time M4.1.0/0200 M10.5.0/0200 0100
```

5.4.15 ping

Function

Checks if communication with the specified host is possible by sending ICMP Echo Request packet to the specified host from the manage LAN interface of the XG700 and receiving ICMP Echo Reply packet.

Prompt

xg>, or xg#

Command syntax

```
ping HOST [ count <1-100> ]
```

Parameter

- HOST
  Specifies the hostname or IP address to check.
- count <1-100>
  Sets the count to transmit. 1 to 100. If omitted, 10 will be specified.
  Press Ctrl + C to abort ping process.

Command type

Operation management commands

Output form (when the host to check is working normally)

```
xg2# ping white
PING white (192.168.1.1) from 192.168.1.2 : 56(84) bytes of data.
64 bytes from white (192.168.1.1): icmp_seq=1 ttl=64 time=0.780 ms ← There is a response.
64 bytes from white (192.168.1.1): icmp_seq=2 ttl=64 time=0.592 ms ← There is a response.
.........
.........
--- white ping statistics ---        ← Displayed after aborting the process pressing Ctrl+ C.
5 packets transmitted, 5 received, 0% loss, time 4041ms
rtt min/avg/max/mdev = 0.549/0.619/0.724/0.060 ms
```

Output form (when the host to check is in trouble)

```
xg2# ping blue
PING blue (192.168.1.3) from 192.168.1.2 : 56(84) bytes of data.← There is no response.
292 packets transmitted, 0 received, 100% loss, time 293516ms ← Displayed after aborting the process
                                                                  pressing Ctrl+ C.
```

Message

```
ping: unknown host %1$.
```
> **Explanation**
> The specified hostname is incorrect.
> [[Inserted string]]%1$: specified hostname
> **Solution**
> Review the hostname, and execute it again.

5.4.16 enable password

Function

Sets the password for the enable command.
Use the no form to enable the password protection.

Prompt

xg(config)#

Command syntax

```
enable password

no enable password
```

Parameter

● password
Specifies the password in enable.
After executing the command, entering of the password will be prompted. (Enter twice for confirmation.)
Specify the password length in the range of five to 16 characters.

Command type

Configuration command

Default

None

Note

● The set password will be encoded and reflected in running-config.
● The content of the password will not be displayed by any means after executing the command. Make a note of the set password and retain it.

Example

Set the enable password from the global configuration mode using the "enable password" command.
And then, return to the administrator exec mode, execute "show running-config," and the encoded password content will be displayed with "enable encryption-password."

```
xg(config)# enable password
Enter password:                    ← Enter the password.
                                   (The entered password is not displayed.)
Re-enter password:                 ← Enter the password again for confirmation.
                                   (The entered password is not displayed.)
xg(config)# exit
xg# show running-config
. . . .
. . . .
enable encryption-password 4DUzjKbFg9.iU  ← The password is encoded and output.
!
. . . .
```

5.4.17 banner

Function

Sets the banner string to display when logging in to the XG700.
Use the no form to deter the banner string to display.

Prompt

xg(config)#

Command syntax

```
banner login LINE
banner login default

no banner
```

Parameter

- login LINE
  Sets a banner string.
- login default
  Returns the banner string to default ("XG700 firmware identification information").

Command type

Configuration command

Default

"XG700 firmware identification information"

The firmware identification information is the same information as displayed in FirmWare[1] or FirmWare[2] of the "show system information" command.

Example

Set the banner string to "Welcome to XG700."

```
xg(config)# banner login Welcome to XG700
```

5.4.18 ntp-server

Function

Synchronizes the specified NTP server with the system time, using NTP (Network Time Protocol) Version3. Up to four NTP servers can be registered.
Use the no form to return the setting to default.

Prompt

xg(config)#

Command syntax

```
ntp-server host HOST
ntp-server polling MINUTES
ntp-server timeout SECONDS

no ntp-server host HOST
no ntp-server polling
no ntp-server timeout
```

Parameter

- host HOST
  Specifies the hostname or IP address of an NTP server.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- polling MINUTES
  Specifies the time interval to synchronize the time with an NTP server in minutes. The value can be set in the range of 1 to 1440.
- timeout SECONDS
  Specifies the response latency from an NTP server in seconds. The value can be set in the range of 1 to 4.

Command type

Configuration command

Default

host   : None
polling: 60 minutes
timeout: 1 second

Message

% hostname can register up to 4.
Explanation
The number of hosts that can be set to an NTP server is four.
Solution
After deleting unnecessary NTP server settings, execute it again.
% Cannot find %1$
Explanation
The specified host cannot be found.
[[Inserted string]]%1$: specified hostname
Solution
Check whether the hostname is correct, or the hostname is registered.
% Hostname is too long
Explanation
The specified hostname is too long.
Solution
Check whether the hostname is correct.
% Invalid IP-address.
Explanation
The specified format of the IP address or specified content is incorrect.
Solution
Specify the IP address in a correct format and execute it again.

Note

- Set the time zone and Day Light Saving Time to a correct value beforehand, and reboot a system. Then, set this function.

Example

Register an NTP server with IP address "192.168.1.1" and set the interval for time synchronization to 600 minutes.

```
xg(config)# ntp-server host 192.168.1.1
xg(config)# ntp-server polling 600
```

5.5 Configuration File Operation Command

This section explains the commands related to configuration file and file operation in the volatile memory.

5.5.1 copy running-config startup-config

Function

Stores the configuration file (running-config) in the volatile memory, on which the system is currently operating, to startup-config in nonvolatile memory.
When changing the setting of running-config, use the setting when it is used after restarting the system.

Prompt

xg#

Command syntax

```
copy running-config startup-config
```

Command type

Operation management commands

Note

● When the system is restarted without saving the information of running-config in startup-config, the information set in running-config will be lost.
● Be sure to upload the contents of the startup-config file to a TFTP server because the contents will be overwritten.

Example

Store running-config in startup-config. Then, check the information of startup-config using the show command.

```
xg# copy running-config startup-config
xg# show startup-config
```

5.5.2 show running-config

Function

Displays the configuration information (running-config) in the currently operating volatile memory.

Prompt

xg#

Command syntax

```
show running-config
```

Command type

Operation management commands

Example

Display the content of running-config.

```
xg# show running-config
```

5.5.3 show running-config (redirect)

Function

Copies the configuration information (running-config) in the currently operating volatile memory to the volatile memory. Also, it can be copied directly to a file in the TFTP server using the "tftp" command.

Prompt

xg#

Command syntax

```
show running-config > CONFIG-FILE
show running-config | redirect CONFIG-FILE
```

```
show running-config | tftp HOST REMOTE-FILE
```

Parameter

- ● > CONFIG-FILE
  Specifies the file name to copy in the volatile memory.
- ● | redirect CONFIG-FILE
  Specifies the file name to copy in the volatile memory. It means the same as "> CONFIG-FILE."

> **Point**
>
> Follow the rules below in specifying file names:
> - File names must start with alphabet ([a - z], [A - Z]).
> - Characters usable for file names are: alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), underscore (_), and period (.)

- ● | tftp
  Directly copies to a file on the TFTP server.
- ● HOST
  Specify the hostname of the TFTP server or IP address.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- ● REMOTE-FILE
  pacifies the file name to copy onto the TFTP server.

Command type

Operation management commands

Message

% tftp: %1$: Host name lookup failure
  Explanation
  The specified hostname does not exist.
  [[Inserted string]]%1$: specified hostname
  Solution
  Check whether the specified hostname is correct.

% tftp: server says: %1$
  Explanation
  An error has been received from the TFTP server.
  [[Inserted string]]%1$: content of error message received from the TFTP server.
  The content of message depend on the type of the TFTP server. For example, there is a message as below.
  - File not found: There are no files in the TFTP server.
  - Access violation: File permission error has occurred in the TFTP server.
  - Not allowed to overwrite existing files: The file in the TFTP server cannot be overwritten.
  - File already exists: There are files in the TFTP server.
  - Unknown transfer ID: Process will be aborted in time out.
  Solution
  Take actions in accordance with the message received from the TFTP server.

% tftp: last timeout
  Explanation
  There is no response from the TFTP server. There is a possibility of network communication error with the management LAN, or the setting of time out of the TFTP server may be too short.
  Solution
  Check whether there is no problem in network connection with the TFTP server using the "ping" command. If the problem persists, review the setting of time out of the TFTP server.

% Invalid IP-address.
  Explanation
  The specified format of the IP address or specified content is incorrect.
  Solution
  Specify the IP address in a correct format and execute it again.

Note

- When copied in the volatile memory, the information will be lost when the system is restarted.
  If uploading is necessary, restart the system after storing the data in the TFTP server using the "tftp" command.
- If there are no files in the TFTP server, or directories are specified, an error may occur. (it depends on the functionality of the TFTP server)
- If timeout setting of the TFTP server is too short, an error may occur. (it depends on the functionality of the TFTP server)

Example

Copy the content of running-config to the file name "run_conf."
Then, upload the copied "run_conf" file with the file name "run_conf_20050822" in the TFTP server called "host1."

```
xg# show running-config > run_conf
xg# tftp put host1 run_conf run_conf_20050822
```

Copy the content of running-config directly to a file in the TFTP server "host1."

```
xg# show running-config | tftp host1 run_conf run_conf_20050822
```

5.5.4 show startup-config

Function

Displays the configuration information (startup-config) stored in the nonvolatile memory of the XG700.

Prompt

xg#

Command syntax

```
show startup-config
```

Command type

Operation management commands

Example

Display the content of startup-config.

```
xg# show startup-config
```

5.5.5 show startup-config (redirect)

Function

Copies the configuration information (startup-config) stored in the nonvolatile memory of the XG700 to the volatile memory. Also, it can be copied directly to a file in the TFTP server using the "tftp" command.

Prompt

xg#

Command syntax

```
show startup-config > CONFIG-FILE
show startup-config│ redirect CONFIG-FILE
```

```
show startup-config │ tftp HOST REMOTE-FILE
```

Parameter

- ● > CONFIG-FILE
  Specifies the file name to copy in the volatile memory.
- ● | redirect CONFIG-FILE
  Specifies the file name to copy in the volatile memory. It means the same as "> CONFIG-FILE."

> **Point**
> Follow the rules below in specifying file names:
> - File names must start with alphabet ([a - z], [A - Z]).
> - Characters usable for file names are: alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), underscore (_), and period (.)

- ● | tftp
  Directly copies to a file on the TFTP server.
- ● HOST
  Specify the hostname of the TFTP server or IP address.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- ● REMOTE-FILE
  Specifies the file name to copy onto the TFTP server.

Command type

Operation management commands

Message

% tftp: %1$: Host name lookup failure
>   **Explanation**
>   The specified hostname does not exist.
>   [[Inserted string]]%1$: specified hostname
>   **Solution**
>   Check whether the specified hostname is correct.

% tftp: server says: %1$
>   **Explanation**
>   An error has been received from the TFTP server.
>   [[Inserted string]]%1$: content of error message received from the TFTP server.
>   The content of message depend on the type of the TFTP server. For example, there is a message as below.
>   - File not found: There are no files in the TFTP server.
>   - Access violation: File permission error has occurred in the TFTP server.
>   - Not allowed to overwrite existing files: The file in the TFTP server cannot be overwritten.
>   - File already exists: There are files in the TFTP server.
>   - Unknown transfer ID: Process will be aborted in time out.
>   **Solution**
>   Take actions in accordance with the message received from the TFTP server.

% tftp: last timeout
>   **Explanation**
>   There is no response from the TFTP server. There is a possibility of network communication error with the management LAN, or the setting of time out of the TFTP server may be too short.
>   **Solution**
>   Check whether there is no problem in network connection with the TFTP server using the "ping" command. If the problem persists, review the setting of time out of the TFTP server.

% Invalid IP-address.
>   **Explanation**
>   The specified format of the IP address or specified content is incorrect.
>   **Solution**
>   Specify the IP address in a correct format and execute it again.

Note

- When copied in the volatile memory, the information will be lost when the system is restarted.
  If uploading is necessary, restart the system after storing the data in the TFTP server using the "tftp" command.
- If there are no files in the TFTP server, or directories are specified, an error may occur. (it depends on the functionality of the TFTP server)
- If timeout setting of the TFTP server is too short, an error may occur. (it depends on the functionality of the TFTP server)

Example

Copy the content of running-config to the file name "run_conf."
Then, upload the copied "run_conf" file with the file name "run_conf_20050822" in the TFTP server called "host1."

```
xg# show startup-config > start_conf
xg# tftp put host1 start_conf start_conf_20050822
```

Copy the content of running-config directly to a file in the TFTP server "host1."

```
xg# show startup-config | tftp host1 start_conf_20050822
```

5.5.6 copy・・・startup-config

Function

Saves the configuration information stored in the volatile memory of the XG700 to the nonvolatile memory as startup-config.
Also, the configuration information can be loaded from the TFTP server using the "tftp" command.
After executing this command, it is necessary to restart the system using the "reset" command, in order to reflect the set content of startup-config.

Prompt

xg#

Command syntax

```
copy local CONFIG-FILE startup-config
copy tftp HOST REMOTE-FILE startup-config
```

Parameter

- local CONFIG-FILE
  Specifies the file name in the volatile memory, from which the data is copied.

  > **Point**
  >
  > Follow the rules below in specifying file names:
  > - File names must start with alphabet ([a - z], [A - Z]).
  > - Characters usable for file names are: alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), underscore (_), and period (.)

- tftp HOST
  Directly loads the files stored in the TFTP server.
  Specify the hostname of the TFTP server or IP address for HOST.
  IP addresses that can be set are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- REMOTE-FILE
  Specifies the file name stored on the TFTP server.

Command type

Operation management commands

Message

```
% Not found file: %1$
```
Explanation
The specified file cannot be found.
[[Inserted string]]%1$: specified file name
Solution
Check the file name, and execute it again.

```
% Config-file(header) is invalid: %1$
```
Explanation
The specified file is not the configuration file format.
[[Inserted string]]%1$: specified file name
Solution
Check the content of the file.

```
% Config-file(version/level) is invalid: %1$
```
Explanation
The configuration uploaded using a new version of firmware may not be used with an old version of firmware.
[[Inserted string]]%1$: specified file name
Solution
Check the content of the file.

```
% tftp: %1$: Host name lookup failure
```
Explanation

The specified hostname does not exist.

[[Inserted string]]%1$: specified hostname

Solution

Check whether the specified hostname is correct.

```
% tftp: server says: %1$
```
Explanation

An error has been received from the TFTP server.

[[Inserted string]]%1$: content of error message received from the TFTP server.

The content of message depend on the type of the TFTP server. For example, there is a message as below.

− File not found: There are no files in the TFTP server.

− Access violation: File permission error has occurred in the TFTP server.

Solution

Take actions in accordance with the message received from the TFTP server.

```
% tftp: write: No space left on device
```
Explanation

There is no free space for files to use as a work area on the XG700. Some of the files being imported may remain in the XG700.

Solution

Delete the files on the XG700, which are being processed for import, and unnecessary files using the "delete" command, and execute it again.

```
% tftp: last timeout
```
Explanation

There is no response from the TFTP server. There is a possibility of network communication error with the management LAN, or the setting of time out of the TFTP server may be too short.

Solution

Check whether there is no problem in network connection with the TFTP server using the "ping" command. If the problem persists, review the setting of time out of the TFTP server.

```
% Invalid IP-address.
```
Explanation

The specified format of the IP address or specified content is incorrect.

Solution

Specify the IP address in a correct format and execute it again.

Note

● The startup-config uploaded using a new version of firmware may not be downloaded with an old version of firmware.

Example

Import the "start_conf_20050822" file stored on the TFTP server "host1" with the file name "start_conf."

Then, download the imported "start_conf" file to startup-config.

```
xg# tftp get host1 start_conf_20050822 start_conf
xg# copy local start_conf startup-config
```

Download the "start_conf_20050822" file stored on the TFTP server "host1 directly to startup-config.

```
xg# copy tftp host1 start_conf_20050822 startup-config
```

5.5.7 dir/ls

Function

Lists the files in the volatile memory of the XG700.

Prompt

xg#

Command syntax

```
dir
ls
```

Command type

Operation management commands

Output form

```
xg# dir
  Update-time          File-size  File-name
- 2005/08/22 19:23:03        913  system_info_20050822
- 2005/08/22 19:22:41      2,604  start_conf_20050822
- 2005/08/22 19:22:19      2,655  run_conf_20050822

 unused: 14,639,104 bytes
```

●   Update-time
  Displays the file update time.
●   File-size
  Displays the file size (byte).
●   File-name
  Displays the file name.
●   unused
  Displays the size of free memory.

Example

Copy running-config, startup-config and the system information to files in the volatile memory, and then list the files in the volatile memory.

```
xg# show running-config > run_conf_20050822
xg# show startup-config > start_conf_20050822
xg# show system information > system_info_20050822
xg# ls
  Update-time          File-size  File-name
- 2005/08/22 19:23:03        913  system_info_20050822
- 2005/08/22 19:22:41      2,604  start_conf_20050822
- 2005/08/22 19:22:19      2,655  run_conf_20050822

 unused: 14,639,104 bytes
```

5.5.8 delete

Function
Deletes the files in the volatile memory of the XG700.

Prompt
xg#

Command syntax
```
delete FILE-NAMES
```

Parameter
● FILE-NAMES
Specifies the name of the file to delete in the volatile memory.
Specify a generic designation with "*" (asterisk) for the file name, and files whose "*" part corresponds to the file name of arbitrary strings will be deleted.

Command type
Operation management commands

Message
```
% cannot remove `%1$': No such file or directory
```
Explanation
The specified file does not exist.
[[Inserted string]]%1$: specified file name
Solution
Check whether the specified file is correct.

Example
Delete a file with the file name "run_conf_20050822".
```
xg# delete run conf 20050822
```
Specify a generic designation with "run_conf_*" after a file name. All files whose file name starts with "run_conf_" will be deleted.
```
xg# delete run conf *
```
Specify only "*" for the file name to delete all user files on the volatile memory.
```
xg# delete *
```

5.5.9 rename

Function

Changes the file names in the volatile memory.

Prompt

xg#

Command syntax

```
rename FROM-NAME TO-NAME
```

Parameter

- FROM-NAME
  Specifies the file name to change.
- TO-NAME
  Specifies a file name to which the file name will be changed.

> **Point**
>
> Follow the rules below in specifying file names:
> - File names must start with alphabet ([a - z], [A - Z]).
> - Characters usable for file names are: alphabet ([a - z], [A - Z]), numerical characters ([0 - 9]), underscore (_), and period (.)

Command type

Operation management commands

Message

% unable to rename `%1$': No such file or directory

    Explanation

        The specified file does not exist.

        [[Inserted string]]%1$: specified file name

    Solution

        Check whether the specified file is correct.

Example

Change a file with the file name "run_conf_20050822" to "run_conf."

```
xg# rename run_conf_20050822 run_conf
```

5.5.10 tftp get

Function

Downloads files on the TFTP server into the volatile memory of the XG700.

Prompt

xg#

Command syntax

```
tftp get HOST REMOTE-FILE [ LOCAL-FILE ]
```

Parameter

- **HOST**
  Specify the hostname of the TFTP server or IP address.
  IP addresses that can be specified are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- **REMOTE-FILE**
  Specifies the file name of the files stored on the TFTP server.
- **[LOCAL-FILE]**
  Specifies the file name to save in the volatile memory.
  When this parameter is omitted, it will be the same file name as "REMOTE-FILE."

Command type

Operation management commands

Message

% tftp: %1$: Host name lookup failure
> **Explanation**
> The specified hostname does not exist.
> [[Inserted string]]%1$: specified hostname
> **Solution**
> Check whether the specified hostname is correct.

% tftp: server says: %1$
> **Explanation**
> An error has been received from the TFTP server.
> [[Inserted string]]%1$: content of error message received from the TFTP server.
> The content of message depend on the type of the TFTP server. For example, there is a message as below.
> - Access violation: File permission error has occurred in the TFTP server.
> - Could not open requested file for reading: There are no files in the TFTP server.
> **Solution**
> Take actions in accordance with the message received from the TFTP server.

% tftp: write: No space left on device
> **Explanation**
> There is not enough free space to store the files on the XG700. Some of the files being imported will remain on the XG700.
> **Solution**
> After deleting the files, which are being processed for import, and unnecessary files using the "delete" command, execute it again.

% tftp: last timeout
> **Explanation**
> There is no response from the TFTP server. There is a possibility of network communication error with the management LAN, or the setting of time out of the TFTP server may be too short.
> **Solution**
> Check whether there is no problem in network connection with the TFTP server using the "ping" command. If the problem persists, review the setting of time out of the TFTP server.

% local file: No such file or directory
> **Explanation**
> The specified file does not exist on the XG700.
> **Solution**
> Check the status of the file on the XG700.

% Invalid IP-address.
> **Explanation**
> The specified format of the IP address or specified content is incorrect.
> **Solution**
> Specify the IP address in a correct format and execute it again.

Example

Specify the "start_conf_20050822" file, which has been uploaded to the TFTP server "host1", with the file name "start_conf", and then import it to the XG700.
Then, check whether the file size of the file imported with the "tftp" command is persistent using the dir/(ls) command.

```
xg# tftp get host1 start_conf_20050822 start_conf
xg# ls
  Update-time        File-size  File-name
- 2005/08/22 19:22:41     2,604  start_conf
```

5.5.11 tftp put

Function

Uploads the files into the volatile memory to the TFTP server.

Prompt

```
xg#
```

Command syntax

```
tftp put HOST LOCAL-FILE [ REMOTE-FILE ]
```

Parameter

- ● HOST
  Specify the hostname of the TFTP server or IP address.
  IP addresses that can be specified are: 1.0.0.1 - 126.255.255.254, 128.0.0.1 - 191.255.255.254, and 192.0.0.1 - 223.255.255.254.
- ● LOCAL-FILE
  Specifies a file name to upload.
- ● [REMOTE-FILE]
  Specifies the file name to use when saving on the TFTP server.
  When this parameter is omitted, it will be the same file name as "LOCAL-FILE."

Command type

Operation management commands

Message

```
% tftp: %1$: Host name lookup failure
```
Explanation
The specified hostname does not exist.
[[Inserted string]]%1$: specified hostname
Solution
Check whether the specified hostname is correct.
```
% tftp: server says: %1$
```
Explanation
An error has been received from the TFTP server.
[[Inserted string]]%1$: content of error message received from the TFTP server.
The content of message depend on the type of the TFTP server. For example, there is a message as below.
- – File not found: There are no files in the TFTP server.
- – Access violation: File permission error has occurred in the TFTP server.
- – Not allowed to overwrite existing files: The file in the TFTP server cannot be overwritten.
- – File already exists: There are files in the TFTP server.
- – Unknown transfer ID: Process will be aborted in time out.

Solution
Take actions in accordance with the message received from the TFTP server.
```
% tftp: last timeout
```
Explanation
There is no response from the TFTP server. There is a possibility of network communication error with the management LAN, or the setting of time out of the TFTP server may be too short.
Solution
Check whether there is no problem in network connection with the TFTP server using the "ping" command. If the problem persists, review the setting of time out of the TFTP server.
```
% local file: No such file or directory
```
Explanation
The specified file does not exist on the XG700.
[[Inserted string]]%1$: specified file name
Solution
Check the status of the file on the XG700.
```
% Invalid IP-address.
```
Explanation
The specified format of the IP address or specified content is incorrect.
Solution
Specify the IP address in a correct format and execute it again.

Note

- ● If there are no specified files in the TFTP server, or directories are specified, an error may occur. (it depends on the functionality of the TFTP server)
- ● When transferring a file with a large file size, if the time out is set short on the TFTP server, an error may occur. (it depends on the functionality of the TFTP server)
- ● In order to check whether the file has been transferred successfully, check that the file size displayed by the "dir" or "ls" command is identical to the size of the file transferred onto the TFTP server.

Example

Copy the content of running-config to the file name "run_conf."
Then, upload the copied "run_conf" file with the file name "run_conf_20050822" in the TFTP server called "host1."

```
xg# show running-config > run_conf
xg# tftp put host1 run_conf run_conf_20050822
```

5.6 Switch Basic Configuration Commands

This section explains configuration commands related to general operation of the switch.

5.6.1 clear bridge mac-address-table

Function

Deletes dynamically-learned MAC addresses from the MAC address table.

Prompt

xg#

Command syntax

```
#clear bridge mac-address-table dynamic { all | port <1-12> | agg-port <1-6> }
```

Parameter

- dynamic { all | port <1-12> | agg-port <1-6> }
  Specifies the port to delete the MAC address.
  - all
    Deletes MAC addresses dynamically-learned at every port.
  - port <1-12>
    Specifies the port number to delete.
  - agg-port <1-6>
    Specifies the aggregation group number to delete.

Command type

Operation management commands

Message

```
% Aggregation-port not bound to bridge
```
  Explanation
  The specified aggregation group is not created.
  Solution
  Check whether the specified aggregation group number is correct.
```
% Can't clear port which belongs to an aggregation port
```
  Explanation
  A port consisting of a link aggregation cannot be specified and deleted.
  Solution
  Specify an aggregation group and delete the MAC address.

Example

Delete all dynamically-learned MAC addresses.

```
xg# clear bridge mac-address-table dynamic all
```

5.6.2 show bridge

Function

Displays the basic configuration file of the switch.

Prompt

xg> or xg#

Command syntax

```
show bridge
```

Command type

Operation management commands

Output form

```
xg# show bridge
Switch Basic Information                            2005/08/22-12:12:15
=============================================================================
Aging Time                : {Disabled | <10-1756> } (sec)
Cut-through Switching     : {Disabled | Enabled }
Jumbo Frame Support       : {Disabled | Enabled   Max Frame Size: 9216 (byte) }
Independent-vlan-learning: {Disabled | Enabled }
DiffServ ToS              : {Disabled | Enabled }
=============================================================================
```

● Aging Time
  Displays the ageing time of the MAC address.
  – Disabled
    Aging is disabled.
  – <10-1756> (sec)
    Aging time (the time until a dynamically-learned MAC address expires) is displayed.
● Cut-through Switching
  The state whether cut-through is enabled as the switching method is displayed.
  – Disabled
    The switching method is Store-and-forward.
  – Enabled
    The switching method is Cut-through.
● Jumbo Frame Support
  The state whether jumbo frames are supported is displayed.
  – Disabled
    Disables jumbo frame forwarding.
  – Enabled   Max Frame Size
    Displays the maximum size of a jumbo frame that is in forwarding mode.
● Independent-vlan-learning
  The state whether the IVL (Independent Vlan Learning) mode is enabled is displayed.
  – Disabled
    The learning mode is SVL (Shared Vlan Learning) mode.
  – Enabled
    The learning mode is IVL(Independent Vlan Learning) mode.
● DiffServ ToS
  The QoS state based on ToS of DiffServ is displayed.
  – Disabled
    DiffServ is disabled.
  – IPv4
    DiffServ of IPv4 is enabled.
  – IPv6
    DiffServ of IPv6 is enabled.

Example

Display the basic configuration file of the switch.

```
xg# show bridge
```

5.6.3 show bridge mac-address-table

Function

Displays the MAC address information registered in the MAC address table.

Prompt

xg> or xg#

Command syntax

```
show bridge mac-address-table [ { static | dynamic | igmp-snooping } ]
```

Parameter

- static
  Displays only static MAC addresses.
- dynamic
  Displays only dynamic MAC addresses.
- igmp-snooping
  Displays MAC addresses registered in IGMP snooping.

When the parameters are omitted, all MAC addresses will be displayed.

Command type

Operation management commands

Output form

```
xg# show bridge mac-address-table
Mac Address Table Information                        2005/08/22-12:12:15

Static Mac-address Table
-------------------------------------------------------------------------
Mac-address    Vlan-id  Destination-port
-------------- -------- --------------------
0001.123a.4321 vlan-1   port 2
0002.123a.4321 vlan-1   port 4
0003.123a.4321 vlan-3   filter
ef01.123a.4321 vlan-3   port 1,2,3,4,5,6,7,8

Dynamic Mac-address Table
------------------------------------------------------------------
Mac-address    Vlan-id  Destination-port
-------------- -------- --------------------
0004.123a.4321 vlan-1   port 4

IGMP snooping learning group Mac-address Table
------------------------------------------------------------------
Mac-address    Vlan-id   Destination-port
-------------- --------- -------------------------------------
 (nothing)
==================================================================
```

MAC addresses are sorted in the ascending order.

- Mac-address
  The destination MAC address to which it belongs is displayed.
- Vlan-id
  VLAN ID to which it belongs is displayed.
  When the learning mode of the MAC address table is SVL (Shared Vlan Learning), "-------" is displayed.
- Destination-port
  The destination port number is displayed.
  – port <1-12>
    The destination port number is shown. For multicast MAC addresses, multiple port numbers are displayed.
  – filter
    It means MAC addresses to be filtered.
  – CPU
    This is used for the internal control of the XG700.

Message

% IGMP snooping is not enabled.

Explanation
Since Global IGMP snooping is disabled, igmp-snooping cannot be specified.

Solution
After enabling IGMP snooping, specify igmp-snooping.

Example

Display the content of all MAC address tables.

```
xg# show bridge mac-address-table
Mac Address Table Information 2005/08/22-12:12:15
====================================================================
Static Mac-address Table
--------------------------------------------------------------------
Mac-address    Vlan-id Destination-port
-------------- -------- --------------------
0001.123a.4321 vlan-1  port 2
0002.123a.4321 vlan-1  port 4
0003.123a.4321 vlan-3  filter
ef01.123a.4321 vlan-3  port 1 2 3 4 5 6 7 8

Dynamic Mac-address Table
--------------------------------------------------------------------
Mac-address    Vlan-id Destination-port
-------------- -------- --------------------
0004.123a.4321 vlan-1  port 4

IGMP snooping learning group Mac-address Table
--------------------------------------------------------------------
Mac-address    Vlan-id   Destination-port
-------------- --------- ----------------------------------------
(nothing)
====================================================================
```

By combining with the "| include" command, only information of specific conditions can be narrowed down and displayed. Display the information whose MAC address is 0002.123a.4321.

```
xg# show bridge mac-address-table | include port 4
0002.123a.4321 vlan-1   port 4
```

View the MAC address information forwarded to port 4 among static MAC addresses.

```
xg# show bridge mac-address-table static | include port 4
0002.123a.4321 vlan-1   port 4
0004.123a.4321 vlan-1   port 4
```

5.6.4 bridge forward-mode

Function

For the switching method of frame forwarding, the XG700 supports two types of Store-and-forward and Cut-through.
- Store-and-forward
  After a full frame is received, an error check is performed before forwarding.
- Cut-through
  After reading the data up to the beginning 64 bytes of a received frame, forwarding is immediately performed. Basically, FSC errors are not checked, which allows low latency forwarding.
  Use the no form return to the default setup.

Prompt

xg(config)#

Command syntax

```
bridge forward-mode { cut-through | store-and-forward }
no bridge forward-mode
```

Parameter

- forward-mode { cut-through | store-and-forward }
  Specifies the switching method.
    - cut-through
      Sets to Cut-through forwarding.
    - store-and-forward
      Sets to Store-and-forward forwarding.

Command type

Configuration command

Default

store-and-forward

Example

Set the switching method to Cut-through.

```
xg(config)# bridge forward-mode cut-through
```

5.6.5 bridge jumbo-frame

Function

Sets the maximum frame size of the jumbo frame. The maximum frame size that can be forwarded is 15360 byte.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
bridge jumbo-frame [ { 9216 | 12288 | 15360 } ]
no bridge jumbo-frame
```

Parameter

● jumbo-frame [{ 9216 | 12288 | 15360 }]
Specifies the maximum frame size of the jumbo frame.
  − 9216
    Sets the permitted jumbo frame size to 9216 byte.
  − 12288
    Sets the permitted jumbo frame size to 12288 byte.
  − 15360
    Sets the permitted jumbo frame size to 15360 byte.
When this parameter is omitted, 9216 is specified.

Command type

Configuration command

Default

None

Message

```
% Flowcontrol was changed to only-receive.
```
Explanation
When 15360 bytes is specified to the maximum frame size of the jumbo frame, Flow Control of every switch port has been changed to "only-receive" (Flow Control is valid only in receiving).
Solution
When the setting of Flow Control is used in "send-receive," set the jumbo frame to other than 15360.

Note

● On forwardable frame size
The forwardable frame size when Jumbo Frame Forwarding is disabled is as follows:

Frame status	Forwardable frame size
VLAN-untagged	1518 bytes
VLAN-tagged	1522 bytes
User VLAN + VLAN-tagged	1526 bytes

When Jumbo Frame Forwarding is permitted, the forwardable frame size will include the sizes of VLAN tag and user VLAN tag.
● When the settings of Jumbo Frame Forwarding is changed, link down will occur at every port. Therefore, if the spanning tree is active, STP State will be in the state of Discard. And as Rx signals are optimized, it takes about 15 seconds to become link up again.
● When the settings of Jumbo Frame Forwarding is changed, statistical values will be cleared. Therefore, if this command is executed while the monitor command is being executed, the statistics of the monitor command will temporarily show unusual values. In that case, either wait for the next automatic update time of the statistics, or execute the monitor command again.
● When the jumbo frame size is set to 15360 bytes, Flow Control setting of every port will be "only-receive" (only receiving is enabled).
● Violation due to port security, loop back alert, and storm control will be cleared.

Example

Set Jumbo Frame to permit up to 9216 bytes.
```
xg(config)# bridge jumbo-frame 9216
```

5.6.6 bridge learn-mode

Function

Sets the MAC address table learning mode.
The XG700 supports two types of SVL (Shared Vlan Learning) and IVL (Independent VLAN Learning).

- SVL(Shared VLAN Learning)
  Regardless of VLAN to which a frame belongs, it is learned as a MAC address entry (mapping of MAC address for port) common to every VLAN.
- IVL(Independent VLAN Learning)
  It is learned as a MAC address entry (mapping of MAC address for port) different in every VLAN.

Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
bridge learn-mode { ivl | svl }
no bridge learn-mode
```

Parameter

- learn-mode { ivl | svl }
  Specifies the MAC address table learning mode.
  - ivl
    Sets to IVL (Independent Vlan Learning).
  - svl
    Sets to SVL(Shared Vlan Learning).

Command type

Configuration command

Default

svl

Message

`% Setting becomes effective by rebooting.`
> **Explanation**
> The changed setting becomes enabled after the XG700 is restarted.
> **Solution**
> In order to enable the setting, after executing "copy running-config startup-config," restart the XG700 using the "reset" command.

Note

- When the learning mode is changed, the setting is not changed immediately, and will be enabled after the system is restarted. In order to enable the setting, after reflecting the setting to startup-config using the "copy running-config startup-config" command, restart the XG700 using the "reset" command.
- When changing from SVL to IVL, MAC addresses registered statically in SVL will be registered in VLAN ID 1. Also, when changing from IVL to SVL, MAC addresses registered statically in IVL will be all cleared, except for the ones registered in VLAN ID 1.

Example

This is used to set the MAC address table learning mode to IVL (Independent VLAN Learning). Then, move to the administrator exec mode, reflect the setting in startup-config, and restart the system.

```
xg(config)# bridge learn-mode ivl
xg(config)# exit
xg# copy running-config startup-config
xg# reset
```

5.6.7 bridge mac-address-table

Function

By registering static MAC addresses to the MAC address table, frames with specific destination MAC addresses can be forwarded to a specified port.

When a unicast static MAC address is registered, dynamic MAC addresses will not be learned, even when frames sent from the same MAC address are received from a different port. Also, by registering multicast static MAC addresses, frames to be sent to specific multicast can be assigned so that they will be forwarded only to the port this switch specifies. In this case, set the multicast forwarding mode to "forward-unregistered-mac" or "filter-unregistered-mac" using the "multicast-forwarding" command.

Use the no form to delete registered static MAC addresses.

Prompt

xg(config)#

Command syntax

```
bridge mac-address-table static MAC [ vlan <1-4094> ] [ port <1-12> [ <1-12>・・・ ] ]
[ agg-port <1-6> [ <1-6>・・・  ] ]
no bridge mac-address-table static MAC [ vlan <1-4094> ]
```

Parameter

● static MAC

Specifies static MAC addresses. When a frame with this destination address is received, it will be forwarded to the port of the specified switch.

The MAC address format is "HHHH.HHHH.HHHH," which is a 12-digit hexadecimal number with a period (.) inserted between every four digits.

> Point
> ● A unicast MAC address can register the information on only one port in the MAC address table. (As for IVL, a port per VLAN) Therefore, if the same unicast MAC address is already set to a different port, it will be replaced with the setting of a newly executed command.
> ● A multicast MAC address can register the information on multiple ports in the MAC address table. If the same multicast MAC address is already set to a different port, the setting of a newly executed command will be added to it.
> ● As for a broadcast address (FFFF.FFFF.FFFF), although it can register the information on multiple ports, it will be replaced with the setting of the last executed command.
> ● The following reserved multicast addresses, prescribed under the IEEE802.1D, cannot be registered.
> − In the range of 0180.C200.0000 - 0180.C200.0010
> − In the range of 0180.C200.0020 - 0180.C200.002F

● vlan <1-4094>

Specifies VLAN to register the MAC address. Specifies VLAN in the range of 1 to 4094.

This parameter is valid only when the learning mode of the MAC address table is IVL (Independent Vlan Learning). For SVL (Shared Vlan Learning), this parameter is not necessary.

● port <1-12> [<1-12>・・・]

Specifies the port number to which a frame is forwarded. This parameter is specified in the range of 1 to the maximum port number (=12).

Additionally, only when MAC addresses to register are static multicast addresses (including broadcast addresses), multiple addresses can be specified by separating the port numbers with " " (space).

● agg-port <1-6> [<1-6>・・・]

Specifies the aggregation group number to which a frame is forwarded. This parameter is specified in the range of 1 to 6.

Additionally, only when MAC addresses to register are static multicast addresses (including broadcast addresses), multiple addresses can be specified by separating the aggregation group numbers with " " (space).

Command type

Configuration command

Default

Only broadcast address (FFFF.FFFF.FFFF) is registered.

Message

% Unable to translate mac address %1$

Explanation

The specified format of the MAC address is incorrect.

[[Inserted string]]%1$: specified MAC address

Solution

After reviewing the specified format of the MAC address, execute the command again.

% Can't set vlan in case of shared-vlan-learning.

Explanation

When bridge learn-mode is SVL, VLAN cannot be specified.

Solution

Omit the specification of vlan, and execute the command again.

% Vlan id is not found. vid=%1$
 Explanation
 The specified VLAN is not created.
 [[Inserted string]]%1$: VLAN ID
 Solution
 Review the specification of vlan, and execute the command again.

% Port is not vlan member. port %1$ vid=%2$
 Explanation
 The port is not the specified VLAN member.
 [[Inserted string]]%1$: port number
 [[Inserted string]]%2$: VLAN ID
 Solution
 After adding the target port to vlan member, execute the command again.

% Aggregation port is not vlan member. agg-port %1$ vid=%2$
 Explanation
 The specified aggregation group is not a VLAN member.
 [[Inserted string]]%1$: port number
 [[Inserted string]]%2$: VLAN ID
 Solution
 After adding the specified aggregation group to vlan member, execute the command again.

% Can't set mac-address-table. %1$ vid=%2$
 Explanation
 The maximum number to register has been surpassed.
 [[Inserted string]]%1$: specified port name
 [[Inserted string]]%2$: VLAN ID
 Solution
 After deleting unnecessary MAC addresses, execute the command again.

% In case of a unicast address, can set only one port.
 Explanation
 For a unicast MAC address, only one item of port information can be specified.
 Solution
 Review the specification of port information, and execute the command again.

% port is a member of aggregation group. port %1$
 Explanation
 A port consisting of a link aggregation cannot be specified.
 [[Inserted string]]%1$: port number
 Solution
 Specify an aggregation group and execute the command again.

% Aggregation port is not found. agg-port %1$
 Explanation
 The specified aggregation group does not exist.
 [[Inserted string]]%1$: specified aggregation group number
 Solution
 Review the specified aggregation group number, and execute the command again.

% MAC address is reserved by IEEE802.1D %s.
 Explanation
 MAC addresses reserved under the IEEE802.1D cannot be specified.
 [[Inserted string]]%1$: MAC address
 Solution
 Review the specified MAC address.

Note

● Unicast MAC addresses/multicast MAC addresses that can be statically registered to the XG700 are 128 addresses maximum each. Additionally, since MAC addresses are managed with a hash table, a message saying an address cannot be registered may be displayed before reaching the maximum number.

Example

The following example shows how to add a static MAC address 0001.2300.4567.

```
xg(config)# bridge mac-address-table static 0001.2300.4567 port 2
```

Register a static MAC address c1b1.123a.4321 at VLAN3. When a frame with this MAC address as its destination is received at VLAN3, it will be forwarded to the port of the specified switch.

```
xg(config)# bridge mac-address-table static c1b1.123a.4321 vlan 3 port 4
```

As for registered MAC addresses, all registered MAC address information can be checked using the show mac address-table command. By combining with the "| include" command, only information of specific MAC address can be output.

```
xg# show bridge mac-address-table static
Static Mac-address Table
--------------------------------------------------------------
Mac-address    Vlan-id   Destination-port
-------------- --------- ------------------------------------
0001.123a.4321 vlan-1    port 2
0002.123a.4321 vlan-1    port 4
0100.5e00.1001 vlan-1    port 1 2 3 4 5 6 7 8
ffff.ffff.ffff vlan-1    port 1 2 3 4 5 6 7 8 9 10 11 12
0003.123a.4321 vlan-2    port 4
ffff.ffff.ffff vlan-2    port 1 2 3 4 5 6 7 8 9 10 11 12

xg# show bridge mac-address-table static | include 0001.123a.4321
0001.123a.4321 vlan-1    port 2
```

5.6.8 bridge mac-address-table filter

Function

By registering a MAC address to filter, the frame of a specific destination MAC address can be discarded.
When filtering of a MAC address is registered, dynamic learning to the MAC address table will not be performed, even when frames sent from the same MAC address are received from a different port.
Use the no form to delete the MAC address to filter.

Prompt

xg(config)#

Command syntax

```
bridge mac-address-table static MAC [ vlan <1-4094> ] filter
no bridge mac-address-table static MAC [ vlan <1-4094> ]
```

Parameter

● static MAC
Specifies the destination MAC address to filter.
The MAC address format is "HHHH.HHHH.HHHH," which is a 12-digit hexadecimal number with a period (.) inserted between every four digits.
● vlan <1-4094>
Specifies VLAN to filter. Specifies VLAN in the range of 1 to 4094.
This parameter is valid only when the learning mode of the MAC address table is IVL (Independent Vlan Learning). For SVL (Shared Vlan Learning), this parameter is not necessary.

Command type

Configuration command

Default

None

Message

% Unable to translate mac address %1$
    Explanation
    The specified format of the MAC address is incorrect. Broadcast addresses cannot be registered.
    [[Inserted string]]%1$: specified MAC address
    Solution
    After reviewing the specified format of the MAC address, execute the command again.
% Can't set vlan in case of shared-vlan-learning.
    Explanation
    When bridge learn-mode is SVL, VLAN cannot be specified.
    Solution
    Omit the specification of vlan, and execute the command again.
% Vlan id is not found. vid=%1$
    Explanation
    The specified VLAN is not created.
    [[Inserted string]]%1$: VLAN ID
    Solution
    Review the specification of vlan, and execute the command again.
% port is a member of aggregation group. port %1$
    Explanation
    A port consisting of a link aggregation cannot be specified.
    [[Inserted string]]%1$: port number
    Solution
    Specify an aggregation group and execute the command again.
% Aggregation port is not found. agg-port %1$
    Explanation
    The specified aggregation group does not exist.
    [[Inserted string]]%1$: specified aggregation group number
    Solution
    Review the specified aggregation group number, and execute the command again.
% MAC address is reserved by IEEE802.1D %s.
    Explanation
    MAC addresses reserved under the IEEE802.1D cannot be specified.
    [[Inserted string]]%1$: MAC address
    Solution
    Review the specified MAC address.

Note

● Unicast MAC addresses/multicast MAC addresses that can be statically registered to the XG700 are 128 addresses maximum each. Addresses to set as a filter are also included in these. Additionally, since MAC addresses are managed with a hash table, a message saying an address cannot be registered may be displayed before reaching the maximum number.

Example

The following is an example to filter a MAC address 0001.2300.4567.

```
xg(config)# bridge mac-address-table static 0001.2300.4567 filter
```

Filter a MAC address c1b1.123a.4321 at VLAN3. Frames, which have this MAC address as its destination, are discarded at VLAN3.

```
xg(config)# bridge mac-address-table static c1b1.123a.4321 vlan 3 filter
```

Using the show mac address-table command, a filtering MAC address and all registered MAC addresses information will be displayed. By combining with the "| include" command, only filtered MAC addresses can be output.

```
xg# show bridge mac-address-table static

Mac Address Table Information                       2005/06/23-07:18:06
==================================================================
Static Mac-address Table
--------------------------------------------------------------------
---
Mac-address     Type    Vlan-id Destination-port
--------------- ------- -------- --------------------
0001.123a.4321 static  vlan-1  port 2
0002.123a.4321 static  vlan-1  port 4
0003.123a.4321 static  vlan-3  filter
ef01.123a.4321 static  vlan-3  port 1 2 3 4 5 6 7 8
==================================================================

xg# show bridge mac-address-table static | include filter

0003.123a.4321 static  vlan-3  filter
```

5.6.9 bridge aging-time

Function

Sets the aging time (the remaining time before the MAC address dynamically learned in the MAC address table expires). The set aging time is applied to all VLANs.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
bridge aging-time { 0 | <10-1756> }
no bridge aging-time
```

Parameter

- aging-time 0
  Dynamically learned MAC addresses will not expire due to ageing time, and will be permanently retained in the MAC address table.
- aging-time <10-1756>
  Specifies ageing time to disable a dynamically learned MAC address in seconds. It can be set in the range of 10 to 1756 (seconds).

Command type

Configuration command

Default

300 seconds

Note

- The maximum error between the value of ageing time and the time a MAC address actually expires in the XG700 is ±1.7 seconds.

Example

Set the ageing time to 400 seconds.

```
xg(config)# bridge aging-time 400
```

Disable the ageing time.

```
xg(config)# bridge aging-time 0
```

5.7 Link Aggregation Configuration Commands

This section explains the commands required in using link aggregation.

5.7.1 show link-aggregation

Function

Displays the state of an aggregation group.

Prompt

xg> or xg#

Command syntax

```
show link-aggregation [ agg-port <1-6> ]
```

Parameter

- agg-port <1-6>
  Specifies the aggregation group number. The value can be set in the range of 1 to 6.
  When this parameter is omitted, the state of all aggregation groups will be displayed.

Command type

Operation management commands

Output form (in case of static link aggregation)

```
xg# show link-aggregation
Link Aggregation Information                          2005/08/22-14:30:35
=============================================================================
 System Priority : 32768
 System ID       : 0080.17c2.2144


-----------------------------------------------------------------------------
[agg-port 1]
 Master port                 : port <1-12>
 Management packet send port : port <1-12>
 Mac address                 : 0080.17c2.2144
 Protocol                    : None
 Distribution algorithm      : { Destination address | Source address
                                 | Destination address & Source address}
 Distribution parameter      : <0-3>
 The minimum number of ports : 1

 [port 1]
   Port Status               : {Active | Inactive }
 [port 2]
   Port Status               : {Active | Inactive }

-----------------------------------------------------------------------------
[agg-port 2]
 . . . . . . .
 . . . . . . .
=============================================================================
```

Link aggregation common information
Link aggregation information related to the switch in general will be displayed.
- System Priority
  The system priority used in LACP is displayed.
- System ID
  The identification information used in LACP is displayed.

The setting state of each aggregation group will be displayed.

[agg-port 1]
Indicates the aggregation group number to display.
- Master port
  Displays the master port number of the aggregation group.
  Of the ports consisting of a link aggregation, the one with the smallest port number will be the master port.
- Management packet send port
  The port number, which transmits control protocol between switches such as BPDU and IGMP, is displayed.
  Normally, of the ports consisting of an aggregation group, the one with the smallest port number among the ports in link up state will be the management packet send port.
- Mac address
  Displays the MAC address of the aggregation group. This MAC address will be the same value as that of the master port.

● Protocol
The control protocol to comprise a link aggregation is displayed.
- None
Comprises a static link aggregation.
- LACP - Active
Uses LACP as the control protocol for link aggregation, and comprises a link aggregation by LACP in Active mode.
- LACP - Passive
Uses LACP as the control protocol for link aggregation, and comprises a link aggregation by LACP in Passive mode.
● Distribution algorithm
Displays the distribution method of frame forwarding destination.
- Destination address
This is a distribution method based on the destination MAC address of a frame.
- Source address
This is a distribution method based on the MAC address from which a frame is sent.
- Destination address & Source address
This is a distribution method based on the information of the destination MAC address of a frame and the MAC address from which a frame is sent.
● Distribution parameter
Displays the parameter to calculate the frame distribution method.
● The minimum number of ports
Displays the port number in link up state required to maintain link up state of the aggregation group.

Static link aggregation specific information
This is used to display the state of each port comprising a static link aggregation.
[port 1]
Indicates the port number to display.
● Port Status
The status of the port is displayed.
- Active
The port is usable.
- Inactive
The port is not usable.

Output form (in case of LACP link aggregation)

```
xg# show link-aggregation
Link Aggregation Information                        2005/04/24-16:16:36
==============================================================================
System Priority : 32768
System ID       : 0080.17c2.05e2
------------------------------------------------------------------------------
[agg-port 1]
  Master port                : port <1-12>
  Management packet send port : port <1-12>
  Mac address                : 0080.17c2.2144
  Protocol                   : { LACP - Active | LACP - Passive }
  Distribution algorithm     : { Destination address | Source address
                               | Destination address & Source address}
  The minimum number of ports : 1

  System Key                 : 1
  Partner System Priority    : 32768
         System ID           : 0080.17c2.05e2
         Key                 : 2

[port 1]
  Port Status                : {Active | Inactive }
  Port Priority              : 32768
  Synchro State              : { Sync | No Sync }
  Receive State              : { Invalid | Initialize | Port Disabled | LACP Disabled| Expired
                               | Defaulted| Current}
  Periodic Tx State          : { Invalid | No Periodic | Fast Periodic | Slow Periodic }
  Partner Port Priority      : 32768
  Partner Port Number        : 10011
  Partner Synchro State      : { Sync | No Sync }
 [port 2]
  Port Status                : { Active | Inactive }
  Port Priority              : 32768
  Synchro State              : { Sync | No Sync }
  Receive State              : { Invalid | Initialize | Port Disabled | LACP Disabled | Expired
                               | Defaulted| Current}
  Periodic Tx State          : { No Periodic | Fast Periodic | Slow Periodic }
  Partner Port Priority      : 32768
  Partner Port Number        : 11
  Partner Synchro State      : { Sync | No Sync }
 [agg-port 2]
  . . . . . . . .
  . . . . . . . .
  ==============================================================================
```

Link aggregation common information
Link aggregation information related to the switch in general will be displayed. The display content is the same as the case of a static link aggregation.

LACP Link aggregation specific information
A state common to each aggregation group will be displayed.
● System Key
The system key information used in LACP is displayed.
● Partner
Information on LACP of the connection destination device is displayed.
   − System Priority
      LACP system priority of the connection destination device is displayed.
   − System ID
      LACP system identification information of the connection destination device is displayed.
   − Key
      LACP system key of the connection destination device is displayed.

This is used to display the state of each port comprising an LACP link aggregation.
[port 1]
      Displays the state of each port comprising an LACP link aggregation.
● Port Priority
The status of the port is displayed.
   − Active
      The port is usable.
   − Inactive
      The port is not usable.
● Synchro State
The synchronization status of the port is displayed.
   − Sync
      The link state of LACP with the connection destination device is in a synchronized state.
   − No Sync
      The link state of LACP with the connection destination device is not in a synchronized state.
● Receive State
Displays the reception status of LACP protocol.
   − Invalid
      The LACP port of the connection destination device is in trouble.
   − Initialize
      The LACP port of the connection destination device is in initialization.
   − Port Disabled
      The LACP port of the connection destination device is disabled.
   − LACP Disabled
      The LACP of the connection destination device is disabled.
   − Expired
      The LACP information with the connection destination device is expired.
   − Defaulted
      The LACP port of the connection destination device is about to be connected.
   − Current
      The LACP port of the connection destination device is in LACP connection state.
● Periodic Tx State
The state of transmit interval of LACP control frame is displayed.
   − No Periodic
      A state in which LACP control frame is not sent.
   − Fast Periodic
      A state in which LACP control frame is sent in a short interval.
   − Slow Periodic
      A state in which LACP control frame is sent in a long interval.
● Partner Port Priority
Port priority value of the connection destination device is displayed.
● Partner Port Number
The port number of the connection destination device is displayed.
● Partner Synchro State
The port synchronization status of the connection destination device is displayed.
   − Sync
      The link state of LACP with the XG700 is in a synchronized state.
   − No Sync
      The link state of LACP with the XG700 is not in a synchronized state.

Example
Display the state of all aggregation groups.
```
xg> show link-aggregation
```

5.7.2 link-aggregation

Function

The link aggregation is a function to show multiple ports among switches as a logical link (aggregation group). This command is used to set a link aggregation.

There are two types of link aggregation: static link aggregation and LACP.

● Static link aggregation

An aggregation group is created statically.

● LACP link aggregation

An aggregation group in compliance with IEEE802.3ad LACP (Link Aggregation Control Protocol) is created. LACP is a control protocol among switches for dynamically assembling an aggregation group.

Use the no form to delete an aggregation group.

Prompt

xg(config)#

Command syntax

```
link-aggregation agg-port <1-6> [protocol {none | lacp}] [lacp-mode {active | passive}]
[load-balance {dst-mac | src-mac | dst-src-mac}] [ distibution-parameter <0-3> ]
[minimum-port <1-12>] port <1-12> <1-12> [ <1-12>・・・]

no link-aggregation agg-port <1-6>
```

Parameter

● agg-port <1-6>

Specifies the aggregation group number to create. Specify with a number in the range of 1 to 6.

● protocol {none | lacp}

Specifies the protocol type of the link aggregation.

 − none

Comprises a static link aggregation.

 − lacp

Comprises a link aggregation, using IEEE802.3ad LACP as the control protocol among switches.

When this parameter is omitted, "none" is specified.

● lacp-mode {active | passive}

Specifies the operation mode of LACP negotiation.

 − active

Negotiation of LACP protocol is started from the XG700. Also, since the active mode can receive LACP protocol, connection of LACP is possible in the combination of active-active.

 − passive

The XG700 will be in the exclusively passive mode of LACP protocol. Although it responds to LACP packets, the XG700 will not start negotiation.

This parameter can be specified only when "lacp" is specified to "protocol" parameter.

When this parameter is omitted, "active" is specified.

● load-balance { dst-mac | src-mac | dst-src-mac }

Specifies the frame distribution method to each port which comprising the aggregation group

 − dst-mac

Determines the forwarding destination port, based on the destination MAC address of frames.

 − src-mac

Determines the forwarding destination port, based on the MAC address from which frames are sent.

 − dst-src-mac

Determines the forwarding destination port, based on the information of the destination MAC address of a frame and the MAC address from which a frame is sent.

When this parameter is omitted, "dst-mac" is specified.

Point

● If there are not many MAC addresses to be distributed on an aggregation group, the distribution among the destination ports tends to become biased. To reduce such bias, use a distribution method that uses more MAC addresses.
For example, if a server is connected to an aggregation group and a client is connected to a different port, it is recommended that you use either "src-mac" or "dst-src-mac".
● As for the inclination of frame forwarding destination, the traffic state of each port can be checked by "monitor traffic-bytes" or "monitor traffic-counts."

● distribution-parameter <0-3>

Specifies a parameter used in calculation of frame distribution method.

When this parameter is omitted, "0" is specified.

Point

● Under certain circumstances, the inclination of the forwarding destination port may not be dissolved, even when the distribution method is changed. By changing this parameter, the inclination may be even smaller.
However, this function is to change the distribution patterns, and it does not guarantee dissolution of inclinations.

- minimum-port <1-6>
  Specifies the minimum value of the number of ports in link up state required to maintain link up state of the aggregation group.
  When the number of ports in link up state comprising an aggregation group becomes less than the minimum number of ports specified in this parameter, the aggregation group becomes in link down state.
  When this parameter is omitted, 1 is specified.
- port <1-12> <1-12> [<1-12> ・・・]
  Specifies port numbers comprising an aggregation group by separating with " " (space).
  Specify two or more port numbers.

Command type

Configuration command

Default

None

Message

% agg-port %1$ already exists

Explanation

An aggregation group with the same number has already been created.

[[Inserted string]]%1$: specified aggregation group number

Solution

Review the specified aggregation group number, and execute it again.

% protocol is not LACP

Explanation

Although the protocol is not lacp, lacp-mode was specified.

Solution

When the protocol is lacp, do not specify lacp-mode.

% The maximum number of member ports is 6

Explanation

The number of specified ports is more than six.

Solution

Set the number of ports to six or less.

% port %1$ is already member of aggregation group

Explanation

The specified port already belongs to another aggregation group.

[[Inserted string]]%1$: specified port number

Solution

Specify a port not belonging to any aggregation groups.

% Same port number is found %1$

Explanation

The port number specified to port is overlapping.

[[Inserted string]]%1$: port name specified overlapping

Solution

Set port numbers so that they will not overlap each other.

% Minimum-port is too large %1$

Explanation

The number of ports specified in minimum-port surpasses the number of ports comprising the aggregation group.

[[Inserted string]]%1$: specified number of ports

Solution

Specify minimum-port in the number of ports comprising the aggregation group, or less.

% port %1$ is membership of uplink-domain %2$.

Explanation

The specified port already belongs to an uplink domain.

[[Inserted string]]%1$: specified port number

[[Inserted string]]%2$: uplink domain number

Solution

Specify a port not belonging to any uplink domains. Or remove the port from an uplink domain.

Note

● Among the ports comprising the aggregation group, the port with the smallest port number will be the master port. The setting of an aggregation group immediately after a link aggregation is created will inherit the same setting as that of the master port. The values different from the master port are as follows:
  – "link-pass-through" set to each comprising port will be dissolved.
  – The MAC address table set to each comprising port will be cleared.
  – The value of "spanning-tree port-path-cost" will change in accordance with the number of comprising ports.
● When changing the setting of an aggregation group already created, if the following conditions are met, the aggregation group will be temporarily in link down state and link up again and the port setting becomes default.
  – When the master port is deleted.
  – When the master port is changed.
  – When protocol or lacp-mode parameter is changed.
● The port which is used as uplink cannot be specified as an aggregation port.

Example

Set a static link aggregation with ports 1 and 2 as aggregation group number 1.
And then move to the interface edit mode of the aggregation group, and set default VLAN ID to 2.

```
xg(config)# link-aggregation agg-port 1 protocol none port 1 2
xg(config)# interface agg-port 1
xg(config-agg)# port-vlan-id vlan 2
```

Set a link aggregation of LACP mode with ports 3, 4, and 5 as aggregation group number 2.
  – Comprising ports   : 3, 4, 5
  – LACP mode   : active
  – Distribution method   : distribution by destination MAC
  – Link up condition minimum number of ports: 2

```
xg(config)# link-aggregation agg-port 2 protocol lacp lacp-mode active
load-balance dst-mac minimum-port 2 port 3 4 5
```

5.7.3 lacp system-priority

Function

Sets the system priority used in LACP.
This system priority is used as information to identify switches in LACP, but usually it is not necessary to be changed.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
lacp system-priority <1-65535>
no lacp system-priority
```

Parameter

● system-priority <1-65535>
Specifies the system priority of LACP in the range of 1 to 65535.

Command type

Configuration command

Default

32768

Message

% Unable to set port priority
  Explanation
    Since aggregation groups do not exist, the port priority cannot be set.
  Solution
    After creating an aggregation group, execute it again.

Example

Set LACP system priority to 10000.

```
xg(config)# lacp system-priority 10000
```

5.7.4 lacp port-priority

Function

Sets the priority of ports in LACP.
This LACP port priority is used as information to identify ports in LACP, but usually it is not necessary to be changed.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
lacp port-priority port <1-12> priority <1-65535>
no lacp port-priority port <1-12>
```

Parameter

- port <1-12>
  Specifies the port number to set the port priority of LACP in the range of 1 to 12.
- priority <1-65535>
  Specifies the port priority of LACP in the range of 1 to 65535.

Command type

Configuration command

Default

32768

Example

Set LACP port priority to 10000 for Port 2.

```
xg(config)# lacp port-priority port 2 priority 10000
```

5.8 Uplink Filter Commands

This section explains the commands related to uplink filter configuration.

5.8.1 show uplink

Function

Display configuration of uplink domain and the state of downlink member ports.

Prompt

xg>, or xg#

Command syntax

```
show uplink
```

Command Type

Operation management command

Output format

```
xg(config)# show uplink
Uplink Domain Information                                    2006/03/17-14:35:25
================================================================================
Domain Port-Function    Ports-Membership
------ ---------------- ----------------------------------------------------------
     1 Uplink(Active)   port 1 10 11
       Uplink(Inactive) port 2
       Downlink         port 5 6
                        agg-port 2 3
     2 Uplink(Active)   port 3 4
       Uplink(Inactive) None
       Downlink         port 5
                         agg-port 2
================================================================================
```

● Domain
The domain ID of uplink group is displayed.
● Port-Function
The port state belonging to uplink domain is displayed.

Display	Meaning
Uplink(Active)	Defined Uplink port and link status is good.
Uplink(Inactive)	Defined Uplink port and port is NOT working. When port becomes working, port status will be changed active.
Downlink	Defined the membership of downlink ports.

● Ports-Membership
Display the membership belonging to uplink domain.

Example

Display configuration of uplink domain.

```
xg# show uplink
```

5.8.2 uplink-domain

Function

Create uplink domain and assign the member of uplink ports for it.
Use the no form to release the domain membership.

Prompt

xg(config)#

Command syntax

```
uplink-domain <1-12> port <1-12> [ <1-12> ・・・ ]
no uplink-domain <1-12>
```

Parameter

- uplink-domain <1-12>
  Specify a domain ID. The domain ID can be an integer of 1 to 12.
- port <1-12> [<1-12> ・・・]
  Register or delete member for uplink ports.
  When specifying multiple ports, list them separated with " "(space).

Command type

Configuration command

Default

None

Message

% STP is enabled on uplink port. port %1$
  Explanation
    Uplink ports are not applicable to the port that STP is enabled.
    [[Inserted string]]%1$:port number
  Solution
    After disabling STP or configuring the port as portfast, execute the command again.
% port %1$ is member of aggregation-group.
  Explanation
    Uplink ports are not applicable to the aggregation port or the member of aggregation port.
    [[Inserted string]]%1$: port number
  Solution
    After releasing the ports from aggregation group, execute the command again.
% port %1$ is included another uplink-domain.
  Explanation
    This uplink port is already a member of other uplink domain.
    [[Inserted string]]%1$:port number
  Solution
    After releasing the uplink domain that including the specified port, execute the command again.
% port %1$ is already downlink port in same uplink-domain.
  Explanation
    This port is a member of downlink.
    [[Inserted string]]%1$: port number
  Solution
    After releasing the member of downlink, execute the command again.
% IGMP snooping is enabled.
  Explanation
    IGMP snooping is enabled.
  Solution
    After disabling IGMP snooping, execute the command again.

Note

- Use this function only for the port to be configured STP is disabled or portfast.
- A membership of uplink domain is not permitted to be a membership of aggregation group.
- When releasing uplink domain by using the no form, a membership of downlink is also released at the same time.
- IGMP snooping and uplink function cannot be used at the same time. Execute "no ip snooping protocol igmp" before configuring uplink domain.

Example

The following is an example to configure port 3 and 4 as uplink ports of domain 3, and then, displaying the information of uplink domain by using "show" command.

```
xg(config)# uplink-domain 3 port 3 4
xg# show uplink
Uplink Domain Information                                  2006/03/17-14:35:25
==============================================================================
Domain Port-Function   Ports-Membership
------ ---------------- --------------------------------------------------------
     3 Uplink(Active)   port 3 4
       Uplink(Inactive) None
       Downlink         None
==============================================================================
```

5.8.3 downlink allowed uplink-domain

Function

Configure the downlink ports belonging to the uplink domain.
Use the no form to release the membership.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

downlink allowed uplink-domain { <1-12> | all }
no downlink allowed uplink-domain { <1-12> | all }

Parameter

● uplink-domain { <1-12> | all }
Specify the uplink domain ID that downlink ports belonging to.
   – <1-12>
    Specify a domain ID. The domain ID can be an integer of 1 to 12.
   – all
    Register to or delete from all uplink domain.

Command type

Configuration command

Default

None

Message

% Uplink-Domain %1$ is not configured. port %2$
    Explanation
      Uplink domain has not been created yet.
      [[Inserted string]]%1$:uplink domain number
      [[Inserted string]]%2$:port number
    Solution
      Create the uplink domain before executing this command.
% port %1$ is already uplink port in same uplink-domain.
    Explanation
      This port is a member of uplink.
      [[Inserted string]]%1$:port number
    Solution
      After releasing the member of uplink port, execute the command again.

Note

● A member of uplink domain is not allowed to be a member of downlink.
● In case of configuring aggregation group including a membership of downlink, the aggregation group will automatically be a member of downlink.
● In case of adding ports to aggregation group that are already a member of downlink, all ports of aggregation group will automatically be a member of downlink.
● In case of removing ports from aggregation group that are already a member of downlink, a membership of downlink does not automatically changed.

Example

The following is an example to configure port 3 as uplink ports of domain 1 and register port 4 as downlink of domain 1.
Then display the information of uplink domain by using "show" command.

```
xg(config)# uplink-domain 1 port 3
xg(config)# interface port 4
xg(config-if)# downlink allowed uplink-domain 1
xg(config-if)# exit
xg(config)# exit
xg# show uplink
Uplink Domain Information                                  2006/03/17-14:35:25
==============================================================================
Domain Port-Function    Ports-Membership

------ ---------------- ------------------------------------------------------
     1 Uplink(Active)    port 3
       Uplink(Inactive) None
       Downlink         port 4
==============================================================================
```

5.9 Switch Port Configuration Commands

This section explains configuration commands of each port of the switch.

5.9.1 show interface

Function

Displays the port state of the specified switch.

Prompt

xg>, or xg#

Command syntax

```
show interface [ { port <1-12> | agg-port <1-6> } ]
```

Parameter

- port <1-12>
  Specifies the port number of the switch to display.
- agg-port <1-6>
  Specifies the aggregation group number of the switch to display.

When "port" parameter and "agg-port" parameter are omitted, the state of all ports will be displayed.

Command type

Operation management commands

Output form

```
xg# show interface
Interface Information                              2005/08/22-12:12:15
=============================================================================
[port 1]
Generic Information
   MAC Address               : 000C.123a.4321
   Link State                : { Link-up | Link-down }
     Link Status Detail      : detail information
   STP State                 : { Discard | Learn | Forward }
   Flow Control              : { Rx Only | Rx and Tx }
   Address Learning          : { Enabled | Disabled }
   Multicast Forwarding      : { Forward-all | Forward-unregistered-mac
                                  | Filter-unregistered-mac }
   Port Security             : { Shutdown | Restrict | Disabled }
   Storm Control             : { Enabled | Disabled }
   Default Qos Priority      : <0-7>
   Ingress Bandwidth         : <40-10000> (total:<240-60000>)

Vlan Information
   Port Default Vlan ID      : <1-4094>
   Vlan Member(tagged frame)    : { None | Vlan-1 Vlan-2 ・・・}
   Vlan Member(untagged frame)  : { None | Vlan-1 Vlan-2 ・・・}
   User Vlan Protocol ID     : <0x05DD ~ 0xFFFF>
Filter Information
   Ingress Filter(no vlan member): {Disabled | Enabled}
   Ingress Filter(tagged frame)  : {Disabled | Enabled}
   Ingress Filter(untagged frame): {Disabled | Enabled}

Link Signal Tune Information
   Adjustment                : {Auto | Short | Long}
   Mode                      : {Auto | Hold}

-----------------------------------------------------------------------------
[port 2]
    ・・・・・・・
    ・・・・・・・
=============================================================================
```

The setting state of each switch port will be displayed.

[port 1]
    The number of the switch port to display is displayed.
    In the case of an aggregation group, the aggregation group number such as [agg-port 1] is displayed.

Generic Information
- MAC Address
  The MAC address of the port is displayed.
- Link State
  - Link-up
    Shows the port is in link down state.
  - Link-down
    Shows the port is in link up state.

● Link Status Detail
Details of the port is displayed:

Display	Meaning
CLI	The shutdown command has been executed.
TMR	Since the shutdown command and link-aggregation command have been executed, the port is down for a certain period of time.
AGG-MIN	The number of ports in link up state comprising an aggregation group has become less than the minimum number of ports.
LF	A local fault has been detected.
RF	A remote fault has been detected.
LPT	The link down state is notified through the link pass through function.
SDL	Frame discarding due to storm control has been detected.
PSL	Frame discarding due to port security violation has been detected.
LAL	Frame discarding due to loop back alert has been detected.
SYS	A system internal contradiction has been detected.

● STP State
  − Disabled
    The port is in a state to discard data traffic.
  − Learn
    The port is in the learning state. It prepares for forwarding data traffic. It discards data traffic.
  − Forward
    The port is ready to transmit data traffic.
● Flow Control
  − Rx Only
    A state in which only receiving process of PAUSE frame is enabled in flow control.
  − Rx and TX
    A state in which both sending and receiving process of PAUSE frame are enabled in flow control.
● Address Learning
  − Enabled
    Dynamic MAC address learning is enabled.
  − Disabled
    Dynamic MAC address learning is disabled.
● Multicast Forwarding
  − Forward-all
    All multicast frames will be forwarded (flooded).
  − Forward-unregistered-mac
    Multicast addresses yet to be registered in the static MAC address table, and multicast addresses registered as member ports will be forwarded (flooded).
  − Filter-unregistered-mac
    Only Multicast addresses registered as member ports in the static MAC address table will be forwarded.
● Port Security
  − Shutdown
    When a violation frame is detected, the port becomes in violation state, and in link down state.
  − Restrict
    When a violation frame is detected, the port becomes in violation state, and the violation frame will be discarded.
  − Disabled
    The port security is disabled.
● Storm Control
  − Enabled
    The storm control is enabled.
  − Disabled
    The storm control is disabled.
● Default Qos Priority
  Default priority <0-7> is displayed.
● Ingress Bandwidth
  The ingress rate limiting value of the port is displayed. The unit is Mbps.
  For an aggregation group, the ingress rate limiting value, in which the ports comprising the aggregation group are totaled in "(total:<240-60000>)," is displayed.

Vlan Information
  ● Port Default Vlan ID
    The default VLAN ID of the port is displayed.
  ● Vlan Member (tagged frame)
    VLAN, registered as a VLAN member (tagged), is displayed.
    If it is not registered as a VLAN member (tagged), "None" is displayed.
  ● Vlan Member (untagged frame)
    VLAN, registered as a VLAN member (untagged), is displayed.
    If it is not registered as a VLAN member (untagged), "None" is displayed.
  ● User Vlan Protocol ID
    User defined VLAN protocol identifier (User VLAN Protocol ID) is displayedin a hexadecimal starting with 0x.

Filter Information
- Ingress Filter (no vlan member)
  The state of ingress filtering by VLAN ID is displayed.
  - Disabled
    The ingress filtering by VLAN ID is disabled.
  - Enabled
    The ingress filtering by VLAN ID is enabled.
    Discards frames of VLAN ID not belonging to VLAN member, when they are received.
- Ingress Filter (tagged frame)
  The state of ingress filtering of a tagged frame is displayed.
  - Disabled
    The ingress filtering of a tagged frame is disabled.
  - Enabled
    The ingress filtering of a tagged frame is enabled.
    Discards tagged frames when they are received.
- Ingress Filter (untagged frame)
  The state of ingress filtering of an untagged frame is displayed.
  - Disabled
    The ingress filtering of an untagged frame is disabled.
  - Enabled
    The ingress filtering of a tagged frame is enabled.
    Discards untagged frames when they are received.

Link Signal Tune Information
- Adjustment
  Displays the internal parameter used for Rx signal optimization.
  - Auto
    Indicates the internal parameter being automatically selected based on the Rx signal from the partner device.
  - Short
    Indicates that the internal parameter for when the 10GBASE-CX4 connection cable is short is set.
  - Long
    Indicates that the internal parameter for when the 10GBASE-CX4 connection cable is long is set.
- Mode
  Displays the timing at which Rx signal optimization is performed.
  - Auto
    Indicates that Rx signal optimization is automatically performed everytime a new signal is detected from the partner device.
  - Hold
    Indicates that the optimized state of a reception signal that was firstly optimized when detected is being retained. After the first optimization, optimization is not performed again.

Example
Display the state of the switch port 3.
```
xg> show interface port 3
```

5.9.2 shutdown (Administrator exec mode)

Function

Shuts down the port of a switch from the administrator exec mode.
Use the no form to enable the port of the switch again.

Prompt

xg#

Command syntax

```
shutdown port <1-12> [ <1-12> ] ・・・
no shutdown port <1-12> [ <1-12> ・・・]
```

Parameter

● port <1-12> [<1-12>] ・・・
Specifies the port number to shut down or enable.
When specifying multiple port numbers, list them separated with " " (space).

Command type

Operation management commands

Example

Shut down switch ports 3 and 4. Then, make them usable again.

```
xg# shutdown port 3 4
xg# no shutdown port 3 4
```

5.9.3 clear violation

Function

When violation due to port security, loop back alert, and storm control is detected, an error log that caused the violation is output only once, and the target port will be in violation state. This violation state can be checked with "Link Status Detail" of the "show interface" command.
By using this command, the violation state of the port will be cleared.
If the violation state occurs, execute this command after eliminating the cause of the violation. If the cause of the violation is not fully eliminated, the violation state will recur.

Prompt

xg#

Command syntax

```
clear violation { all | port <1-12> | agg-port <1-6> }
```

Parameter

● all
Clears violation state of all ports.
● port <1-12>
Specifies the port, in which violation state is cleared.
● agg-port <1-6>
Specifies the aggregation group number, in which violation state is cleared.

Command type

Operation management commands

Example

Clear the violation state of all ports.

```
xg# clear violation all
```

5.9.4 interface port

Function

Switches from the global configuration mode to the interface edit mode, in which ports are set.
When more than one port is specified, the multiple ports can be set collectively.

Prompt

xg(config)#

Command syntax

```
interface port <1-12> [ <1-12> ] · · ·
interface port range <1-12> <1-12>

interface agg-port <1-6>
```

Parameter

- port <1-12> [<1-12>] · · ·
  Specifies the port to change its setting. When specifying multiple ports, list them separated with " " (space).
- port range <1-12> <1-12>
  Specifies the range of multiple ports to change their setting by separating with " " (space).
- agg-port <1-6>
  Specifies the aggregation group number to change its setting. For the aggregation group, multiple groups cannot be specified.

Command type

Configuration command

Message

% Duplicate port number: %1$
  Explanation
    The specified port number is overlapping.
    [[Inserted string]]%1$: specified switch port number
  Solution
    Specify a switch port number that does not overlap with another port.

Note

- When multiple ports are specified and the contents of collective setting are output by "copy running-config startup-config" or "show running-config," they are output in the definition set for each switch port.

Example

Switched to the collective interface edit mode, whose port numbers are in the range of 1 to 8.

```
xg(config)# interface port range 1 8
xg(config-if)#
```

Switched to the collective interface edit mode, whose port numbers are 1, 3, 5, and 7.

```
xg(config)# interface port 1 3 5 7
xg(config-if)#
```

Switched to the interface edit mode, whose aggregation group number is 1.

```
xg(config)# interface agg-port 1
xg(config-agg)#
```

For an aggregation group, the prompt is displayed as (config-agg).

5.9.5 flowcontorol

Function

Sets transmission and reception modes for the PAUSE frame for Flow Control to the switch port. Additionally, Flow Control by receiving the PAUSE frame is always enabled.
Use the no form to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
flowcontorol { only-receive | send-receive }
no flowcontorol
```

Parameter

● only-receive
Enables reception of Flow Control by the PAUSE frame to switch ports.
● send-receive
Enables Flow Control by transmission and reception of the PAUSE frame to switch ports. If this is set, PAUSE frame is transmitted when the frame transmission buffer space runs out.

Command type

Configuration command

Default

only-receive

Message

```
% The Setting of flowcontrol cannot be done to send-receive %1$
```
Explanation
Since the setting of jumbo-frame is 15360, "send-receive" cannot be set.
[[Inserted string]]%1$: port name
Solution
Check the setting of jumbo-frame, change it to other than 15368, and execute the command again.

Example

Enable flow control by sending and receiving PAUSE frame.

```
xg(config-if)# flowcontorol send-receive
```

5.9.6 storm-control

Function

Enables broadcast storm control for the ports.
Use the no form to disable storm control.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
storm-control
no storm-control
```

Command type

Configuration command

Default

None

Note

● When storm state is detected, the port will be in violation state. After eliminating the cause of the storm state, clear the violation state with the "clear violation" command.

Example

Enable the storm control for Port 3 of the switch.

```
xg(config)# interface port 3
xg(config-if)# storm-control
```

5.9.7 suppress-address-learning

Function

Disables the dynamic learning of the MAC address table for switch ports.
Use the no form to enable learning.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
suppress-address-learning
no suppress-address-learning
```

Command type

Configuration command

Default

None

Example

Disable the dynamic learning of the MAC address table.

```
xg(config-if)# suppress-address-learning
```

5.9.8 shutdown (Interface edit mode)

Function

Shuts down the ports so that they cannot be used.
Use the no form to enable the ports again.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
shutdown
no shutdown
```

Command type

Configuration command

Default

None

Example

Shut down switch port 3. Then, make it usable again.

```
xg(config)# interface port 3
xg(config-if)# shutdown
xg(config-if)# no shutdown
```

5.9.9 shutdown (Global configuration mode)

Function

Shuts down the ports from the global configuration mode so that they cannot be used.
Use the no form to enable the ports again.

Prompt

xg(config)#

Command syntax

```
shutdown port <1-12> [ <1-12> ] ・・・
no shutdown port <1-12> [ <1-12> ] ・・・
```

Parameter

● port <1-12> [<1-12>] ・・・
Specifies the port number to shut down or enable.
When specifying multiple ports, list them separated with " " (space).

Command type

Configuration command

Default

None

Note

● For shutting down by the aggregation group, use shutdown (interface edit mode).

Example

Shut down switch ports 3 and 4. Then, make them usable again.

```
xg(config)# shutdown port 3 4
xg(config)# no shutdown port 3 4
```

5.9.10 port-security

Function

Sets port security by the source MAC address.
When port security is enabled, register the MAC address to permit using the "bridge mac-address-table" command.
Use the no form to disable port security.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
port-security violation { restrict | shutdown }
no port-security
```

Parameter

● violation { restrict | shutdown }
   Specifies the action when receiving a frame in security violation.
   − restrict
     When a violation frame is detected, an error log is recorded, and SNMP trap is sent.
     The violation frame is discarded, and the port will be in violation state.
   − shutdown
     When a violation frame is detected, an error log is recorded, and SNMP trap is sent.
     The port becomes in violation state, and in link down state.

Command type

Configuration command

Default

None

Note

● When security violation is detected, the port becomes in violation state, and "Link Status Detail" of "show interface" will be "PSL".
  After eliminating the cause of violation, clear violation state with the "clear violation" command and return the port to usable state.
● When port security is enabled, throughput decreases by about 10%, since forwarding load becomes higher. Also, receiving a frame to cause security violation affects transmission from the port. Therefore, in an environment where security violation occurs consecutively, decrease of transmission rate may occur.

Example

Set port security to switch port 3.
Then, when port 3 is in violations, check the port state using the "show interface" command.
After eliminating the cause of violation, make it usable again by the "clear violation" command.

```
xg(config)# interface port 3
xg(config-if)# port-security violation shutdown
xg(config-if)#exit
xg(config)#exit
       -           ← When the port is in violation state.
xg#show interface port 3
       -           ← When link Status Detail is "PSL."
xg# clear violation port 3
```

5.9.11 link-pass-through

Function

Link Pass Through is a function that monitors the link state of a specific port, and, by synchronizing the link state of the specified port, promptly notifies changes of the link state to devices connected to the port to notify.
This command specifies the link state monitoring port and the port to notify link state.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
link-pass-through { monitored-port <1-12> | monitored-agg-port <1-6>}
[domino-port <1-12> [<1-12> · · ·]] [domino-agg-port <1-6> [<1-6> · · ·]]

no link-pass-through { monitored-port <1-12> | monitored-agg-port <1-6>}
```

Parameter

- monitored-port <1-12>
  Specifies a port to monitor the link state.
- monitored-agg-port <1-6>
  Specifies an aggregation group to monitor the link state.
- domino-port <1-12> [<1-12> · · ·]
  Specifies the port number to notify the link state.
  When specifying multiple port numbers, list them separated with " " (space).
- domino-agg-port <1-6> [<1-6> · · ·]
  Specifies the aggregation group number to notify the link state.
  When specifying multiple aggregation group numbers, list them separated with " " (space).

Command type

Configuration command

Default

None

Message

% Agg-port %1$ does not exist.
Explanation
The specified aggregation group is not created.
[[Inserted string]]%1$: specified aggregation group number
Solution
Review the specification of aggregation group numbers.
% monitored-port and domino-port cannot specify a port belonging to an aggregation port. port=%d¥n
Explanation
The ports comprising a link aggregation cannot be specified to monitored-port and domino-port.
[[Inserted string]]%1$: port number specified to monitored-port or domino-port
Solution
Review the ports specified to monitored-port or domino-port.
% Cannot set same port number in monitored-port and domino-port. port %1$
Explanation
The same port number cannot be set to monitored-port and domino-port.
[[Inserted string]]%1$: port number
Solution
Review the parameter specified to monitored-port or domino-port.
% Cannot set same aggregation port number in monitored-agg-port and domino-agg-port. agg-port %1$
Explanation
The same aggregation group number cannot be set to monitored-port and domino-agg-port.
[[Inserted string]]%1$: aggregation group number
Solution
Review the parameters specified to monitored-port or domino-agg-port.
% Cannot set same port number in domino-port. port %1$
Explanation
The same port number cannot be set to domino-port.
[[Inserted string]]%1$: port number
Solution
Review the parameter specified to domino-port.
% Cannot set same aggregation port number in domino-agg-port. agg-port %1$
Explanation
The same aggregation group number cannot be set to domino-agg-port.
[[Inserted string]]%1$: aggregation group number
Solution
Review the parameter specified to domino-agg-port.

Example

Monitor the link state of aggregation group 1 and set ports 4 and 5 to receive link state notification.

```
xg(config)# link-pass-through monitored-agg-port 1 domino-port 4 5
```

5.9.12 ingress-bandwidth

Function

Sets ingress rate limiting value of ports.
When reception traffic exceeds the ingress rate limiting value, received frames will be discarded.
Use the no form to return to the default setup.

Prompt

xg(config)# , or xg(config-agg)#

Command syntax

```
ingress-bandwidth <40-10000>
no ingress-bandwidth
```

Parameter

- <40-10000>
  Specifies the ingress rate limiting value in the range of 40 to 10000. The unit is Mbps. The value must be an integer multiplied by 40.
  For an aggregation group, specifies the ingress rate limiting value to set to each port comprising the aggregation group. The total ingress rate limiting value as the aggregation group will be the specified ingress rate limiting value multiplied by the number of ports.

Command type

Configuration command

Default

10000

Message

`% The set value is not step of 40.`
  Explanation
    The specified ingress rate limiting value is not an integer multiplied by 40.
  Solution
    Specify the ingress rate limiting value with an integer multiplied by 40.

Note

- If the set ingress rate limiting value x, the actual ingress rate limiting value will be expressed in the approximation below.
  Actual ingress rate limiting value = {integral part of (rate $\times$ 256 / 10000)} $\times$ 10000 / 256
- Measurement of the ingress rate is performed in the unit of 100μs. Therefore, when burst transfer is performed in time unit exceeding 100μs, the actually permitted ingress rate may be smaller than the specified value.

Example

Set the ingress rate of port 3 to 5Gbps.

```
xg(config)# interface port 3
xg(config-if)# ingress-bandwidth 5000
```

5.9.13 multicast-forwarding

Function

Sets forwarding method of multicast frames.
Use the no form to return to the default setup.

Prompt

xg(config)# , or xg(config-agg)#

Command syntax

```
multicast-forwarding { forward-all | forward-unregistered-mac |
filter-unregistered-mac }
no multicast-forwarding
```

Parameter

● { forward-all | forward-unregistered-mac | filter-unregistered-mac }
   Specifies forwarding method of multicast frames.
   − Forward-all
      All multicast frames will be forwarded (flooded).
   − Forward-unregistered-mac
      Multicast addresses yet to be registered in the static MAC address table, and multicast addresses registered as member ports will be forwarded (flooded). Multicast addresses registered as non-member ports will be filtered.
   − Filter-unregistered-mac
      Only Multicast addresses registered as member ports in the static MAC address table will be forwarded.

Command type

Configuration command

Default

forward-all

Example

Move to the interface edit mode of the switch ports 1 to 3, and set it to unregistered multicast forwarding mode.

```
xg(config)# interface port range 1 3
xg(config-if)# multicast-forwarding forward-unregistered-mac
```

5.9.14 link-signal-tune

Function

This command performs the settings for the internal parameter used for Rx signal optimization and for the timing at which optimization will be performed.
Use the no form to return to the default setup.

> **Point**
> When connecting with an IEEE802.3ak compliant device it is not necessary to change settings using this command.
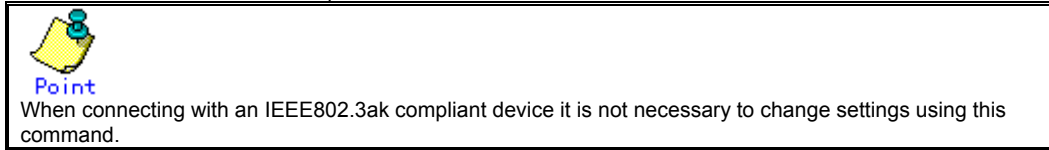
Prompt

xg(config)#

Command syntax

```
link-signal-tune [adjustment { auto | short | long }] [mode { auto | hold }] port <1-12>
[<1-12> ・・・]no link-signal-tune port <1-12> [<1-12> ・・・ ]
```

Parameter

● [adjustment { auto | short | long }
Specifies the internal parameter used for Rx signal optimization.
- auto
  Selects the internal parameter based on the Rx signal from the partner device.
- short
  Selects the appropriate internal parameter for the comparatively strong Rx signal when the 10GBASE-CX4 connection cable is short etc.
- long
  Selects the appropriate internal parameter for the comparatively weak Rx signal when the 10GBASE-CX4 connection cable is long etc.
When this parameter is omitted, "auto" is specified.
● [mode { auto | hold }
Sets the timing at which Rx signal optimization is performed.
- auto
  Automatically optimizes the Rx signal every time a new signal is detected from the partner device.
- hold
  Retains the optimized state of a Rx signal that was firstly optimized when detected. After the first optimization, optimization is not performed again.
When this parameter is omitted, "auto" is specified.
● port <1-12> [<1-12> ・・・]
Specifies the switch port number to change its setting. When specifying multiple port numbers, list them separated with " " (space).

Command type

Configuration command

Default

adjustment: auto
mode   : auto

Notes

● When the "bridge jumbo-frame" command is executed, even if the mode is "hold", optimization is performed again.
● About 15 seconds is required for optimization. After optimization link up is performed.

Example

In the following example, for port number 1, the internal parameter is automatically selected based on the Rx signal and it is set to the mode that performs optimization for the Rx signal automatically.

```
xg(config)# link-signal-tune adjustment auto mode auto port 1
```

5.9.15 link-signal-force-tune

Function

This command performs forced optimization for Rx signals.
This command is not normally required because optimization for the Rx signal is performed automatically.

Prompt

xg#

Command syntax

```
link-signal-force-tune port <1-12> [<1-12> ・・・ ]
```

Parameter

● port <1-12> [<1-12> ・・・]
Sets the port for which forced Rx signal optimization is performed. To specify multiple port numbers, list them separated with " " (space).

Command type

Operation management command

Notes

● If a Rx signal cannot be detected, optimization cannot be performed even by using this command.
● Even if optimization for the Rx signal is performed using this command, the contents set in the "link-signal-tune" command will not change.
● About 15 seconds is required for optimization. After optimization link up is performed.

Example

In the following example, forced optimization of the Rx signal is performed for port number 1.

```
xg# link-signal-force-tune port 1
```

5.10 Spanning Tree Protocol (STP) Configuration Commands

This section explains the commands required in using Spanning Tree Protocol.

5.10.1 show spanning-tree

Function

Displays the state of Spanning Tree Protocol.

Prompt

xg>, or xg#

Command syntax

```
show spanning-tree [ detail [ { port <1-12> | agg-port <1-6> } ] ]
```

Parameter

- detail
  Displays the state of Spanning Tree in detail.
  When this parameter is omitted, the display will be simplified.
- port <1-12>
  Specifies the switch ports.
- agg-port <1-6>
  Specifies the aggregation group.

When "port" parameter and "agg-port" parameter are omitted, the state of all ports will be displayed.

Command type

Operation management commands

Output form (in simplified display)

```
xg# show spanning-tree
Spanning Tree Information                                 2005/08/22-12:12:15
===============================================================================
Switch Information for Spanning Tree
 -------------------------------------------------------------
  Spanning Tree       : {Enabled | Disabled}
  Root Switch Priority: 32768
  Root Switch ID      : 8000.0080.17C2.0511
  Root Path Cost      : 0
  Root Port           : port1
  Switch Priority     : 32768
  Switch ID           : 8001.0080.17C2.0512
  Max Age             : 20 (sec)
  Hello Time          :  2 (sec)
  Forward Time        : 15 (sec)
  Topology Changes    : 0
  Last Topology Change: 2005/08/22-12:12:15
  portfast errdisable : {enabled | disabled}
  timeout
  portfast errdisable : 300 sec
  timeout interval
 -------------------------------------------------------------
Ports Information for Spanning Tree
 -------------------------------------------------------------
  Port State       Mode Cost  Pri  PortID Flags  Designated Switch
  ---- ---------- ---- ----  ---  ------ ------  -------------------
     1 Forward     RSTP 2000 128  32769  Rpp-w  8000.0080.17C2.0511
     2 Discard     RSTP 2000 128  32770  Bpp-w  8000.0080.17C2.0511
     3 Learn       RSTP 2000 128  32771  Bpp-w  8001.0080.17C2.0512
     4 Forward     RSTP 2000 128  32772  Dpp--  8001.0080.17C2.0512
     5 Down        RSTP    0 128  32773  -----  0000.0000.0000.0000
     6 Down        None    0 128  32774  -----  0000.0000.0000.0000
     7 Down        None    0 128  32775  -----  0000.0000.0000.0000
     8 Down        None    0 128  32776  -----  0000.0000.0000.0000
     9 Down        None    0 128  32777  -----  0000.0000.0000.0000
    10 Down        None    0 128  32778  -----  0000.0000.0000.0000
    11 Down        None    0 128  32779  -----  0000.0000.0000.0000
    12 Down        None    0 128  32780  -----  0000.0000.0000.0000
 -------------------------------------------------------------
Flags
1: (Port role)     R=Root, D=Designated, A=Alternate, B=Backup
2: (Config type)   p=Point-to-point, s=Shared
3: (Oper. type)    p=Point-to-point, s=Shared
4: (Proposal state) p=Proposing
5: (Received BPDU)  d=802.1d, w=802.1w
===============================================================================
```

Switch Information for Spanning Tree
Spanning Tree Protocol information on switch in general is displayed.

● Spanning Tree
The operation state of Spanning Tree Protocol is displayed.
  − Disabled
    Spanning Tree Protocol is disabled.
  − Enabled
    Spanning Tree Protocol is enabled.

● Root Switch Priority
The priority of the switch selected as the root switch is displayed in a decimal number.

● Root Switch ID
The switch identifier selected as the root switch is displayed.
In the first four digits, the priority of the root switch is displayed in a hexadecimal number.
In the remaining 12 digits, the MAC address of the root switch is displayed in a hexadecimal number.

● Root Path Cost
The path cost value from the XG700 to the root switch.
When the XG700 is the root switch, "0" is displayed.

● Root Port
The switch port number of the root port of the XG700 is displayed.
When the XG700 is the root switch, "---" is displayed.

● Switch Priority
The priority of the XG700 is displayed in a decimal number.

● Switch ID
The switch identifier priority of the XG700 is displayed.
In the first four digits, the priority of the XG700 is displayed in a hexadecimal number.
In the remaining 12 digits, the MAC address of the XG700 is displayed in a hexadecimal number.

● Max Age
The maximum valid time (seconds) of BPDU is displayed.

● Hello Time
The transmit interval (seconds) of BPDU is displayed.

● Forward Time
The time that a port needs to switch the state.

● Topology Changes
The number of times of topology changes is displayed.

● Last Topology Change
The latest date and time of topology change is displayed.

● portfast errdisable timeout
At potfast port, the state of errdisable-timeout function is displayed.
  − disabled
    The errdisable-timeout function is disabled.
  − enabled
    The errdisable-timeout function is enabled.

● portfast errdisable timeout interval
The interval (seconds) to cancel port down when the errdisable-timeout function is enabled is displayed.

Ports Information for Spanning Tree
Spanning Tree Protocol information for each switch port is displayed.

● Port
The switch port number is displayed.

● Port State
The state of the switch port by STP (Spanning Tree Protocol) is displayed.
  − Down
    Indicates that the switch port is in link down state.
  − Discard
    The switch port does not send/receive frames other than BPDUs.
  − Learn
    The switch port is in learning state. The source MAC address of received frames learns, but frames are not forwarded.
  − Forward
    Shows the switch port is ready to transmit data traffic.

In RSTP (IEEE802.1w), "Blocking" and "Listening" states of STP are integrated to "Discarding." The port states of STP (IEEE802.1D) and RSTP (IEEE802.1w) correspond as follows:

Display format	STP(IEEE802.1D)	RSTP(IEEE802.1w)
Block	Blocking	Discarding
Listen	Listening	Discarding
Learn	Learning	Learning
Forward	Forwarding	Forwarding

Point

For a switch port that does not use STP, the state will be either "Forward" or "Down."

- Mode
  The mode of Spanning Tree Protocol corresponding to the switch port is displayed.
  - STP
    The switch port is operating in STP (IEEE 802.1D Spanning Tree Protocol) mode.
  - RSTP
    The switch port is operating in RSTP (IEEE 802.1w Rapid Spanning Tree Protocol) mode.
  - None
    STP is not applicable to switch ports.
- Cost
  The path cost value of the port is displayed.
- Pri
  The priority value of the switch port is displayed.
- PortID
  The port ID of the switch port is displayed.
- Flags
  Flags indicating the state of the switch port is displayed. Each flag has the following meaning:
  - First flag (Port role)
    Indicates the role of the port.
    - R
      The Root port.
    - D
      The Designated port.
    - A
      The Alternate port.
    - B
      The Backup port.
  - Second flag (Config link type)
    Indicates the link type of the line set in the XG700.
    - p
      A point-to-point line.
    - s
      A shared line.
    In the XG700, Point-to point "p" is always used.
  - Third flag (Oper link type)
    Indicates the link type, which is actually operating.
    - p
      A point-to-point line.
    - s
      A shared line.
  - Fourth flag (Proposal state)
    Indicates that it is in a state in which building of Spanning Tree is proposed to the adjacent switch.
    - p
      Building of Spanning Tree is proposed.
    - (None)
      Building of Spanning Tree is agreed with the adjacent switch.
  - Fifth flag (Received BPDU)
    The mode of Spanning Tree Protocol of the received BPDU.
    - d
      STP(IEEE802.1D).
    - w
      RSTP(IEEE802.1w).

> **Point**
> Even when RSTP mode is set to the switch port of the XG700, if the switch port of the destination is operating in STP (IEEE802.1D) mode, it will operate as STP.

- Designated Switch
  Displays the switch identifier of the specified switch (which sent BPDU to the port).
  In the first four digits, the priority of the designated switch is displayed in a hexadecimal number. In the remaining 12 digits, the MAC address of the designated switch is displayed in a hexadecimal number.

Output form (in detailed display)

```
xg# show spanning-tree detail
Spanning Tree Information                                  2005/08/22-12:12:15
================================================================================
Switch Information for Spanning Tree
------------------------------------------------------------------
  Spanning Tree      : {Enable | Disable}
  Root Switch Priority: 32768
  Root Switch ID     : 8000.0080.17C2.0511
  Root Path Cost     : 6
  Root Port          : port-1
  Switch Priority    : 32769
  Switch ID          : 8001.0080.17C2.0512
  Max Age            : 20 (sec)
  Hello Time         :  2 (sec)
  Forward Delay      : 15 (sec)
  Topology Changes   : 0
  Last Topology Change: 2005/08/22-12:12:15
  portfast errdisable : {enabled | disabled}
  timeout
  portfast errdisable : 300 sec
  timeout interval
------------------------------------------------------------------

Ports Information for Spanning Tree
--------------------------------------------------------------------------------
[Port 1]
  STP State          : {Down | Discard | Learn | Forward }
  STP Mode           : {STP | RSTP | None}
  Port ID            : 32772
  Role               : {Root | Designated | Alternate | Backup}
  Path Cost          : 2
  Link Type          : { Point-to-point | Shared }
  Forward-Transitions : 0
  Portfast           : {Disabled | Enabled}
  Portfast bpdu-guard : {Disabled | Enabled}
  Portfast bpdu-filter: {Disabled | Enabled}

  BPDU Parameter
    Designated Path Cost: 0
    Designated Port ID  : 0
    Designated Priority : 128
    Designated Root ID  : 0000.0000.0000.0000
    Designated Switch ID: 0000.0000.0000.0000
    Max Age             : 20 (sec)
    Message Age         : 0 (sec)
    Message Age Timer   : 0 (sec)
    Hello Time          : 2 (sec)
    Hello Timer         : 0 (sec)
    Forward Time        : 15 (sec)
    Forward Timer       : 0 (sec)
    Received STP Protocol: None

[Port 2]
  . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
================================================================================
```

Switch Information for Spanning Tree
> Spanning Tree Protocol information on switch in general is displayed.
> The display content is the same as the case of the simplified display.

Ports Information for Spanning Tree
> Spanning Tree Protocol information for each port is displayed.
> - ● [Port 1]
>   The switch port number is displayed.
> - ● STP State
>   The state of the port by STP (Spanning Tree Protocol) is displayed.
>   The display content is the same as the case of the simplified display.
> - ● STP Mode
>   The mode of Spanning Tree Protocol corresponding to the port is displayed. The display content is the same as the case of the simplified display.
> - ● Port ID
>   The Port ID of the switch port is displayed.
> - ● Role
>   The role of the port is displayed.
>   - − Root
>   The root Port.
>   - − Designated
>   The designated port.
>   - − Alternate
>   The alternate port.
>   - − Backup
>   The backup port.
> - ● Path Cost
>   The path cost of the port is displayed.

- **Link Type**
  Indicates the link type state of the current line.
    - Point-to-point
      A point-to-point line.
    - Shared
      A shared line.
- **Forward-Transitions**
  Displays the number of times ports have been changed to forwarding state.
- **Portfast**
  The setting state of Portfast is displayed.
    - Disabled
      Portfast function is displayed.
    - Enabled
      Portfast function is enabled.
- **Portfast bpdu-guard**
  The setting state of the BPDU guard function is displayed.
    - Disabled
      The BPDU guard function is disabled.
    - Enabled
      The BPDU guard function is enabled.
- **Portfast bpdu-filter**
  The setting state of the BPDU filter function is displayed.
    - Disabled
      The BPDU filter function is disabled.
    - Enabled
      The BPDU filter function is enabled.

BPDU Parameter
Displays the information about the BPDU send/receive.
It is, however, displayed when "STP State" of each port is other than "Down".

- **Designated Path Cost**
  The root path cost of the connection destination port is displayed.
- **Designated Port ID**
  The Port ID of the connection destination port is displayed.
  The Port ID of a designated port of the des
- **Designated Priority**
  The priority of the connection destination port is displayed,
- **Designated Root ID**
  The switch identifier of the root switch registered in the connection destination switch is displayed.
  In the first four digits, the priority of the root switch is displayed in a hexadecimal number. In the remaining 12 digits, the MAC address of the root switch is displayed in a hexadecimal number.
- **Designated Switch ID**
  The switch identifier of the connection destination switch is displayed.
  In the first four digits, the priority of the designated switch is displayed in a hexadecimal number.
  If "Designated Root ID" and "Designated Switch ID" are the same, it means the connection destination switch is the root switch.
- **Max Age**
  Max age (seconds) (valid time of BPDU) notified from the connection destination switch is displayed.
- **Message Age**
  Displays the time (seconds) lapsed when BPDU message notified from the connection destination switch is received.
- **Message Age Timer**
  Displays the valid time of received BPDU.
- **Hello Time**
  Displays the hello time (seconds) notified from the connection destination switch.
- **Hello Timer**
  Displays the remaining seconds of Hello Time. When it becomes 0, BPDU is sent.
- **Forward Time**
  Displays the Forward Time (seconds) notified from the connection destination switch.
- **Forward Timer**
  Displays the remaining seconds of Forward Time. When it becomes 0, the status of the port is changed.
- **Received STP Protocol**
  Displays the mode of Spanning Tree Protocol (STP) of the connection destination switch.
    - STP
      The connection destination switch is operating in STP (IEEE 802.1D) mode.
    - RSTP
      The connection destination switch is operating in RSTP (IEEE 802.1w) mode.
    - None
      STP is not applicable to the connection destination switch.

Example

Displays the detailed information of the Spanning Tree state:

```
xg# show spanning-tree
```

5.10.2 spanning-tree

Function

Enables Spanning Tree Protocol (STP).
Use the no form to disable Spanning Tree Protocol.

Prompt

xg(config)#

Command syntax

```
spanning-tree
no spanning-tree
```

Command type

Configuration command

Default

None

Message

% port %1$ is membership of uplink-domain %2$.

Explanation

The specified port already belongs to an uplink domain.
[[Inserted string]]%1$: specified port number
[[Inserted string]]%2$: uplink domain number

Solution

.Specify a port not belonging to any uplink domain Or remove the port from an uplink domain

Note

● STP cannot be used on uplink ports. But STP port fast is allowed on uplink ports.

Example

Enable Spanning Tree Protocol.

```
xg(config)# spanning-tree
```

5.10.3 spanning-tree protocol

Function

Sets whether Spanning Tree Protocol is applied to each port.
The no form of this command is used to return to the default setup.

Prompt

xg(config-if)#, or   xg(config-agg)#

Command syntax

```
spanning-tree protocol { rstp | none }
no spanning-tree protocol
```

Parameter

● rstp
Sets the currently editing port in the interface edit mode to RTSP (IEEE 802.1w Rapid Spanning Tree Protocol) mode.
● none
Sets the STP not to be applied to the currently editing port in the interface edit mode.
If STP is not applied, when BPDUs are received at this port, the port state will note change, and always remain in forwarding state. Also, BPDU frame will not be sent from this port.

Command type

Configuration command

Default

rstp

Example

Set ports 1 to 8 collectively to RSTP mode. Then, change port 3 so that Spanning Tree Protocol will not be applied.

```
xg(config)# interface port range 1 8
xg(config-if)# spanning-tree protocol rstp
xg(config-if)# exit
xg(config)# interface port 3
xg(config-if)# spanning-tree protocol none
```

5.10.4 spanning-tree priority

Function

Sets switch priority of Spanning Tree.
The switch which switch priority is smallest is selected for the root switch of the Spanning Tree.
Use the no form to return to the default state.

Prompt

xg(config)#

Command syntax

```
Spanning-tree priority <0-61440>
no spanning-tree priority
```

Parameter

- priority <0-61440>
  Sets the switch priority of Spanning Tree. It must be an integer multiplied by 4098. Values can be set in the range of 0 to 61440.

Command type

Configuration command.

Default

32768

Message

```
% Priority is not step of 4096
```
Explanation
The priority is not an integer multiplied by 4096.
Solution
Set an integer multiplied by 4096 as the priority.

Example

Set the switch priority to 4096.

```
xg(config)# spanning-tree priority 4096
```

5.10.5 spanning-tree hello-time

Function

The hello time is a time interval to send BPDUs. The switch informs all the other switches of root switch information by periodically sending BPDUs.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
spanning-tree hello-time <2-10>
no spanning-tree hello-time
```

Parameter

- hello-time <2-10>
  Set hello time in units of seconds.

Command type

Configuration command

Default

2 seconds

Message

% Can't set hello-time
  Explanation
  An unsettable value has been specified. The settable range of "hello-time" differs depending on the values of "forward-line" and "max-age".
  Solution
  Set a value, which satisfies the conditions in Notes, for "hello-time".

Note

- If hello time is short, topology changes can be detected more quickly, but STP traffic and load for STP processing of the switch will increase.
- The settable range of hello-time differs depending on the values set with the "spanning-tree max-age" command and the "spanning-tree forward-time" command, and also must satisfy the following conditions:
  $2 \times (forward\_time - 1) \geq max\_age$
  $max\_age \geq 2 \times (hello\_time + 1)$

Example

Set hello time of Spanning Tree to 3 seconds.
```
xg(config)# spanning-tree hello-time 3
```

5.10.6 spanning-tree max-age

Function

The maximum age (max-age) of Spanning Tree is a valid time of the received BPDUs. When BPDUs are not received within the valid time, the topology of Spanning Tree will be recalculated, and the switch will send BPDUs with the switch itself as the root switch.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
spanning-tree max-age <6-40>
no spanning-tree max-age
```

Parameter

- max-age <6-40>
  Sets the valid time of the received BPDUs. When the switch does not receive BPDUs within this period, the topology of Spanning Tree will be recalculated. Values can be set in the range of 6 to 40 seconds.

Command type

Configuration command

Default

20 seconds

Message

% Can't set max-age.
Explanation
An unsettable value has been specified. The settable range of max-age differs depending on the values of "hello-time" and "forward-time".
Solution
Set a value, which satisfies the conditions in Notes, for "max-age".

Note

- The settable range of maximum age differs depending on the value set with the "spanning tree hello-time" command and the "spanning tree forward-time" command, and also mut satisfy the following conditions:
  $2 \times (forward\_time -1) \geq max\_age$
  $max\_age \geq 2 \times (hello\_time + 1)$

Example

Set the maximum age (max-age) of Spanning Tree to 30 seconds.
```
xg(config)# spanning-tree max-age 30
```

5.10.7 spanning-tree forward-time

Function

The forward delay time of Spanning Tree is the time required in each state when the ports transit to forwarding state.
The no form of is used to return to the default setup.

Prompt

xg(config)#

Command syntax

```
spanning-tree forward-time <4-30>
no spanning-tree forward-time
```

Parameter

● forward-time <4-30>
Sets the forward delay time of Spanning Tree in units of seconds. Values can be set in the range of 4 to 30 seconds.

Command type

Configuration command

Default

15 seconds

Message

% Can't set forward-time.
Explanation
An unsettable value has been specified. The settable range of "forward-time" differs depending on the values of "hello-time" and "max-age".
Solution
Set a value, which satisfies the conditions in Notes, for "forward-time".

Note

● The settable range of forward delay time differs depending on the values set with the "spanning-tree hell-time" command and the "spanning-tree max-age" command, and also must satisfy the following conditions:
$2 \times (forward\_time - 1) \geq max\_age$
$max\_age \geq 2 \times (hello\_time + 1)$

Example

Set the forward delay time to 17 seconds.

```
xg(config)# spanning-tree forward-time 17
```

5.10.8 spanning-tree port-priority

Function

Sets a port priority of the Spanning Tree.
A smaller value has a higher priority.
Use the no form to return to the default setup.

Prompt

xg(config-if)# ,or xg(config-agg)#

Command syntax

```
spanning-tree port-priority <0-240>
no spanning-tree port-priority
```

Parameter

● port-priority <0-240>
Sets a port priority of the Spanning Tree. Specify the set value as integer multiplied by 16. It can be within the range of 0 to 240.

Command type

Configuration command

Default

128

Message

% Priority is not step of 16
Explanation
The priority is not an integer multiplied by 16.
Solution
Define the priority using an integer multiplied by 16.

Example

Set the priority of port2 to 160.
```
xg(config)# interface port 2
xg(config-if)# spanning-tree port-priority 160
```

5.10.9 spanning-tree port-path-cost

Function

Sets a path cost of each port.
Use the no form to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
spanning-tree port-path-cost <1-200000000>
no spanning-tree port-path-cost
```

Parameter

● port-path-cost <1-200000000>
Sets a path cost of each port. It can be within the range of 1 to 200000000.
The following path cost values are recommended by IEEE802.1D.

Link speed	IEEE802.1d (16bit)		IEEE802.1d (32bit)	
	Recommended range	Recommended value	Recommended range	Recommended value
100M bps	10 - 60	19	20000 - 2000000	200000
1G bps	3 - 10	4	2000 - 200000	20000
10G bps	1 - 5	2	200 - 20000	2000

Command type

Configuration command

Configuration command Default

2 (16bit)
2000 (32bit)

Example

Set the path cost of switch port 2 to 3:

```
xg(config)# interface port 2
xg(config)# spanning-tree port-path-cost 3
```

5.10.10 spanning-tree path-cost-default

Function

Sets the version of path cost (IEEE802.1D: 16bits or IEEE802.1D:32bits) to be used for the Spanning Tree Protocol.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
spanning-tree path-cost-default { 16bit | 32bit }
no spanning-tree path-cost-default
```

Parameter

● path-cost-default { 16bit | 32bit }
  − 16bit
    IEEE802.1D (16bits) is used for the path cost. The default path cost is 2.
  − 32bit
    IEEE802.1D (32bits) is used for the path cost. The default path cost is 2000.

Command type

Configuration command

Default

32bit

Message

% The Setting becomes an availableness by doing REBOOT.
  Explanation
    The settings you have changed are made valid when the system is restarted.
  Solution
    To make the settings valid, issue the "copy running-config startup-config" command first. Then, issue the "reset" command to restart the system.

Example

Use the 32-bit path cost:

```
xg(config)# spanning-tree path-cost-default 32bit
```

5.10.11 spanning-tree portfast

Function

The "portfast" function reduces the time required to reconfigure the STP topology.
When the function detects a link down of the root port in the spanning tree, it skips the topology recalculation and directly switches from the blocking status to the forwarding status. When switched to the forwarding status, the MAC address of the terminal locating under the switch is sent as the dummy multicast frame having the source MAC address and the MAC address table of the host switch is changed.
This function can be used only for an edge port which is directly connected to the end station.
Use the no form to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
spanning-tree portfast
no spanning-tree portfast
```

Parameter

● portfast
Enables the portfast function.

Command type

Configuration command

Default

None

Message

% port %1$ is membership of uplink-domain %2$.

Explanation
The specified port already belongs to an uplink domain.
[[Inserted string]]%1$: specified port number
[[Inserted string]]%2$: uplink domain number
Solution
Specify a port not belonging to any uplink domains. Or remove the port from an uplink domain.

Note

● Use this function only for the port to be connected as an edge switch or for the port directly connected to the end station.
If this function is used for others, a frame may be looped due to the topology loop and, therefore, the switch and network operations may be affected.
● The port has to be removed from an uplink domain before disabling STP portfast function.

Example

Enable portfast for switch port 2.

```
xg(config)# interface port 2
xg(config)# spanning-tree portfast
```

5.10.12 spanning-tree portfast bpdu-guard

Function

Enable the BPDU guard with the port in which the portfast function is valid.

If the port having the enabled BPDU guard receives a BPDU, this port is shut down and its communication fails. During this time, the received BPDU is not processed.

If the port is shut down, you can enable the communication either using the "no shutdown" command or by enabling the "spanning-tree portdast errdisable-timeout" command and automatically starting the communication at the time set by the timer.

The no form to is used to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
spanning-tree portfast bpdu-guard
no spanning-tree portfast bpdu-guard
```

Parameter

● portfast bpdu-guard
Enables the BPDU guard.

Command type

Configuration command

Default

None

Note

● The function is enabled for the port in which "spanning-tree portfast" command is set.

Example

Enables the portfast function and BPDU guard function for the port 2.

```
xg(config)# interface port 2
xg(config-if)# spanning-tree portfast
xg(config-if)# spanning-tree portfast bpdu-guard
```

5.10.13 spanning-tree portfast errdisable-timeout

Function

Set the timer to release the port automatically from the shutdown status by the BPDU card in which the portfast function and BPDU guard function is valid. This command can also set a timer value at the same time.
The no form to is used to return to the default setup.

Prompt

xg(config)#

Command syntax

```
spanning-tree portfast errdisable-timeout [ interval <10-1000000> ]
no spanning-tree portfast errdisable-timeout
```

Parameter

● errdisable-timeout
Enables the timer to release the port automatically from the shutdown status using the BPDU card.
● interval <10-1000000>
Sets the time to release the port automatically from shutdown status by the BPDU card within the range of 10 to 1000000 seconds.
If this parameter is omitted, 300 is set.

Command type

Configuration command

Default

None

Note

● Use this function only for the port to be connected as an edge switch or for the port directly connected to the end station.
If this function is used for others, a frame may be looped due to the topology loop and, therefore, the switch and network operations may be affected.

Example

Enable the automatic release timer for the port having the shutdown status by the BPDU guard function:

```
xg(config)# spanning-tree portfast errdisable-timeout
```

5.10.14 spanning-tree portfast bpdu-filter

Function

Enable the BPDU filter for the port in which the portfast function is valid.
The port having the enabled BPDU filtering does not send or receive a BPDU.
Use the no form to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
spanning-tree portfast bpdu-filter
no spanning-tree portfast bpdu-filter
```

Parameter

● portfast bpdu-filter
  Enables BPDU filter.

Command type

Configuration command

Default

None

Note

● This function is valid for the port in which the "spanning-tree portfast" command is set.

Example

Enable the BPDU filter for port 2:

```
xg(config)# interface port 2
xg(config-if)# spanning-tree portfast
xg(config-if)# spanning-tree portfast bpdu-filter
```

5.11 Virtual LAN (VLAN) Setup Commands

This section explains the setting command related to the virtual LAN (VLAN).

5.11.1 show vlan

Function

Displays an information about the available VLAN status and VLAN membership status.

Prompt

xg>, or xg#

Command syntax

```
show vlan
```

Command type

Operation management command

Output form

```
xg(config)# show vlan
Vlan Information                                    2005/08/22-14:35:25
==============================================================================
Vlan Vlan-name       AggPort-Membership Port-Membership
                     ag1                1 2 5 6 7 8 9 10 11 12
---- -------------- ---                 -- -- -- -- -- -- -- -- -- --
   1 default         U                  U  U  U  U  U  U  U  U  U  U
   2 VLAN0002        U                  -  -  U  U  -  U  -  -  -  -
   3 VLAN0003        M                  M  M  -  -  M  -  -  -  -  -
==============================================================================
```

- Vlan
  Displays the VLAN ID (VID) of the user.
- Vlan-name
  Displays the name being set for the VLAN. If no name has been set, the name consisting of VLAN and a 4-digit VID number is assigned.
- AggPort-Membership/Port-Membership
  Displays the membership status of each port.

Items displayed	Meaning
-	Non-VLAN member
M	VLAN member (with a tag) A frame having the VLAN tag is transferred.
U	VLAN member (without a tag) A frame having no VLAN tag is transferred.

Example

Display the VLAN status.

```
xg# show vlan
```

5.11.2 vlan

Function

Creates a VLAN. Also, it can name the VLAN to allow its easy identification.
Up to 128 VLANs can be created.
Use the no form to delete the VLAN.

Prompt

xg(config)#

Command syntax

```
vlan <1-4094> [ name VLAN_NAME ]
no vlan <2-4094>
```

Parameter

● vlan <1-4094>
Specifies an ID of the VLAN to be created. The VLAN ID (or VID) can be an integer of 1 to 4094.
You cannot delete the default VLAN (having VID value 1 and name "default").
● name VLAN_NAME
Names the VLAN using ASCII characters. The name can be up to 15 alphanumeric characters.
The default VLAN name is "VLAN****" (where, **** is the VID).

Command type

Configuration command

Default

The default VLAN (VID=1, VLAN name=default) is only registered.

Message

% Vlan name length is max over
Explanation
The VLAN name length has exceeded 15 characters.
Solution
Specify a VLAN name consisting of up to 15 alphanumeric characters.
% Can't add vlan. Max entry over.
Explanation
You can create no more VLANs as the limit of VLAN entries (128 entries) have been registered on the system.
Solution
Delete unnecessary VLANs and reissue the command.
% Can't delete vlan. same pvid entry
Explanation
You cannot delete the VLAN because the specified port has been set to have the port VLAN ID ("port-vlan-id").
Solution
Make sure that each port does not have the "port-vlan-id" of the same VLAN ID. If not required, delete it using "no port-vlan-id" first. Then, delete the VLAN.

Note

● As the VLAN name is not checked for its duplication, you must name each VLAN unique on the network.

Example

First, create a VLAN having VID 2 by assigning the VLAN name "vlan-floor1". Second, create a VLAN having VID 3 by assigning the VLAN name "vlan-floor2".
Finally, make sure that those VLAN names are displayed on the VLAN information list using the "show" command.

```
xg(config)# vlan 2 name vlan-floor1
xg(config)# vlan 3 name vlan-floor2
xg(config)# exit
xg# show vlan
Vlan Information                                      2005/08/22-16:20:15
========================================================================
Vlan Vlan-name        Port-Membership
                       1  2  3  4  5  6  7  8  9 10 11 12
---- --------------- -- -- -- -- -- -- -- -- -- -- -- --
   1 default          U  U  U  U  U  U  U  U  U  U  U  U
   2 vlan-floor1      -  -  -  -  -  -  -  -  -  -  -  -
   3 vlan-floor2      -  -  -  -  -  -  -  -  -  -  -  -
========================================================================
```

5.11.3 port-vlan-id

Function

The port VLAN system allows you to set a port to explicitly belong to a VLAN and configure the VLAN by grouping each port. However, when a frame with VLAN tags is received, the VLAN tag information precedes.
This command sets the default port VID (default PVID) of the switch port. Also, the command registers it as the VLAN member port (without a tag) which specifies the port.
Use the no form to return to the default value.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
port-vlan-id vlan <1-4094>
no port-vlan-id
```

Parameter

● vlan <1-4094>
Specifies the default VLAN ID (VID) to which the switch port belongs. The VID can be an integer of 1 to 4094.

Command type

Configuration command

Default

1

Message

% VLAN %1$ not configured. %2$
Explanation
The specified VLAN has not been created.
[[Inserted string]]%1$: VID
[[Inserted string]]%2$: Port number
Solution
Create a VLAN first, then reissue the command.

Note

When this command is issued, the port is registered as a membership of the specified VLAN (having no tag). The frame having no tag is sent during egressing. To change the rule during egressing to "transfer frames having tags," issue "vlan-member allowed vlan <1-4094> egress-tagging".

Example

Set the default PVID of switch port 2 to 3.
Then, display the VLAN information using the "show" command and make sure that VID 3 has been registered as a membership of port 2 (it is transferred as a frame having no tag during egressing).

```
xg(config)# interface port 2
xg(config-if)# port-vlan-id vlan 3
xg(config)# exit
xg# show vlan
Vlan Information                                       2005/08/22-16:20:15
=========================================================================
Vlan Vlan-name     Port-Membership
                   1  2  3  4  5  6  7  8  9 10 11 12
---- ------------ -- -- -- -- -- -- -- -- -- -- -- --
   1 default       U  U  U  U  U  U  U  U  U  U  U  U
   3 VLAN0003      -  U  -  -  -  -  -  -  -  -  -  -
=========================================================================
```

5.11.4 vlan-member allowed

Function

Registers a port as a VLAN membership.
Use the no form to release the VLAN membership.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
vlan-member allowed vlan { <1-4094> | all } { egress-untagging | egress-tagging }
no vlan-member allowed vlan { <1-4094> | all }
```

Parameter

- vlan <1-4094>
  Specifies a VLAN ID (or VID) for membership registration or VLAN ID deletion. The VID can be an integer of 1 to 4094.
- vlan all
  Registers or deletes member ports of all registered VLANs.
- egress-untagging
  Deletes a VLAN tag during frame transmission.
- egress-tagging
  Adds a VLAN tag during frame transmission.

Command type

Configuration command

Default

Registers all ports with "egress-untagging" setup (the default VLAN).
Not set (except for the default VLAN)

Message

% VLAN %1$ not configured. %2$
> **Explanation**
>> The specified VLAN has not been created.
>> [[Inserted string]]%1$: VID
>> [[Inserted string]]%2$: Port number
> **Solution**
>> Create a VLAN first, then reissue the command.

% Can't remove vlan from port. Same pvid entry. %1$
> **Explanation**
>> You cannot delete the specified VID as it is identical to the default PVID.
>> [[Inserted string]]%1$: Port number
> **Solution**
>> Change the default PVID and reissue the command.

Example

Enter the interface edit mode for ports 1 to 3 and register those ports as VLAN membership (with tags) of VID 3.
Then, use the "show" command to display the VLAN information. You can check that ports 1 to 3 have been registered as the VLAN membership of VID 3.

```
xg(config)# interface port range 1 3
xg(config-if)# vlan-member allowed vlan 3 egress-tagging
xg(config-if)# exit
xg(config)# exit
xg# show vlan
Vlan Information                                         2005/08/22-12:12:15
============================================================================
Vlan Vlan-name          Port-Membership
                        1  2  3  4  5  6  7  8  9 10 11 12
---- ---------------- -- -- -- -- -- -- -- -- -- -- -- --
   1 default-vlan       U  U  U  U  U  U  U  U  U  U  U  U
   2 vlan-floor1        -  -  -  -  -  -  -  -  -  -  -  -
   3 vlan-floor2        M  M  M  -  -  -  -  -  -  -  -  -
============================================================================
```

5.11.5 user-vlan-protocol-id

Function

The VLAN tag protocol ID (VPID or TPID) used for VLAN tag identification can be changed to the user-defined value of each port.
The standard VLAN tag protocol ID has been defined to 0x8100 in IEEE 802.1Q. However, you can use the standard tag of IEEE 802.1Q as the multiple-tag VLAN which has been encapsulated with the user-defined VPID (or TPID) tag (*).
*: Similar functions are called as Stacked VLAN, Nested VLAN, VLAN tunneling and 802.1Q in 802.1Q.

Information
● For the frame format, see the TPID (Tag Protocol Identifier) in "Tag VLAN Frame Format".
● For the multiple-tag VLAN setup example and the frame flow, see "Multiple VLAN".

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
user-vlan-protocol-id <0x05DD ~ 0xFFFF>
no user-vlan-protocol-id
```

Parameter

● user-vlan-protocol-id <0x05DD ~ 0xFFFF>
Specify the VPID (or TPID) using a hexadecimal integer beginning with 0x. It can be an integer of 0x05DD to 0xFFFF.

Command type

Configuration command

Default

0x8100

Example

Enter the interface edit mode for ports 1 to 3 and set the VPID (or TPID) to 0x2000.

```
xg(config)# interface port range 1 3
xg(config-if)# user-vlan-protocol-id 0x2000
```

5.11.6 ingress-filter no-vlan-member-frame

Function

Enables VLAN ingress filtering. If the VLAN ingress filter is enabled, frames of the VLAN which the port is not registered as a member are discarded.
Use the no form to disable the ingress filtering.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
ingress-filter no-vlan-member-frame
no ingress-filter no-vlan-member-frame
```

Parameter

● no-vlan-member-frame
Discards the frames belonging to the VLAN which differs from the VLAN to which the port belongs.

Command type

Configuration command

Default

None

Example

Enter the Edit Interface mode for switch ports 1 to 3 and enable VLAN ingress filtering.

```
xg(config)# interface port range 1 3
xg(config-if)# ingress-filter no-vlan-member-frame
```

5.11.7 ingress-filter tagged-frame

Function

Specifies to discard VLAN-tagged frames.
Use the no form to disable frame discarding.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
ingress-filter tagged-frame
no ingress-filter tagged-frame
```

Parameter

● tagged-frame
Discards VLAN-tagged frames when they are received.

Command type

Configuration command

Default

None

Note

● If the user VPID is specified by the "user-vlan-protocol-id," a tag having the same tag ID as the user VPID is considered to be the VLAN tag.
● If both "ingress-filter tagged-frame" and "ingress-filter untagged-frame" are specified, all frames received at this switch port are discarded.

Example

Enter the interface edit mode for ports 1 to 3 and specify to discard VLAN-tagged frames.

```
xg(config)# interface port range 1 3
xg(config-if)# ingress-filter tagged-frame
```

5.11.8 ingress-filter untagged-frame

Function

Specifies to discard VLAN untagged frames.
Use the no form to disable frame discarding.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
ingress-filter untagged-frame
no ingress-filter untagged-frame
```

Parameter

● untagged-frame
Discards VLAN untagged frames when they are received.

Command type

Configuration command

Default

None

Note

● If the user VPID is specified by the "user-vlan-protocol-id," a tag having the same tag ID as the user VPID is considered to be the VLAN tag.
● If both "ingress-filter tagged-frame" and "ingress-filter untagged-frame" are specified, all frames received at this port are discarded.
● When using the Spanning Tree Protocol (STP), do not specify the "ingress-filter untagged-frame" command.

Example

Enter the interface edit mode for ports 1 to 3 and specify to discard VLAN untagged frames.

```
xg(config)# interface port range 1 3
xg(config-if)# ingress-filter untagged-frame
```

5.11.9 vlan-statistics collection

Function

Sets the VLANs to collect their statistics information. Up to 32 VLANs can be set.
Use the no form to cancel collecting the VLAN statistics information.

Prompt

xg(config)#

Command syntax

```
vlan-statistics collection <1-4094> [ <1-4094> ・・・・・ ]
no vlan-statistics
```

Parameter

● collection <1-4094> <1-4094> ・・・・・
Specifies an ID of the VLAN to collect its statistics information.
To collect the statistics information about multiple VLANs, specify multiple VIDs by separating them from each other by a space. Up to 32 VLANs can be specified.

Command type

Configuration command

Default

None

Message

% Can't set vlan id. Over max entry number. [%1$]

Explanation

No more VLAN statistics information can be collected as the number of VLANs has reached the limit for information collection.
[[Inserted string]]%1$: Limit value

Solution

Delete VLANs whose information you need not to collect, and reissue the command.

Note

● If a VID of uncreated VLAN is specified, the command is terminated normally. However, the statistics information of uncreated VLAN is not collected.

Example

Specify VIDs 1, 10, 20, 30 and 40 to collect their VLAN statistics information.
Then, change the VIDs to 1, 10, 20 and 30 only to collect their VLAN statistics information.

```
xg(config)# vlan-statistics collection 1 10 20 30 40
xg(config)# vlan-statistics collection 1 10 20 30
```

5.12 QoS Setup Commands

This section explains the Quality of Service (QoS) setup commands.

5.12.1 show qos

Function

Displays the current Quality of Service (QoS) status.

Prompt

xg>, or xg#

Command syntax

```
show qos [ { default-priority | qos-map } ]
```

Parameter

● default-priority
    Displays the default priority value of the port.
● qos-map
    Displays the QoS priority mapping information (that is, the output queue information of each priority).
    There are four levels of output queues (levels 0 to 3). A higher value has the higher output priority.
    If this parameter is omitted, all of QoS information is displayed.

Command type

Operation management command

Output form

```
xg# show qos
QoS Information                                      2005/08/22-12:12:15
================================================================================
Default Port Priority
--------------------------------------------------------
Port:             1  2  3  4  5  6  7  8  9 10 11 12
----------------- -- -- -- -- -- -- -- -- -- -- -- --
Default Priority: 0  2  3  5  6  3  2  0  6  3  2  7
--------------------------------------------------------
Priority Output Queue Mapping
------------------------------------------
Qos Priority:     0  1  2  3  4  5  6  7
----------------- -- -- -- -- -- -- -- --
Output Priority:  1  0  0  1  2  2  3  3
------------------------------------------
================================================================================
```

Default User Priority Information
● Port
    Displays port numbers.
● Default Priority
    Displays the default priority value of each port (0 to 7).

QoS Priority Mapping Information
● Qos Priority
    Displays the QoS priority (0 to 7).
● Output Priority
    Displays a level of output queue for each priority (0 to 3).

Example

Display the QoS status:

```
xg# show qos
```

5.12.2 qos default-priority

Function

Sets the default priority for frames having no priority information (such as VLAN untagged frames).
Use the no form to return to the default setup.

Prompt

xg(config-if)#, or xg(config-agg)#

Command syntax

```
qos default-priority <0-7>
no qos default-priority
```

Parameter

● default-priority <0-7>
Sets the default priority for frames having no priority information.

Command type

Configuration command

Default

0

Example

Enter the interface edit mode for switch ports 1 and 3, and set the default priority to 1.

```
xg(config)# interface port 1 3
xg(config-if)# qos default-priority 1
```

5.12.3 qos-map priority

Function

The system has four priority levels of output queues for frame transmission processing.
This command maps the frame priorities to the output queue levels.
Use the no form to reset the entire mapping information to the default setup.

Prompt

xg(config)#

Command syntax

```
qos-map priority <0-7> output-priority <0-3>
no qos-map
```

Parameter

● priority <0-7>
Specifies a frame priority within the range of 0 to 7.
● output-priority <0-3>
Specifies the output queue level to be associated with the specified priority within the range of 0 to 3.

Command type

Configuration command

Default

priority	output-priority
0	1
1	0
2	0
3	1
4	2
5	2
6	3
7	3

Example

Map priority "0" to output queue "2".

```
xg(config)# qos-map priority 0 output-priority 2
```

5.12.4 bridge diffserv-tos

Function

Enables Quality of Service using the DiffServ code point.
When priority control by DiffServ codes is enabled, any priority included in a VLAN tag and the default priority are ignored.
Use the no form to disable DiffServ code control.

Prompt

xg(config)#

Command syntax

```
bridge diffserv-tos { ipv4 | ipv6 }
no bridge diffserv-tos
```

Parameter

● diffserv-tos { ipv4 | ipv6 }
Enables Quality of Service using the DiffServ code point.
− ipv4
Enables IPv4 Quality of Service.
− ipv6
Enables IPv6 Quality of Service.

Command type

Configuration command

Default

None

Example

Enable Quality of Service using the DiffServ code point of IPv4.

```
xg(config)# bridge enable-diffserv-tos ipv4
```

5.13 Port Mirroring Setup Commands

This section explains the commands for port mirroring setup.

5.13.1 show mirror

Function

Displays the current mirroring setup for send and receive frames.

Prompt

xg>, or xg#

Command syntax

```
show mirror
```

Command type

Operation management command

Output format

```
xg# show mirror
Mirror Information                              2005/08/22-12:12:15
================================================================================
Monitored Port    Rx Mirroring Port
--------------    -----------------
Port-1       ===> Port-2

Monitored Port    Tx Mirroring Port
--------------    -----------------
Port-1       ===> Port-3
================================================================================
```

- ● Monitored Port
  Displays the port number of the monitored switch.
- ● Rx Mirroring Port
  Displays the destination port number for mirroring of frames received at the monitored port.
- ● Tx Mirroring Port
  Displays the destination port number for mirroring of frames sent from the monitored port.

Example

Display the port mirroring status.

```
xg> show mirror
```

5.13.2 mirror

Function

Sets the port mirroring.
Use the no form to cancel the port mirroring setup.

Prompt

xg(config)#

Command syntax

```
mirror monitored-port <1-12> [rx-mirroring-port <1-12>] [tx-mirroring-port <1-12>]
no mirror
```

Parameter

- monitored-port <1-12>
  Specifies a port number to be monitored.
- rx-mirroring-port <1-12>
  Specifies the destination port number for mirroring of received frames. It must be different from the port specified by "monitored-port/tx-mirroring-port".
- tx-mirroring-port <1-12>
  Specifies the destination port number for mirroring of sent frames. It must be different from the port specified by "monitored-port/rx-mirroring-port".

Command type

Configuration command

Default

None

Message

% Cannot set same port.

Explanation
You have specified the same port number by either of "monitored-port", "rx-mirroring-port" and "tx-mirroring-port".
Solution
Specify the different port number by reviewing the "monitored-port", "rx-mirroring-port" and "tx-mirroring-port", and reissue the command.

Note

- If you have already set the port mirroring before issuing this command, the status is updated to the result when this command is executed.
- Specify "none" of the spanning tree protocol using the "spanning-tree protocol" command for the "rx-mirroring-port" and "tx-mirroring-port" spanning ports.

Example

Mirror the frames received at port 1 to port 2, and mirror the frames sent from port 1 to port 3.

```
xg(config)# mirror monitored-port 1 rx-mirroring-port 2 tx-mirroring-port 3
```

Mirror the frames received at port 1 to port 2.

```
xg(config)# mirror monitored-port 1 rx-mirroring-port 2
```

5.14 IGMP Snooping Setup Commands

This section explains the IGMP snooping setup commands.

5.14.1 show ip snooping

Function

Displays the IGMP snooping information.

Prompt

xg>, or xg#

Command syntax

```
show ip snooping [vlan <1-4094> ]
show ip snooping mrouter [vlan <1-4094>]
show ip snooping group [vlan <1-4094>]
```

Parameter

● [vlan <1-4094>]
  Displays the IGMP snooping information of the specified VLAN.
  If this parameter is omitted, all of the VLAN information is displayed.
● mrouter [vlan <1-4094>]
  Displays only the multicast router information of the IGMP snooping information.
  If the "vlan" is omitted, all of the VLAN information is displayed.
● group [vlan <1-4094>]
  Displays only the registered multicast group information of the IGMP snooping information.
  If the "vlan" is omitted, all of the VLAN information is displayed.

Command type

Operation management command

Output format

```
xg# show ip snooping
IGMP Snooping Information                               2005/08/22-22:17:04
===============================================================================
Global IGMP snooping          : { Enabled | Disabled }

[vlan-1]
 IGMP snooping                : { Enabled | Disabled }
 Registered group number      : 0 (Current) / 32 (Maximum)
 Multicast router auto learning: { Enabled | Disabled }
 Fast leave                   : { Enabled | Disabled }
 Group Membership interval    : 260 (sec)
 Last Member Query interval   : 2 (sec)
 Send Query count             : 2 (times)
 IGMP snooping querier        : { Enabled | Disabled }
   General Query interval      : 125 (sec)
   Querier IP address          : 0.0.0.0

 Multicast Router Information
 ------------------------------------------------------------------------------
 Vlan Type    Mrouter ports
 ---- ------- -------------
   1  static  port 5
 ------------------------------------------------------------------------------

 Multicast Group Information
 ------------------------------------------------------------------------------
 Vlan Multicast Group Ver Member ports
 ---- --------------- --- ------------------------------------------------------
   1  225.10.10.1      2   port 1 5
-------------------------------------------------------------------------------

[vlan-2]
    ･･････
    ･･････
```

● Global IGMP snooping
  The operation state of IGMP snooping of the XG700 is displayed.
  – Enabled
    IGMP snooping is enabled.
  – Disabled
    IGMP snooping is disabled.

[vlan 1]
  The VIDs of applicable VLANs are displayed.
  ● IGMP snooping
    The IGMP operation state of applicable VLANs are displayed.
    – Enabled
      IGMP snooping is enabled.
    – Disabled
      IGMP snooping is disabled.
  ● Registered group number
    The number of registered multicast groups are displayed through IGMP snooping.
    – (Current)
      The number of currently registered groups is displayed.
    – (Maximum)
      The maximum number of groups that can be registered for the applicable VLANs is displayed.
  ● Multicast router auto learning
    The status of Automatic Learning mode of the multicast router is displayed.
    – Enabled
      Automatic learning of the multicast router is enabled.
    – Disabled
      Automatic learning of the multicast router is disabled.
  ● Fast leave
    The status of Immediate Leave mode is displayed when an IGMP Leave message is received.
    – Enabled
      The Immediate Leave mode is enabled.
    – Disabled
      The Immediate Leave mode is disabled.
  ● Group Membership interval
    The valid time (in seconds) of the registered multicast group is displayed.
  ● Last Member Query interval
    The monitoring time (in seconds) for leaving confirmation is displayed when an IGMP Leave message is received.
  ● Send Query count
    The leaving confirmation during reception of IGMP Leave message and the transmission frequency of query message by the IGMP querier function are displayed.
  ● IGMP snooping querier
    The operation state of IGMP querier function is displayed.
    – Enabled
      The IGMP querier function is enabled.
    – Disabled
      The IGMP querier function is disabled.
  ● General Query interval
    The transmission interval (in seconds) of query messages sent by the IGMP querier function is displayed.
  ● Querier IP address
    Source IP address of the query message sent by IP querier is displayed

Multicast Router Information
  The multicast router status is displayed.
  ● Vlan
    The ID of applicable VLAN is displayed.
  ● Type
    The identification method of multicast router is displayed.
    – static
      This is the multicast router statically set by the CLI.
    – dynamic
      This is the multicast router port dynamically learned by IGMP snooping.
  ● Mrouter ports
    The number of the port where the multicast router locates is displayed.
    For an aggregation group, the group number is displayed immediately after the "agg-port" information.

Multicast Group Information
  The state of registered multicast groups are displayed through IGMP snooping.
  ● Vlan
    The ID of applicable VLAN is displayed.
  ● Multicast Group
    The addresses of registered IP multicast groups are displayed.
  ● Ver
    The version of the received IGMP protocol is displayed.
  ● Member ports
    The port number of registered multicast group is displayed.
    For an aggregation group, the group number is displayed immediately after the "agg-port" information.

Output format (if "mrouter" is specified)

Only the multicast router information is extracted from the IGMP snooping information and displayed.

```
xg# show ip snooping mrouter
IGMP Snooping Information(Multicast Router)              2005/04/24-22:19:52
================================================================================
  Vlan Type    Mrouter ports
  ---- ------- -------------
     1 static  port 5
     2 dynamic port 6
--------------------------------------------------------------------------------
================================================================================
```

Output format (if "group" is specified)

Only the multicast group information is extracted from the IGMP snooping information and displayed.

```
xg# show ip snooping group
IGMP Snooping Information(Multicast Group)               2005/04/24-22:20:56
================================================================================
  Vlan  Multicast Group Ver Member ports
  ---- --------------- --- ----------------------------------------------------
     1 225.0.0.1         2   port 1 5
     2 225.0.0.2         2   port 1 5
--------------------------------------------------------------------------------
================================================================================
```

5.14.2 ip snooping protocol

Function

Enables global IGMP snooping.
Use the no form to disable the snooping.

Prompt

xg(config)#

Command syntax

```
ip snooping protocol igmp
no ip snooping protocol igmp
```

Parameter

● protocol igmp
  Enables global IGMP snooping of the XG700.

Command type

Configuration command

Default

None

Message

% port %1$ is membership of uplink-domain %2$.
  Explanation
    The displayed port is used as an uplink.
    [[Inserted string]]%1$: Port number
    [[Inserted string]]%2$: Uplink domain number
  Solution
    Clear the uplink domain before enabling IGMP snooping.

Note

● IGMP snooping and uplink filter function cannot be used at the same time.

Example

Enable IGMP snooping of the XG700.

```
xg(config)# ip snooping protocol igmp
```

5.14.3 ip snooping vlan

Function

Enables IGMP snooping of each VLAN.
The IGMP snooping can be enabled for each VLAN only after you have enabled the global IGMP snooping using the "ip snooping protocol" command.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094>
no ip snooping vlan <1-4094>
```

Parameter

● vlan <1-4094>
  Enables IGMP snooping for the specified VLAN.

Command type

Configuration command

Default

Enabled (for the default VLAN)
Disabled (for VLANs other than the default VLAN)

Message

% Global IGMP snooping is not enabled.
  Explanation
  The global IGMP snooping of the XG700 is disabled.
  Solution
  Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan" command.
% Vlan id is not found. vid=%1$
  Explanation
  The specified VLAN has not been created.
  [[Inserted string]]%1$: VID of the specified VLAN
  Solution
  Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan" command.
% More than 128 total max-group per system.
  Explanation
  The registration number of multicast addresses allowed on the entire system has exceeded the limit (128 addresses).
  Solution
  Reduce the maximum number of other VLANs using the "ip snooping vlan max-group" command, or disable the IGMP snooping function of other VLANs.

Example

Enable IGMP snooping of VLAN 2:

```
xg(config)# ip snooping vlan 2
```

5.14.4 ip snooping vlan max-group

Function

Defines the number of multicast groups which can be registered for IGMP snooping of each VLAN.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> max-group <10-128>
no ip snooping vlan <1-4094> max-group
```

Parameter

- vlan <1-4094>
  Changes the IGMP snooping setup of the specified VLAN.
- max-group <10-128>
  Sets the maximum number of multicast groups which can be registered. It can be an integer of 10 to 128.

Command type

Configuration command

Default

32

Message

% Global IGMP snooping is not enabled.
> **Explanation**
> The global IGMP snooping of the XG700 is disabled.
> **Solution**
> Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan" command.

% Vlan id is not found. vid=%1$
> **Explanation**
> The specified VLAN has not been created.
> [[Inserted string]]%1$: VID of the specified VLAN
> **Solution**
> Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan" command.

% IGMP snooping vlan-%1$ is not enabled.
> **Explanation**
> IGMP snooping of the specified VLAN is disabled.
> [[Inserted string]]%1$: VID of the specified VID
> **Solution**
> Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan max-group" command.

% More than 128 total max-group per system.
> **Explanation**
> The registration number of multicast addresses allowed on the entire system has exceeded the limit (128 addresses).
> **Solution**
> Reduce the maximum number of other VLANs using the "ip snooping vlan max-group" command, or disable the IGMP snooping function of other VLANs.

Note

- Up to 128 multicast MAC addresses can be registered on the entire system.
  Therefore, if IGMP snooping is used by multiple VLANs, cares must be taken not to exceed the limit number of multicast MAC addresses.

Example

Set the number of groups which can be registered for IGMP snooping of VLAN 2 to 50.

```
xg(config)# ip snooping vlan 2 max-group 50
```

5.14.5 ip snooping vlan mrouter

Function

Automatically learns the IGMP query message receiving port as the multicast router port.
This command can statically set multicast router ports. Also, it can change the automatic learning mode of multicast router ports.
Set multicast router ports statically to register more than one multicast router port.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> mrouter { port <1-12> | agg-port <1-6> }
no ip snooping vlan <1-4094> mrouter { port <1-12> | agg-port <1-6> }

ip snooping vlan <1-4094> mrouter suppress-learning
no ip snooping vlan <1-4094> mrouter suppress-learning
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- mrouter port <1-12>
  Specifies a port number to be set statically as the multicast router port.
- mrouter agg-port <1-6>
  Specifies an aggregation group number to be set statically as the multicast router port.
- mrouter suppress-learning
  Disables automatic learning of multicast router ports.

Command type

Configuration command

Default

None

Message

% Global IGMP snooping is not enabled.
> **Explanation**
> The global IGMP snooping of the XG700 is disabled.
> **Solution**
> Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan" command.

% Vlan id is not found. vid=%1$
> **Explanation**
> The specified VLAN has not been created.
> [[Inserted string]]%1$: Specified VID
> **Solution**
> Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan" command.

% IGMP snooping vlan-%1$ is not enabled.
> **Explanation**
> IGMP snooping of the specified VLAN is disabled.
> [[Inserted string]]%1$: Specified VID
> **Solution**
> Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan max-group" command.

% Port is not vlan member. vid=%1$
> **Explanation**
> The specified port is not a VLAN member.
> [[Inserted string]]%1$: Specified VID
> **Solution**
> Set the port as a VLAN member using the "vlan-member allowed" command first, then reissue the "ip snooping vlan mrouter" command.

% Aggregation-port is not vlan member. vid=%1$
> **Explanation**
> The specified port is not a VLAN member.
> [[Inserted string]]%1$: Specified VLAN ID
> **Solution**
> Set the port as a VLAN member using the "vlan-member allowed" command first, then reissue the "ip snooping vlan mrouter" command.

% Aggregation-port not bound to bridge.
> **Explanation**
> The specified aggregation group does not exist.
> **Solution**
> Set a link aggregation by the "link-aggregation" command first, then specify the "agg-port" using the "ip snooping vlan mrouter" command.

```
% Can't set mrouter on a port which belongs to an aggregation port.
```
Explanation

A port which configures a link aggregation cannot be specified for port.

Solution

Review the specified port number and reissue the command. When setting for the aggregation group specify agg-port.

Example

Set aggregation group 1 as a multicast router port:

```
xg(config)# ip snooping vlan 2 mrouter agg-port 1
```

5.14.6 ip snooping vlan group-member-interval

Function

Sets an valid time (in seconds) of the IP multicast group which has been registered by IGMP snooping.
The registered IP multicast group is deleted if an IGMP Report message is not received within the valid time.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> group-member-interval <60-600>
no ip snooping vlan <1-4094> group-member-interval
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- group-member-interval <60-600>
  Specifies the valid time period in seconds of the registered IP multicast group.

> **Point**
>
> We recommend you to set "group member interval" by considering the message transmission interval of the multicast router which is connected to the system. (This interval is called the "query interval" and its default is 125 seconds in RFC.) The recommended value is as follows.
>
> Group-member-interval = Query Interval $\times$ 2 + 10 (seconds)

Command type

Configuration command

Default

260 seconds

Message

```
% Global IGMP snooping is not enabled.
```
Explanation

The global IGMP snooping of the XG700 is disabled.

Solution

Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan group-member-interval" command.

```
% Vlan id is not found. vid=%1$
```
Explanation

The specified VLAN has not been created.
[[Inserted string]]%1$: Specified VID

Solution

Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan group-member-interval" command.

```
% IGMP snooping vlan-%1$ is not enabled.
```
Explanation

IGMP snooping of the specified VLAN is disabled.
[[Inserted string]]%1$: Specified VID

Solution

Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan group-member-interval" command.

Example

Set the valid of IP multicast group which has been learned at VLAN 1 to 300 seconds (or 5 minutes).

```
xg(config)# ip snooping vlan 1 group-member-interval 300
```

5.14.7 ip snooping vlan fast-leave

Function

Set the Fast Leave mode of the IP multicast group for the port where the IGMP Leave message is received. In the Fast Leave mode, the leaving is not checked when the IGMP Leave message is received.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> fast-leave
no ip snooping vlan <1-4094> fast-leave
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- fast-leave
  Enables the Fast Leave mode.

Command type

Configuration command

Default

None

Message

% Global IGMP snooping is not enabled.

Explanation

The global IGMP snooping of the XG700 is disabled.

Solution

Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan fast-leave" command.

% Vlan id is not found. vid=%1$

Explanation

The specified VLAN has not been created.
[[Inserted string]]%1$: Specified VID

Solution

Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan fast-leave" command.

% IGMP snooping vlan-%1$ is not enabled.

Explanation

IGMP snooping of the specified VLAN is disabled.
[[Inserted string]]%1$: Specified VID

Solution

Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan fast-leave" command.

Example

Enable the Fast Leave mode of VLAN 1.

```
xg(config)# ip snooping vlan 1 fast-leave
```

5.14.8 ip snooping vlan last-member-interval

Function

Sets the monitoring time (in seconds) to check for leaving of the last member of IP multicast group. If an IGMP Report message is not issued within the monitoring time after reception of IGMP Leave message, the IP multicast group is deleted. Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> last-member-interval <1-9>
no ip snooping vlan <1-4094> last-member-interval
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- last-member-interval <1-9>
  Specifies the monitoring time (in seconds) to check for member leaving.

Command type

Configuration command

Default

2 seconds

Message

% Global IGMP snooping is not enabled.
> **Explanation**
> The global IGMP snooping of the XG700 is disabled.
> **Solution**
> Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan last-member-interval" command.

% Vlan id is not found. vid=%1$
> **Explanation**
> The specified VLAN has not been created.
> [[Inserted string]]%1$: Specified VID
> **Solution**
> Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan" command.

% IGMP snooping vlan-%1$ is not enabled.
> **Explanation**
> IGMP snooping of the specified VLAN is disabled.
> [[Inserted string]]%1$: Specified VID
> **Solution**
> Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan last-member-interval" command.

Example

Set the monitoring time to check for leaving of VLAN 2 to 3 seconds.

```
xg(config)# ip snooping vlan 2 last-member-interval 3
```

5.14.9 ip snooping vlan send-query-count

Function

Sets a query message transmission frequency.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> send-query-count <1-3>
no ip snooping vlan <1-4094> send-query-count
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- send-query-count <1-3>
  Sets a query message transmission frequency.

Command type

Configuration command

Default

2

Message

```
% Global IGMP snooping is not enabled.
```
Explanation
The global IGMP snooping of the XG700 is disabled.
Solution
Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan send-query-count" command.

```
% Vlan id is not found. vid=%1$
```
Explanation
The specified VLAN has not been created.
[[Inserted string]]%1$: Specified VID
Solution
Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan send-query-count" command.

```
% IGMP snooping vlan-%1$ is not enabled.
```
Explanation
IGMP snooping of the specified VLAN is disabled.
[[Inserted string]]%1$: Specified VID
Solution
Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan send-query-count" command.

Example

Set the query message transmission frequency of VLAN 2 to 3:

```
xg(config)# ip snooping vlan 2 send-query-count 3
```

5.14.10 ip snooping vlan querier

Function

The IGMP Querier function sends an IGMP General Query message to each terminal instead of the multicast router if no multicast router exists in a network segment.
This command enables the IGMP querier. The query message transmission interval (called "Query interval") is calculated based on the query message transmission frequency and the group valid time (called "Group member interval") as follows.

- Query interval = (Group-membership-interval – 10) / send-query-count (seconds)

XG700 does not send Query messages when there is a multicastrouter in the network.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
ip snooping vlan <1-4094> querier ip A.B.C.D
no ip snooping vlan <1-4094> querier
```

Parameter

- vlan <1-4094>
  Specifies a VLAN to change its settings.
- querier
  Enables the IGMP querier function.
- ip A.B.C.D
  Specifies the source IP address of Query messages to be sent by the IGMP querier.
  The IP address can be 0.0.0.0 or within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.

Command type

Configuration command

Default

None

Message

% Global IGMP snooping is not enabled.
   Explanation
      The global IGMP snooping is disabled on the system.
   Solution
      Enable the global IGMP snooping using the "ip snooping protocol" command first, then reissue the "ip snooping vlan querier" command.
% Vlan id is not found. vid=%1$
   Explanation
      The specified VLAN has not been created.
      [[Inserted string]]%1$: Specified VLAN ID
   Solution
      Create a VLAN using the "vlan" command first, then reissue the "ip snooping vlan querier" command.
% IGMP snooping vlan-%1$ is not enabled.
   Explanation
      IGMP snooping of the specified VLAN is disabled.
      [[Inserted string]]%1$: Specified VID
   Solution
      Enable the IGMP snooping of the VLAN using the "ip snooping vlan" command first, then reissue the "ip snooping vlan querier" command.
% Invalid IP-address.
   Explanation
      The IP address was specified in an incorrect format or an incorrect address was specified.
   Solution
      Specify the IP address in the correct format and reissue the command.

Example

Enable the IGMP querier of VLAN 1 and set the query transmission source IP address to "192.168.1.200."

```
xg(config)# ip snooping vlan 1 querier ip 192.168.1.200
```

5.15 Statistics Commands

The XG700 can display statistics using several calculation methods.
The statistics can be displayed by the "monitor" command which periodically updates the information or by the "show statistics" command which displays the snapshot.

Point

The transmission byte statistics information does not include preambles (framing bytes).

Note

Set the terminal screen size to 50 columns by 12 lines or more when issuing the "monitor" command.
If the terminal screen size is too small, the following message is displayed.
```
% terminal line is too small
```
or
```
% terminal width is too short
```

Point

The number of statistics display lines vary depending on the counter used.
If the line length exceeds the limit, the following unit is displayed at the right of the displayed value. The unit indicates the number of digits that can be displayed.

K:	1,000
M:	1,000,000
G:	1,000,000,000
T:	1,000,000,000,000

5.15.1 monitor traffic-bytes

Function

Displays the transmission frame length (in bytes) at each port.

Prompt

xg> or xg#

Command syntax

```
monitor traffic-bytes { current | total } [interval <3-60>]
```

Parameter

- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the cumulative byte count of transmission frames after startup of this command.
  - total
    Displays the cumulative byte count of transmission frames after startup of the system.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor traffic-bytes current
Traffic Statistics(Current Frame Bytes)     2005/08/22-12:12:15
================================================================
Port Link State/    Tx Rate     Rx Rate     Tx-Frame     Rx-Frame
     STP State      Bits/Sec    Bits/Sec    Bytes        Bytes
---- ------------- ----------  ----------  ------------ -----------
   1 Up/Discard    12345678K   12345678K   1234567890K  1234567890K
   2 Down                  0           0            0            0
   3 Up/Discard          923         923   1234567890K  1234567890K
   4 Up/Learn        999123K     999123K   1234567890M  1234567890M
   5 Up/Forward          999         999   1234567890G  1234567890G
   6 Up/Forward      999999K     999999K   1234567890T  1234567890T
   7 Down                  0           0            0            0
   8 Down                  0           0            0            0
================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- Port
  Displays port numbers. Statistics of each port are displayed on a line.
- Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - Down
    The port link is down.
  - Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- Tx Rate Bits/Sec
  Displays the transmission rate (in bps) using an 8-digit, right-justified value.
- Rx Rate Bits/Sec
  Displays the receive rate (in bps) using an 8-digit, right-justified value.
- Tx-Frame Bytes
  Displays the cumulative transmission byte count after execution of this command, using a 10-digit, right-justified value.
- Rx-Frame Bytes
  Displays the cumulative receive byte count after execution of this command, using a 10-digit, right-justified value.

Output format (if "total" is specified)

```
xg# monitor traffic-bytes total
Traffic Statistics(Total Frame Bytes)     2005/08/22-12:12:15
============================================================
Port Link State/   Tx-Frame     Rx-Frame
     STP State     Bytes        Bytes
---- ------------- ----------- ------------
   1 Up/Discard    1234567890K  1234567890K
   2 Down          1234567890G  1234567890G
   3 Up/Discard    1234567890M  1234567890M
   4 Up/Learn      1234567890T  1234567890T
   5 Up/Forward     1234567890   1234567890
   6 Up/Forward     1234567890   1234567890
   7 Down           1234567890   1234567890
   8 Down           1234567890   1234567890
============================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- Port
  Same as the display explained for "current" option
- Link State/STP State
  Same as the display explained for "current" option
- Tx-Frame Bytes
  Displays the cumulative transmission byte count after system startup, using a 10-digit, right-justified value.
- Rx-Frame Bytes
  Displays the cumulative receive byte count after system startup, using a 10-digit, right-justified value.

5.15.2 monitor traffic-counts

Function
Displays the transmission frame count at each port.

Prompt
xg> or xg#

Command syntax
```
monitor traffic-counts { current | total } [interval <3-60>]
```

Parameter
- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the number of cumulative transmission frames after startup of this command.
  - total
    Displays the number of cumulative transmission frames after startup of the system.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type
Operation management command

Output format (if "current" is specified)
```
xg# monitor traffic-counts current
Traffic Statistics(Current Frame Counts)                        2005/08/22-12:12:15
=====================================================================================
Port  Link State/  Tx-Frame     Rx-Frame     Tx-Frame     Rx-Frame     Rx-Bcast     Rx-Mcast
      STP State    Counts/S     Counts/S     Counts       Counts       Counts       Counts
----  ----------   ----------   ----------   ----------   ------------  -----------  -----------
  1   Up/Discard   12345678K    12345678K    1234567890K  1234567890K  1234567890K  1234567890K
  2   Down                  0            0            0            0            0            0
  3   Up/Discard         923          923    1234567890K  1234567890K  1234567890K  1234567890K
  4   Up/Learn        999123       999123    1234567890M         256M         256M         256M
  5   Up/Forward         999          999    1234567890G         256G         256G         256G
  6   Up/Forward      999999       999999    1234567890T         256T         256T         256T
```
- Port
  Displays port numbers. Statistics of each port are displayed on a line.
- Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - Down
    The port link is down.
  - Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- Tx-Frame Counts/S
  Displays the transmission frame rate (in fps) using an 8-digit, right-justified value.
- Rx-Frame Counts/S
  Displays the receive frame rate (in fps) using an 8-digit, right-justified value.
- Tx-Frame Counts
  Displays the number of cumulative transmission frames after execution of this command, using a 10-digit, right-justified value.
- Rx-Frame Counts
  Displays the number of cumulative receive frames after execution of this command, using a 10-digit, right-justified value.
- Rx-Bcast Counts
  Displays the number of cumulative receive broadcast frames after execution of this command, using a 10-digit, right-justified value.
- Rx-Mcast Counts
  Displays the number of cumulative receive multicast frames after execution of this command, using a 10-digit, right-justified value.

Output format (if "total" is specified)

```
xg# monitor traffic-counts total
Traffic Statistics(Total Frame Counts)       2005/08/22-12:12:15
=======================================================================
Port Link State/  Tx-Frames    Rx-Frames    Rx-Bcast     Rx-Mcast
     STP State    Counts       Counts       Counts       Counts
---- ------------ -----------  -----------  -----------  -----------
   1 Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K
   2 Down                   0            0            0            0
   3 Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K
   4 Up/Learn     1234567890K  1234567890K  1234567890K  1234567890K
   5 Up/Forward   1234567890K  1234567890K  1234567890K  1234567890K
   6 Up/Forward   1234567890K  1234567890K  1234567890K  1234567890K
   7 Down         1234567890K  1234567890K  1234567890K  1234567890K
   8 Down         1234567890K  1234567890K  1234567890K  1234567890K
=======================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

● Port
   Same as the display explained for "current" option
● Link State/STP State
   Same as the display explained for "current" option
● Tx-Frame Counts
   Displays the number of cumulative transmission frames after system startup, using a 10-digit, right-justified value.
● Rx-Frame Counts
   Displays the number of cumulative receive frames after system startup, using a 10-digit, right-justified value.
● Rx-Bcast Counts
   Displays the number of cumulative receive broadcast frames after system startup, using a 10-digit, right-justified value.
● Rx-Mcast Counts
   Displays the number of cumulative receive multicast frames after system startup, using a 10-digit, right-justified value.

5.15.3 monitor framesize-traffic-counts

Function

Displays the transmission frame count in each size of frames which have been sent or received at each port.

Prompt

xg> or xg#

Command syntax

```
monitor framesize-traffic-counts { current | total } [interval <3-60>]
```

Parameter

- { current | total }
  Specifies the statistics to be displayed.
    - current
      Displays the number of cumulative transmission frames after startup of this command.
    - total
      Displays the number of cumulative transmission frames after startup of the system.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor framesize-traffic-counts current
Framesize Traffic Statistics(Current Frame Counts)                2005/08/22-12:12:15
=============================================================================================
Port Link State/  FrameSize    FrameSize    FrameSize    FrameSize    Framesize    FrameSize
     STP State    0-64         65-127       128-255      256-511      512-1023     1024-1518
---- ---------    ----------   ----------   -----------  -----------  -----------  ----------
 1   Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K  1234567890K  1234567890K
 2   Down                  0            0            0            0            0            0
 3   Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K  1234567890K  1234567890K
 4   Up/Learn     1234567890M      25690M       25690M       25690M       25690M       25690
 5   Up/Forward   1234567890G      25690G       25690G       25690G       25690G       25690G
 6   Up/Forward   1234567890T      25690T       25690T       25690T       25690T       25690T
 7   Down                  0            0            0            0            0            0
 8   Down                  0            0            0            0            0            0
=============================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- Port
  Displays port numbers. Statistics of each port are displayed on a line.
- Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
    - Down
      The port link is down.
    - Up
      The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States."
- FrameSize 0-64
  Displays the number of cumulative 64-byte frames which have been sent or received after the command execution.
- FrameSize 65-127
  Displays the number of cumulative 65- to 127-byte frames which have been sent or received after the command execution.
- FrameSize 128-255
  Displays the number of cumulative 128- to 255-byte frames which have been sent or received after the command execution.
- FrameSize 256-511
  Displays the number of cumulative 256- to 511-byte frames which have been sent or received after the command execution.
- FrameSize 512-1023
  Displays the number of cumulative 512- to 1023-byte frames which have been sent or received after the command execution.
- FrameSize 1024-1518
  Displays the number of cumulative 1024- to 1518-byte frames which have been sent or received after the command execution.

Output format (if "total" is specified)

```
xg# monitor framesize-traffic-counts total
Framesize Traffic Statistics(Total Frame Counts)                    2005/08/22-12:12:15
===========================================================================================
Port Link State/  FrameSize    FrameSize    FrameSize    FrameSize    Framesize    FrameSize
     STP State    0-64         65-127       128-255      256-511      512-1023     1024-1518
---- -----------  -----------  -----------  -----------  -----------  -----------  -----------
   1 Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K  1234567890K  1234567890K
   2 Down                   0            0            0            0            0            0
   3 Up/Discard   1234567890K  1234567890K  1234567890K  1234567890K  1234567890K  1234567890K
   4 Up/Learn     1234567890M      25690M       25690M       25690M       25690M       25690M
   5 Up/Forward   1234567890G      25690G       25690G       25690G       25690G       25690G
   6 Up/Forward   1234567890T      25690T       25690T       25690T       25690T       25690T
   7 Down                   0            0            0            0            0            0
   8 Down                   0            0            0            0            0            0
===========================================================================================
ESC:exit     F:refresh
U:page up    D:page down   L:page left  R:page right
```

● The displayed values are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.4 monitor qos-priority-traffic-bytes

Function

Displays the number of bytes received at each port for each QoS priority.

Prompt

xg> or xg#

Command syntax

```
monitor qos-priority-traffic-bytes { current | total } [interval <3-60>]
```

Parameter

- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the number of bytes in each QoS priority which have been received after startup of this command.
  - total
    Displays the number of bytes in each QoS priority which have been received after the system startup.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor qos-priority-traffic-bytes current
Qos Priority Traffic Statistics(Current Frame Bytes)                    2005/08/22-12:12:15
==========================================================================================
Port Priority-0  Priority-1   Priority-2   Priority-3   Priority-4   Priority-5   Priority-6   Priority-7
     Bytes       Bytes        Bytes        Bytes        Bytes        Bytes        Bytes        Bytes
---- ----------- -----------  -----------  -----------  -----------  -----------  -----------  -----------
   1 1234567890K 1234567890K  1234567890   1234567890   1234567890   1234567890   1234567890   1234567890
   2           0           0           0            0            0            0            0            0
   3 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 1234567890M     256890M     256890M     256890M     256890M     256890M     256890M     256890M
   5 1234567890G     256890G     256890G     256890G     256890G     256890G     256890G     256890G
   6 1234567890T     256890T     256890T     256890T     256890T     256890T     256890T     256890T
   7           0           0           0            0            0            0            0            0
   8           0           0           0            0            0            0            0            0
==========================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- Port
  Displays port numbers. Statistics of each port are displayed on a line.
- Priority-0 Bytes - Priority-7 Bytes
  Display the cumulative number of bytes in each of priorities 0 to 7 which have been received at each port after the command execution, using 10-digit, right-justified values.

Output format (if "total" is specified)

```
xg# monitor qos-priority-traffic-bytes total
Qos Priority Traffic Statistics(Total Frame Bytes)                     2005/08/22-12:12:15
==========================================================================================
Port Priority-0  Priority-1   Priority-2  Priority-3   Priority-4   Priority-5   Priority-6   Priority-7
     Bytes       Bytes        Bytes       Bytes        Bytes        Bytes        Bytes        Bytes
---- ----------- -----------  ----------- -----------  -----------  -----------  -----------  -----------
   1 1234567890K 1234567890K  1234567890  1234567890   1234567890   1234567890   1234567890   1234567890
   2           0           0           0           0            0            0            0            0
   3 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 1234567890M     256890M     256890M     256890M     256890M     256890M     256890M     256890M
   5 1234567890G     256890G     256890G     256890G     256890G     256890G     256890G     256890G
   6 1234567890T     256890T     256890T     256890T     256890T     256890T     256890T     256890T
   7           0           0           0           0            0            0            0            0
   8           0           0           0           0            0            0            0            0
==========================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

The bytes displayed in the "Bytes" column are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.5 monitor qos-priority-traffic-counts

Function

Displays the number of frames received at each port for each QoS priority.

Prompt

xg> or xg#

Command syntax

```
monitor qos-priority-traffic-counts { current | total } [interval <3-60>]
```

Parameter

- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the cumulative number of frames in each QoS priority which have been received after startup of this command.
  - total
    Displays the cumulative number of frames in each QoS priority which have been received after the system startup.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor qos-priority-traffic-counts current
Qos Priority Traffic Statistics(Current Frame Counts)                        2005/08/22-12:12:15
=====================================================================================================
Port Priority-0  Priority-1  Priority-2  Priority-3  Priority-4  Priority-5  Priority-6  Priority-7
     Counts      Counts      Counts      Counts      Counts      Counts      Counts      Counts
---- ----------- ----------- ----------- ----------- ----------- ----------- ----------- -----------
   1 1234567890K 1234567890K 1234567890  1234567890  1234567890  1234567890  1234567890  1234567890
   2           0           0           0           0           0           0           0           0
   3 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 1234567890M     256890M     256890M     256890M     256890M     256890M     256890M     256890M
   5 1234567890G     256890G     256890G     256890G     256890G     256890G     256890G     256890G
   6 1234567890T     256890T     256890T     256890T     256890T     256890T     256890T     256890T
   7           0           0           0           0           0           0           0           0
   8           0           0           0           0           0           0           0           0
=====================================================================================================
ESC:exit    F:refresh
U:page up   D:page down   L:page left   R:page right
```

- Port
  Displays port numbers. Statistics of each port are displayed on a line.
- Priority-0 Counts to Priority-7 Counts
  Display the cumulative number of frames in each of priorities 0 to 7 which have been received at each port after the command execution, using 10-digit, right-justified values.

Output format (if "total" is specified)

```
xg# monitor qos-priority-traffic-counts total
Qos Priority Traffic Statistics(Total Frame Counts)                          2005/08/22-12:12:15
=====================================================================================================
Port Priority-0  Priority-1  Priority-2  Priority-3  Priority-4  Priority-5  Priority-6  Priority-7
     Counts      Counts      Counts      Counts      Counts      Counts      Counts      Counts
---- ----------- ----------- ----------- ----------- ----------- ----------- ----------- -----------
   1 1234567890K 1234567890K 1234567890  1234567890  1234567890  1234567890  1234567890  1234567890
   2           0           0           0           0           0           0           0           0
   3 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 1234567890M     256890M     256890M     256890M     256890M     256890M     256890M     256890M
   5 1234567890G     256890G     256890G     256890G     256890G     256890G     256890G     256890G
   6 1234567890T     256890T     256890T     256890T     256890T     256890T     256890T     256890T
   7           0           0           0           0           0           0           0           0
   8           0           0           0           0           0           0           0           0
=====================================================================================================
ESC:exit    F:refresh
U:page up   D:page down   L:page left   R:page right
```

The values displayed in the "Counts" column are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.6 monitor vlan-traffic-bytes

Function
Displays the received byte count of each VLAN.

Prompt
xg> or xg#

Command syntax
```
monitor vlan-traffic-bytes { current | total } [interval <3-60>]
```

Parameter
- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the cumulative byte count of received frames for each VLAN after startup of this command.
  - total
    Displays the cumulative byte count of received frames for each VLAN after the system startup.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type
Operation management command

Output format (if "current" is specified)
```
xg# monitor vlan-traffic-bytes current
VLAN Traffic Statistics(Current Frame Bytes) 2005/08/22-12:12:15
================================================================
VID   Rx-Frame    Rx-NonUcast
      Bytes       Bytes
---- ----------- ------------
   1 1234567890    1234567890
  10          0             0
  20 1234567890K  1234567889K
  30     25690M        25690M
  40     25690G        25690G
4094          0             0
================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- VID
  Displays the VID of the VLAN which has been set to collect its statistics. Statistics of each VLAN are displayed on a line.

  > **Point**
  >
  > Specify the VLAN to collect its statistics using the "vlan-statistics collection" command.

- Rx-Frame Bytes
  Displays the cumulative byte count of frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value.
- Rx-NonUcast Bytes
  Displays the cumulative byte count of multicast or broadcast frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value

Output format (if "total" is specified)
```
xg# monitor qos-priority-traffic-bytes total
VLAN Traffic Statistics(Total Frame Bytes) 2005/08/22-12:12:15
============================================================
VID   Rx-Frame    Rx-NonUcast
      Bytes       Bytes
---- ----------- -----------
   1 1234567890    1234567890
  10          0             0
  20 1234567890K  1234567889K
  30     25690M        25690M
  40     25690G        25690G
4094          0             0
============================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```
The bytes displayed in the "Bytes" column are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.7 monitor vlan-traffic-counts

Function

Displays the received frame count of each VLAN.

Prompt

xg> or xg#

Command syntax

```
monitor vlan-traffic-counts { current | total } [interval <3-60>]
```

Parameter

- { current | total }
  Specifies the statistics to be displayed.
  - current
    Displays the cumulative number of frames for each VLAN which have been received after startup of this command.
  - total
    Displays the cumulative number of frames for each VLAN which have been received after the system startup.
- interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor vlan-traffic-counts current
VLAN Traffic Statistics(Current Frame Counts) 2005/08/22-12:12:15
===============================================================
VID  Rx-Frame     Rx-NonUcast
     Counts       Counts
---- ----------- -----------
  1  1234567890   1234567890
 10           0            0
 20  1234567890K 1234567890K
 30      25690M       25690M
 40      25690G       25690G
4094         0            0
===============================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- VID
  Displays the VID of the VLAN which has been set to collect its statistics. Statistics of each VLAN are displayed on a line.

Specify the VLAN to collect its statistics using the "vlan-statistics collection" command.

- Rx-Frame Counts
  Displays the cumulative number of frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value.
- Rx-NonUcast Counts
  Displays the cumulative number of multicast or broadcast frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value.

Output format (if "total" is specified)

```
xg# monitor vlan-traffic-counts total
VLAN Traffic Statistics(Total Frame Counts) 2005/08/22-12:12:15
===============================================================
VID  Rx-Frame      Rx-NonUcast
     Counts        Counts
---- -----------  -----------
  1   1234567890    1234567890
 10            0             0
 20  1234567890K   1234567890K
 30       25690M        25690M
 40       25690G        25690G
4094          0             0
===============================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

The values displayed in the "Counts" column are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.8 monitor dataflow

Function

Displays statistics including both pause frame transmission to/from each port and transmission processing.

Prompt

xg> or xg#

Command syntax

```
monitor dataflow { current | total } [interval <3-60>]
```

Parameter

- ● { current | total }
  Specifies the statistics to be displayed.
  - – current
    Displays the cumulative data count after startup of this command.
  - – total
    Displays the cumulative data count after the system startup.
- ● interval <3-60>
  Specifies the statistics updating interval (in seconds).
  The default interval is 3 seconds.

Command type

Operation management command

Output format (if "current" is specified)

```
xg# monitor dataflow current
Dataflow Statistics(Current Counts)                                       2005/08/22-12:12:15
================================================================================================
Port Link State/   Flow-Ctl Forward      Flood        Rx-Pause     Tx-Pause     Full-Drop    VLAN-Drop
     STP State      Mode     Counts       Counts       Counts       Counts       Counts       Counts
---- ------------- ------- ----------- ----------- ----------- ----------- ----------- -----------
   1 Up/Discard    Rx & Tx  1234567890  1234567890   1234567890  1234567890  1234567890  1234567890
   2 Down          Rx                0           0            0           0           0           0
   3 Up/Discard    Rx & Tx 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 Up/Learn      Rx & Tx 1234567890M     25690M       25690M      25690M      25690M      25690M
   5 Up/Forward    Rx & Tx 1234567890G     25690G       25690G      25690G      25690G      25690G
   6 Up/Forward    Rx & Tx 1234567890T     25690T       25690T      25690T      25690T      25690T
   7 Down          Rx                0           0            0           0           0           0
   8 Down          Rx                0           0            0           0           0           0
================================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

- ● Port
  Displays port numbers. Statistics of each port are displayed on a line.
- ● Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - – Down
    The port link is down.
  - – Up
    The port link is up.
  The STP State indicates the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is "Down".
  For port status details, see "Spanning Tree Protocol Port States".
- ● Flow-Ctl Mode
  Displays the flow control setup of each port.
  - – Rx & Tx
    Both transmission and reception of pause frames are enabled.
  - – Rx
    Only the reception of pause frames is enabled.
- ● Forward Counts
  Displays the cumulative number of frames which have been forwarded normally (among the unicast frames received at each port after the startup of this command).
- ● Flood Counts
  Displays the cumulative number of flooded frames among the unicast frames received at each port after the startup of this command.
- ● Rx-Pause Counts
  Displays the cumulative number of pause frames which have been received at each port after the startup of this command.
- ● Tx-Pause Counts
  Displays the cumulative number of pause frames which have been sent from each port after the startup of this command.
- ● Full-Drop Counts
  Displays the number of frames which have been discarded due to the saturated input buffer of the system among those received at each port after startup of this command.

● VLAN-Drop Counts
Displays the number of frames which have been discarded due to the reception of non-VLAN member frames that are not allowed to be forwarded among those received at each port after the startup of this command.

Output format (if "total" is specified)

```
xg# monitor dataflow total
Dataflow Statistics(Total Counts)                              2005/08/22-12:12:15
==================================================================================
Port Link State/ Flow-Ctl Forward      Flood       Rx-Pause    Tx-Pause    Full-Drop   VLAN-Drop
     STP State   Mode     Counts       Counts      Counts      Counts      Counts      Counts
---- ----------- -------- -----------  ----------- ----------- ----------- ----------- -----------
   1 Up/Discard  Rx & Tx  1234567890   1234567890  1234567890  1234567890  1234567890  1234567890
   2 Down        Rx                0            0           0           0           0           0
   3 Up/Discard  Rx & Tx  1234567890K 1234567890K 1234567890K 1234567890K 1234567890K 1234567890K
   4 Up/Learn    Rx & Tx  1234567890M     25690M      25690M      25690M      25690M      25690M
   5 Up/Forward  Rx & Tx  1234567890G     25690G      25690G      25690G      25690G      25690G
   6 Up/Forward  Rx & Tx  1234567890T     25690T      25690T      25690T      25690T      25690T
   7 Down        Rx                0            0           0           0           0           0
   8 Down        Rx                0            0           0           0           0           0
==================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

The values displayed in the "Counts" column are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.9 monitor error

Function
Displays error traffic statistics of each port.

Prompt
xg> or xg#

Command syntax

```
monitor error { current | total } [interval <3-60>]
```

Parameter
● { current | total }
Specifies a point to start calculating the statistics to be displayed.
  – current
  Displays the cumulative error count after startup of this command.
  – total
  Displays the cumulative error count after the system startup.

> **Point**
> If the error count reaches 4294967295, it is returned to 0 when incremented.

● interval <3-60>
Specifies the statistics updating interval (in seconds).
The default interval is 3 seconds.

Command type
Operation management command

Output format (if "current" is specified)

```
xg# monitor error current
Error Statistics(Current Counts)                           2005/08/22-12:12:15
================================================================================
Port Rx        Rx & Tx     Rx & Tx     Rx & Tx     Rx & Tx     Rx          Total
     CRC       Over        Under       Fragment    Jabber      Align       Lost
--- ---------- ---------- ---------- ---------- ---------- ---------- ----------
  1 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890
  2        123         12         34         34         56         78         90
  3        123         12         34         34         56         78         90
  4        123         12         34         34         56         78         90
  5        123         12         34         34         56         78         90
  6        123         12         34         34         56         78         90
  7        123         12         34         34         56         78         90
  8        123         12         34         34         56         78         90
================================================================================
ESC:exit     F:refresh
U:page up    D:page down   L:page left  R:page right
```

● Port
Displays port numbers. Statistics of each port are displayed on a line.
● Rx CRC
Displays the cumulative number of FCS (Frame Check Sequence) error frames which have been received after startup of this command.
● Rx & Tx Over
Displays the cumulative number of frames whose size exceeds 1518 bytes (excluding the VLAN tag) after startup of this command.
● Rx & Tx Under
Displays the cumulative number of transmission frames whose size is less than 64 bytes (after startup of this command).
● Rx & Tx Fragment
Displays the cumulative number of FCS (Frame Check Sequence) error frames whose size is less than 64 bytes and which have been sent or received after startup of this command.
● Rx & Tx Jabber
Displays the cumulative number of FCS (Frame Check Sequence) error frames whose size exceeds 1518 bytes (excluding the VLAN tag) and which have been sent or received after startup of this command.
● Rx Align
Displays the cumulative number of 64- to 1518-byte alignment error frames whose bit size is not a multiple of 8 and which have been received after startup of this command.
● Total Lost
Displays the cumulative number of frames which have been received but discarded at each port (after startup of this command).

Output format (if "total" is specified)

```
xg# monitor error total
Error Statistics(Total Counts)                              2005/08/22-12:12:15
================================================================================
Port Rx          Rx & Tx    Rx & Tx    Rx & Tx    Rx & Tx    Rx         Total
     CRC         Over       Under      Fragment   Jabber     Align      Lost
---- --------    ---------  ---------  ---------  ---------  ---------  ----------
  1  1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890
  2         123         12         34         34         56         78         90
  3         123         12         34         34         56         78         90
  4         123         12         34         34         56         78         90
  5         123         12         34         34         56         78         90
  6         123         12         34         34         56         78         90
  7         123         12         34         34         56         78         90
  8         123         12         34         34         56         78         90
================================================================================
ESC:exit    F:refresh
U:page up    D:page down   L:page left  R:page right
```

The displayed values are the ones cumulated after the system startup. Other values are the same as those displayed if the "current" option is specified.

5.15.10 show statistics traffic-bytes

Function

Displays the cumulative number of bytes which have been sent or received to/from each port after the system startup.

Prompt

xg> or xg#

Command syntax

```
show statistics traffic-bytes
```

Command type

Operation management command

Output format

```
xg# show statistics traffic-bytes
Traffic Statistics(Total Frame Bytes)  2005/08/22-19:22:55
==========================================================
[No.1]
  Port                 : 1
  Link State/ STP State : Up/Forward
  Tx-Frame Bytes       : 71872
  Rx-Frame Bytes       : 63424
[No.2]
  ・・・
  ・・・
```

- ● [No.]
  Displays statistics of each port.
- ● Port
  Displays port numbers.
- ● Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - – Down
    The port link is down.
  - – Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- ● Tx-Frame Bytes
  Displays the cumulative number of bytes which have been sent after the system startup.
- ● Rx-Frame Bytes
  Displays the cumulative number of bytes which have been received after the system startup.

5.15.11 show statistics traffic-counts

Function

Displays the cumulative number of frames which have been sent or received to/from each port after the system startup.

Prompt

xg> or xg#

Command syntax

```
show statistics traffic-counts
```

Command type

Operation management command

Output format

```
xg# show statistics traffic-counts
Traffic Statistics(Total Frame Counts)    2005/08/22-19:41:39
=============================================================
[No.1]
 Port                 : 1
 Link State/ STP State: Up/Forward
 Tx-Frame Counts      : 367
 Rx-Frame Counts      : 300
 Rx-Bcast Counts      : 0
 Rx-Mcast Counts      : 300
[No.2]
  ・・・
  ・・・
```

- ● [No.]
  Displays statistics of each port.
- ● Port
  Displays port numbers.
- ● Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - − Down
    The port link is down.
  - − Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- ● Tx-Frame Counts
  Displays the cumulative number of frames which have been sent after the system startup.
- ● Rx-Frame Counts
  Displays the cumulative number of frames which have been received after the system startup.
- ● Rx-Bcast Counts
  Displays the cumulative number of broadcast frames which have been received after the system startup.
- ● Rx-Mcast Counts
  Displays the cumulative number of multicast frames which have been received after the system startup.

5.15.12 show statistics framesize-traffic-counts

Function
Displays traffic statistics of each port in different frame size groups.

Prompt
xg> or xg#

Command syntax

```
show statistics framesize-traffic-counts
```

Command type
Operation management command

Output format

```
xg# show statistics framesize-traffic-counts
Framesize Traffic Statistics(Total Frame Counts)  2005/08/22-19:44:11
====================================================================
[No.1]
 Port               : 1
 Link State/ STP State: Up/Forward
 FrameSize 0-64      : 805
 FrameSize 65-127    : 0
 FrameSize 128-255   : 0
 FrameSize 256-511   : 0
 FrameSize 512-1023  : 0
 FrameSize 1024-1518 : 0
[No.2]
  . . .
  . . .
```

- ● [No.]
  Displays statistics of each port.
- ● Port
  Displays port numbers.
- ● Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - − Down
    The port link is down.
  - − Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- ● FrameSize 0-64
  Displays the cumulative number of 64-byte frames which have been sent or received at each port after the system startup.
- ● FrameSize 65-127
  Displays the cumulative number of 65- to 127-byte frames which have been sent or received at each port after the system startup.
- ● FrameSize 128-255
  Displays the cumulative number of 128- to 255-byte frames which have been sent or received at each port after the system startup.
- ● FrameSize 256-511
  Displays the cumulative number of 256- to 511-byte frames which have been sent or received at each port after the system startup.
- ● FrameSize 512-1023
  Displays the cumulative number of 512- to 1023-byte frames which have been sent or received at each port after the system startup.
- ● FrameSize 1024-1518
  Displays the cumulative number of 1024- to 1518-byte frames which have been sent or received at each port after the system startup.

5.15.13 show statistics qos-priority-traffic-bytes

Function

Displays the traffic (the number of frames) of each port in different QoS priorities after the startup of system hardware.

Prompt

xg> or xg#

Command syntax

```
show statistics qos-priority-traffic-bytes
```

Command type

Operation management command

Output format

```
xg# show statistics qos-priority-traffic-bytes
Qos Priority Traffic Statistics(Total Frame Bytes)  2005/08/22-19:46:24
=======================================================================
[No.1]
 Port              : 1
 Priority-0 Bytes : 26560
 Priority-1 Bytes : 145366784370
 Priority-2 Bytes : 234554675423423
 Priority-3 Bytes : 34346331246523
 Priority-4 Bytes : 1234114235453466
 Priority-5 Bytes : 0
 Priority-6 Bytes : 0
 Priority-7 Bytes : 0
[No.2]
  · · ·
  · · ·
```

- ● [No.]
  Displays statistics of each port.
- ● Port
  Displays port numbers.
- ● Priority-0 Counts to Priority-7 Counts
  Displays the cumulative number of frames (in different QoS priorities) which have been received from the startup of this command.

5.15.14 show statistics qos-priority-traffic-counts

Function

Displays the traffic (the number of frames) of each port in different QoS priorities after the startup of system hardware.

Prompt

xg> or xg#

Command syntax

```
show statistics qos-priority-traffic-counts
```

Command type

Operation management command

Output format

```
xg# show statistics qos-priority-traffic-counts
Qos Priority Traffic Statistics(Total Frame Counts)  2005/08/22-19:49:53
========================================================================
[No.1]
 Port              : 1
 Priority-0 Counts : 12345678901234567890
 Priority-1 Counts : 2354235234
 Priority-2 Counts : 235434250
 Priority-3 Counts : 12314657
 Priority-4 Counts : 235477689352374
 Priority-5 Counts : 246364564564546
 Priority-6 Counts : 1234453456
 Priority-7 Counts : 1436434623
[No.2]
  ・・・
  ・・・
```

● [No.]
Displays statistics of each port.
● Port
Displays switch numbers.
● Priority-0 Counts to Priority-7 Counts
Displays the cumulative number of frames (in different QoS priorities) which have been received from the startup of this command.

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5.15.15 show statistics vlan-traffic-bytes

Function

Displays the traffic (in bytes) of each VLAN after startup of the system equipment.

Prompt

xg> or xg#

Command syntax

```
show statistics vlan-traffic-bytes
```

Command type

Operation management command

Output format

```
xg# show statistics vlan-traffic-bytes
VLAN Traffic Statistics(Total Frame Bytes)  2005/08/22-19:55:34
================================================================
[No.1]
 VID              : 40
 Rx-Frame Byte    : 0
 Rx-NonUcast Byte: 0
[No.2]
  ・・・
  ・・・
```

- ● [No.]
  Displays statistics of each VLAN.
- ● VID
  Displays the VID of the VLAN which has been set to collect its statistics.

Point

Specify the VLAN to collect its statistics using the "vlan-statistics collection" command.

- ● Rx-Frame Bytes
  Displays the cumulative byte count of frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value.
- ● Rx-NonUcast Bytes
  Displays the cumulative byte count of multicast/broadcast frames which have been received at the specified VLAN (after the startup of this command), using a 10-digit, right-justified value.

5.15.16 show statistics vlan-traffic-counts

Function

Displays the traffic (the number of frames) of each VLAN after startup of the system hardware.

Prompt

xg> or xg#

Command syntax

```
show statistics vlan-traffic-counts
```

Command type

Operation management command

Output format

```
xg# show statistics vlan-traffic-counts
VLAN Traffic Statistics(Total Frame Counts)  2005/08/22-19:58:31
================================================================
[No.1]
  VID               : 40
  Rx-Frame Counts   : 0
  Rx-NonUcast Counts: 0
[No.2]
  ・・・
  ・・・
```

● [No.]
  Displays statistics of each VLAN.
● VID
  Displays the VID of the VLAN which has been set to collect its statistics.

> **Point**
> Specify the VLAN to collect its statistics using the "vlan-statistics collection" command.
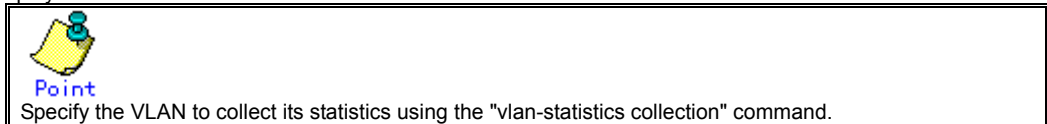
● Rx-Frame Counts
  Displays the cumulative count of frames which have been received at the specified VLAN (after the system startup), using a 10-digit, right-justified value.
● Rx-NonUcast Counts
  Displays the cumulative count of non-unicast frames which have been received at the specified VLAN (after the system startup), using a 10-digit, right-justified value.

5.15.17 show statistics dataflow

Function

Displays statistics including the transmission and reception of flow control at each port and the data transmission type.

Prompt

xg> or xg#

Command syntax

```
show statistics dataflow
```

Command type

Operation management command

Output format

```
xg# show statistics dataflow
Dataflow Statistics(Total Counts)  2005/08/22-19:59:17

[No.1]
 Port                : 1
 Link State/ STP State: Up/Forward
 Flow-Ctl Mode       : disabled
 Forward Counts      : 0
 Flood Counts        : 0
 Rx-Pause Counts     : 0
 Tx-Pause Counts     : 0
 Full-Drop Counts    : 0
 VLAN-Drop Counts    : 0
[No.2]
  ・・・
  ・・・
```

- ● [No.]
  Displays statistics of each port.
- ● Port
  Displays port numbers.
- ● Link State/STP State
  Displays the port state in the Link State or STP State format.
  The Link State may indicate one of the following link states.
  - − Down
    The port link is down.
  - − Up
    The port link is up.
  The STP State displays the current port status based on the STP (Spanning Tree Protocol). Note that the STP State is not displayed if the Link State is Down.
  For port status details, see "Spanning Tree Protocol Port States".
- ● Flow-Ctl Mode
  Displays the flow control setup of each port.
  - − Rx & Tx
    Both transmission and reception of flow control are enabled.
  - − Rx
    Only the reception of flow control is enabled.
- ● Forward Counts
  Displays the cumulative number of frames which have been forwarded normally (among the unicast frames received at each port after the system startup).
- ● Flood Counts
  Displays the cumulative number of flooded frames (among the unicast frames received at each port after the system startup).
- ● Rx-Pause Counts
  Displays the cumulative number of pause frames which have been received at each port after the system startup.
- ● Tx-Pause Counts
  Displays the cumulative number of pause frames which have been sent from each port after the system startup.
- ● Full-Drop Counts
  Displays the number of frames which have been discarded due to the saturated input buffer of the system among those received at each port after the system startup.
- ● VLAN-Drop Counts
  Displays the number of frames which have been discarded due to the reception of non-VLAN member frames that are not allowed to be forwarded among those received at each port after the system startup.

5.15.18 show statistics error

Function

Displays statistics of errors occurring at each port after startup of the system hardware.

Prompt

xg> or xg#

Command syntax

```
show statistics error
```

Command type

Operation management command

Output format

```
xg# show statistics error
Error Statistics(Total Counts)  2005/08/22-20:21:35
=====================================================
[No.1]
 Port            : 1
 Rx CRC          : 0
 Rx & Tx Over    : 0
 Rx & Tx Under   : 0
 Rx & Tx Fragment: 0
 Rx & Tx Jabber  : 0
 Rx Align        : 0
 Total Lost      : 0
[No.2]
  ・・・
  ・・・
```

● [No.]
  Displays statistics of each port.
● Port
  Displays port numbers. Statistics of each port are displayed on a line.
● Rx CRC
  Displays the cumulative number of FCS (Frame Check Sequence) error frames which have been received after the system startup.
● Rx & Tx Over
  Displays the cumulative number of transmission frames whose size exceeds 1518 bytes (excluding the VLAN tag) after the system startup.
● Rx & Tx Under
  Displays the cumulative number of transmission frames whose size is less than 64 bytes (after the system startup).
● Rx & Tx Fragment
  Displays the cumulative number of FCS (Frame Check Sequence) error frames whose size is less than 64 bytes and which have been sent or received after the system startup.
● Rx & Tx Jabber
  Displays the cumulative number of FCS (Frame Check Sequence) error frames whose size exceeds 1518 bytes (excluding the VLAN tag) and which have been sent or received after the system startup.
● Rx Align
  Displays the cumulative number of 64- to 1518-byte alignment error frames whose bit size is not a multiple of 8 and which have been received after the system startup.
● Total Lost
  Displays the cumulative number of frames which have been received but discarded at each port (after the system startup).

Point

If the error count reaches 4294967295, it is returned to 0 when incremented.
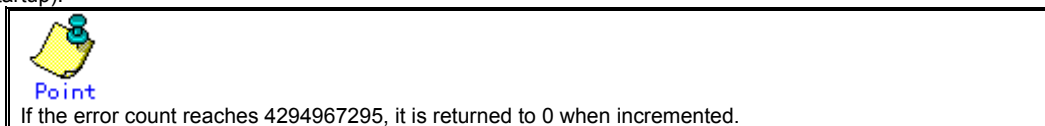
5.15.19 clear statistics

Function

Clears all of statistics which have been stored after the startup of system hardware.
The following statistics are cleared.
- Traffic statistics: traffic-bytes, traffic-counts and framesize-traffic-counts
- QoS traffic statistics: qos-priority-traffic-bytes and qos-priority-traffic-counts
- VLAN traffic statistics: vlan-traffic-bytes and vlan-traffic-counts
- Data flow statistics: dataflow
- Error traffic statistics: error

Prompt

xg#

Command syntax

```
clear statistics
```

Command type

Operation management command

Note

- If you issue this command during execution of "monitor" command in the "current" mode, the "monitor" command may temporarily display incorrect statistics. If it has occurred, wait until the statistics are updated automatically in the next updating interval or reissue the "monitor" command. The "monitor" command will display the correct statistics.

Example

Clear all of statistics which have been stored after the system startup.

```
xg# clear statistics
```

5.16 SNMP Setup Commands

This section explains about the SNMP settings.

5.16.1 show snmp-server

Function

Displays the current SNMP settings.

Prompt

xg> or xg#

Command syntax

```
show snmp-server
```

Command type

Operation management command

Output format

```
xg# show snmp-server
SNMP Information                                              2005/08/22-06:04:41
================================================================================
SNMP Manager Information
--------------------------------------------------------------------------------
[No.1]
  Host      : 192.168.41.24
  Community : public
[No.2]
  Host      : 192.168.41.29
  Community : public
--------------------------------------------------------------------------------

SNMP Trap Manager Information
--------------------------------------------------------------------------------
[No.1]
  Host      : 192.168.41.24
  Community : public
  Version   : { v1 | v2c }
[No.2]
  Host      : 192.168.41.29
  Community : public
  Version   : { v1 | v2c }
================================================================================
```

SNMP Manager Information

Displays the current settings of SNMP manager.
- [No.1]
  Indicates the number of the SNMP manager setup item to be displayed.
- Host
  Displays a host name or an IP address of the SNMP manager.
- Community
  Displays a community name of the SNMP manager.

SNMP Trap Manager Information

Displays the destination SNMP trap being set from the system.
- [No.1]
  Indicates the number of the SNMP trap setup item to be displayed.
- Host
  Displays a host name or an IP address of the SNMP manager for trap notification.
- Community
  Displays a community name of the SNMP manager for trap notification.
- Version
  Displays the SNMP protocol version to be used for trap notification as follows:
    - v1
      The SNMP v1 protocol is used for trap notification.
    - V2
      The SNMP v2 protocol is used for trap notification.

5.16.2 snmp-server location

Function
Sets the installation location of the XG700.
Use the no form to return to the default setup.

Prompt
xg(config)#

Command syntax
```
snmp-server location SYSTEM-LOCATION
no snmp-server location
```

Parameter
● SYSTEM-LOCATION
Specifies the installation location of the XG700. The location name can be up to 255 alphanumeric characters.

Command type
Configuration command

Default
None

Message
% SYSTEM-LOCATION is too long.
    Explanation
    The location name specified by SYSTEM-LOCATION has exceeded the limit length.
    Solution
    Review the length of system location name and reissue the command.
% SYSTEM-LOCATION cannot be used.
    Explanation
    An illegal character has been used in the SYSTEM-LOCATION name.
    Solution
    Review the system location name setting and reissue the command.

Example
Specify the system installation location as "3F West":
```
xg(config)# snmp-server location 3F West
```

5.16.3 snmp-server contact

Function

Sets the installation location of the XG700.
Use the no form to return to the default setup.

Prompt

xg(config)#

Command syntax

```
snmp-server contact SYSTEM-CONTACT
no snmp-server contact
```

Parameter

● SYSTEM-CONTACT
Specifies the installation location of the XG700. The location name can be up to 255 alphanumeric characters.

Command type

Configuration command

Default

None

Message

% SYSTEM-LOCATION is too long.
Explanation
The location name specified by "SYSTEM-LOCATION" has exceeded the limit length.
Solution
Review the length of system location name and reissue the command.
% SYSTEM-LOCATION cannot be used.
Explanation
An illegal character has been used in the "SYSTEM-LOCATION" name.
Solution
Review the system location name setting and reissue the command.

Example

Specify the system contact address as "administrator tel: 012-3456-7890."

```
xg(config)# snmp-server contact administrator tel:012-3456-7890
```

5.16.4 snmp-server access

Function

Sets an SNMP agent. The SNMP manager provides read-only access privileges only. You can register up to four access-enabled SNMP managers.
Use the no form to delete the existing SNMP managers.

Prompt

xg(config)#

Command syntax

```
snmp-server access host HOSTNAME community COMMUNITY-NAME
no snmp-server access host HOSTNAME
```

Parameter

● host HOSTNAME
Specifies a host name or an IP address of the SNMP manager.
The IP address can be within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.
● community COMMUNITY-NAME
Specifies a community name of the SNMP manager. The community name can be up to 255 alphanumeric characters.

Command type

Configuration command

Default

None

Message

% SNMP Manager can register up to 4.
    Explanation
    Four SNMP managers have already been registered and you cannot register any more SNMP manager.
    Solution
    Delete unnecessary SNMP manager or managers, and reissue the command.
% Cannot find %1$
    Explanation
    The name cannot be resolved as an incorrect host name has been specified.
    [[Inserted string]]%1$: Specified host name
    Solution
    Review the host name, and reissue the command by specifying the IP address.
% Hostname is too long.
    Explanation
    The specified host name has exceeded the limit length.
    Solution
    Review the host name length and reissue the command.
% COMMUNITY-NAME is too long.
    Explanation
    The specified community name has exceeded the limit length.
    Solution
    Review the community name length and reissue the command.
% COMMUNITY-NAME cannot be used.
    Explanation
    An illegal character has been used in the community name.
    Solution
    Review the community name setting and reissue the command.
% Invalid IP-address.
    Explanation
    The IP address was specified in an incorrect format or an incorrect address was specified.
    Solution
    Specify the IP address in the correct format and reissue the command.

Note

● If the same host name has already been set, it is overwritten by the new one.

Example

Allow an access from the SNMP manager having the IP address of "192.168.10" and the community name of "xgpublic."

```
xg(config)# snmp-server access host 192.168.1.10 community xgpublic
```

5.16.5 snmp-server trap

Function

Sets the destination to notify SNMP traps from the system. Up to four (4) destinations can be registered.
Use the no form to delete the existing destination names.

Prompt

xg(config)#

Command syntax

```
snmp-server trap host HOSTNAME community COMMUNITY-NAME [ protocol {v1|v2c} ]
no snmp-server trap host HOSTNAME
```

Parameter

● host HOSTNAME
Specifies a host name or an IP address of the destination SNMP manager.
The IP address can be within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.
● community COMMUNITY-NAME
Specifies a community name of the destination SNMP manager. The community name can be up to 255 alphanumeric characters.
● [protocol {v1|v2c}]
Specifies the SNMP protocol to be notified.
－ v1
The SNMP v1 protocol is used for trap notification.
－ v2c
The SNMP v2c protocol is used for trap notification.
The SNMP v2c protocol is set by default.

Command type

Configuration command

Default

None

Message

% SNMP Trap Manager can register up to 4.
Explanation
Four SNMP trap managers have already been registered and you cannot register any more trap manager.
Solution
Delete unnecessary SNMP trap manager or managers, and reissue the command.
% Cannot find %1$
Explanation
The name cannot be resolved as an incorrect host name has been specified.
[[Inserted string]]%1$: Specified host name
Solution
Review the host name, and reissue the command by specifying the IP address.
% Hostname is too long.
Explanation
The specified host name has exceeded the limit length.
Solution
Review the host name length and reissue the command.
% COMMUNITY-NAME is too long.
Explanation
The specified community name has exceeded the limit length.
Solution
Review the community name length and reissue the command.
% COMMUNITY-NAME cannot be used.
Explanation
An illegal character has been used in the community name.
Solution
Review the community name setting and reissue the command.
% Invalid IP-address.
Explanation
The IP address was specified in an incorrect format or an incorrect address was specified.
Solution
Specify the IP address in the correct format and reissue the command.

Note

● If the same host name has already been set, it is overwritten by the new one.

Example

Specify trap notification by the SNMP v2c protocol to the SNMP manager having the IP address of "192.168.10" and the community name of "xgpublic."

```
xg(config)# snmp-server trap host 192.168.1.10 community xgpublic protocol v2c
```

5.17 RMON Setup Commands

This section explains about RMON settings.

5.17.1 show rmon

Function

Displays the current RMON settings.

Prompt

xg> or xg#

Command syntax

```
show rmon
```

Command type

Operation management command

Output format

```
xg# show rmonRMON Information
2005/08/22-06:03:09
================================================================================
History Information
--------------------------------------------------------------------------------
[History 1]
  Port    : port-1
  Buckets : 10
  Interval: 1800
  Owner   : Administer
--------------------------------------------------------------------------------
Alarm Information
--------------------------------------------------------------------------------
[Alarm 1]
  Monitored OID      : .1.3.6.1.2.1.16.1.1.1.7.1
  Monitoring Interval: 10
  Sample Type        : { Absolute | Delta }
  Rising Threshold   : 1000
  Rising Event       : 1
  Falling Threshold  : 0
  Falling Event      : 0
  Owner              : Administer
--------------------------------------------------------------------------------

Event Information
--------------------------------------------------------------------------------
[Event 1]
  Event Type
    Log            : { Enabled | Disabled }
    Trap           : { Enabled | Disabled }
  Trap Community : public
  Description    : Traffic alarm event
  Owner          : Admin
================================================================================
```

History Information

Displays the current RMON history settings.

● [History 1]

Indicates an index number to identify the history group (historyControlTable).

● Port

Displays a name of the port to collect the RMON history group information.

● Buckets

Indicates the stored data count of the RMON history group.

● Interval

Indicates an interval (in seconds) to collect the data of RMON history group.

● Owner

Displays the owner name of the RMON history group.

Alarm Information

Displays the current RMON alarm settings.

● [Alarm 1]

Indicates a unique ID which has been assigned to the RMON alarm.

● Monitored OID

Indicates an OID of the MIB object to be monitored.

● Monitoring Interval

Indicates an interval (in seconds) for threshold check of the MIB to be monitored.

● Sample Type

Displays an evaluation method of thresholds.

– Absolute

The value obtained from the MIB is evaluated as the absolute value.

– Delta

A difference between the value obtained from the previous MIB and the value obtained from the current MIB is evaluated.

- ● Rising Threshold
  Indicates the threshold upper limit (or the rising threshold).
- ● Rising Event
  Indicates a number of the event to be notified if the value obtained has exceeded the threshold limit.
- ● Falling Threshold
  Indicates the threshold lower limit (or the falling threshold).
- ● Falling Event
  Indicates a number of the event to be notified if the value obtained has dropped below the threshold limit.
- ● Owner
  Displays the owner name of the RMON alarm group.

Event Information
  Displays the contents of RMON event.
- ● [Event 1]
  Indicates a index to identify the RMON event entry.
- ● Event Type
  log
  Displays the status of RMON log entry creation when a RMON event has occurred.
  - – Enabled
    A RMON log entry is created.
  - – Disabled
    No RMON log entry is created.
  Trap
  Displays the trap creation status.
  - – Enabled
    SNMP trap notification occurs.
  - – Disabled
    No SNMP trap notification occurs.
- ● Trap Community
  Displays a community name of the SNMP trap.
- ● Description
  Displays a character string which explains the RMON event entry.
- ● Owner
  Displays the owner name of the RMON event entry.

5.17.2 rmon collection history

Function

Sets a RMON history. Up to 24 entries can be set.
Use the no form to delete the information you have set.

Prompt

xg(config)#

Command syntax

```
rmon collection history INDEX { port <1-12> | agg-port <1-6> }
  [buckets BUCKET-NUM] [interval SECOND] [owner OWNERNAME]

no rmon collection history INDEX
```

Parameter

- ● INDEX
  Specifies an entry index of the history within the range of 1 to 65535.
- ● port <1-12>
  Specifies a port number to collect the RMON history group.
- ● agg-port <1-6>
  Specifies an aggregation group number to collect the RMON history group.
- ● buckets BUCKET-NUM
  Specifies the data storage count of the RMON history entry group within the range of 1 to 20.
  If omitted, the default storage count is 10 data sets.
- ● interval SECOND
  Specifies a time interval to collect the RMON history group data within the range of 1 to 3600 seconds.
  If omitted, the default interval is 1800 seconds (or 30 minutes).
- ● owner OWNERNAME
  Specifies an owner name of the entry using up to 127 characters.
  If omitted, no owner name is set.

Command type

Configuration command

Default

None

Message

% RMON collection history can register up to 24
> **Explanation**
> No more setup is allowed as the RMON history group data has reached the registration limit.
> **Solution**
> Delete unnecessary RMON history groups, and reissue the command.

% RMON collection history %1$ is not set.
> **Explanation**
> You have attempted to delete a non-existing RMON history group.
> [[Inserted string]]%1$: Index number
> **Solution**
> Review the specified index, and reissue the command.

% OWNERNAME is too long.
> **Explanation**
> The owner name has exceeded the limit length.
> **Solution**
> Review the owner name length and reissue the command.

% Agg-port %1$ does not exist
> **Explanation**
> The specified aggregation group has not been created.
> [[Inserted string]]%1$: Specified aggregation group number
> **Solution**
> Review the "agg-port" settings and reissue the command.

% OWNERNAME cannot be used.
> **Explanation**
> Unusable character has been specified for the "owner".
> **Solution**
> Review the specified "owner", and reissue the command.

Example

Set the data collection interval to 30 minutes (default value) and the data storage count to 20 data sets for the RMON history of port 1. The 10-hour history statistics will be logged.

```
xg(config)# rmon collection history 1 port 1 buckets 20
```

5.17.3 rmon alarm

Function

Sets RMON alarms. Up to 30 entries can be set.
Use the no form to delete the information you have set.

Prompt

xg(config)#

Command syntax

```
rmon alarm INDEX VARIABLE interval VALUE {absolute | delta}
 rising-threshold VALUE [EVENT-NUM]  falling-threshold VALUE [EVENT-NUM]
 [owner OWNERNAME]

no rmon alarm INDEX
```

Parameter

- INDEX
  Specifies an entry index of the RMON alarm within the range of 1 to 65535.
- VARIABLE
  Specifies an OID of the MIB object to be monitored.
  A name such as "ifEntry.10.2" cannot be set for the OID. The OID must be a string of decimal integers separated by a dot (.) from each other. An example of "1.3.6.1.2.1.1.2.2.1.10.2".
- interval VALUE
  Specifies an interval (in seconds) for threshold check of the MIB to be monitored. The VALUE can be an integer of 2 to 65535.
- {absolute | delta}
  Specifies a threshold evaluation method as follows.
    - absolute
       The value obtained from the MIB is evaluated as the absolute value.
    - delta
       A difference between the value obtained from the previous MIB and the value obtained from the current MIB is evaluated.
- rising-threshold VALUE [EVENT-NUM]
  The VALUE specifies the threshold upper limit or the "rising threshold."
  The EVENT-NUM specifies an index of the event to be executed if the rising threshold is exceeded.
- falling-threshold VALUE [EVENT-NUM]
  The VALUE specifies the threshold lower limit or the "falling threshold."
  The EVENT-NUM specifies an index of the event to be executed if the falling threshold is exceeded.
- owner OWNERNAME
  Specifies an owner name of the entry using up to 127 alphanumeric characters.
  If omitted, no owner name is set.

Command type

Configuration command

Default

None

Message

% RMON alarm can register up to 30
> **Explanation**
> No more setup is allowed as the RMON alarm group data has reached the registration limit.
> **Solution**
> Delete unnecessary RMON alarm groups, and reissue the command.

% RMON alarm %1$ is not set.
> **Explanation**
> You have attempted to delete a non-existing RMON alarm group.
> [[Inserted string]]%1$: Specified index
> **Solution**
> Review the specified index, and reissue the command.

% OWNERNAME is too long.
> **Explanation**
> The owner name has exceeded the limit length.
> **Solution**
> Review the owner name length and reissue the command.

% OID cannot be used.
> **Explanation**
> Unusable character has been specified for the OID.
> **Solution**
> Review the specified OID, and reissue the command.

% OWNERNAME cannot be used.
> **Explanation**
> Unusable character has been specified for the "owner".
> **Solution**
> Review the specified "owner", and reissue the command.

Example

Set RMON alarms:

```
xg(config)# rmon alarm 10 .1.3.6.1.2.1.2.2.14.1 interval 60 absolute
              rising-threshold 15 1 falling-threshold 0 owner "admin"
```

5.17.4 rmon event

Function

Sets a RMON event. Up to 60 entries can be set.
Use the no form to delete the information you have set.

Prompt

xg(config)#

Command syntax

```
rmon event INDEX [ log ] [ trap COMMUNITY ] [ description DESCRIPTION-STRING ]
  [owner OWNERNAME]

no rmon event INDEX
```

Parameter

- INDEX
  Specifies an entry index of the RMON event within the range of 1 to 65535.
- log
  This option creates a RMON log entry if an event has occurred.
- trap COMMUNITY
  This option notifies a trap if an event has occurred. The COMMUNITY name can be up to 127 alphanumeric characters.
  If omitted, no traps are notified.
- description DESCRIPTION-STRING
  Specifies a character string which explains the events. The description string can be up to 127 alphanumeric characters.
- owner OWNERNAME
  Specifies an owner name of the entry using up to 127 alphanumeric characters.
  If omitted, no owner name is set.

Command type

Configuration command

Default

None

Message

% RMON event can register up to 60
> **Explanation**
> No more setup is allowed as the RMON event group data has reached the registration limit.
> **Solution**
> No more setup is allowed as the RMON event group data has reached the registration limit.

% RMON event %1$ is not set.
> **Explanation**
> You have attempted to delete a non-existing RMON event group.
> [[Inserted string]]%1$: Specified index
> **Solution**
> Review the specified index, and reissue the command.

% OWNERNAME is too long.
> **Explanation**
> The "owner" name has exceeded the limit length.
> **Solution**
> Review the "owner" name length and reissue the command.

% COMMUNITY is too long.
> **Explanation**
> The specified community name has exceeded the limit length.
> **Solution**
> Review the community name length and reissue the command.

% DESCRIPTION is too long.
> **Explanation**
> The "description" has exceeded the limit length.
> **Solution**
> Review the "description" length and reissue the command.

% COMMUNITY cannot be used.
> **Explanation**
> Unusable character has been specified for the community name.
> **Solution**
> Review the specified community name, and reissue the command.

```
% DESCRIPTION cannot be used.
```
Explanation
Unusable character has been specified for the "description".
Solution
Review the specified "description", and reissue the command.
```
% OWNERNAME cannot be used.
```
Explanation
Unusable character has been specified for the "owner".
Solution
Review the specified "owner", and reissue the command.

Notes

RMON event entry needs to be created using the "rmon event" command for log creation or SNMP trap notification when an event has occurred.

Example

Set RMON events:
```
xg(config)# rmon event 1 log trap public description "event test1" owner "admin"
xg(config)# rmon event 2 log description "event test2" owner "admin"
```

5.18 System Operation Display Commands

This section explains about the command to display the system operation status.

5.18.1 show system status

Function

Displays the hardware operation status.
For the explanation and actions taken of each item, see the "Verifying Hardware Status".

Prompt

xg> or xg#

Command syntax

```
show system status
```

Command type

Operation management command

Output format

```
xg11# show system status
System Status Information  2005/08/22-12:16:19
=============================================
[Temperature]
    Internal      : good
    Inlet         : good

[Power Supply]
  PWR-1
    Mount         : good
    Output Power  :
  PWR-2
    Mount         : good
    Output Power  : good

[Voltage]
    Voltage       : good

[Fan]
    Rear Fan-1    : good (normal-speed)
    Rear Fan-2    : good (high-speed)
    PWR-1 Fan     : good (normal-speed)
    PWR-2 Fan     : good (normal-speed)
```

● Temperature
  Displays the temperature in the system hardware.
  − Internal
    Internal temperature sensor
  − Inlet
    Inlet temperature sensor
● Power Supply
  Displays the operation status of power supply

  PWR-1
  Displays the operation status of power supply 1.
  − Mount
    Displays the mounting status of the power supply.
  − Output Power
    Displays the power output status.

  PWR-2
  Displays the operation status of power supply 2. The display items are the same as for power supply 1.
● Voltage
  Displays the voltage status. If all the voltages are normal detailed, information is not displayed.
  − VDP
    Displays the VDP voltage status.
  − VDE
    Displays the VDE voltage status.
  − VDR
    Displays the VDR voltage status.
  − VDD
    Displays the VDD voltage status.
  − VDN
    Displays the VDN voltage status.
  − 3.3V Stby
    Displays the 3.3V voltage status.
  − +12V
    Displays the 12V voltage status.

● Fan
Displays the fan operation status.
- Rear Fan-1
  Displays the operation status of rear fan 1.
- Rear Fan-2
  Displays the operation status of rear fan 2.
- PWR-1 Fan
  Displays the operation status of the fan mounted on power supply 1.
- PWR-2 Fan
  Displays the operation status of the fan mounted on power supply 2.

5.18.2 show system information

Function
Displays the operation status of the XG700.

Prompt
xg> or xg#

Command syntax

```
show system information
```

Command type
Operation management command

Output format

```
xg# show system information
System Information  2005/08/22-21:06:11
=======================================
 System Name (hostname) : xg
 System Location        : (none)
 System Contact         : (none)
 Default Banner         : XG700 E99L99 XF9999
 Startup Time           : 2005/08/22-19:28:24
 Startup-config Modified : 2005/08/22-19:54:01
 Firmware Information
  Firmware[1]            : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time          : 2005/08/21-22:08:12
  Firmware[2]            : E99L99 XF9999 2005/08/22-19:27:12
   Updated Time          : 2005/08/23-10:57:53
  Current Firmware       : [2]
  Next Startup Firmware  : [2]
  Boot Loader            : E10L10 XF0043
 Timezone               : gmt +0900
  (Next Boot)           : gmt -800
 Summer-Time            : (none)
  (Next Boot)           : M4.1.0/0200 M10.5.0/0200 0100
 RS232C Baud-Rate       : 9600
 Management LAN Information
  MAC Address            : 0080.17c2.0500
  IP Address/Mask        : 192.168.41.22/24
  Default Gateway        : 192.168.41.1
  DNS Server             : 192.168.77.20
  Domain Name            : abc.efg.com
 System Load Information
  CPU Used Ratio         : 1%
  Memory Used Size       : 36,429,824 bytes (57%)
```

● System Name (hostname)
  Displays the system name (host name) of the XG700.
● System Location
  Displays the installation location of the XG700.
● System Contact
  Displays the contact information of the XG700.
● Default Banner
  Displays the default banner characters which are displayed during user login.
● Startup Time
  Displays the date and time when the system has started up.
● Startup-config Modified
  Displays the date and time when the "startup-config" setup was recently updated.
● Firmware Information
  Displays the firmware   status of the XG700.
  he system can have two sets of firmware information (old and new firmware information).
    – Firmware[1] / Firmware[2]
      Displays the firmware information of firmware partitions 1 and 2 and the firmware updating status.
       (No display)
       The new firmware is not updated.
       (writing)
       The new firmware is being updated.
       (new)
       The new firmware has been updated.
    – Updated Time
      Displays the date and time when the firmware was previously updated.
    – Current Firmware
      Displays the partition number of the firmware being used for the current system startup.
    – Next Startup Firmware
      Displays the partition number of the firmware to be used for the next system startup.
● Timezone
  Displays the current time zone settings.
  If you have changed the time zone settings, those effective after the next system startup are displayed in the "Next Boot" area.

- Summer-Time
  Displays the current summer time settings.
  If you have changed the summer time settings, those effective after the next system startup are displayed in the "Next Boot" area.
- RS232C Baud-Rate
  Displays the serial (RS-232C) baud rate.
- Management LAN Information
  Displays the current status of the management LAN interface.
    - MAC Address
      Displays the MAC address.
    - IP Address/Mask
      Displays the IP address and the subnet mask bit length.
    - Default Gateway
      Displays the IP address of the default gateway.
    - DNS Server
      Displays the IP address of the DNS server.
    - Domain Name
      Displays the domain name.
- System Load Information
    - CPU Used Ratio
      Displays the CPU usage ratio.
    - Memory Used Size
      Displays both the currently used size of memory and the current memory usage ratio.

5.19 System Maintenance Commands

5.19.1 clear log

Function

Initializes the system log.

Prompt

xg#

Command syntax

```
clear log [ { info | warning | error | critical } ]
```

Parameter

- { info | warning | error | critical }
  Specifies a type of system log to be initialized.
  - info
    Initializes the INFO log.
    The INFO log stores information (INFO) messages which report the system status of the XG700.
  - warning
    Initializes the WARNING log.
    The WARNING log stores the warning (WARNING) messages of the XG700.
  - error
    Initializes the ERROR log.
    The ERROR log stores the error (ERROR) messages of the XG700.
  - critical
    initializes the CRITICAL log.
    The CRITICAL log stores the critical (CRITICAL) messages of the XG700.

  If this parameter is omitted, all logs are initialized.

Command type

Operation management command

Example

Initialize the INFO log:

```
xg# clear log info
```

5.19.2 show log

Function
Displays system logs.

Prompt
xg#

Command syntax

```
show log { info | warning | error | critical } [ latest <1-10000> ]
```

Parameter
- { info | warning | error | critical }
  Specifies a type of system log to be displayed.
    - info
      Displays the INFO log.
      The INFO log stores information (INFO) messages which report the system status of the XG700.
    - warning
      Displays the WARNING log.
      The WARNING log stores the warning (WARNING) messages of the XG700.
    - error
      Displays the ERROR log.
      The ERROR log stores the error (ERROR) messages of the XG700.
    - critical
      Displays the CRITICAL log.
      The CRITICAL log stores the critical (CRITICAL) messages of the XG700.
- latest <1-10000>
  Specifies the number of the latest log entries to be displayed within the range of 1 to 10000.
  If omitted, all logs are displayed.

Command type
Operation management command

Output format

```
xg# show log info latest 1
May 25 22:08:33 xghost xgsh: XG INFO[P4001]: cmd-exec[3388]: show log info
 |     |     |         |       |          |        |            |
Month  | Hours Min Sec |   Function name Severity  |         Message text
    Day            The XG700's                 MessageID
                     Host name
```

- Month
  Displays the month when the event occurred.
- Day
  Displays the day when the event occurred.
- Hours Min Sec
  Displays the time (hours, minutes and seconds) when the event occurred.
- Host name of the XG700
  Displays the time (hours, minutes and seconds) when the event occurred.
- Function name
  Displays the function name.
- Severity
  Indicates an importance level (or severity) of the message.
    - CRITICAL
      Critical level.
      The system has failed to continue its operation. Follow the instructions given by the message.
    - ERROR
      Error level.
      Part of system functions has failed although the system can continue its operations. Follow the instructions given by the message.
    - WARNING
      Warning level.
      There is no problem in system operations although an error or a warning event has been detected. Check the message information and determine the actions necessary to take.
    - INFO
      Informational level.
      This is an informational message showing the system status. No response is necessary.
- MessageID
  Displays the message ID in the "S message number" or "P message number" format.
    - S
      Indicates that the message is notified with the SNMP trap.
    - P
      Indicates that the message is not notified with the SNMP trap.
    - Message number
      Displays a unique number for message identification. Read this message number to locate the message and take the necessary actions.
- Message text
  Displays the message text.

Example

Display 10 entries of the latest INFO log:

```
xg# show log info latest 10
```

5.19.3 log send

Function

Transfers the system log from the system equipment to the remote host.
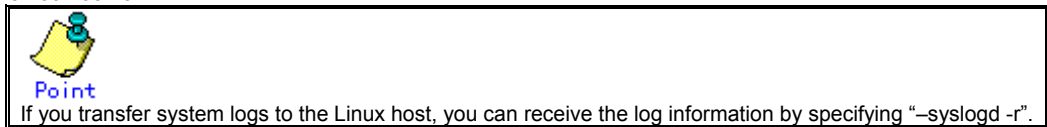
Prompt

xg(config)#

Command syntax

```
log send HOST { info | warning | error | critical } [ { udp | tcp } ]
no log send
```

Parameter

- HOST
  Specifies the host name, domain name or IP address of the destination of system logs.
  When specifying the host name or the domain name, you must set the DNS server or register the host name in advance.
  The IP address can be within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.

  Point
  If you transfer system logs to the Linux host, you can receive the log information by specifying "–syslogd -r".

- { info | warning | error | critical }
  Specifies a type of system logs to be transferred.
    - info
      Transfers messages (the CRITICAL, ERROR, WARNING and INFO messages) above the INFO severity level.
    - warning
      Transfers messages (the CRITICAL, ERROR and WARNING messages) above the WARNING severity level.
    - error
      Transfers messages (the CRITICAL and ERROR messages) above the ERROR severity level.
    - critical
      Transfers the CRITICAL level messages.
- { udp | tcp }
  Selects a protocol for transmission of system logs. The "udp" (User Datagram Protocol) is selected by default.

Command type

Operation management command

Message

% Invalid IP-address.

Explanation
The IP address was specified in an incorrect format or an incorrect address was specified.
Solution
Specify the IP address in the correct format and reissue the command.

5.19.4 save maintenance

Function

Stores the current system status data as the maintenance information in the non-volatile memory.

Prompt

xg#

Command syntax

```
save maintenance
```

Command type

Operation management command

5.19.5 show maintenance

Function

Displays the maintenance information.

Prompt

xg#

Command syntax

```
show maintenance
```

Command type

Operation management command

Output format (if "current" is specified)

```
xg# show maintenance
Maintenance Information      2005/08/22-20:58:17
===================================================
NO  Type                     Occurred Time
--- ------------------------ --------------------
  1 system dump                2005/08/22-18:21:23
  2 system dump(dump switch)   2005/08/22-19:57:58
  3 system dump(machine check) 2005/08/22-19:58:14
===================================================
```

- NO
  Displays the maintenance information number. The oldest maintenance information is displayed first.
- Type
  Displays the maintenance information type.
  - system dump
    The system dump which has been logged during system failure
  - system dump(dump switch)
    The system dump forcibly logged by the "dump" switch
  - system dump(machine check)
    The system dump which has been logged due to the hardware machine check
  - process dump
    The process dump which has been logged during partial system failure
  - system state
    The system operation status information which has been output by the "save maintenance" command
- Occurred Time
  Displays the date and time when the maintenance information have been logged.

Point

Nothing is displayed if the maintenance information does not exist.

5.19.6 tftp put-maintenance

Function

Transfers the system maintenance information to the TFTP server.
The file size of the maintenance information is displayed on the screen.

Prompt

xg#

Command syntax

```
tftp put-maintenance HOST [ REMOTE-FILE ]
```

Parameter

- HOST
  Specifies a host name or an IP address of the TFTP server.
  The IP address can be within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.
- REMOTE-FILE
  Specifies the path and file name of the maintenance information to be transferred to the TFTP server. If the file name is omitted, the following file name is generated automatically.
  "mainte_2005_08_31_13_30_59" (date and time when obtained)

Command type

Operation management command

Message

% tftp: %1$: Host name lookup failure
>   **Explanation**
>   The specified host name does not exist.
>   [[Inserted string]]%1$: Specified host name
>   **Solution**
>   Check the host name for an error.

% tftp: server says: %1$
>   **Explanation**
>   An error has been reported from the TFTP server.
>   [[Inserted string]]%1$: Error messages sent from the FTP server
>   The message contents vary depending on the TFTP server type used. Typical messages are as follows.
>   - File not found.: No file is found on the TFTP server.
>   - Access violation.: An error of file access authority has occurred on the TFTP server.
>   - Not allowed to overwrite existing files.: The file in the TFTP server cannot be overwritten.
>   - File already exists.: The specified file already exists on the TFTP server.
>   - Unknown transfer ID.: he process is interrupted due to the timeout.
>   **Solution**
>   Take actions by following the message instructions sent from the TFTP server.

% tftp: last timeout
>   **Explanation**
>   There is no response by the TFTP server. The network communication with the management LAN may have failed or you have set too short timeout of the TFTP server.
>   **Solution**
>   Issue the "ping" command to check the network connection to the TFTP server. If the error recurs, change the timeout of the TFTP server.

% Invalid IP-address.
>   **Explanation**
>   The IP address was specified in an incorrect format or an incorrect address was specified.
>   **Solution**
>   Specify the IP address in the correct format and reissue the command.

Notes

- If the file or directory specified by REMOTE-FILE does not exist on the TFTP server, an error may occur (it depends on the TFTP server functions).
- If you have set a too short timeout of the TFTP server, an error may occur (it depends on the TFTP server functions).
- To ensure the transmission of the correct size of maintenance information file, compare the file size displayed on the screen and the size of the file saved on the TFTP server.

Example

Save the current system status data as the maintenance information in the non-volatile memory, and check the logging status of the maintenance information using the "show maintenance" command.
Then, transfer the maintenance information to the "host1" TFTP server by naming it as the "mainte_collected date and time" file.
Compare the file size of the maintenance information displayed on the screen and the size of the file stored at the destination.

```
xg# save maintenance
xg# show maintenance
Maintenance Information      2005/08/22-20:58:17
=================================================
NO  Type                      Occurred Time
--- ------------------------- -------------------
  1 system dump                2005/08/22-18:21:23
  2 system dump(dump switch)   2005/08/22-20:57:58
  3 system dump(machine check) 2005/08/22-20:58:14
=================================================
xg# tftp put-maintenance host1
Total file size: 480711 (bytes)
```

5.19.7 clear maintenance

Function

Clears the maintenance information from the non-volatile memory of the XG700.

Prompt

xg#

Command syntax

```
clear maintenance
```

Command type

Operation management command

Notes

● Issue the "clear maintenance" command only after you have checked the successful information transmission to the TFTP server using the "tftp put-maintenance" command.

Example

Clear the maintenance information from the non-volatile memory of system hardware:

```
xg# clear maintenance
```

5.19.8 update-system

Function

Updates the firmware of the XG700.
The XG700 has two sets of firmware. This command updates the standby firmware. The updated firmware is made valid after the next system startup.

Prompt

xg#

Command syntax

```
update-system local FILE-NAME
update-system tftp HOST REMOTE-FILE
```

Parameter

- local FILE-NAME
  Specifies the firmware updating file which has been downloaded from the TFTP server to the non-volatile memory of the XG700.
- tftp HOST
  Directly updates the firmware from the firmware updating file stored on the TFTP server.
  To do so, specify a host name or an IP address of the TFTP server.
  The IP address can be within the range of 1.0.0.1 to 126.255.255.254, 128.0.0.1 to 191.255.255.254, or 192.0.0.1 to 223.255.255.254.
- REMOTE-FILE
  Specifies the firmware updating file residing on the TFTP server.

Command type

Operation management command

Message

% File not found.
Explanation
The specified file was not found.
Solution
Check the file name for an error.

% Reading the file failed.
Explanation
The specified file has failed to read.
Solution
Check that the file is read enabled.

% Checksum error: %1$ in the file
Explanation
A data error was detected in the specified file.
[[Inserted string]]%1$: Firmware configuration module
Solution
Check the file for an error in its contents.
If the file contents are OK, an error may have occurred during file transmission. Transfer the file again.

% Checksum error: whole file
Explanation
A data error (a checksum error of the entire file) was detected in the specified file.
Solution
Check the file for an error in its contents.
If the file contents are OK, an error may have occurred during file transmission. Transfer the file again.

% Version of the format of the file is not suitable for this system.
Explanation
The firmware of the specified file cannot be used for the system hardware.
Solution
Specify the correct file to update the system firmware.

% The file is not for this system.
Explanation
The firmware of the specified file cannot be used for the system hardware.
Solution
Specify the correct file to update the system firmware.

% Reading boot loader partition in FlashROM failed.
Explanation
An error has occurred during reading of flash ROM data.
Solution
Retry firmware updating.
If the error recurs, contact to the maintenance support personnel.

% Writing %1$ into FlashROM failed.
Explanation
An error has occurred during reading of flash ROM data.
[[Inserted string]]%1$: Firmware configuration module
Solution
Retry firmware updating.
If the error recurs, contact to the maintenance support personnel.

```
% Checksum error: %1$ in FlashROM
```
Explanation

An error has occurred during writing of flash ROM data.

[[Inserted string]]%1$: Firmware configuration module

Solution

Retry firmware updating.

If the error recurs, contact to the maintenance support personnel.

```
% %1$  in SRAM is invalid.
```
Explanation

Inconsistency of non-volatile (SRAM) memory data was found due to amended firmware updating or others.

[[Inserted string]]%1$: Abnormal memory contents

Solution

Restart the system using the "reset" command. Then, retry firmware updating.

If the error recurs, contact to the maintenance support personnel.

```
% tftp: %1$: Host name lookup failure
```
Explanation

The specified host name does not exist.

[[Inserted string]]%1$: Specified host name

Solution

Check the host name for an error.

```
% tftp: server says: %1$
```
Explanation

An error has been reported from the TFTP server.

[[Inserted string]]%1$: Error messages sent from the FTP server

The message contents vary depending on the TFTP server type used. Typical messages are as follows.

- File not found.: No file is found on the TFTP server.
- Access violation.: An error of file access authority has occurred on the TFTP server.
- Could not open requested file for reading.: The file does not exist on the TFTP server.

Solution

Take actions by following the message instructions sent from the TFTP server.

```
% tftp: write: No space left on device
```
Explanation

The non-volatile memory of the XG700 has insufficient work area. The files being downloaded may remain in the non-volatile memory.

Solution

Delete the downloaded files and unnecessary files on the system using the "delete" command. Then, reissue the "update-system" command.

```
% tftp: last timeout
```
Explanation

There is no response by the TFTP server. The network may have failed or you have set too short timeout of the TFTP server.

Solution

Issue the "ping" command to check the network connection to the TFTP server. If the error recurs, change the timeout of the TFTP server.

```
% Invalid IP-address.
```
Explanation

The IP address was specified in an incorrect format or an incorrect address was specified.

Solution

Specify the IP address in the correct format and reissue the command.

Example

Download the firmware updating file into the system volatile memory using the "tftp get" command. Check the size of the downloaded firmware updating file using the "ls" command.

Then, update the firmware using the "update-system" command.

```
xg# tftp get tftp-host1 firm_upd_file
xg# ls
 Update-time        File-size  File-name
- 2005/08/31 13:52:54  5,754,559 firm_upd_file

 unused: 8,888,320 bytes
xg# update-system local firm_upd_file
```

Update the firmware directly from the TFTP server.

```
xg# update-system tftp tftp-host1 firm_upd_file
```

After the firmware has been updated normally, check the firmware version (E/L) and make sure that the system firmware has been set to the "(new)" updating status using the "show system information" command.

Also, check the "Next Startup Firmware" data which is made valid after the next startup.

```
xg# show system information
. . .
. . .
Firmware Information
  Firmware[1]          : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time        : 2005/08/21-22:08:12
  Firmware[2]          : E99L99 XF9999 2005/08/22-19:27:12 {(writing)|(new)}
   Updated Time        : 2005/08/23-10:57:53                    ↑
  Current Firmware     : [1]                       The updating status is displayed.
  Next Startup Firmware: [2]
. . .
. . .
```

After the updating process has completed, restart the system hardware.

```
xg# reset
```

5.19.9 boot-system

Function

Switches the firmware to be used for the next startup of the XG700.
Use this command only if a problem has occurred when you are using a new firmware.

Prompt

xg#

Command syntax

```
boot-system { 1 | 2 }
```

Parameter

- {1|2}

  Specifies a number of the firmware to be used after the next system startup.
  The applicable firmware version can be checked by the "show system information" command.
  - 1

    Uses firmware 1 for the next system startup.
  - 2

    Uses firmware 2 for the next system startup.

Command type

Operation management command

Message

% Attempted to change to invalid firmware. Command failed.

Explanation

The previous firmware updating may not be completed normally and you cannot switch the firmware.

Solution

Update the firmware again.
If the error recurs, contact to the maintenance support personnel.

% 1$ in SRAM is invalid.

Explanation

Inconsistency of non-volatile (SRAM) memory data was found due to amended firmware updating or others.
[[Inserted string]]%1$: Abnormal memory contents

Solution

"Restart the system using the "reset" command. Then, retry firmware updating.
If the error recurs, contact to the maintenance support personnel.

Example

Change the firmware to be used for the next system startup using the "boot-system" command.
Then, make sure that the firmware information (Next Startup Firmware) to be used for the next system startup has been changed using the "show system information" command.

```
xg# boot-system 1
xg# show system information
. . .
. . .
Firmware Information
  Firmware[1]          : E10L05 XF0022 2005/08/23-18:42:52
   Updated Time        : 2005/08/21-22:08:12
  Firmware[2]          : E10L06 XF0012 2005/08/31-19:27:12
   Updated Time        : 2005/08/23-10:57:53
  Current Firmware     : [2]
  Next Startup Firmware: [1]
. . .
. . .
```

Chapter 6 Managing the XG700

This chapter describes the management of the XG700.

6.1 Verifying XG700 Operations

This chapter describes the management of the XG700.
- Hardware status
- System status
- Log messages

6.1.1 Verifying Hardware Status

Verify the status of hardware by entering the "show system status command in the operator EXEC mode or in the administrator EXEC mode. The following example shows the information that is displayed when the "show system status" command is entered.

```
xg# show system status
System Status Information  2005/04/25-12:16:19
==============================================
[Temperature]
    Internal       : good
    Inlet          : good

[Power Supply]
  PWR-1
    Mount          : good
    Output Power   :
  PWR-2
    Mount          : good
    Output Power   : good

[Voltage]
    Voltage        : good

[Fan]
    Rear Fan-1     : good (normal-speed)
    Rear Fan-2     : good (high-speed)
    PWR-1 Fan      : good (normal-speed)
    PWR-2 Fan      : good (normal-speed)
```

The following table provides descriptions of items displayed when the "show system status" command is entered and a response for each error message.

Item	Item displayed	Message explanation/Solution
Temperature (inside the chassis)		Displays the temperature inside the chassis.

	Internal (internal temperature sensor)	● good
		The temperature is within normal operating range.
		● Internal Temperature is out of range. (xx)
		A temperature error has been detected. Reexamine the following points concerning the set up of XG700.
		  − Check that the air vent is not blocked.
		  − Check that the temperature of the set up location is within the limits set out by the operation guarantee.
		If the same message is displayed after re-examining the set up of the XG700, contact your XG700 sales representative.

	Inlet (inlet temperature sensor)	● good
		The temperature is within normal operating range.
		● Inlet Temperature is out of range. (xx)
		A temperature error has been detected. Reexamine the following points concerning the set up of XG700.
		  − Check that the air vent is not blocked.
		  − Check that the temperature of the set up location is within the limits set out by the operation guarantee.
		If the same message is displayed after re-examining the set up of the XG700, contact your XG700 sales representative.

Power Supply PWR#-1 (status of power supply unit 1)		Display the status of power supply unit 1.
	Mount (installation of power supply unit)	● good The power supply unit is properly installed. ● Removed The power supply unit has been removed. If this message appears with the power supply unit installed, check that the unit is properly installed.
	Output Power (power supply outputs)	● good The output power is within normal operating range. ● PWR-1 ALARM Detected. A power supply error has been detected or no power is reaching the power supply unit. Check for AC inputs. If this message appears after the checking for AC inputs, replace the power supply.
Power Supply PWR#-2 (status of power supply unit 2)		Displays the status of power supply unit 2.The messages and actions to take are the same as those described for power supply unit 1.
	Mount (installation of power supply unit)	
	Output Power (power supply outputs)	
Voltage (voltage status)		Displays status of fans.
	Voltage	● good The voltage is within normal operating range. ● VDP: Out of range. (xx) A VDP voltage error has been detected. Contact your XG700 sales representative. ● VDE: Out of range. (xx) A VDE voltage error has been detected. Contact your XG700 sales representative. ● VDR: Out of range. (xx) A VDR voltage error has been detected. Contact your XG700 sales representative. ● VDD: Out of range. (xx) A VDD voltage error has been detected. Contact your XG700 sales representative. ● VDN: Out of range. (xx) A VDN voltage error has been detected. Contact your XG700 sales representative. ● 3.3V Main: Out of range. (xx) A 3.3V power supply error has been detected. Contact your XG700 sales representative. ● 12V Main: Out of range. (xx) A 12V power supply error has been detected. Contact your XG700 sales representative.

Fan (fan status)		Displays status of fans.
	Rear Fan-1	● good (normal-speed) The port is working properly. The fan is working at a normal speed. ● good (high-speed) The port is working properly. The fan is working at a high speed. ● Removed Front fan 1 has been removed. Check that front fan 1 is installed. ● Front Fan-1 Speed is below the Low Limit. (xx) It has been detected that the speed of front fan 1 is below limit. Replace the fan unit. ● Messages other than those above Front fan 1 is not working properly. Replace the fan unit.
	Rear Fan-2	Status of rear fan 2 The messages and actions to take are the same as those described for front fan 1.
	PWR-1 (fan installed in power supply unit 1)	Status of the fan installed in power supply unit 1The messages are the same as those described for front fan 1. Replace the power supply unit.
	PWR-2 (fan installed in power supply unit 2)	Status of the fan installed in power supply unit 2 The messages are the same as those described for front fan 1. Replace the power supply unit.

6.1.2 Verifying System Status

Verify the status of system by entering the "show system information" command in the operator EXEC mode or in the administrator EXEC mode.

The following example shows the information that is displayed when the "show system information" command is entered.

```
xg# show system information
System Information  2005/08/22-21:06:11
=====================================
 System Name (hostname) : xg
 System Location        : (none)
 System Contact         : (none)
 Default Banner         : XG700 E99L99 XF9999
 Startup Time           : 2005/08/22-19:28:24
 Startup-config Modified: 2005/08/22-19:54:01
 Firmware Information
  Firmware[1]           : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time         : 2005/08/21-22:08:12
  Firmware[2]           : E99L99 XF9999 2005/08/22-19:27:12
   Updated Time         : 2005/08/23-10:57:53
  Current Firmware      : [2]
  Next Startup Firmware : [2]
  Boot Loader           : E10L10 XF0043
 Timezone               : gmt +0900
  (Next Boot)           : gmt -800
 Summer-Time            : (none)
  (Next Boot)           : M4.1.0/0200 M10.5.0/0200 0100
 RS232C Baud-Rate       : 9600
 Management LAN Information
  MAC Address           : 0080.17c2.0500
  IP Address/Mask       : 192.168.41.22/24
  Default Gateway       : 192.168.41.1
  DNS Server            : 192.168.77.20
  Domain Name           : abc.efg.com
 System Load Information
  CPU Used Ratio        : 1%
  Memory Used Size      : 36,429,824 bytes (57%)
```

Check the version of firmware on which the XG700 is running and verify the system status based on CPU load and memory usage.

6.1.3 Reviewing Log Messages

Log messages about the XG700 are classified into 4 levels -- CRITICAL, ERROR, WARNING, and INFO -- in accordance with the severity of events.

To display event logs, run the "show log" command in the operator EXEC mode or in the administrator EXEC mode.

6.1.3.1 Format of Log Message

An example of the format of a log message displayed by the "show log" is shown below.

```
xg# show log message latest 1
May 25 22:08:33 xghost xgsh: XG INFO[P4001]: cmd-exec[3388]: show log info
 |    |     |      |        |            |     |              |
Month |  HH:MM:SS  |   Function name   Severity |       Message text
    Day        Host name                  Message ID
              for XG700
```

- ● Month
  Displays the date (month) on which the event occurred.
- ● Day
  Displays the date (day) on which the event occurred.
- ● HH:MM:SS
  Displays the time (hours:minutes:seconds) on which the event occurred.
- ● Host name for XG700
  Displays the host name.
- ● Function name
  Indicates the function name.
- ● Severity
  Indicates the severity of the message.
  - − CRITICAL
    Indicates that the system has encountered a serious condition that prevented it from continuing its operation. Take the appropriate action in response to the message.
  - − ERROR
    Does not stop system operation but part of the functions is inoperable. Take the appropriate action in response to the message.
  - − WARNING
    An error or critical condition has been detected, but it does not affect normal operation of the XG700. Determine whether an action must be taken by checking the message.
  - − INFO
    A message that provides information about a system status. No action is necessary.
- ● Message ID
  Message ID is displayed in a form that begins with an "S" or "P".
  - − S
    A message that receives SNMP trap notification.
  - − P
    A message that does not receive SNMP trap notification.
  - − Message number
    Displays a unique number used to identify a message with the XG700. Verify the meaning of the message and actions to take based on the message number.
- ● Message text
  Displays message text.

6.1.3.2 Reviewing Fault Logs

If an XG700 fault has occurred, review the fault log to check fault messages (CRITICAL, ERROR, or WARNING).
To review fault logs, enter the "show log" command in the operator EXEC mode or in the administrator EXEC mode. For the meaning of messages and actions to take for the errors, refer to "Appendix A.2 List of Event Logs".
The following examples show the information that is displayed when the "show log" command is entered.

```
xg# show log critical
Aug 22 03:33:51 xg kernel: XG CRITICAL[S1000]: Abnormal reset occurred (WatchDog Reset: code=1)
Aug 22 03:33:51 xg kernel: XG CRITICAL[S1900]: Core dumped 359
```

```
xg# show log error
Aug 22 03:33:51 xg env: XG ERROR[S0101]: inlet Temperature is out of rage. (65)
Aug 22 03:33:51 xg env: XG ERROR[S0115]: port 1 is not present.
Aug 22 03:33:51 xg env: XG ERROR[S0116]: port 1 is not ready.
```

```
xg# show log warning
Aug 22 03:33:51 xg env: XG WARNING[S0109]: Front Fan-1 Speed is below the Low Limit. (2150)
Aug 22 03:33:51 xg npm: XG WARNING[S3005]: port 1 detected port security violation.
Aug 22 03:33:51 xg npm: XG WARNING[S3202]: Received IGMP packet without IP header.
```

6.1.3.3 Verifying XG700 Status Change

To verify changes in the XG700 status, review INFO log messages.

Enter the "show log" command in the operator EXEC mode or in the administrator EXEC mode. For the meaning of messages, refer to "List of System Logs". The following examples show the information that is displayed when the"show log" command is entered.

```
xg# show log info
Aug22 10:07:57 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show system information
Aug22 10:08:01 xg1 xgsh: XG INFO[P4002]: cmd-result[893]: success
Aug22 10:08:01 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show spanning-tree
Aug22 10:08:01 xg1 xgsh: XG INFO[P4002]: cmd-result[893]: success
Aug22 10:08:02 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show remote-host
Aug22 10:08:02 xg1 xgsh: XG INFO[P4002]: cmd-result[893]: success
Aug22 10:08:34 xg1 ntp : XG INFO[P8602]: time server 192.168.41.1 offset -0.000543 sec
Aug22 10:08:34 xg1 xgsh: XG INFO[P4002]: cmd-result[893]: success
Aug22 10:10:34 xg1 ntp : XG INFO[P8602]: time server 192.168.41.1 offset -0.000660 sec
Aug22 10:45:32 xg1 xgsh: XG INFO[P4001]: cmd-exec[592]: exit
Aug22 10:45:32 xg1 xgsh: XG INFO[P4002]: cmd-result[592]: success
```

● Displaying log for each component

To display a log associated with a specific component only, specify the name of that component in "| include " after entering "show log" command.

In the following example, the CLI displays only messages that include "cmd-exec".

```
xg# show log message | include cmd-exec
Aug22 10:07:57 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show system information
Aug22 10:08:01 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show spanning-tree
Aug22 10:08:02 xg1 xgsh: XG INFO[P4001]: cmd-exec[893]: show remote-host
Aug22 10:45:32 xg1 xgsh: XG INFO[P4001]: cmd-exec[592]: exit
```

6.2 Uploading/Downloading Configuration File

The configuration file, which has been generated in the XG700, can be uploaded to a TFTP server. Also, when an uploaded configuration file is downloaded from a TFTP server, the configuration of the XG700 can be restored.
This section describes the procedures involved in uploading/downloading a configuration file.

6.2.1 Preparing the TFTP Server

Before uploading and/or downloading configuration files using a TFTP server, carry out the following procedures.
- Check that the management LAN and the workstation or other machine which is operating as the TFTP server of the XG700, have been set up appropriately to see the communication between the TFTP server and the management LAN has no problems.
- Check that the access privilege of the root directory is readable/writeable in the TFTP server.
- When downloading the configuration file, check that the configuration file uploaded to the TFTP server is located in the correct place in the root directory.

6.2.2 Uploading Configuration File

This section describes the procedures for uploading the configuration (startup-config) file to a TFTP server.
1. After you log into the XG700, use the "enable" command to switch to administrator EXEC mode.

   ```
   xg> enable
   ```

2. Upload the configuration (startup-config) file to TFTP server "host1" as filename "start_conf_20050822".

   ```
   xg# show startup-config | tftp host1 start_conf_20050822
   ```

3. Lastly, check that the size of configuration file uploaded to a TFTP server is the same as that of the source configuration file.

6.2.3 Downloading Configuration File

This section describes the procedures for downloading the configuration file that has been uploaded to a TFTP server to the XG700 as startup-config file.
1. After you log into the XG700, use the "enable" command to switch to administrator EXEC mode.

   ```
   xg> enable
   ```

2. Using the "copy tftp startup-config" command, download the saved file from the TFTP server to the XG700.
   In the following example, "start_conf_20050822" file saved in TFTP server "host1" is downloaded to the startup-config in the XG700.

   ```
   xg# copy tftp host1 start_conf_20050822 startup-config
   ```

3. Using the "show startup-config" command, check that the contents of the startup-config has been changed.
   Using the "show system information" command, check that the last updated date and time (Startup-config Modified) of the startup-config has been changed.

   ```
   xg# copy start_conf startup-config
   xg# show startup-config
   xg# show system information
   System Information  2005/08/22-15:02:54
   =====================================
    System Name (hostname) : xg
    System Location        : (none)
    System Contact         : (none)
    Default Banner         : XG700 E99L99 XF9999
    Startup Time           : 2005/08/22-19:28:24
    Startup-config Modified: 2005/08/22-19:54:01      ← Last updated date and time
     · · · ·
     · · · ·
   ```

4. To enable the downloaded startup-config, reboot the XG700 using the "reset" command.

   ```
   xg# reset
   Do you restart system? (y/n) :     ← A confirmation message is displayed.
   ```

6.3 Updating Firmware

The XG700 can hold two versions of firmware. If you perform a firmware update, the inactive firmware will be updated. The XG700 automatically uses the new firmware (updated version) during reboot after the firmware update. If it fails to start the new firmware for some reason, it automatically uses the old version (the one that has not been updated). If you have problems with the new version, you can manually select the old version.

First, we describes the procedures for updating firmware.

● Preparing the TFTP Server(the same as those listed in "Preparing the TFTP Server" in "Uploading/Downloading Configuration File")

● Updating Firmware

Then, we describe the procedures for selecting the firmware you want to use.

● Selecting Firmware

6.3.1 Updating Firmware

This section describes the procedures involved when updating firmware using a TFTP server.

1. After you log into the XG700, use the "enable" command to switch to administrator EXEC mode.

```
xg> enable
```

2. Using the "update-system" command, perform a firmware update.
   If you perform a firmware update, the inactive firmware will be updated.
   In the following example, the firmware is updated using firmware file "XF10100" stored on a TFTP server "host1".

```
xg# update-system tftp host1 XF10100
```

3. Upon successful completion of firmware update, check the version number of the updated firmware (E/L) and see if the status of a firmware update is "(new)" using the "show system information" command. During the update, the status of the update changes to"(writing)".
   When the firmware update has successfully completed, the new update firmware is displayed in "Next Startup Firmware".

```
xg# show system information
・・・
 Firmware Information
  Firmware[1]            : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time          : 2005/08/21-22:08:12
  Firmware[2]            : E99L99 XF9999 2005/08/22-19:27:12 (new)
   Updated Time          : 2005/08/23-10:57:53                  ↑
  Current Firmware     : [1]                     Displays the status of update.
  Next Startup Firmware : [2]
```

4. Upon completion of the firmware update, reboot the XG700 using the "reset" command.

```
xg# reset
```
```
Do you restart system? (y/n) :    ← A confirmation message is displayed.
```

If the reboot (starting the new firmware) fails, the old version is automatically selected and booted. If this is the case, the following message is output to the log.

```
XG WARNING[S7520]: init-firmup: Booting new firmware failed. Old firmware '%1$' is now running.
```

Explanation

Old firmware was run because new updated firmware was not successfully run.

[[Inserted string]]%1$: Firmware version information

6.3.2 Selecting Firmware

This section describes the procedures for selecting the firmware you want to use.
1. After you log into the XG700, use the "enable" command to switch to administrator EXEC mode.

```
xg> enable
```

2. Using the "show system information" command, check the status of the firmware.
   Check the status of firmware information (Firmware[1] and [2]), the currently active firmware (Current Firmware) and firmware that is run next time (Next Startup Firmware).

```
xg# show system information
. . .
. . .
 Firmware Information
  Firmware[1]          : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time        : 2005/08/21-22:08:12
  Firmware[2]          : E99L99 XF9999 2005/08/22-19:27:12
   Updated Time        : 2005/08/23-10:57:53
  Current Firmware     : [2]
  Next Startup Firmware: [2]
  Boot Loader          : E10L10 XF0043
. . .
. . .
```

3. Using the "boot-system" command, change the Next Startup Firmware.
   Using the "show system information" command again, check that the "Next Startup Firmware" has been changed.

```
xg# boot-system 1
xg# show system information
. . .
. . .
Firmware Information
  Firmware[1]          : E99L99 XF9999 2005/08/21-18:42:52
   Updated Time        : 2005/08/21-22:08:12
  Firmware[2]          : E99L99 XF9999 2005/08/22-19:27:12
   Updated Time        : 2005/08/23-10:57:53
  Current Firmware     : [2]
  Next Startup Firmware: [1]
. . .
. . .
```

4. Reboot the XG700 using the "reset" command.

```
xg# reset
```
```
Do you restart system? (y/n) :    ← A confirmation message is displayed.
```

6.4 Extracting of Maintenance Information

If an XG700 fault has occurred, you may be asked to extract maintenance information to allow your XG700 sales representative to investigate it. This section provides procedures for extracting maintenance information.
Depending on the situations shown below, extract maintenance information through the appropriate procedures.

- System failure/Subsystem failure
  If an unrecoverable error has occurred in the XG700's system or subsystem, the system automatically saves maintenance information and then restarts to quickly restart the system operations.
- System loop
  If the system has entered in a loop and CLI command entry disabled, use the "dump" switch on the front panel to save maintenance information and restart the system.
- XG700 malfunctions
  If a function configured for the XG700 malfunctions, save maintenance information using the Extract Information command.

6.4.1 Procedure for Extracting Maintenance Information when a System Failure/Subsystem Failure Occurred

This section describes the procedures for extracting maintenance information when a system failure/subsystem failure has occurred.

- A system failure/subsystem failure has occurred.
  If an unrecoverable error, including a system failure/subsystem failure, has occurred in the XG700, the system automatically saves maintenance information and then restarts to quickly restart the system operations.
  If a system failure has occurred, a system dump is generated; if a subsystem failure has occurred, a process dump is generated.
- Reporting system logs on dump outputs/Reporting traps
  After the system retorts, a system log is issued to indicate that a system failure caused the generation of dump.
  Configuring an SNMP trap in advance causes a trap indicating occurrence of a system failure to be reported to a system administrator.
- Viewing maintenance information history
  Using the "show maintenance" command, check that the maintenance information has been saved.

```
xg# show maintenance
Maintenance Information      2005/08/22-15:55:20
=================================================
NO  Type                    Occurred Time
--- ----------------------- -------------------
  1 system dump             2005/08/22-18:21:23
  2 process dump            2005/08/22-20:57:58
=================================================
```

The "show maintenance" command displays one of the following types of maintenance information in "Type".
  - system dump
    System dump recorded when a system failure occurred.
  - system dump(dump switch)
    Forced system dump caused by the "dump" switch.
  - system dump(machine check)
    System dump triggered by a hardware machine check.
  - process dump
    Process dump generated when a failure occurred in part of the subsystem.
- Extracting maintenance information
  Using the "tftp put-maintenance" command, forward the maintenance information to an external TFTP server.
- Contact your XG700 sales representative.

6.4.2 Procedure for Extracting Maintenance Information when a System Loop has Occurred

This section describes the procedures for extracting maintenance information when a system loop has occurred.

- A system loop has occurred.
  If a CLI command entry is not accepted for an extended period of time, a system loop may have occurred.
- Press the "dump" switch on the XG700's front panel.
  The maintenance information is automatically saved when the "dump" switch is pressed, and then the system restarts.
- Reporting system logs on dump outputs/Reporting traps
  After the system retorts, a system log is issued to indicate that a forced system dump was generated. Configuring an SNMP trap in advance causes a trap indicating the occurrence of a system failure to be reported to a system administrator.
- Viewing maintenance information history
  Using the "show maintenance" command, check that the maintenance information has been saved.

```
xg# show maintenance
Maintenance Information      2005/08/22-15:55:20
================================================
NO  Type                     Occurred Time
--- ------------------------ -------------------
  1 system dump(Dump switch)  2005/08/22-18:21:23
================================================
```

The maintenance information that was saved by the "dump" switch is represented by "system dump(Dump switch)" in "Type".

- Extracting maintenance information
  Using the "tftp put-maintenance" command, forward the maintenance information to a TFTP server machine.
- Contact your XG700 sales representative.

6.4.3 Procedure for Extracting Maintenance Information when an XG700 Malfunction Occurs

This section describes the procedures for extracting maintenance information when an XG700 malfunction has occurred.

- A malfunction has occurred.
  When a function configured for the XG700 fails to operate properly, the maintenance information can be extracted using the command.
- Using the "save maintenance" command, save the maintenance information.
- Viewing maintenance information history
  Using the "show maintenance" command, check that the maintenance information has been saved.

```
xg# show maintenance
Maintenance Information      2005/08/22-15:55:20
================================================
NO  Type                     Occurred Time
--- ------------------------ -------------------
  1 system state              2005/08/22-20:58:14
================================================
```

The maintenance information that was saved by the "save maintenance" command is represented by "system state" in "Type".

- Extracting maintenance information
  Using the "tftp put-maintenance" command, forward the maintenance information to a TFTP server.
- Contact your XG700 sales representative.

Chapter 7 Troubleshooting

This chapter describes how to solve problems you encounter when using the XG700.

7.1 Restoring Factory Defaults

7.1.1 Resetting startup-config to Factory Defaults

To reset all settings in the XG700's startup-config to factory defaults:
- Using the "reset factory-default" command, reset the contents of the startup-config to the factory defaults.
When the command is executed, a message appears that asks you whether you want to restart the XG700.

```
xg# reset factory-default
Do you restart system with setting to factory-default? (y/n) :  ← A confirmation message is
                                                                     displayed.
```

If you respond with "y" or "Y", the contents of the startup-config are reset to the factory defaults and the system restarted.
To cancel the process, respond to this message with any keys other than "y "or "Y".

> ⚠️ **Note**
>
> - The login password is not handled by the startup-config. To change the login password, the "password" command must be used.
> - Timezone and summer time settings will be initialized. After restarting the system set timezone and summer time as necessary.

7.1.2 Selecting Firmware

When the system successfully starts up, you can select the firmware to be run following the procedure described in "Selecting Firmware".
If the system fails to start up, you can select the firmware to be run by doing the following steps immediately after turning on the XG700.
- Connect the XG700 to a serial terminal.
- Turn on the XG700.
- Press the [#] key with the following message appearing on the serial terminal screen.

```
Preparing to boot
```
- At the XG_LOADER> prompt, type "boot", and then specify the number corresponding to the firmware to be run to execute the command.

```
XG LOADER> boot { 1 | 2 }
```

To determine the firmware number that you should specify, use the "firminfo" command. The "firminfo" command allows you to check the firmware versions (E/L) and the number that corresponds to the firmware to be run.
For the firmware versions (E/L), check the "Firm EL of region 1" and "Firm EL of region 2" fields. For the number that corresponds to the firmware to be run, check the number that appears in the "Region being used now" field. Specify another firmware number in the "boot" command.

In the following example, 2 is specified for the firmware number in the "boot" command (1 is assigned to the firmware that is to be run).

```
XG_LOADER> firminfo
Firm EL of region 1     : E99L99 XF9999 (1121772145)
Firm EL of region 2     : E99L99 XF9999 (1121770019)
Boot loader version     : E99L99 XF9999
Region being used now   : 1
Region to be used next  : 1
Status flag of region 1: CURRENT FIRM
Status flag of region 2: OLD FIRM
```

7.1.3 Restoring Factory Defaults

If the system still fails to start up with another firmware selected, perform the following procedure to restore the XG700 to factory defaults.

(Step 1)
- Connect the XG700 to a serial terminal.
- Turn on the XG700.
- Press the [#] key with the following message appearing on the serial terminal screen.

```
Preparing to boot
```

- At the XG_LOADER> prompt, enter the following command.

```
XG LOADER> boot init
```

When the above command is executed, the startup-config, time zone and summer time settings, and password of the XG700 are restored to the factory defaults and the system restarts,

If the system still fails to start up, perform the following procedure.

(Step 2)
- Turn off the XG700 and on again.
- Press the [#] key with the following message appearing on the serial terminal screen.

```
Preparing to boot
```

- At the XG_LOADER> prompt, enter the following command.

```
XG LOADER> clear setup
```

-

When Step 2 is executed following Step 1, all settings of the XG700 are initialized, and then the system starts up.
Entering the "clear setup" command displays the following message:
This command will clear the setting and automatically reboot the system, which will make the setting default.

```
Are you sure to continue [y/<n>]?
```
   Explanation
   If you respond with "y" or "Y", the XG700's all settings are reset to the factory defaults and the system restarts.
   To cancel the process, respond to this message with any keys other than "y" or "Y".

- The following message appears while the system is rebooting. Note that it does not indicate a failure if it appears after the command has been executed.

```
*** Warning - bad CRC, using default environment
```
   Explanation
   The boot loader's system startup data area was initialized.
```
XG WARNING[S7521]: init-firmup: Firmware update information is initialized for region %1$.
```
   Explanation
   The firmware update information area was initialized.
   [[Inserted string]]%1$: Firmware number

Note
- Timezone and summer time settings will be initialized. After restarting the system set timezone and summer time as necessary.

APPENDICES

Appendix A   Event Logs

This appendix describes event logs that are extracted in the XG700, including message IDs, severities, message contents and details, and actions to take.
The severities of the event logs are classified into 4 levels -- CRITICAL, ERROR, WARNING, and INFO.
To display event logs, run the "show log" command in the operator EXEC mode or in the administrator EXEC mode.

A.1   Overview of Event Logs

This section describes messages that are written to logs.
The message ID format is defined as follows as described in "Format of Log Message".

- Message numbers, each starting with an "S"
   An event that receives SNMP trap notification.
- Message numbers, each starting with a "P"
   An event that does not receive SNMP trap notification.
- Message number
   A unique number used to identify a message with the XG700.

The following table lists the abbreviated function names and message numbers.

Abbreviated function name	Message number range	Description
env	0 - 999	Supervisory control of the XG700
kernel	1000 - 1999	Basic XG700 control
	2000 - 2999	Layer 2 basic control
npm	3000 - 3299	Network protocol control
clim	3300 - 3999	Basic CLI control
xgsh	4000 - 4499	CLI command history
rstp	4500 - 4999	Rapid Spanning Tree (RSTP) control
lacp	5000 - 5499	LACP control
sys	7400 - 7499	Maintenance support function
update	7500 - 7999	Firmware update
snmp	8500 - 8599	SNMP control
ntp	8600 - 8699	NTP (Network Time Protocol) control

A.2 List of Event Logs

This section provides message contents, explanation and actions to take that are associated with message ID and severity in ascending numerical order. The solution is not provided for messages for which you do not take action.

A.2.1 env (Supervisory Control: 0-999)

Message ID Severity	Message/Explanation/Solution
S0101 ERROR	`%1$ Temperature is out of range. (%2$)` **Explanation** A temperature error has been detected. ● [[Inserted string]]%1$: Location at which a temperature error was detected. 　　　　Inlet: The temperature near the inlet 　　　　Internal: The temperature inside the chassis ● [[Inserted string]]%2$: Temperature value **Solution** Perform the following concerning the set up of XG700: ● Check that the air vent is not blocked. ● Check that the temperature of the set up location is within the limits set out by the operation guarantee. If the message is displayed even though the XG700 has been properly installed, note the message contents and contact your XG700 sales representative.
P0105 INFO	`PWR-%1$ is On Line.` **Explanation** Power has returned to power supply unit. ● [[Inserted string]]%1$: Power supply unit number
P0106 INFO	`PWR-%1$ is Removed.` **Explanation** It has been detected that power supply unit has been removed. ● [[Inserted string]]%1$: Power supply unit number **Solution** If a message is received during times other than hot swapping, check the installation status.
P0107 INFO	`PWR-%1$ is Inserted.` **Explanation** It has been detected that power supply unit was installed. ● [[Inserted string]]%1$: Power supply unit number **Solution** If a message is received during times other than hot swapping, check the installation status.
S0108 ERROR	`%1$ is out of range. (%2$)` **Explanation** A voltage error has been detected. ● [[Inserted string]]%1$: Displays the types of power supply faults (VDP/VDE/VDR/VDD/VDN/3.3V Main/12V). ● [[Inserted string]]%2$: Value that represents power supply fault **Solution** Note the message contents and contact your XG700 sales representative.
S0109 WARNING	`%1$ Speed is below the Low Limit. (%2$)` **Explanation** It has been detected that the speed of fan is below limit. ● [[Inserted string]]%1$: Displays a location at which a fan speed error was detected. 　　　　Rear Fan-1: Rear fan 1 　　　　Rear Fan-2: Rear fan 2 　　　　PWR-1 Fan: Fan installed in power supply unit 1 　　　　PWR-2 Fan: Fan installed in power supply unit 2 ● [[Inserted string]]%2$: Fan speed. **Solution** Replace the fan unit.
P0110 INFO	`%1$ Speed is good.` **Explanation** The speed of fan has returned to normal. ● [[Inserted string]]%1$: Identifies the fan whose normal speed has been restored. 　　　　Rear Fan-1: Rear fan 1 　　　　Rear Fan-2: Rear fan 2 　　　　PWR-1 Fan: Fan installed in power supply unit 1 　　　　PWR-2 Fan: Fan installed in power supply unit 2

Message ID Severity	Message/Explanation/Solution

S0111
INFO
	`%1$ is Removed.`
	
	Explanation
	It has been detected that a fan was removed.
	● [[Inserted string]]%1$: Identifies which fan was removed.
	       Rear Fan-1: Rear fan 1
	       Rear Fan-2: Rear fan 2
	       PWR-1 Fan: Fan installed in power supply unit 1
	       PWR-2 Fan: Fan installed in power supply unit 2

P0112
INFO
	`%1$ is Inserted.`
	
	Explanation
	It has been detected that a fan was installed.
	● [[Inserted string]]%1$: Identifies which fan was installed.
	       Rear Fan-1: Rear fan 1
	       Rear Fan-2: Rear fan 2
	       PWR-1 Fan: Fan installed in power supply unit 1
	       PWR-2 Fan: Fan installed in power supply unit 2

S0119 WARNING	`PWR-%1 ALARM is detected. Voltage is out of range. (%2$)` **Explanation** It has been detected that no power is reaching to the power supply unit or an error has occurred. ● [[Inserted string]]%1$: Power supply unit number ● [[Inserted string]]%2$: Value that represents power supply fault **Solution** Check the AC input because this message might be output if there is no power within 30 seconds after AC input to other power supply units. If this problem does not solved even after checking the AC input, replace the power supply unit to another one, since it is abnormal.
S0120 INFO	`Fan Speed was changed into high speed.` **Explanation** It has been detected that normal fan speed changed to high speed.
S0121 INFO	`Fan Speed was changed into high speed.` **Explanation** It has been detected that high fan speed changed to normal speed.

A.2.2　　　kernel (Basic XG700 Control: 1000-1999)

Message ID Severity	Message/Explanation/Solution
S1000 CRITICAL	`Abnormal reset occurred (WatchDog Reset: code=%1$)` **Explanation** The fault monitor control detected an error and rebooted the XG700. ● [[Inserted string]]%1$: Additional information that indicates the cause of reset. **Solution** Obtain maintenance information using the "tftp put-maintanace" command after restarting the system and then take a note of the message content before contacting the XG700 sales representative.
S1001 CRITICAL	`MAC address in EEPROM is invalid.` **Explanation** An error was occurred in the device that stores the XG700's MAC address. **Solution** Note the message contents and contact your XG700 sales representative.
P1100 INFO	`%1$: config: auto-negotiation on, %2$` Explanation Management LAN auto-negotiation is being performed. ● [[Inserted string]]%1$: Name of target network interface ● [[Inserted string]]%2$: Displays supported features (speed and duplex).
P1101 INFO	`%1$: status: link %2$` **Explanation** The link status of the management LAN has changed. ● [[Inserted string]]%1$: Name of target network interface ● [[Inserted string]]%2$: Displays details of the current link state.

Message ID Severity	Message/Explanation/Solution
S1900 CRITICAL	`Core dumped %1$` **Explanation** A critical firmware error was detected and process dump output. ● [[Inserted string]]%1$: Process number **Solution** Obtain maintenance information using the "<u>tftp put-maintanace</u>" command and then take a note of the message content before contacting the XG700 sales representative.
S1950 CRITICAL	`Oops: %1$, sig: %2$` **Explanation** An unhandled exception caused a system panic. ● [[Inserted string]]%1$: Details about error ● [[Inserted string]]%2$: Signal number **Solution** Note this message and those displayed above and below it and contact your XG700 sales representative. This message may not be recorded in the log.
S1951 CRITICAL	`Kernel panic: %1$` **Explanation** The software detected a status error during processing and raised a system panic. ● [[Inserted string]]%1$: Details about error **Solution** Note this message and those displayed above and below it and contact your XG700 sales representative. This message may not be recorded in the log.

A.2.3   kernel (Layer 2 Basic Control: 2000-2999)

Message IDSeverity	Message/Explanation/Solution
P2000 CRITICAL	`Can't allocate network device structure.` **Explanation** Failed to allocate the control area for the switch chip. **Solution** Note the message contents and contact your XG700 sales representative.
P2001 CRITICAL	`Can't allocate h/w private structure.` **Explanation** Failed to allocate the control area for the switch chip. **Solution** Note the message contents and contact your XG700 sales representative.
P2002 CRITICAL	`Failed to Memory Map.` **Explanation** Failed to map memory for the switch chip. **Solution** Note the message contents and contact your XG700 sales representative.
P2003 CRITICAL	`Unsupported Switch Chip or Not Found : 0x%1$` **Explanation** Failed to detect the switch chip. ● [[Inserted string]]%1$: Displays supplementary code for the error. **Solution** Note the message contents and contact your XG700 sales representative.
P2004 CRITICAL	`Buffer Configuration is done by Jumper.` **Explanation** An error was detected in the switch chip configuration. **Solution** Note the message contents and contact your XG700 sales representative.
S2005 CRITICAL	`Failed to BIST.` **Explanation** A fault was detected during the switch chip self-test. **Solution** Note the message contents and contact your XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
S2006 CRITICAL	`%1$: Failed to register IRQ. errno = %1$` **Explanation** Failed to register interruption handling for the switch chip. ● [[Inserted string]]%1$: Additional information on the error ● [[Inserted string]]%2$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2007 CRITICAL	`Unexpected software error(%1$)` **Explanation** An internal error was detected in the switch chip control. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2100 ERROR	`Invalid or No MAC address.` **Explanation** Failed to read the XG700's MAC address. **Solution** Note the message contents and contact your XG700 sales representative.
S2101 ERROR	`Can't allocate skb for Rx.` **Explanation** Failed to allocate the buffer that is required for receiving a frame. **Solution** Note the message contents and contact your XG700 sales representative.
S2102 ERROR	`CPU Bus Parity Error detected. %1$, %2$` **Explanation** A parity error was detected on the switch chip's communication bus. ● [[Inserted string]]%1$: Supplementary code 1 for the error ● [[Inserted string]]%1$: Supplementary code 2 for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2103 ERROR	`Output Queue MBE detected. %1$` **Explanation** An uncorrectable error was detected in the switch chip. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2104 ERROR	`Disabling port %1$.` **Explanation** A failure occurred on the switch chip to shut down communication over the faulty port. ● [[Inserted string]]%1$: Port number **Solution** Note the message contents and contact your XG700 sales representative.
S2105 ERROR	`Tag Memory MBE detected. %1$` **Explanation** An uncorrectable error was detected in the switch chip. ● [[Inserted string]]%1$: Port number **Solution** Note the message contents and contact your XG700 sales representative.
S2106 ERROR	`Input Buffer Tag Memory MBE detected. %1$` **Explanation** An uncorrectable error was detected in the switch chip. ● [[Inserted string]]%1$: Port number **Solution** Note the message contents and contact your XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
S2107 ERROR	`Too Many Input Queue Tag Memory MBE Errors. LOG Disabled.` **Explanation** An uncorrectable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.
S2108 ERROR	`MAC Table Operation error. %1$` **Explanation** Failed to process the switch chip's MAC address management table. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2109 ERROR	`VLAN Table Operation error. %1$` **Explanation** Failed to process the switch chip's VLAN management table. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2200 WARNING	`MAC Table Error detected. %1$` **Explanation** An uncorrectable error was detected in the MAC management table. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2201 WARNING	`Too Many MAC Table Error. Reset Switch LSI.` **Explanation** An uncorrectable error was detected repeatedly in the MAC management table and, therefore, switch chip was reset. **Solution** Note the message contents and contact your XG700 sales representative.
S2202 WARNING	`VLAN Table MBE detected. %1$` **Explanation** An uncorrectable error was detected in the VLAN table. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2203 WARNING	`VLAN Table SBE detected. %1$` **Explanation** An uncorrectable error was detected in the VLAN table. It is automatically corrected by hardware. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2204 WARNING	`Too Many VLAN Table MBE Errors. Reset Switch LSI.` **Explanation** An uncorrectable error was detected repeatedly in the VLAN table and, therefore, switch chip was reset. **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2205 WARNING	`Too Many VLAN Table SBE Error. Log Disabled.` **Explanation** A correctable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.

Message ID Severity	Message/Explanation/Solution
S2206 WARNING	Multicast State Table Error detected. %1$ **Explanation** An uncorrectable error was detected in the switch chip. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2207 WARNING	Too Many MST Errors. Reset Switch LSI. **Explanation** An uncorrectable error was detected repeatedly in the switch chip and, therefore, switch chip was reset. **Solution** Note the message contents and contact your XG700 sales representative.
S2208 WARNING	Stream Memory Tag MBE detected. %1$ **Explanation** An uncorrectable error was detected in the switch chip. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2209 WARNING	Too Many SMT MBE Errors. LOG Disabled. **Explanation** An uncorrectable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2210 WARNING	Stream Memory Tag SBE detected. %1$ **Explanation** A correctable error was detected in the switch chip. It is automatically corrected by hardware. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2211 WARNING	Too Many SMT SBE Errors. LOG Disabled. **Explanation** A correctable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.
S2212 WARNING	Output Queue SBE detected. %1$ **Explanation** A correctable error was detected in the switch chip. It is automatically corrected by hardware. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** Note the message contents and contact your XG700 sales representative.
S2213 WARNING	Too Many Output Queue SBE Errors. LOG Disabled. **Explanation** A correctable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.
S2214 WARNING	Tag Memory SBE detected. %1$ **Explanation** A correctable error was detected in the switch chip. It is automatically corrected by hardware. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2215 WARNING	Too Many Tag Memory SBE Errors. LOG Disabled. **Explanation** A correctable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
S2216 WARNING	`Input Buffer Tag Memory SBE detected. %1$` **Explanation** A correctable error was detected in the switch chip. It is automatically corrected by hardware. ● [[Inserted string]]%1$: Supplementary code for the error **Solution** If the same message reappears after restarting, note the message contents and contact your XG700 sales representative.
S2217 WARNING	`Too Many Input Queue Tag Memory SBE Errors. LOG Disabled.` **Explanation** A correctable error was detected repeatedly in the switch chip. Logging for this event is disabled. **Solution** Note the message contents and contact your XG700 sales representative.
S2218 WARNING	`MAC address learning failed.` **Explanation** Failed to learn the MAC address. **Solution** Delete the unused static MAC address. Additionally, since MAC addresses are managed with a hash, a message saying an address cannot be registered may be displayed even the number of the address was less than the number of it can be registered. If the message is displayed with the static MAC address in an unregistered state, note the message contents and contact your XG700 sales representative.
P2300 INFO	`Tx on stopped device. port %1$` **Explanation** The port was in stopped state and transmission suppressed. ● [[Inserted string]]%1$: Port number **Solution** If the message is displayed with the port not being in shutdown state, note the message contents and contact your XG700 sales representative.
P2301 INFO	`Tx while transmitter busy. port %1$` **Explanation** The port was in stopped state and transmission suppressed. ● [[Inserted string]]%1$: Port number **Solution** If the message is displayed with the port not being in shutdown state, note the message contents and contact your XG700 sales representative.
P2302 INFO	`Failed to transmit packet. port %1$` **Explanation** Failed to transmit packet due to congestion on the transmission line. ● [[Inserted string]]%1$: Port number **Solution** If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
P2303 INFO	`Rx Storm to CPU. port %1$` **Explanation** A large number of control packets is flowing over the network. ● [[Inserted string]]%1$: Number assigned to the port receiving a frame **Solution** Review the settings of the network configuration and the internetworking devices.
P2304 INFO	`Rx Drop. port %1$` **Explanation** Since a large number of control packets is flowing over the network, a normal control packet may be dropped. ● [[Inserted string]]%1$: Port number **Solution** Review the settings of all 10Gb ports (including the one displayed in the message), network configuration for the management LAN interface and the internetworking devices.

Message ID Severity	Message/Explanation/Solution
P2305 INFO	`ACL Violation. port %1$, MAC %2$` **Explanation** Received a packet from an unregistered device (MAC address) when Port Security was enabled. ● [[Inserted string]]%1$: Port number ● [[Inserted string]]%2$: MAC address **Solution** Isolate unregistered device or register the MAC address and then reset security violation.
P2306 INFO	`ACL Violation. port %1$` **Explanation** Received a packet from an unregistered device (MAC address) when Port Security was enabled. ● [[Inserted string]]%1$: Port number **Solution** Isolate unregistered device or register the MAC address and then reset security violation.

A.2.4   npm (Network Protocol Control: 3000-3299)

Message ID Severity	Message/Explanation/Solution
S3001 INFO	`Cold Start or Warm Start.` **Explanation** The system has been turned on.
S3002 INFO	`Link down %1$. (%2$)` **Explanation** Port status has changed from a link up to a link down. ● [[Inserted string]]%1$: Information on port whose status changed to a link down. ● [[Inserted string]]%2$: Cause of link down. For details, refer to "Link Status Detail" in the "show interface" command.
S3003 INFO	`Link up %1$.` **Explanation** Port status has changed to a link up. [[Inserted string]]%1$: Information on port whose status changed to a link up.
S3004 WARNING	`%1$ detected storm drop.` **Explanation** Broadcast storm was detected. ● [[Inserted string]]%1$: Information on port that dropped broadcast frames. **Solution** There may be loop topology in the network. Review the network connections.
S3005 WARNING	`%1$ detected port security violation.` **Explanation** A violating packet was detected with Port Security. ● [[Inserted string]]%1$: Information on the port that detected the violating packet. **Solution** Investigate the cause of receiving violating packets.
S3006 WARNING	`%1$ detected loopback alert.` **Explanation** A packet loop was detected. ● [[Inserted string]]%1$: Information on the port that detected the loop. **Solution** There may be loop topology in the network. Review the network connections. Loopback alert is detected when a destination MAC address of a received frame has been registered with the MAC address table where the receiving port is registered as a destination. So loopback alert can be detected even if there is no loop in the network.
P3007 WARNING	`Flow control was changed to 'only-receive' accompanied by supporting 15KB frame.` **Explanation** Since the jumbo frame size was changed to a value over 15KB, the setting for flow control was changed to "only-receive". **Solution** If you do not want to set the flow control to "only-receive", the jumbo frame size must be less than 15KB long.

Message IDSeverity	Message/Explanation/Solution
P3008 WARNING	`Only 'only-receive' is permitted for flow control when 15KB frame is supported. %1$` **Explanation** If the jumbo frame size is over 15KB, the setting for flow control is restricted to "only-receive" only. ● [[Inserted string]]%1$: Port information **Solution** If you do not want to set the flow control to "only-receive", the jumbo frame size must be less than 15KB long.
P3009 INFO	`%1$ has been attached to %2$.` **Explanation** The physical port was attached to link aggregation. ● [[Inserted string]]%1$: Physical port information ● [[Inserted string]]%2$: Aggregation group information
P3010 INFO	`%1$ has been detached.` **Explanation** The physical port was detached from link aggregation. [[Inserted string]]%1$: Information on physical port detached
P3011 INFO	`%1$ link status details change %2$.` **Explanation** The link status of the port has changed. ● [[Inserted string]]%1$: Port information ● [[Inserted string]]%2$: New status of the port
P3012 INFO	`%1$ state is changed to %2$.` **Explanation** The STP port state was changed. ● [[Inserted string]]%1$: Port information ● [[Inserted string]]%2$: New state of the STP port
P3013 INFO	`Change ingress-bandwidth %1$ %2$` **Explanation** Changed the value set in "ingress-bandwidth". ● [[Inserted string]]%1$: Port information ● [[Inserted string]]%2$: New value of "ingress-bandwidth"
P3100 INFO	`%1$ has been created.` **Explanation** Link aggregation was added. ● [[Inserted string]]%1$: Aggregation group information
P3101 INFO	`%1$ has been deleted.` **Explanation** Link aggregation was deleted. ● [[Inserted string]]%1$: Aggregation group information
P3102 INFO	`Initialize LPT setting %1$.` **Explanation** The Link Pass Through setting was initialized. ● [[Inserted string]]%1$: Port information
P3103 INFO	`Released LPT setting %1$ from %2$.` **Explanation** The Link Pass Through setting configured for the port when configuring link aggregation was removed. ● [[Inserted string]]%1$: Information on the removed port (to which link status information is sent) ● [[Inserted string]]%2$: Information on the monitored port that is to be removed.
P3200 INFO	`Learned an IGMP multicast router automatically. vlan-%1$ agg-port %2$` **Explanation** IGMP snooping learned a multicast router. ● [[Inserted string]]%1$: VLAN ID ● [[Inserted string]]%2$: Learned aggregation group information
P3201 INFO	`Learned an IGMP multicast router automatically. vlan-%1$ port %2$` **Explanation** IGMP snooping learned a multicast router.
S3202 WARNING	`Received IGMP packet without IP header.` **Explanation** Received a frame whose size is smaller that that of the IP header. **Solution** Investigate the cause of faulty frames being sent to the XG700.

Message IDSeverity	Message/Explanation/Solution
S3203 WARNING	`Received IGMP packet with illegal IP version.` **Explanation** Received a frame with an illegal IP header version. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3204 WARNING	`Received IGMP packet with wrong checksum in IP header.` **Explanation** Received a frame with an incorrect IP header's checksum. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3205 WARNING	`Received IGMP packet with wrong checksum in IGMP header.` **Explanation** Received a frame with an incorrect IGMP header's checksum. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3206 WARNING	`Destination IP-address doesn't match with IGMP group address in IGMP report message.` **Explanation** Received a frame containing the destination IP address that does not match the IGMP group address in an IGMP Report message. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3207 WARNING	`Received illegal IGMP packet.` **Explanation** Received a frame of an undefined IGMP type. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3208 WARNING	`Bad destination IP-address in IGMP leave message.` **Explanation** Received a frame containing a wrong destination address in an IGMP Leave message. **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3209 WARNING	`Received invalid multicast group address in IGMP packet. group address(%1$) from(%2$)` **Explanation** Received a frame containing a non-multicast group address in an IGMP Report message. ● [[Inserted string]]%1$: IP group address ● [[Inserted string]]%2$: Source IP address **Solution** Investigate the cause of faulty frames being sent to the XG700.
S3210 WARNING	`Cannot register group address more than max-group($1$) per VLAN(%2$) by IGMP snooping.` **Explanation** Since the number of group addresses that can be registered using IGMP Snooping has reached the upper limit specified in the "max-group", no more group addresses can be registered. ● [[Inserted string]]%1$: The maximum number of groups that can be registered using the relevant VLAN ● [[Inserted string]]%2$: VLAN ID **Solution** Increase the maximum number of groups using the "ip snooping vlan max-group" command.
P3211 INFO	`IGMP snooping has added multicast group address. group(%1$) vlan-%2$ agg-port %3$` **Explanation** IGMP snooping has added a multicast group MAC address. ● [[Inserted string]]%1$: Registered IP group address ● [[Inserted string]]%2$: Registered VLAN ID ● [[Inserted string]]%3$: Learned aggregation group information
P3212 INFO	`IGMP snooping has added multicast group address. group(%1$) vlan-%2$ port %3$` **Explanation** IGMP snooping has added a multicast group MAC address. ● [[Inserted string]]%1$: Registered IP group address ● [[Inserted string]]%2$: Registered VLAN ID ● [[Inserted string]]%3$: Registered port number

Message IDSeverity	Message/Explanation/Solution
P3213 INFO	`IGMP snooping has added multicast group address of mrouter. group(%1$) vlan-%2$ agg-port %3$` **Explanation** IGMP snooping has added a multicast group MAC address to a multicast router port. ● [[Inserted string]]%1$: Registered IP group address ● [[Inserted string]]%2$: Registered VLAN ID ● [[Inserted string]]%3$: Aggregation group number assigned to registered multicast route
P3214 INFO	`IGMP snooping has added multicast group address of mrouter. group(%1$) vlan-%2$ port %3$` **Explanation** IGMP snooping has added a multicast group MAC address to a multicast router port. ● [[Inserted string]]%1$: Registered IP group address ● [[Inserted string]]%2$: Registered VLAN ID ● [[Inserted string]]%3$: Port number assigned to registered multicast route
P3215 INFO	`IGMP snooping has deleted multicast group address. group(%1$) vlan-%2$ agg-port %3$` **Explanation** IGMP snooping has deleted a multicast group MAC address. ● [[Inserted string]]%1$: Deleted IP group address ● [[Inserted string]]%2$: Deleted VLAN ID ● [[Inserted string]]%3$: Deleted aggregation group number
P3216 INFO	`IGMP snooping has deleted multicast group address. Group(%1$) vlan-%2$ port %3$` **Explanation** IGMP snooping has deleted a multicast group MAC address. ● [[Inserted string]]%1$: Deleted IP group address ● [[Inserted string]]%2$: Deleted VLAN ID ● [[Inserted string]]%3$: Deleted group number
P3217 INFO	`IGMP snooping has deleted multicast group address of mrouter. group(%1$) vlan-%2$ agg-port %3$` **Explanation** IGMP snooping has deleted a multicast group MAC address of a multicast router's port. ● [[Inserted string]]%1$: Deleted IP group address ● [[Inserted string]]%2$: Deleted VLAN ID ● [[Inserted string]]%3$: Aggregation group number assigned to deleted multicast router
P3218 INFO	`IGMP snooping has deleted multicast group address of mrouter. group(%1$) vlan-%2$ port %3$` **Explanation** IGMP snooping has deleted a multicast group MAC address of a multicast router's port. ● [[Inserted string]]%1$: Deleted IP group address ● [[Inserted string]]%2$: Deleted VLAN ID ● [[Inserted string]]%3$: Port number assigned to deleted multicast router
S3219 WARNING	`Cannot register group address more than %1$ per system by IGMP snooping. vlan($2$)` **Explanation** Since the number of group addresses that can be registered using IGMP Snooping has reached the upper limit, no more group addresses can be registered. ● [[Inserted string]]%1$: The maximum number of groups that can be registered for the entire switch ● [[Inserted string]]%2$: Failed VLAN registration **Solution** Review the registered multicast group addresses using the "show bridge mac-address-table" command to delete unnecessary multicast address.

A.2.5 clim (Basic CLI Control: 3300-3999)

Message IDSeverity	Message/Explanation/Solution
P3300 INFO	`cmd-exec[startup]: %1$` **Explanation** The command in the startup-config was executed. ● [[Inserted string]]%1$: Command string executed in the startup-config.
P3301 INFO	`cmd-result[startup]: success` **Explanation** The command in the startup-config was successfully completed.
P3302 INFO	`cmd-result[startup]: error` **Explanation** The command in the startup-config was failed.

Message IDSeverity	Message/Explanation/Solution
P3303 INFO	`startup-config start.` **Explanation** Starts startup-config processing.
P3304 INFO	`startup-config end.` **Explanation** Startup-config processing was successfully completed.
P3305 INFO	`Line has connected. line-ID=%1$` **Explanation** Telnet terminal was connected. ● [[Inserted string]]%1$: Terminal ID
P3306 INFO	`startup-config end(none).` **Explanation** startup-config was not found.
P3307 INFO	`startup-config end(error).` **Explanation** Startup-config processing was failed.
P3308 INFO	`cmd-result[startup]: skip` **Explanation** Since the attempt to execute the previous command in startup-config resulted in an error, execution of the next execution was skipped.
P3309 INFO	`Line has disconnected. line-ID=%1$` **Explanation** Telnet terminal was disconnected. ● [[Inserted string]]%1$: Terminal ID
P3310 WARNING	`Cannot find host %1$.` **Explanation** Failed to find an IP address form the host name specified with the "log send" command. ● [[Inserted string]]%1$: Host name specified with the "log send" command **Solution** Review the host name defined. Check that the DNS has been configured for the XG700.

A.2.6 xgsh (CLI Command History: 4000-4499)

Message IDSeverity	Message/Explanation/Solution
P4001 INFO	`cmd-exec[%1$]: %2$` **Explanation** The command was executed. ● [[Inserted string]]%1$: Terminal ID ● [[Inserted string]]%1$: Command string to be executed
P4002 INFO	`cmd-result[%1$]: success` **Explanation** The command was successfully completed. ● [[Inserted string]]%1$: Terminal ID
P4003 INFO	`cmd-result[%1$]: error` **Explanation** The command was failed. ● [[Inserted string]]%1$: Terminal ID

A.2.7 rstp (Rapid Spanning Tree Control: 4500-4999)

Message IDSeverity	Message/Explanation/Solution
S4501 WARNING	`Root bridge changed.` **Explanation** The root bridge has changed.
S4502 WARNING	`Topology changed.` **Explanation** The topology has changed.

Message ID Severity	Message/Explanation/Solution
S4503 WARNING	`Received BPDU on PortFast enable port. shutting down %1$.` **Explanation** A BPDU was received on a Port Fast-enabled port. ● [[Inserted string]]%1$: Name of the port that received the BPDU **Solution** Review the connection port.
P4504 WARNING	`Invalid "Forward delay time" relationship 2*(%1$ - 1) >= %2$.` **Explanation** The setting of STP Forward Delay is invalid. ● [[Inserted string]]%1$: Forward Delay value you attempted to change ● [[Inserted string]]%2$: The current Max Age value **Solution** Check that the setting of Forward Delay satisfies the following condition. 2 x ((Forward Delay) - 1) ≥ (Max Age)
P4505 WARNING	`Invalid "Max age" relationship 2*(%1$ - 1) >= %2$.` **Explanation** The setting of STP Max Age is invalid. ● [[Inserted string]]%1$: The current Forward Delay value ● [[Inserted string]]%2$: The Max Age value you attempted to change **Solution** Check that the setting of Max Age satisfies the following condition. 2 x ((Forward Delay) - 1) ≥ (Max Age)
S4507 WARNING	`Invalid BPDU received on %1$, Bridge becoming root.` **Explanation** The reception of an invalid BPDU triggered a topology change, which caused the XG700 to become a root switch. ● [[Inserted string]]%1$: Name of the port that received the BPDU **Solution** Review the network environment for the port to be connected.
P4508 WARNING	`Invalid "Max age" relationship 2*(%1$ + 1) <= %2$.` **Explanation** The setting of STP Max Age is invalid. ● [[Inserted string]]%1$: The current Hello Time value ● [[Inserted string]]%2$: The Max Age value you attempted to change **Solution** Check that the setting of Max Age satisfies the following condition. Max Age ≥ 2 x (Hello Time + 1)
P4509 WARNING	`Invalid "Hello time" relationship 2*(%1$ + 1) <= %2$.` **Explanation** The setting of Hello Time is invalid. ● [[Inserted string]]%1$: Hello Time value you attempted to change ● [[Inserted string]]%2$: The current Max Age value **Solution** Check that the setting of Max Age satisfies the following condition. Max Age ≥ 2 x (Hello Time + 1)

A.2.8 lacp (LACP Control: 5000-5499)

Message ID Severity	Message/Explanation/Solution
P5001 WARNING	`%1$ detects loopback packet.` **Explanation** Ports being the members of the same link aggregation were connected. ● [[Inserted string]]%1$: Port information **Solution** Review the connection of ports being members of the link aggregation.

A.2.9 sys (Maintenance Support Function: 7400-7499)

Message ID Severity	Message/Explanation/Solution
P7400 INFO	Dump configuration succeeded. **Explanation** Maintenance support function was successfully initialized.
S7401 ERROR	Dump configuration error occurred. **Explanation** An error has occurred during initialization of maintenance support function. **Solution** Note the message contents and contact your XG700 sales representative.
S7402 ERROR	Dump configuration set up error occurred. **Explanation** An error has occurred during initialization of maintenance support function. **Solution** Note the message contents and contact your XG700 sales representative.
S7410 WARNING	Could not save a system-dump file. **Explanation** An error has occurred while storing system dump. **Solution** Note the message contents and contact your XG700 sales representative.
S7411 ERROR	Could not execute system-dump. **Explanation** An error has occurred while storing system dump. **Solution** Note the message contents and contact your XG700 sales representative.
S7490 CRITICAL	A system-dump has been saved. Cause: critical system error occurred. **Explanation** An error has occurred while storing system dump. **Solution** "Obtain maintenance information using the "tftp put-maintanace" command and then take a note of the message content before contacting the XG700 sales representative.
S7491 CRITICAL	A system-dump has been saved. Cause: dump switch was pressed. **Explanation** As the Dump switch was pressed, the system dump was saved. **Solution** "Obtain maintenance information using the "tftp put-maintanace" command and then take a note of the message content before contacting the XG700 sales representative.
S7492 CRITICAL	A system-dump has been saved. Cause: machine check occurred (memory or bus data error). **Explanation** An XG700 machine check error has occurred and a system dump saved. **Solution** "Obtain maintenance information using the "tftp put-maintanace " command and then take a note of the message content before contacting the XG700 sales representative.
S7493 CRITICAL	A system-dump has been saved. Cause: machine check occurred (bus timeout). **Explanation** An XG700 machine check error has occurred and a system dump saved. **Solution** "Obtain maintenance information using the "tftp put-maintanace " command and then take a note of the message content before contacting the XG700 sales representative.
S7494 CRITICAL	A system-dump has been saved. Cause: machine check occurred (memory or bus data error, bus timeout). **Explanation** An XG700 machine check error has occurred and a system dump saved. **Solution** "Obtain maintenance information using the "tftp put-maintanace " command and then take a note of the message content before contacting the XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
S7495 CRITICAL	`A system-dump has been saved. Cause: machine check occurred.` **Explanation** An XG700 machine check error has occurred and a system dump saved. **Solution** "Obtain maintenance information using the "tftp put-maintanace " command and then take a note of the message content before contacting the XG700 sales representative.

A.2.10   update (Firmware Update: 7500-7999)

Message IDSeverity	Message/Explanation/Solution
S7500 INFO	`init-firmup: New firmware '%1$' is running.` **Explanation** New updated firmware was run. ● [[Inserted string]]%1$: Firmware version information
S7501 INFO	`init-firmup: Firmware '%1$' is running.` **Explanation** Firmware after Firmware Change was run. ● [[Inserted string]]%1$: Firmware version information
S7520 WARNING	`init-firmup: Booting new firmware failed. Old firmware '%1$' is now running.` **Explanation** Old firmware was run because new updated firmware was not successfully run. ● [[Inserted string]]%1$: Firmware version information **Solution** Reattempt the update process to boot the new updated firmware. If the message is displayed repeatedly, contact your XG700 sales representative.
S7521 WARNING	`init-firmup: Firmware update information is initialized for region %1$.` **Explanation** The firmware information was initialized. ● [[Inserted string]]%1$: Firmware number **Solution** No action is required if this message appears in Step 2 of "Restoring Factory Defaults". If the message is displayed every time the system is booted, contact your XG700 sales representative.
S7530 CRITICAL	`init-firmup: Internal error occurred (inconsistency in firmware update information).` **Explanation** An error has occurred while processing firmware updating information. ● [[Inserted string]]%1$: Firmware version information **Solution** Note the message contents and contact your XG700 sales representative.
S7531 CRITICAL	`init-firmup: Internal error occurred (SRAM access error).` **Explanation** An error has occurred while processing firmware updating information. **Solution** Note the message contents and contact your XG700 sales representative.
S7532 CRITICAL	`init-firmup: Internal error occurred (FlashROM access error).` **Explanation** An error has occurred while processing firmware updating information. **Solution** Note the message contents and contact your XG700 sales representative.
S7533 CRITICAL	`init-firmup: Internal error occurred (SRAM data error: invalid boot parameter).` **Explanation** An error has occurred while processing firmware updating information. **Solution** Note the message contents and contact your XG700 sales representative.
S7599 CRITICAL	`init-firmup: Internal error occurred (unknown).` **Explanation** An error has occurred while processing firmware updating information. **Solution** Note the message contents and contact your XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
P7600 INFO	`firm-update: succeeded (%1$).` **Explanation** Firmware updating has successfully completed. ● [[Inserted string]]%1$: Firmware version information
P7601 INFO	`firm-update: succeeded (%1$), boot loader updated (%2$).` **Explanation** Firmware updating has successfully completed. ● [[Inserted string]]%1$: Firmware version information ● [[Inserted string]]%2$: Boot loader version information
S7620 ERROR	`firm-update: failed (reading file error).` **Explanation** An error has occurred while updating firmware (failed to read the specified file). **Solution** Check whether the specified file is readable.
S7621 CRITICAL	`firm-update: failed (reading FlashROM error: boot loader).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7622 CRITICAL	`firm-update: failed (writing to FlashROM error: boot loader).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7623 CRITICAL	`firm-update: failed (verification error: boot loader).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7624 ERROR	`firm-update: failed (writing to FlashROM error: kernel).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7625 ERROR	`firm-update: failed (verification error: kernel).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7626 ERROR	`firm-update: failed (writing to FlashROM error: rootfs).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.

Message IDSeverity	Message/Explanation/Solution
S7627 ERROR	`firm-update: failed (verification error: rootfs).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7628 ERROR	`firm-update: failed (writing to FlashROM error: EL).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7629 CRITICAL	`firm-update: failed (SRAM access error).` **Explanation** An error has occurred while updating firmware. **Solution** Reattempt the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7630 CRITICAL	`firm-update: failed (SRAM data error: invalid firmware update information).` **Explanation** An error has occurred while updating firmware. **Solution** Restart the XG700 using the "reset" command before reattempting the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7631 CRITICAL	`firm-update: failed (SRAM data error: invalid boot parameter).` **Explanation** An error has occurred while updating firmware. **Solution** Restart the XG700 using the "reset" command before reattempting the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7632 CRITICAL	`firm-update: failed (SRAM data error: no boot command).` **Explanation** An error has occurred while updating firmware. **Solution** Restart the XG700 using the "reset" command before reattempting the update process. If the message is displayed repeatedly, note the message contents and contact your XG700 sales representative.
S7699 CRITICAL	`firm-update: failed (unknown error).` **Explanation** An error has occurred while updating firmware. **Solution** Note the message contents and contact your XG700 sales representative.

A.2.11　snmp (SNMP Control: 8500-8599)

Message IDSeverity	Message/Explanation/Solution
S8500 INFO	`SNMP authentication failure.` **Explanation** An authentication error has occurred when a connect request is being sent from an SNMP manager. **Solution** Review the setting on permission to access SNMP via a SNMP manager using the "snmp access" command.

Message ID Severity	Message/Explanation/Solution

S8501 INFO	`RMON alarm by rising-threshold.`
	` index:%1$ OID:%2$ sample:%3$ value:%4$ rising-threshold:%5$`
	
	Explanation
	The current sampled value was greater than the upper threshold defined by the "RMON alarm" command, and a trap for the corresponding RMON event was generated.
	● [[Inserted string]]%1$: RMON alarm index
	● [[Inserted string]]%2$: OID of MIB object to be monitored
	● [[Inserted string]]%3$: Method of determining threshold
	   1: An absolute value is used when determining threshold (absolute)
	   2: A difference between the previous and current values is used when determining threshold (delta)
	● [[Inserted string]]%4$: Value of MIB object to be monitored
	● [[Inserted string]]%5$: Upper threshold of MIB object to be monitored

S8502 INFO	`RMON alarm by falling-threshold.`
	` index:%1$ OID:%2$ sample:%3$ value:%4$ falling-threshold:%5$`
	
	Explanation
	The current sampled value was less than the lower threshold defined by the "RMON alarm" command, and a trap for the corresponding RMON event was generated.
	● [[Inserted string]]%1$: RMON alarm index
	● [[Inserted string]]%2$: OID of MIB object to be monitored
	● [[Inserted string]]%3$: Method of determining threshold
	   1: An absolute value is used when determining threshold (absolute)
	   2: A difference between the previous and current values is used when determining threshold (delta)
	● [[Inserted string]]%4$: Value of MIB object to be monitored
	● [[Inserted string]]%5$: Lower threshold of MIB object to be monitored

P8510 WARNING	`Cannot find host %1$.` **Explanation** Failed to find an IP address from the host name specified with the "snmp-server trap" command. ● [[Inserted string]]%1$: Host name specified with the "snmp-server trap" command **Solution** Review the host name defined. Check that the DNS has been configured for the XG700.

A.2.12   ntp (NTP Control: 8600-8699)

Message ID Severity	Message/Explanation/Solution
P8601 WARNING	`No server suitable for synchronization found.` **Explanation** Your NTP server is not synchronized. **Solution** Check the NTP server' host name defined by the "ntp-server" command as well as the NTP server operating status.
P8602 INFO	`Time server %1$ offset %2$ sec.` **Explanation** Time synchronization using a NTP server was performed to correct the time. ● [[Inserted string]]%1$: Host name or IP address of the NTP server that corrected the time ● [[Inserted string]]%2$: Corrected time difference in seconds
P8603 WARNING	`Cannot find host %1$.` **Explanation** Failed to find an IP address from the host name specified with the "ntp-server host" command. ● [[Inserted string]]%1$: Host name specified with the "ntp-server host" command **Solution** Review the host name defined. Check that the DNS has been configured for the XG700.
S8691 ERROR	`System Error: %1$` **Explanation** An system error has occurred while NTP time synchronization was in progress. ● [[Inserted string]]%1$: Additional information on the error **Solution** Note the message contents and contact your XG700 sales representative.

A.3 Message Format for Forwarding syslog

The logs output from the XG700 can be forwarded to your syslog server. The XG700 forwards logs in a message format that conforms to the RFC3164 The BSD Syslog Protocol.
The format the XG700 uses to forward a syslog message to the syslog server is shown below.

Format of syslog message in XG700	Description	Format of syslog message in RFC3164	
Priority	Priority string	PRI part	Priority
Time	Time at which the message is generated (MM:DD:HH:MM:SS)	HEADER part	TimeStamp
Host name	Host name of XG700		HostName
Device type	XG	MSG part	Tag
Function type	Abbreviated name for the control that outputs the message.		Content
Severity	Severity of message		
Message ID	The code which uniquely identifies the message		
Message	Message text		

The XG700 appends Priority value at the beginning of the log message stored inside it and inserts Device type value between Host name and Function type before forwarding the message to the specified syslog server.
The Priority value is used to identify the severity and facility of a log message.
It is added according to the following rules.

- Priority must have three, four, or five characters. It starts with an angle bracket "<", followed by a number, which is followed by an angle bracket ">".   Example: <14>
- The number included in the Priority represents the Priority value which is calculated from the Facility code (Facility) and the Severity code (Severity). The Priority value consists of one, two, or three decimal integers.
- The Priority value is calculated by first multiplying the Facility code by 8 and then adding the numerical value of the Severity code.

The Facility code defined in the XG700 is:

Facility code	Type of Facility
1	random user-level messages

The Severity codes defined in the XG700 are:

Severity code	Description of Severity
2	Critical :critical conditions
3	Error :error conditions
4	Warning :warning conditions
6	Informational :informational messages

Appendix B   SNMP Traps

This appendix lists the SNMP traps supported by the XG700.
Standard SNMP Traps

Trap name	RFC	Trap OID
coldStart	3418	1.3.6.1.6.3.1.1.5.1
linkDown	2863	1.3.6.1.6.3.1.1.5.3
linkUp	2863	1.3.6.1.6.3.1.1.5.4
authenticationFailure	3418	1.3.6.1.6.3.1.1.5.5
risingAlarm	2819	1.3.6.1.2.1.16.0.1
fallingAlarm	2819	1.3.6.1.2.1.16.0.2
newRoot	1493	1.3.6.1.2.1.17.0.1
topologyChange	1493	1.3.6.1.2.1.17.0.2

Enterprise-specific traps that are specific to the XG700 report the following information.

Field	OID	Object name
Trap OID	1.3.6.1.4.1.211.1.127.61.102.2.0."message number"	xg700***
Variable list	1.3.6.1.4.1.211.1.127.61.102.2.10.1	xg700TrapLevel
	1.3.6.1.4.1.211.1.127.61.102.2.10.2	xg700TrapMessage

"xg700***" differs from one event to another.

"xg700TrapLevel" indicates the severity of an event. Their severities are defined as listed below.

Severity	Value
Critical	0
Error	1
Warning	2
Info	3

"xg700TrapMessage" indicates a message that relates to an event.
The messages are the same as those for the event logs.

Appendix C   List of MIBs

This appendix lists the MIBs supported by the XG700.
For definition of each object, refer to RFC.
- MIB-II system group (FRC3418)
  iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).system(1)

Item number	Object identifier	SYNTAX
1	sysDescr {system 1}	DisplayString
2	sysObjectID {system 2}	OBJECT IDENTIFIER
3	sysUpTime {system 3}	TimeTicks
4	sysContact {system 4}	DisplayString
5	sysName {system 5}	DisplayString
6	sysLocation {system 6}	DisplayString
7	sysServices {system 7}	INTEGER

- IF MIB (RFC2863)
  iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).interface(2)

Item number	Object identifier	SYNTAX
1	ifNumber {interface 1}	INTEGER32
2	ifTable {interface 2}	NOT-ACCESSIBLE
3	ifEntry {ifTable 1}	NOT-ACCESSIBLE
4	ifIndex {ifEntry 1}	InterfaceIndex
5	ifDescr {ifEntry 2}	DisplayString
6	ifType {ifEntry 3}	IANAifType
7	ifMtu {ifEntry 4}	INTEGER32
8	ifSpeed {ifEntry 5}	Gauge32
9	ifPhysAddress {ifEntry 6}	PhysAddress
10	ifAdminStatus {ifEntry 7}	INTEGER
11	ifOperStatus {ifEntry 8}	INTEGER
12	ifLastChange {ifEntry 9}	TimeTicks
13	ifInOctets {ifEntry 10}	Counter32
14	ifInUcastPkts {ifEntry 11}	Counter32
15	ifInNUcastPkts {ifEntry 12}	Counter32
16	ifInDiscards {ifEntry 13}	Counter32
17	ifInErrors {ifEntry 14}	Counter32
18	ifInUnknownProtos {ifEntry 15}	Counter32
19	ifOutOctets {ifEntry 16}	Counter32
20	ifOutUcastPkts {ifEntry 17}	Counter32
21	ifOutNUcastPkts {ifEntry 18}	Counter32
22	ifOutDiscards {ifEntry 19}	Counter32
23	ifOutErrors {ifEntry 20}	Counter32
24	ifOutQLen {ifEntry 21}	Gauge32

Item number	Object identifier	SYNTAX
25	ifSpecific {ifEntry 22}	OBJECT IDENTIFIER

● Ether-like MIB (RFC2665)
 iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).transmission(10)

Item number	Object identifier	SYNTAX
1	dot3StatsTable {dot3 2}	NOT-ACCESSIBLE
2	dot3StatsEntry {dot3StatsTable 1}	NOT-ACCESSIBLE
3	dot3StatsIndex {dot3StatsEntry 1}	InterfaceIndex
4	dot3StatsAlignmentErrors {dot3StatsEntry 2}	Counter32
5	dot3StatsFCSErrors {dot3StatsEntry 3}	Counter32
6	dot3StatsSingleCollisionFrames {dot3StatsEntry 4}	Counter32
7	dot3StatsMultipleCollisionFrames {dot3StatsEntry 5}	Counter32
8	dot3StatsSQETestErrors {dot3StatsEntry 6}	Counter32
9	dot3StatsDeferredTransmissions {dot3StatsEntry 7}	Counter32
10	dot3StatsLateCollisions {dot3StatsEntry 8}	Counter32
11	dot3StatsExcessiveCollisions {dot3StatsEntry 9}	Counter32
12	dot3StatsInternalMacTransmitErrors {dot3StatsEntry 10}	Counter32
13	dot3StatsCarrierSenseErrors {dot3StatsEntry 11}	Counter32
14	dot3StatsFrameTooLongs {dot3StatsEntry 13}	Counter32
15	dot3StatsInternalMacReceiveErrors {dot3StatsEntry 16}	Counter32
16	dot3StatsEtherChipSet {dot3StatsEntry 17}	OBJECT IDENTIFIER
17	dot3StatsSymbolErrors {dot3StatsEntry 18}	Counter32
18	dot3StatsDuplexStatus {dot3StatsEntry 19}	INTEGER
19	dot3ControlTable {dot3 9}	NOT-ACCESSIBLE
20	dot3ControlEntry {dot3ControlTable 1}	NOT-ACCESSIBLE
21	dot3ControlFunctionsSupported {dot3ControlEntry 1}	BITS
22	dot3ControlInUnknownOpcodes {dot3ControlEntry 2}	Counter32
23	dot3PauseTable {dot3 10}	NOT-ACCESSIBLE
24	dot3PauseEntry {dot3PauseTable 1}	NOT-ACCESSIBLE
25	dot3PauseAdminMode {dot3PauseEntry 1}	INTEGER
26	dot3PauseOperMode {dot3PauseEntry 2}	INTEGER
27	dot3InPauseFrames {dot3PauseEntry 3}	Counter32
28	dot3OutPauseFrames {dot3PauseEntry 4}	Counter32

● MIB-II snmp group (RFC1213)
 iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).snmp(11)

Item number	Object identifier	SYNTAX
1	snmpInPkts {snmp 1}	Counter32
2	snmpOutPkts {snmp 2}	Counter32
3	snmpInBadVersions {snmp 3}	Counter32
4	snmpInBadCommunityNames {snmp 4}	Counter32

Item number	Object identifier	SYNTAX
5	snmpInBadCommunityUses {snmp 5}	Counter32
6	snmpInASNParseErrs {snmp 6}	Counter32
7	snmpInTooBigs {snmp 8}	Counter32
8	snmpInNoSuchNames {snmp 9}	Counter32
9	snmpInBadValues {snmp 10}	Counter32
10	snmpInReadOnlys {snmp 11}	Counter32
11	snmpInGenErrs {snmp 12}	Counter32
12	snmpInTotalReqVars {snmp 13}	Counter32
13	snmpInTotalSetVars {snmp 14}	Counter32
14	snmpInGetRequests {snmp 15}	Counter32
15	snmpInGetNexts {snmp 16}	Counter32
16	snmpInSetRequests {snmp 17}	Counter32
17	snmpInGetSolutions {snmp 18}	Counter32
18	snmpInTraps {snmp 19}	Counter32
19	snmpOutTooBigs {snmp 20}	Counter32
20	snmpOutNoSuchNames {snmp 21}	Counter32
21	snmpOutBadValues {snmp 22}	Counter32
22	snmpOutGenErrs {snmp 24}	Counter32
23	snmpOutGetRequests {snmp 25}	Counter32
24	snmpOutGetNexts {snmp 26}	Counter32
25	snmpOutSetRequests {snmp 27}	Counter32
26	snmpOutGetSolutions {snmp 28}	Counter32
27	snmpOutTraps {snmp 29}	Counter32
28	snmpEnableAuthenTraps {snmp 30}	INTEGER
29	snmpSilentDrops {snmp 31}	Counter32
30	snmpProxyDrops {snmp 32}	Counter32

● RMON MIB(statistics group) (RFC2819)
　iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).rmon(16).statistics(1)

Item number	Object identifier	SYNTAX
1	etherStatsTable {statistics 1}	NOT-ACCESSIBLE
2	etherStatsEntry {etherStatsTable 1}	NOT-ACCESSIBLE
3	etherStatsIndex {etherStatsEntry 1}	Integer32
4	etherStatsDataSource {etherStatsEntry 2}	OBJECT IDENTIFIER
5	etherStatsDropEvents {etherStatsEntry 3}	Counter32
6	etherStatsOctets {etherStatsEntry 4}	Counter32
7	etherStatsPkts {etherStatsEntry 5}	Counter32
8	etherStatsBroadcastPkts {etherStatsEntry 6}	Counter32
9	etherStatsMulticastPkts {etherStatsEntry 7}	Counter32

Item number	Object identifier	SYNTAX
10	etherStatsCRCAlignErrors {etherStatsEntry 8}	Counter32
11	etherStatsUndersizePkts {etherStatsEntry 9}	Counter32
12	etherStatsOversizePkts {etherStatsEntry 10}	Counter32
13	etherStatsFragments {etherStatsEntry 11}	Counter32
14	etherStatsJabbers {etherStatsEntry 12}	Counter32
15	etherStatsCollisions {etherStatsEntry 13}	Counter32
16	etherStatsPkts64Octets {etherStatsEntry 14}	Counter32
17	etherStatsPkts65to127Octets {etherStatsEntry 15}	Counter32
18	etherStatsPkts128to255Octets {etherStatsEntry 16}	Counter32
19	etherStatsPkts256to511Octets {etherStatsEntry 17}	Counter32
20	etherStatsPkts512to1023Octets {etherStatsEntry 18}	Counter32
21	etherStatsPkts1024to1518Octets {etherStatsEntry 19}	Counter32
22	etherStatsOwner {etherStatsEntry 20}	OwnerString
23	etherStatsStatus {etherStatsEntry 21}	EntryStatus

● RMON MIB (history group) (RFC2819)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).rmon(16).history(2)

Item number	Object identifier	SYNTAX
1	historyControlTable {history 1}	NOT-ACCESSIBLE
2	historyControlEntry {historyControlTable 1}	NOT-ACCESSIBLE
3	historyControlIndex {historyControlEntry 1}	Integer32
4	historyControlDataSource {historyControlEntry 2}	OBJECT IDENTIFIER
5	historyControlBucketsRequested {historyControlEntry 3}	Integer32
6	historyControlBucketsGranted {historyControlEntry 4}	Integer32
7	historyControlInterval {historyControlEntry 5}	Integer32
8	historyControlOwner {historyControlEntry 6}	OwnerString
9	historyControlStatus {historyControlEntry 7}	EntryStatus
10	etherHistoryTable {history 2}	NOT-ACCESSIBLE
11	etherHistoryEntry {etherHistoryTable 1}	NOT-ACCESSIBLE
12	etherHistoryIndex {etherHistoryEntry 1}	Integer32
13	etherHistorySampleIndex {etherHistoryEntry 2}	Integer32
14	etherHistoryIntervalStart {etherHistoryEntry 3}	TimeTicks
15	etherHistoryDropEvents {etherHistoryEntry 4}	Counter32
16	etherHistoryOctets {etherHistoryEntry 5}	Counter32
17	etherHistoryPkts {etherHistoryEntry 6}	Counter32
18	etherHistoryBroadcastPkts {etherHistoryEntry 7}	Counter32
19	etherHistoryMulticastPkts {etherHistoryEntry 8}	Counter32
20	etherHistoryCRCAlignErrors {etherHistoryEntry 9}	Counter32
21	etherHistoryUndersizePkts {etherHistoryEntry 10}	Counter32

Item number	Object identifier	SYNTAX
22	etherHistoryOversizePts {etherHistoryEntry 11}	Counter32
23	etherHistoryFragments {etherHistoryEntry 12}	Counter32
24	etherHistoryJabbers {etherHistoryEntry 13}	Counter32
25	etherHistoryCollisions {etherHistoryEntry 14}	Counter32
26	etherHistoryUtilization {etherHistoryEntry 15}	Integer32

● RMON MIB (alarm group) (RFC2819)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).rmon(16).alarm(3)

Item number	Object identifier	SYNTAX
1	alarmTable {alarm 1}	NOT-ACCESSIBLE
2	alarmEntry {alarmTable 1}	NOT-ACCESSIBLE
3	alarmIndex {alarmEntry 1}	Integer32
4	alarmInterval {alarmEntry 2}	Integer32
5	alarmVariable {alarmEntry 3}	OBJECT IDENTIFIER
6	alarmSampleType {alarmEntry 4}	INTEGER
7	alarmValue {alarmEntry 5}	Integer32
8	alarmStartupAlarm {alarmEntry 6}	INTEGER
9	alarmRisingThreshold {alarmEntry 7}	Integer32
10	alarmFallingThreshold {alarmEntry 8}	Integer32
11	alarmRisingEventIndex {alarmEntry 9}	Integer32
12	alarmFallingEventIndex {alarmEntry 10}	Integer32
13	alarmOwner {alarmEntry 11}	OwnerString
14	alarmStatus {alarmEntry 12}	EntryStatus

● RMON MIB (event group) (RFC2819)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).rmon(16).event(9)

Item number	Object identifier	SYNTAX
1	eventTable {event 1}	NOT-ACCESSIBLE
2	eventEntry {eventTable 1}	NOT-ACCESSIBLE
3	eventIndex {eventEntry 1}	Integer32
4	eventDescription {eventEntry 2}	DisplayString
5	eventType {eventEntry 3}	INTEGER
6	eventCommunity {eventEntry 4}	OCTET STRING
7	evenvLastTimeSent {eventEntry 5}	TimeTicks
8	eventOwner {eventEntry 6}	OwnerString
9	eventStatus {eventEntry 7}	EntryStatus
10	logTable {event 2}	NOT-ACCESSIBLE
11	logEntry {logTable 1}	NOT-ACCESSIBLE
12	logEventIndex {logEntry 1}	Integer32
13	logIndex {logEntry 2}	Integer32
14	logTime {logEntry 3}	TimeTicks

Item number	Object identifier	SYNTAX
15	logDescription {logEntry 4}	DisplaySting

● Bridge MIB (RFC1493)
  iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).dot1dBridge (17)

Item number	Object identifier	SYNTAX
1	dot1dBase {dot1dBridge 1}	NOT-ACCESSIBLE
2	dot1dBaseBridgeAddress {dot1dBase 1}	MacAddress
3	dot1dBaseNumPorts {dot1dBase 2}	INTEGER
4	dot1dBaseType {dot1dBase 3}	INTEGER
5	dot1dBasePortTable {dot1dBase 4}	NOT-ACCESSIBLE
6	dot1dBasePortEntry {dot1dBasaPortTable 1}	NOT-ACCESSIBLE
7	dot1dBasePort {dot1dBasePortEntry 1}	INTEGER
8	dot1dBasePortIfIndex {dot1dBasePortEntry 2}	INTEGER
9	dot1dBasePortCircuit {dot1dBasePortEntry 3}	OBJECT IDENTIFIER
10	dot1dBasePortDelayExceededDiscards {dot1dBasePortEntry 4}	Counter32
11	dot1dBasePortMtuExceededDiscards {dot1dBasePortEntry 5}	Counter32
12	dot1dStp {dot1dBridge 2}	NOT-ACCESSIBLE
13	dot1dStpProtocolSpecification {dot1dStp 1}	INTEGER
14	dot1dStpPriority {dot1dStp 2}	INTEGER
15	dot1dStpTimeSinceTopologyChange {dot1dStp 3}	TimeTicks
16	dot1dStpTopChanges {dot1dStp 4}	Counter
17	dot1dStpDesignatedRoot {dot1dStp 5}	BridgeID
18	dot1dStpRootCost {dot1dStp 6}	INTEGER
19	dot1dStpRootPort {dot1dStp 7}	INTEGER
20	dot1dStpMaxAge {dot1dStp 8}	Timeout
21	dot1dStpHelloTime {dot1dStp 9}	Timeout
22	dot1dStpHoldTime {dot1dStp 10}	INTEGER
23	dot1dStpForwardDelay {dot1dStp 11}	Timeout
24	dot1dStpBridgeMaxAge {dot1dStp 12}	Timeout
25	dot1dStpBridgeHelloTime {dot1dStp 13}	Timeout
26	dot1dStpBridgeForwardDelay {dot1dStp 14}	Timeout
27	dot1dStpPortTable {dot1dStp 15}	NOT-ACCESSIBLE
28	dot1dStpPortEntry {dot1dStpPortTable 1}	NOT-ACCESSIBLE
29	dot1dStpPort {dot1dStpPortEntry 1}	INTEGER
30	dot1dStpPortPriority {dot1dStpPortEntry 2}	INTEGER
31	dot1dStpPortState {dot1dStpPortEntry 3}	INTEGER
32	dot1dStpPortEnable {dot1dStpPortEntry 4}	INTEGER
33	dot1dStpPortPathCost {dot1dStpPortEntry 5}	INTEGER
34	dot1dStpPortDesignatedRoot {dot1dStpPortEntry 6}	BridgeId

Item number	Object identifier	SYNTAX
35	dot1dStpPortDesignatedCost {dot1dStpPortEntry 7}	INTEGER
36	dot1dStpPortDesignatedBridge {dot1dStpPortEntry 8}	BridgeId
37	dot1dStpPortDesignatedPort {dot1dStpPortEntry 9}	OCTET STRING
38	dot1dStpPortForwardTransitions {dot1dStpPortEntry 10}	Counter
39	dot1dTp {dot1dBridge 4}	NOT-ACCESSIBLE
40	dot1dTpLearnedEntryDiscards {dot1dTp 1}	Counter
41	dot1dTpAgingTime {dot1dTp 2}	INTEGER
42	dot1dTpPortTable {dot1dTp 4}	NOT-ACCESSIBLE
43	dot1dTpPortEntry {dot1dTpPortTable 1}	NOT-ACCESSIBLE
44	dot1dTpPort {dot1dTpPortEntry 1}	INTEGER
45	dot1dTpPortMaxInfo {dot1dTpPortEntry 2}	INTEGER
46	dot1dTpPortInFrames {dot1dTpPortEntry 3}	Counter
47	dot1dTpPortOutFrames {dot1dTpPortEntry 4}	Counter
48	dot1dTpPortInDiscards {dot1dTpPortEntry 5}	Counter
49	dot1dTpHCPortTable {dot1dTp 5}	NOT-ACCESSIBLE
50	dot1dTpHCPortEntry {dot1dTpHCPortTable 1}	NOT-ACCESSIBLE
51	dot1dTpHCPortInFrames {dot1dTpHCPortEntry 1}	Counter64
52	dot1dTpHCPortOutFrames {dot1dTpHCPortEntry 2}	Counter64
53	dot1dTpHCPortInDiscards {dot1dTpHCPortEntry 3}	Counter64
54	dot1dTpPortOverflowTable {dot1dTp 6}	NOT-ACCESSIBLE
55	dot1dTpPortOverflowEntry {dot1dTpPortOverflowTable 1}	NOT-ACCESSIBLE
56	dot1dTpPortInOverflowFrames {dot1dTpPortOverflowEntry 1}	Counter32
57	dot1dTpPortOutOverflowFrames {dot1dTpPortOverflowEntry 2}	Counter32
58	dot1dTpPortInOverflowDiscards {dot1dTpPortOverflowEntry 3}	Counter32

● P-Bridge MIB (RFC2674)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).dot1dBridge(17).pBridgeMIB(6)

Item number	Object identifier	SYNTAX
1	pBridgeMIBObjects {pBridgeMIB 1}	NOT-ACCESSIBLE
2	dot1dExtBase {pBridgeMIBObjects 1}	NOT-ACCESSIBLE
3	dot1dDeviceCapabilities {dot1dExtBase 1}	BITS
4	dot1dTrafficClassesEnabled {dot1dExtBase 2}	TruthValue
5	dot1dPortCapabilitiesTable {dot1dExtBase 4}	NOT-ACCESSIBLE
6	dot1dPortCapabilitiesEntry {dot1dPortCapabilitiesTable 1}	NOT-ACCESSIBLE
7	dot1dPortCapabilities {dot1dPortCapabilitiesEntry 1}	BITS
8	dot1dPriority {pBridgeMIBObjects 2}	NOT-ACCESSIBLE
9	dot1dPortPriorityTable {dot1dPriority 1}	NOT-ACCESSIBLE
10	dot1dPortPriorityEntry {dot1dPortPriorityTable 1}	NOT-ACCESSIBLE
11	dot1dPortDefaultUserPriority {dot1dPortPriorityEntry 1}	INTEGER

Item number	Object identifier	SYNTAX
12	dot1dPortNumTrafficClasses {dot1dPortPriorityEntry 2}	INTEGER
13	dot1dTrafficClassTable {dot1dPriority 3}	NOT-ACCESSIBLE
14	dot1dTrafficClassEntry {dot1dTrafficClassTable 1}	NOT-ACCESSIBLE
15	dot1dTrafficClassPriority {dot1dTrafficClassEntry 1}	INTEGER
16	dot1dTrafficClass {dot1dTrafficClassEntry 12}	INTEGER

● Q-Bridge MIB (RFC2674)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).dot1dBridge(17).QBridgeMIB(7)

Item number	Object identifier	SYNTAX
1	qBridgeMIBObjects {qBridgeMIB 1}	NOT-ACCESSIBLE
2	dot1qBase {qBridgeMIBObjects 1}	NOT-ACCESSIBLE
3	dot1qVlanVersionNumber {dot1qBase 1}	INTEGER
4	dot1qMaxVlanId {dot1qBase 2}	VlanId
5	dot1qMaxSupportedVlans {dot1qBase 3}	Unsigned32
6	dot1qNumVlans {dot1qBase 4}	Unsigned32
7	dot1qGvrpStatus {dot1qBase 5}	EnabledStatus
8	dot1qVlan {qBridgeMIBObjects 4}	NOT-ACCESSIBLE
9	dot1qVlanNumDeletes {dot1qVlan 1}	Counter32
10	dot1qVlanCurrentTable {dot1qVlan 2}	NOT-ACCESSIBLE
11	dot1qVlanCurrentEntry {dot1qVlanCurrentTable 1}	NOT-ACCESSIBLE
12	dot1qVlanTimeMark {dot1qVlanCurrentEntry 1}	TimeFilter
13	dot1qVlanIndex {dot1qVlanCurrentEntry 2}	VlanIndex
14	dot1qVlanFdbId {dot1qVlanCurrentEntry 3}	Unsigned32
15	dot1qVlanCurrentEgressPorts {dot1qVlanCurrentEntry 4}	PortList
16	dot1qVlanCurrentUntaggedPorts {dot1qVlanCurrentEntry 5}	PortList
17	dot1qVlanStatus {dot1qVlanCurrentEntry 6}	INTEGER
18	dot1qVlanCreationTime {dot1qVlanCurrentEntry 7}	TimeTicks
19	dot1qVlanStaticTable {dot1qVlan 3}	NOT-ACCESSIBLE
20	dot1qVlanStaticEntry {dot1qVlanStaticTable 1}	NOT-ACCESSIBLE
21	dot1qVlanStaticName {dot1qVlanStaticEntry 1}	SnmpAdminString
22	dot1qVlanStaticEgressPorts {dot1qVlanStaticEntry 2}	PortList
23	dot1qVlanForbiddenEgressPorts {dot1qVlanStaticEntry 3}	PortList
24	dot1qVlanStaticUntaggedPorts {dot1qVlanStaticEntry 4}	PortList
25	dot1qVlanStaticRowStatus {dot1qVlanStaticEntry 5}	RowStatus
26	dot1qNextFreeLocalVlanIndex {dot1qVlan 4}	INTEGER
27	dot1qPortVlanTable {dot1qVlan 5}	NOT-ACCESSIBLE
28	dot1qPortVlanEntry {dot1qPortVlanTable 1}	NOT-ACCESSIBLE
29	dot1qPvid {dot1qPortVlanEntry 1}	VlanIndex
30	dot1qPortAcceptableFrameTypes {dot1qPortVlanEntry 2}	INTEGER

Item number	Object identifier	SYNTAX
31	dot1qPortIngressFiltering {dot1qPortVlanEntry 3}	TruthValue
32	dot1qPortGvrpStatus {dot1qPortVlanEntry 4}	EnabledStatus
33	dot1qPortGvrpFailedRegistrations {dot1qPortVlanEntry 5}	Counter32
34	dot1qPortGvrpLastPduOrigin {dot1qPortVlanEntry 6}	MacAddress

● IF MIB (RFC2863)
  iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1). ifMIB (31)

Item number	Object identifier	SYNTAX
1	ifMIBObjects {ifMIB 1}	NOT-ACCESSIBLE
2	ifXTable {ifMIBObjects 1}	NOT-ACCESSIBLE
3	ifXEntry {ifXTable 1}	NOT-ACCESSIBLE
4	ifName {ifXEntry 1}	DisplayString
5	ifInMulticastPkts {ifXEntry 2}	Counter32
6	ifInBroadcastPkts {ifXEntry 3}	Counter32
7	ifOutMulticastPkts {ifXEntry 4}	Counter32
8	ifOutBroadcastPkts {ifXEntry 5}	Counter32
9	ifHCInOctets {ifXEntry 6}	Counter64
10	ifHCInUcastPkt {ifXEntry 7}	Counter64
11	ifHCInMulticastPkts {ifXEntry 8}	Counter64
12	ifHCInBroadcastPkts {ifXEntry 9}	Counter64
13	ifHCOutOctets {ifXEntry 10}	Counter64
14	ifHCOutUcastPkts {ifXEntry 11}	Counter64
15	ifHCOutMulticastPkts {ifXEntry 12}	Counter64
16	ifHCOutBroadcastPkts {ifXEntry 13}	Counter64
17	ifLinkUpDownTrapEnable {ifXEntry 14}	INTEGER
18	ifHighSpeed {ifXEntry 15}	Gauge32
19	ifPromiscuousMode {ifXEntry 16}	TruthValue
20	ifConnectorPresent {ifXEntry 17}	TruthValue
21	ifAlias {ifXEntry 18}	DisplayString
22	ifCounterDiscontinuityTime {ifXEntry 19}	TimeTicks

● FUJITSU-XG700-MIB
iso(1).org(3).dod(6)internet(1).private(4).enterprises(1).fujitsu(211).
Product(1).nonos(127).xg-switch(61).xg700(102)

Item number	Object identifier	SYNTAX	Description
1	xg700Monitor {xg700 1}	NOT-ACCESSIBLE	Object identifier of monitor information specific to the XG700.
2	xg700InternalTemperature {xg700Monitor 1}	Integer32	Indicates the temperature inside the chassis (in degree Celsius).
3	xg700InletTemperature {xg700Monitor 2}	Integer32	Indicates the temperature of the inlet (in degree Celsius).
4	xg700LoadAverage {xg700Monitor 3}	Integer32	Indicates the CPU usage (in %).
5	xg700Event {xg700 2}	NOT-ACCESSIBLE	Object identifier of trap information specific to the XG700.
6	xg700Traps {xg700Event 0}	NOT-ACCESSIBLE	Object identifier of trap information specific to the XG700.
7	xg700*** {xg700Traps X}	NOT-ACCESSIBLE	Object identifier of message information trap. "xg700***" differs from one event to another. "X" indicates the message number to be reported.
8	xg700TrapInfo {xg700Event 10}	NOT-ACCESSIBLE	Object identifier of additional information on message information trap.
9	xg700TrapLevel {xg700TrapInfo 1}	Integer32	Specifies the severity of message. critical(0) error(1) warning(2) info(3)
10	xg700TrapMessage {xg700TrapInfo 2}	DisplayString	Displays message text when sending a trap.

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