

ETERNUS

ETERNUSmgr

User Guide

-Introduction-

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Preface

This guide discusses procedures and safeguards relating to the use of ETERNUSmgr to configure ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000, GR series devices, as well as details of how to conduct maintenance on, display the status of, and monitor these devices. This document is specifically written for ETERNUSmgr administrators and operators. Knowledge of UNIX, Linux or Windows® system administration and Web server administration are required by this document.

August 2007

Structure of this Manual

This guide consists of the following 6 chapters.

- Chapter 1 About ETERNUSmgr

This chapter explains the functions of ETERNUSmgr, its structure, and what other software is required to operate it.

- Chapter 2 Setup

This chapter explains how to configure ETERNUSmgr and additionally explains how to monitor multiple machines with ETERNUSmgr.

- Chapter 3 Startup and Shutdown

This chapter discusses how to startup and shutdown ETERNUSmgr.

- Chapter 4 Control Interfaces (Top Menu)

This chapter explains the screens used by ETERNUSmgr.

- Chapter 5 Cautions

This chapter explains important points to keep in mind when using ETERNUSmgr.

- Chapter 6 Messages

This chapter explains the various messages displayed when setting up and using ETERNUSmgr.

Related Material

The following are related materials:

- ETERNUS2000 ETERNUSmgr User Guide -Settings/Maintenance- for models 100 and 200
- ETERNUS3000 ETERNUSmgr User Guide -Settings/Maintenance- for model 50
- ETERNUS3000 ETERNUSmgr User Guide -Settings/Maintenance- for models 80, 100, 200, 300, 400, 500, 600, and 700
- ETERNUS6000 ETERNUSmgr User Guide -Settings/Maintenance-
- ETERNUS8000, ETERNUS4000 ETERNUSmgr User Guide -Settings/Maintenance-
- ETERNUS4000 models 80 and 100 ETERNUSmgr User Guide -Settings/Maintenance-
- ETERNUS GR740, GR820, GR840 GRmgr User Guide -Settings/Maintenance-
- ETERNUS GR710 GRmgr User Guide -Settings/Maintenance-
- ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide for Solaris™ Operating System
- ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide for Windows®
- ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide for Linux
- ETERNUS2000 storage system User Guide for models 100 and 200
- ETERNUS3000 storage system User Guide for model 50
- ETERNUS3000 storage system User Guide for model 80
- ETERNUS3000 storage system User Guide for model 100
- ETERNUS3000 storage system User Guide for models 200, 400, and 600
- ETERNUS3000 storage system User Guide for models 300, 500, and 700
- ETERNUS6000 storage system User Guide
- ETERNUS8000 storage system User Guide for models 700, 900, 1100, and 2100
- ETERNUS4000 storage system User Guide for models 300 and 500
- ETERNUS4000 storage system User Guide for model 100
- ETERNUS4000 storage system User Guide for model 80

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Abbreviations

The following products will be represented throughout this manual in the following abbreviations.

- Microsoft® Windows® 2000 Server operating system, Microsoft® Windows® 2000 Advanced Server operating system, and Microsoft® Windows® 2000 Datacenter Server operating system are abbreviated as Windows® 2000.
- Microsoft® Windows Server® 2003, Standard Edition, and Microsoft® Windows Server® 2003, Enterprise Edition are abbreviated as Windows Server® 2003.
- Microsoft® Windows Server® 2003 R2, Standard Edition, and Microsoft® Windows Server® 2003 R2, Enterprise Edition are abbreviated as Windows Server® 2003 R2.
- Windows® refers to all of the Windows products listed here: Windows® 2000, Windows Server® 2003, and Windows Server® 2003 R2.
- Solaris™ Operating System is abbreviated as Solaris OS.

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Chapter 1

About ETERNUSmgr

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The ETERNUSmgr provides functions for administrators to manage the ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000, and GR series storage systems (hereafter, storage system). There are two parts that support the management facilities, the ETERNUSmgr frontend and ETERNUSmgr backend programs. The ETERNUSmgr frontend is installed in a Managing (or Management) Server to provide specific functions across one or more storage systems. The ETERNUSmgr backend programs are part of the firmware within each of the storage systems, which are used to display the status and perform settings and maintenance of each respective storage system.

This guide explains the installation and operation of the ETERNUSmgr frontend.

The ETERNUSmgr frontend provides three specific optional functions: 1) a portal for access to each of several storage systems, 2) customer e-mail notification of events, and 3) event and log recording and display. The ETERNUSmgr firmware on each storage system can provide SNMP Traps. A central monitoring system is required. However, if the customer has a central monitoring system, which fields SNMP Traps (For example SOFTEK Storage Cruiser), and does not need to directly receive e-mail notification of events, then the ETERNUSmgr frontend and the Management Server are not necessary. When service actions are necessary, direct logon to the specific storage system, using the Web browser, can be used to access the ETERNUSmgr backend programs. When events occur in a storage system, REMCS (REMOte Customer Support system) e-mail services provide notice to the Fujitsu Global Support Center, which in turn can notify the customer.

1.1 ETERNUSmgr Outline

ETERNUSmgr can be installed on any server (hereafter referred to as "ETERNUSmgr server") with a Windows® 2000, Windows Server® 2003, Windows Server® 2003 R2, Solaris OS, or Linux operating system installed.

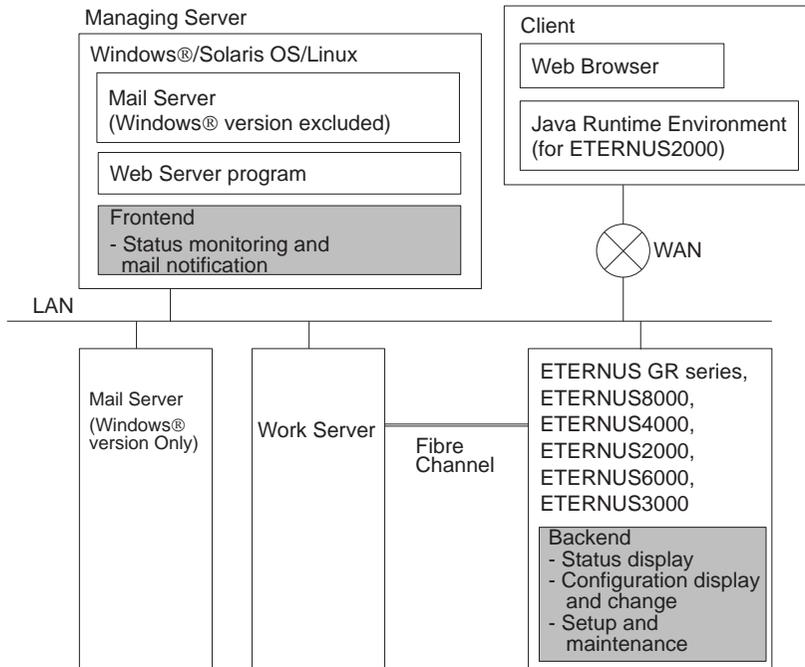
The ETERNUSmgr server connects to the target devices through a Local Area Network (LAN).

An administrator can determine the state of the target devices or perform maintenance procedures from any computer with a Web browser installed.

Administrators can be notified by E-mail of the details of hardware failures detected by ETERNUSmgr. It is possible to disable mail notification in ETERNUSmgr.

The illustration below shows a sample connection setup for the ETERNUSmgr.

ETERNUSmgr System Configuration



The ETERNUSmgr server and work server may be collocated on the same physical server.
 The management server must be running when ETERNUSmgr is used to perform maintenance tasks.

■ Network Requirements

When setting up the firewall between the server, client, and target device, the following port numbers must be set to allow the subsequent transmission to pass the firewall.

● Client communication

Communication target	Port No./Protocol	Communication direction	Function
Managing Server	80/tcp (*1)	Client → Managing Server	Display top menu Display alarm history files
Target Device (ETERNUS2000)	80/tcp or 443/tcp	Client → Target Device	Display device configuration Setup and maintenance
Target Device (Other than ETERNUS2000)	80/tcp (*2)	Client → Target Device	Display device configuration Setup and maintenance

*1: Depends on Web Server program settings

*2: Port number can be changed for ETERNUS8000, ETERNUS4000 models 300, 500, and 700

● Managing Server communication

Communication target	Port No./Protocol	Communication direction	Function
Target Device (ETERNUS2000)	80/tcp	Managing Server → Target Device	Device monitoring
Target Device (Other than ETERNUS2000)	80/tcp (*1)	Managing Server → Target Device	Device monitoring
Mail Server (Windows version only)	25/tcp (*2)	Managing Server → Mail Server	Mail notification

*1: Port number can be changed for ETERNUS8000, ETERNUS4000 models 300, 500, and 700

*2: Default value (port number can be changed depending on the mail server program)

Set firewall as necessary when E-mails are to be relayed between servers.

1.2 ETERNUSmgr Functions

ETERNUSmgr provides the following three functions.

- Target Device Configuration Browser
- Target Device Monitoring and Failure Notification
- Target Device Setup and Maintenance

■ Target Device Configuration Browser

This displays the hardware structure of the target devices.

■ Target Device Monitoring and Failure Notification

Target device failure is monitored for. When a failure occurs, a history of the fault is saved as an HTML file (called an "alarm history file" from here on), and the administrator is notified by E-mail of the file's location and content. As the alarm history file is kept for a fixed period of time, the administrator can browse the failure history later, as time permits.

The error monitoring function records the enclosure number where the error occurred. The error monitoring function can detect only the error location in terms of drive enclosures, controller enclosures, and battery enclosures, not detailed error location such as hard disk, CPU, etc. To obtain detailed location once an error is detected, please use ETERNUSmgr's [Device Status Display] window (the window in which the entire device is displayed).

Specifically, when an error has been detected, the red warning lamp for an enclosure (Drive Enclosure, Controller Enclosure, Battery Enclosure) on the [Device Status Display] window is activated. For details on the [Device Status Display] window, see "ETERNUSmgr User Guide -Settings/Maintenance-".

The extent to which a device can be monitored depends on its model number. Components that can be monitored for each type of target device are shown in the following list.

List of components that can be monitored for each target device

Component	Device model		
	GR710	GR720, GR730	GR740, GR820, GR840
Controller enclosure	Yes	Yes	Yes
Drive enclosure	No	Yes	Yes
Battery enclosure	No	No	No
FC cable	No	Yes	Yes
RCI cable	No	Yes	Yes
DEI cable	No	No	No
PANEL	No	No	No
Battery unit	No	No	No
Battery charger unit	No	No	No

Component	Device model					
	ETERNUS3000			ETERNUS2000	ETERNUS4000 models 80 and 100	ETERNUS8000 , ETERNUS4000 , ETERNUS6000
	model 50	models 80 and 100	models 200, 300, 400, 500, 600, and 700			
Controller enclosure	Yes	Yes	Yes	Yes	Yes	Yes
Drive enclosure	No	Yes	Yes	Yes	Yes	Yes
Battery enclosure	No	No	Yes	No (*1)	No	No
FC cable	No	Yes	Yes	No	Yes	Yes
RCI cable	No	Yes	Yes	No	Yes	No
DEI cable	No	No	No	No	No	Yes
PANEL	No	No	No	No	No	Yes
Battery unit	No	No	No	No	No	Yes
Battery charger unit	No	No	No	No	No	Yes

(Yes: Can be monitored, No: Cannot be monitored)

*1: Battery is installed in the controller enclosure

Besides being able to detect a change in a target device's condition from normal to faulty operation and vice-versa, the device monitoring function is also able to detect changes in the type of problem encountered (such as the change from Offline to Alarm).

■ Target Device Setup and Maintenance

This allows the target device to be setup and maintained. This is done by means of the following functions:

- Target Device Settings
- Collecting the Log Information of the Target Device

1.3 Required Software and Hardware

The following software and hardware are necessary for ETERNUSmgr:

See the operation connection configuration diagram "[ETERNUSmgr System Configuration](#)" (page 2).

List of required software and hardware

Hardware	Software	Solaris OS/Linux	Windows
ETERNUSmgr Server	Web server program	Yes/No	Yes/No
	Mail server program	Yes/No	
Mail Server	Mail server program	No	Yes/No
PC	Web browser	Yes	Yes

(Yes: Necessary, Yes/No: Necessary in some cases, No: Not necessary)

■ ETERNUSmgr Server

The following software is also needed on the ETERNUSmgr server.

Use the mail server program included with ETERNUSmgr if the OS is Solaris OS or Linux.

● Web server program

By installing or enabling a Web server program on the ETERNUSmgr Server, user can browse alarm history and ETERNUSmgr portal page linking multiple ETERNUS systems ("[Chapter 4 Control Interfaces \(Top Menu\)](#)" (page 39)). Web server program is not required if neither feature is required.

We do not specify which Web server to use as long as it has the capability to show a list of directory contents, as this is required to list the alarm history files.

● Mail server program (ETERNUSmgr for Solaris OS and Linux)

ETERNUSmgr supports a function to notify administrators of alarms by E-mail. This function requires a mail server program.

ETERNUSmgr for Solaris OS and Linux uses Sendmail, which should come with each OS, and this must be setup on the ETERNUSmgr server.

The mail server is not required if the E-mail notification function is not used.

■ Mail Server (ETERNUSmgr for Windows®)

ETERNUSmgr supports a function to notify administrators of alarms by E-mail. A mail server is necessary to send E-mails.

[Suitable mail servers]

- UNIX server with Sendmail that supports the SMTP protocol (including Linux server)
- Windows® 2000 Server, Windows® 2003 Server, or Windows® 2003 Server R2 that supports the SMTP service (standard feature)

If the ETERNUSmgr server is a Windows® 2000 Server, Windows® 2003 Server, or Windows® 2003 Server R2 that supports the SMTP service (standard feature), then a different mail server is not needed.

The mail server is not required if the E-mail notification function is not used.

■ Client

Device settings and maintenance can be performed from an external client, providing it has a Web browser installed. Java Runtime Environment (JRE) may be necessary for some devices.

● Web browser

The alarm history files from ETERNUSmgr are generated in HTML format. Also, device settings and maintenance are performed using CGI scripts or Java applets, which also require a Web browser. Operation windows used by ETERNUSmgr are supported by the following browsers:

- For ETERNUS GR series, ETERNUS3000 model 50
[Web Browsers]
 - Microsoft® Internet Explorer 5.5 + Service Pack 2 or later
 - Netscape Communicator 4.5 or later
- For ETERNUS2000
[Web Browsers]
 - Microsoft® Internet Explorer 6.0
 - Mozilla Firefox™ 1.5.0.10
- For ETERNUS300 model 80 or higher, ETERNUS4000 models 80 and 100
[Web Browsers]
 - Microsoft® Internet Explorer 6.0 + Service Pack 1 or later
 - Netscape 6.0 or later (Windows® environment)
- For ETERNUS4000 model 300 or higher, ETERNUS8000
[Web Browsers]
 - Microsoft® Internet Explorer 6.0 + Service Pack 2
 - Netscape 6.0 or later (Windows® environment)
- For ETERNUS6000
[Web Browsers]
 - Microsoft® Internet Explorer 6.0 or later
 - Netscape 6.0 or later (Windows® environment)

Caution:

Web browsers older than or other than those shown above may not display the window correctly.

● Java Runtime Environment

Java Runtime Environment must be installed to perform settings and maintenance of the following device.

- For ETERNUS2000
[Required Software]
 - Java Runtime Environment 5.0 Update 11 or later

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Chapter 2

Setup

This chapter explains how to setup ETERNUSmgr.
Setup must be performed with administrator privilege.

2.1 Setup files

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An ETERNUSmgr setup file is used to setup ETERNUSmgr to monitor a target device. The initial setup files are generated automatically in the installation directory when ETERNUSmgr is installed. See the "ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide" of each OS for details of installing ETERNUSmgr.

The parameters in each setup file must be adjusted to match the target device. After making the necessary settings, shutdown and re-start the ETERNUSmgr to enable the new settings. Refer to "[Chapter 3 Startup and Shutdown](#)" ([page 31](#)) for details on starting up and shutting down the system.

It is recommended that you make a backup of the current setup files before making any changes. Keep this backup until you have verified that the new setup files operate normally.

Caution:

You can edit only the setup file parameters described in this guide. Do not delete comments or blank lines from any setup files, and do not add anything other than parameters. Failure to follow these instructions may hinder performance and/or cause problems during future upgrades.

Setup file names must be in the following format:

STX-.INI

If the file name is other than as specified above, ETERNUSmgr will not be able to detect the file.

The only place setup files should be saved is the installation directory. If a setup file is saved in another directory, ETERNUSmgr will not be able to find it.

The following setup file parameters must be set:

- Target Address (See → [page 12](#))
- Target Type (See → [page 13](#))
- Target Flag (See → [page 14](#))
- Alarm History Files Directory (See → [page 17](#))

The setup file parameters required will vary according to the operating system and target device type. The following list shows parameter types in the setup file and setting items for each OS.

Setting Items and Parameters Required by each OS

Setting item	Parameter	Solaris OS and Linux	Windows®
Target Address	TARGET_ADDR	Yes	Yes
	TARGET_PORT	Yes/No	Yes/No
Polling Interval	POLLING_TIME	Yes/No	Yes/No
Admin Mail Address	ADMIN_MAIL	Yes/No (*1)	Yes/No (*1)
Alarm Mailing Interval	MAIL_SEND_TIME	Yes/No (*1)	Yes/No (*1)
Alarm History File Directory	HTML_ALARMFILE_PATH	Yes	Yes
Alarm History Index URL	HTML_ALARMFILE_URL	Yes/No (*1)(*2)	Yes/No (*1)(*2)
Number of Days Alarm History Files are Kept	HTML_ALARMFILE_DAY	Yes/No	Yes/No
Log Files Directory	LOGFILE_PATH	Yes/No	Yes/No
Number of Days Log Files are Kept	LOGFILE_DAY	Yes/No	Yes/No
Output Log Files	LOGFILE_MODE	Yes/No	Yes/No
Target Device	TARGET_TYPE	Yes	Yes
Target Flag	TARGET_FLAG	Yes	Yes
Detect Offline Targets	DETECT_OFFLINE	Yes/No	Yes/No
Mail Server Address	ADMIN_MAILSV	—	Yes/No (*1)(*2)
Mail Server SMTP Port	SMTP_PORT	—	Yes/No (*1)
Sender Mail Address	MAIL_FROM	Yes/No (*4)	Yes/No (*4)
Busy Target Detection Time	BUSY_TIME	Yes/No (*4)	Yes/No (*4)
Alarm Text Files Directory	TEXT_ALARMFILE_NAME	Yes/No (*3)(*4)	Yes/No (*3)(*4)
Number of Days Alarm Text Files are Kept	TEXT_ALARMFILE_DAY	Yes/No (*3)(*4)	Yes/No (*3)(*4)

(Yes: Must be set, Yes/No: Optional (can be omitted), -: No applicable setting)

- *1: If the Admin Mail Address (ADMIN_MAIL) is omitted, the Alarm Mailing Interval (MAIL_SEND_TIME) and the Alarm History Index URL (HTML_ALARMFILE_URL) are ignored even if specified. These are valid only when the Admin Mail Address (ADMIN_MAIL) has been specified. In the Windows® version, in addition to this, the Mail Server Address (ADMIN_MAILSV) and Mail Server SMTP Port (SMTP_PORT) are enabled only when the Admin Mail Address (ADMIN_MAIL) has been specified.
- *2: If the Admin Mail Address (ADMIN_MAIL) has been specified, the Alarm History Index URL (HTML_ALARMFILE_URL) may not be omitted. The Alarm History Index URL (HTML_ALARMFILE_URL) can be omitted only when the Admin Mail Address (ADMIN_MAIL) has been omitted. In the Windows® version, in addition to this, the Mail Server Address (ADMIN_MAILSV) cannot be omitted.
- *3: If the Alarm Text Files Directory (TEXT_ALARMFILE_NAME) is omitted, the Number of Days Alarm Text Files are Kept (TEXT_ALARMFILE_DAY) is ignored. The Number of Days Alarm Text Files are Kept is only enabled when the Alarm Text Files Directory has been specified.
- *4: Alarm Text Files Directory (TEXT_ALARMFILE_NAME), Number of Days Alarm Text Files are Kept (TEXT_ALARMFILE_DAY), the Busy Target Detection Time (BUSY_TIME), and Sender Mail Address (MAIL_FROM) are not described in the initial setup file. Add if necessary.

Device Specific Setup Parameters (differences only)

Setting item	Parameter	Target Type		
		ETERNUS GR710, GR720, GR730, ETERNUS3000	ETERNUS GR740, GR820, GR840, ETERNUS6000	ETERNUS8000, ETERNUS4000, ETERNUS2000
Target Device (may be changed)	TARGET_TYPE	Default setting is "GR710", "GR720", "GR730", or "ETERNUS3000"	Default setting is "GR740", "GR820", "GR840", or "ETERNUS6000"	Default setting is "ETERNUS8000", "ETERNUS4000", or "ETERNUS2000"
Target Flag (can- not be changed)	TARGET_FLAG	Fixed at "1"	Fixed at "2"	Fixed at "4"

2

2.2 Modifying the ETERNUSmgr Setup

This section explains how to change the setup of ETERNUSmgr for Solaris OS, Linux, or Windows®. Use a text editor to modify the setup file. Any text editor can be used as none has been specified.

2.2.1 ETERNUSmgr for Solaris OS and Linux Procedure

This section explains what to do for the Solaris OS and Linux versions of ETERNUSmgr. The procedure shown is for changing the settings that were set during installation. This explanation uses ETERNUSmgr's default installation directory "/opt/FJVSgrmgr/" as an example.

Procedure ►►

- 1 Confirm the contents of the installation directory.
Make sure that the necessary files and directories (stxchk, _STXPOLL.INI, STXPOLL_1.INI, stxpoll, stxpoll.d, www/) have all been installed.

```
# ls /opt/FJVSgrmgr/  
stxchk _STXPOLL.INI STXPOLL_1.INI stxpoll stxpoll.d www/
```

- 2 Edit the STXPOLL_1.INI file.

Vi editor is used here.

```
# vi /opt/FJVSgrmgr/STXPOLL_1.INI
```

When setting up multiple target devices, copy an existing setup file to make the setup easier. For details on how to do this, see ["2.5 Monitoring Multiple Target Devices" \(page 27\)](#).

2.2.2 For Windows®

The following describes how to edit a setup file for ETERNUSmgr for Windows®. The procedure shown is for changing the settings that were set during installation.

Procedure

- 1 Confirm the contents of the installation directory using Explorer, etc.
Make sure the following files and folder have been installed in the installation directory: _stxpoll.ini, STXPOLL.exe, STXPOLL_1.INI, stxpoll.exe, stxsmail.exe, and \www (\www is a folder).
- 2 Edit the STXPOLL_1.INI file.
Edit the STXPOLL_1.INI file using a text editor (Notepad, etc.).

2.3 Setting Items

This section explains the setting items (parameters) in the setup files.

2.3.1 Target Device Settings

This section explains the settings that allow ETERNUSmgr to monitor a target device.

■ Target Address

The target address parameter is used to set the IP address or host name assigned to the target device. The target port number does not need to be changed (the default number is normally used). Target address cannot be omitted. ETERNUSmgr will not start if this parameter has not been set. Specify SVP IP address if the ETERNUS6000 is using SVP.

[Default value]

TARGET_PORT = 80
(TARGET_ADDR must be set. There is no default.)

[Parameter]

TARGET_ADDR (up to 64 characters)
TARGET_PORT (0-65535)

[Example]

TARGET_ADDR=127.0.0.1 or TARGET_ADDR=host-name.domain-name.com
TARGET_PORT=80

Caution:

- As the default port number is normally used, the target port parameter is initially commented out.
- If the target address is changed, the target address must also be changed in the top menu ("menu.htm").

■ Polling Interval

This parameter is used to control polling (periodically checking the status) of a target device. Set the polling interval in units of seconds within the range of 1 ~ 65535.

[Default value]

300

[Parameter]

POLLING_TIME (1-65535)

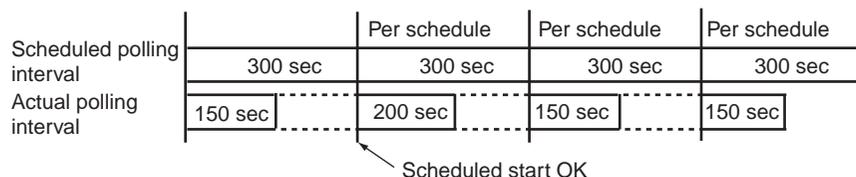
[Example]

POLLING_TIME=300

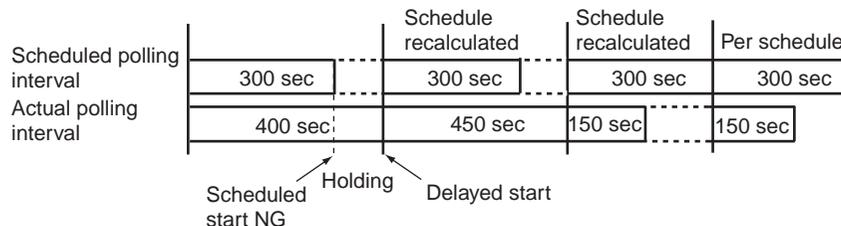
This specifies the Polling Interval (time between the start of one poll to the next).

Due to network or device load the actual polling time may exceed the set time. In such cases, the start of the next polling time is delayed until the previous polling finishes:

When the actual polling finishes within the scheduled polling time:



When the actual polling exceeds the scheduled polling time:



Caution:

Unless there is some special reason to change this parameter, it is recommended to keep the default. For this reason the parameter is initially commented out.

■ Target Type

Sets the target device type. Two parameters are provided: TARGET_TYPE and TARGET_FLAG. These parameters cannot be omitted. ETERNUSmgr will not start if these parameters have not been set.

[Parameter]

TARGET_TYPE (up to 256 characters)

[Example]

Any character string can be used to describe the target device type. When the type of target device is ETERNUS3000:

TARGET_TYPE=ETERNUS3000

Caution:

- Note that even if the TARGET_TYPE and the TARGET_FLAG settings are different, ETERNUSmgr operations are not affected.
- Although any character string can be set in TARGET_TYPE, it is recommended to set one of the correct target device types ("ETERNUS8000", "ETERNUS4000", "ETERNUS2000", "ETERNUS6000", "ETERNUS3000", "GR710", "GR720", "GR730", "GR740", "GR820", or "GR840"). The character string in TARGET_TYPE is used when the administrator is notified by E-mail, and in the alarm history files.

■ Target Flag

Set to either 1, 2 or 4 according to the Target Type being monitored.

[Parameter]

TARGET_FLAG (1, 2 or 4)

1: ETERNUS3000, ETERNUS GR710, GR720, GR730

2: ETERNUS6000, ETERNUS GR740, GR820, GR840

4: ETERNUS8000, ETERNUS4000, ETERNUS2000

[Example]

When the type of target device is ETERNUS3000:

TARGET_FLAG=1

Caution:

- The TARGET_FLAG parameter must be set to the correct Target Type. ETERNUSmgr will be unable to monitor the target device properly if this setting is wrong.
- Note that even if the TARGET_TYPE and the TARGET_FLAG settings are different, ETERNUSmgr operations are not affected.

■ Detect Offline Targets

This parameter determines whether or not notification is sent when a device goes offline.

The "Offline" condition is entered when ETERNUSmgr cannot monitor a target device due to a machine problem (e.g. device is turned off, busy, etc.), or problem with the communication link between the ETERNUSmgr server and the target device (e.g. bad connection, timeouts due to network overload).

If this happens, the ETERNUSmgr Top Menu ("menu.htm") will show the target device status as being "(*Offline*)" in a similar manner to the detection of machine failures, and E-mail notification (if enabled) will be sent.

ETERNUSmgr does not provide for notification of "Offline" status if this parameter is omitted.

This parameter is enabled in its setup file immediately after installation.

Set "TRUE" to detect the offline status.

Omit setting to disable this parameter.

[Parameter]

DETECT_OFFLINE

[Example]

Detect the offline status, set as below:

DETECT_OFFLINE=TRUE

■ Busy Target Detection Time

This parameter is used to set the "target device busy" status detection time. Units are seconds. Depending on what the ETERNUS device is doing, its device status can sometimes temporarily become "busy".

In particular, the device cannot respond while it is booting.

Busy status is temporary, it does not mean device abnormality.

When device busy status is detected, ETERNUSmgr inhibits notification with logs or mails of device abnormality for a set period of time.

When the busy status exceeds that definite period of time, ETERNUSmgr notifies of a device abnormality.

[Default value]

1800 (seconds)

[Parameter]

BUSY_TIME (0-65535)

[Example]

BUSY_TIME=1800

Caution:

This setting is not described in the initial setup file. Add if necessary.

This setting needs not be changed.

2.3.2 E-mail Notification Settings

This section explains how to setup the E-mail notification function. See ["6.3 E-mail Messages" \(page 47\)](#) for the content of E-mail messages provided by this function.

■ Admin Mail Address

This parameter is used to specify an address to which to send the E-mail generated in the event of change in the target device status. Usually this is the address of the target device administrator.

The E-mail notification function is disabled if this parameter is omitted.

[Parameter]

ADMIN_MAIL (up to 64 characters)

[Example]

ADMIN_MAIL=admin@domain-name.com

To set multiple E-mail addresses, use a comma with no spaces between each address.

ADMIN_MAIL=admin1@domain-name.com,admin2@domain-name.com

■ Alarm Mailing Interval

This parameter is used to specify the interval for sending generated E-mail in the event of a failure or abnormality in the machine. Units are seconds.

Set the interval in units of seconds within the range of 1 ~ 65535. Set this parameter only if you wish to send E-mail with timing different from the specified Polling Interval. For example, by setting this parameter, you can set a short Polling Interval and long Alarm Mailing Interval. This will allow any device errors that may have occurred over this interval to be collected and sent together with other E-mail messages.

This parameter is not a required setting. If omitted, the default value will be the same as the Polling Interval.

[Parameter]

MAIL_SEND_TIME (1-65535)

[Example]

MAIL_SEND_TIME=300

This specifies the Alarm Mailing Interval (time between the sending of one notification E-mail message to the next) for sending E-mail.

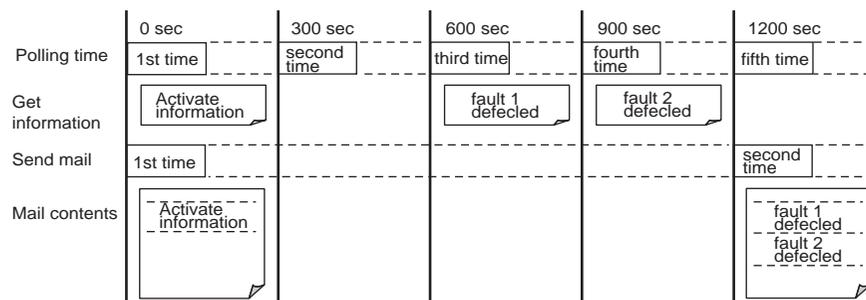
Due to network or device load the time to send the E-mail may exceed the expected time. In such cases, the E-mail sending times are recalculated the same way as for the polling time.

Caution:

Unless there is some special reason to change this parameter, it is recommended to keep the default. For this reason the parameter is initially commented out.

When the Polling Interval and the Alarm Mailing Interval are different:

(Example) Polling Interval: 300 sec. (5 min.) Alarm Mailing Interval: 1200 sec. (20 min.)



■ Mail Server Address (ETERNUSmgr for Windows® only)

This parameter is used to specify the address of the mail server that will receive the E-mail notifications from ETERNUSmgr.

E-mail notification is then routed to the specified Admin Mail Address by the mail server specified here.

[Parameter]

ADMIN_MAILSV

[Example]

When the Mail Server Address is "mailsv.domain-name.com".

ADMIN_MAILSV=mailsv.domain-name.com

■ Mail Server SMTP Port (ETERNUSmgr for Windows® only)

This parameter is used to specify a SMTP port No. for the mail server (ADMIN_MAILSV) when the ETERNUSmgr server is running on Windows®.

[Parameter]

SMTP_PORT (1-65535)

Caution:

- This parameter is initially commented out.
- Normally, the SMTP port is 25. However, if the SMTP port for the mail server is other than 25 for some reason, correct this parameter to match.

■ Sender Mail Address

This parameter is used to change the address from which mail is sent when an error is detected in the storage system.

[Default value]

ETERNUSmgr@HTTP.polling.engine

[Parameter]

MAIL_FROM (Up to 64 characters)

[Example]

To change the sender address to "from@domain-name.co.jp"

MAIL_FROM=from@domain-name.co.jp

Caution:

This parameter is not described in the initial setup file. Add if necessary.

2

2.3.3 Alarm History File Settings

This section explains the alarm history file settings. See "[6.1 Alarm History Messages](#)" (page 45) for details of the alarm history files.

■ Alarm History File Directory

Each time an abnormality is detected in a machine, a copy of the alarm window that details the occurrence of the abnormality is saved as an HTML file. The directory in which these Alarm History Files are saved must be specified as an absolute path.

This is a required parameter. ETERNUSmgr will not start if this parameter has not been set.

The default setting is the "html_1" directory under the "www" Top Menu directory specified during installation (specifically "/opt/FJSVgrmgr/www/html_1/" for the Solaris OS and Linux versions, and "C:\Program Files\FUJITSU\ETERNUSmgr\www\html_1\" for the Windows® version, if the normal installation defaults are accepted.). However, if this is likely to overload the file system, consult with the server administrator and change it to a more suitable directory (e.g. "/var/FJSVgrmgr/www/html_1/" for Solaris OS and Linux, or "D:\ETERNUSmgr\www\html_1\" for Windows®).

[Parameter]

HTML_ALARMFILE_PATH (up to 64 characters)

[Example]

- Changing the Solaris OS and Linux version settings to
"/var/FJSVgrmgr/www/html_1/"

HTML_ALARMFILE_PATH=/var/FJSVgrmgr/www/html_1/

- Changing the Windows® version settings to "D:\ETERNUSmgr\html_1\"

HTML_ALARMFILE_PATH=D:\ETERNUSmgr\html_1\

Caution:

- The alarm history files must be saved in a directory immediately under the directory in which the ETERNUSmgr Top Menu is installed. When changing the location of the alarm history file directory, ensure that all the files (index.htm, menu.htm, fujitsu.gif, eternus.gif) in the parent directory (ETERNUSmgr Top Menu directory) are also moved to the new parent directory. If using multiple setup files, ensure that any modifications are consistently applied to each setup file. Setup the parent directory of the alarm history file directory (i.e. the ETERNUSmgr Top Menu directory) as a public directory on the Web server.
- When monitoring multiple machines, the alarm history files for each should be saved in a different directory (specify different absolute paths in each setup file). Refer to ["2.5 Monitoring Multiple Target Devices" \(page 27\)](#) for details on how to monitor multiple target devices.
- When this parameter is changed, it is also necessary to change the alarm file URL in the top menu file ("menu.htm"). For details on how to make changes to the top menu file, refer to ["2.3.1 Target Device Settings" \(page 12\)](#).
- If the specified Alarm History Files Directory does not exist, it will automatically be created. It is not necessary to create the directory manually.

■ Alarm History Index URL

Specify a URL for HTTP browsing of the Alarm History Files Directory setup in ["Alarm History File Directory" \(page 17\)](#). The administrator is notified of this URL via E-mail, allowing the alarm history files to be checked with a Web browser.

This parameter may not be omitted when the E-mail notification function is used (i.e. ADMIN_MAIL parameter has been set). In this case ETERNUSmgr will not start unless this parameter is set. This parameter may be omitted if the E-mail notification function is not used (i.e. ADMIN_MAIL parameter has not been set).

[Parameter]

HTML_ALARMFILE_URL (up to 64 characters)

[Example]

When the Alarm History Files Directory is accessible as "http://host-name/eternuslog/"

HTML_ALARMFILE_URL= http://host-name/eternuslog/

Caution:

- When monitoring multiple target devices, set a different Alarm History Index URL for each device's Alarm History Files Directory. Refer to ["2.5 Monitoring Multiple Target Devices" \(page 27\)](#) for details on how to monitor multiple target devices.
- "HTML_ALARMFILE_PATH" and "HTML_ALARMFILE_URL" must be linked in the Web server settings.

■ Number of Days Alarm History Files are Kept

This parameter specifies how long the Alarm History files are kept. Setting the number of days to "0" means that the files are not deleted.

[Default value]

7

[Parameter]

HTML_ALARMFILE_DAY (0-65535 days)

[Example]

To store seven full days worth of Alarm History files (current day is not included):

```
HTML_ALARMFILE_DAY=7
```

Caution:

For this parameter, if there is no need for any special setting, it is recommended not to enter any value. This parameter is initially commented out in the default setup file available after installation.

2.3.4 Alarm Text File Settings

Alarm text files are categorized into the following types:

- **Alarm Text Date Files**
On any given day, each alarm history message issued for a target device is also added to that day's alarm text date file. The alarm text date files use a stxgrYYYYMMDD.log naming format (e.g. "stxgr20030101.log").
- **Alarm Text Fixed File**
A copy of the most recent alarm text date file may also be given an arbitrary name.

■ Alarm Text Files Directory

Alarm text files are created when this parameter is set.

If only alarm text date files are required, specify an absolute path to the directory in which the alarm text date files are to be created.

If an alarm text fixed file is also required, specify its name as an absolute path. The alarm text data files will then be created in the same directory as the alarm text fixed file.

[Parameter]

HTML_ALARMFILE_NAME (up to 64 characters)

[Example]

- Only alarm text date files are to be created in "/opt/FJSVgrmgr/txt_1/":

```
TEXT_ALARMFILE_NAME = /opt/FJSVgrmgr/txt_1/
```

- Both the alarm text date files and an alarm text fixed file named "ETERNUSfix.log" are to be created in "/opt/FJSVgrmgr/txt_1/":

```
TEXT_ALARMFILE_NAME = /opt/FJSVgrmgr/txt_1/ETERNUSfix.log
```

Caution:

- When monitoring and generating alarm text files for multiple target devices, set different directories for each device's alarm text files. See ["2.5 Monitoring Multiple Target Devices" \(page 27\)](#) for information on how to monitor multiple target devices.
- If the specified Alarm History Files Directory does not exist, it will automatically be created. It is not necessary to create the directory manually.
- This setting is not included in the default setup file available after installation. Add if necessary.

■ Number of Days Alarm Text Date Files are Kept

This parameter specifies how long the alarm text date files are kept. Setting the number of days to "0" means that the files are not deleted.

[Default value]

7

[Parameter]

TEXT_ALARMFILE_DAY

[Example]

To save seven days worth of alarm text files:

TEXT_ALARMFILE_DAY = 7

Caution:

- This parameter is only enabled if the TEXT_ALARMFILE_NAME parameter has been specified.
- This setting is not included in the default setup file available after installation. Add if necessary.

2.3.5 Log File Settings

Both ETERNUSmgr and the target devices output information relating to operations and errors in the form of log files. ETERNUSmgr log files are saved in text format.

This section explains the ETERNUSmgr log settings. Refer to "ETERNUSmgr User Guide -Settings/Maintenance-" for details on how to collect and view the target device log information.

The following messages are output to the ETERNUSmgr log file. For details on individual log messages, refer to ["6.4 Log Messages" \(page 49\)](#).

- **Startup messages (LOGFILE_MODE=1,2)**
Indicates that ETERNUSmgr has started up.
- **Parameter information (LOGFILE_MODE=1,2)**
Lists the parameters used at startup. Check this section to ensure that ETERNUSmgr is starting up with the correct parameters from the setup files.
- **Polling information (only LOGFILE_MODE=2)**
Messages are output each time the system conducts polling. These outputs are logged even if there are no abnormalities and can be used to check whether the polling operation is working properly or not.
- **Error information (LOGFILE_MODE=1,2)**
Information related to any errors that occur in ETERNUSmgr.

Log files can be viewed with a text editor, etc.

The log files are located in the directory specified by the "LOGFILE_PATH" parameter in the setup file.

The log file names are represented by the character string consisting of "stxpe" + Date + ".log" (e.g. "stxpe20030101.log"), making it easy to find the log file for a specific date.

■ Log Files Directory

This parameter specifies as an absolute path the directory where the log files are to be kept.

The default if there is no setting is the directory from which the execution control script is started for the Solaris OS and Linux version and "C:\WINNT\SYSTEM32\" for the Windows® version.

Initially, immediately after ETERNUSmgr installation, the setup file should contain a parameter that is set to the "log_1" directory under the ETERNUSmgr installation directory specified at installation (specifically, "/opt/FJSVgrmgr/log_1/" for the Solaris OS and Linux versions, and "C:\Program Files\FUJITSU\ETERNUSmgr\log_1" for the Windows® version if the normal installation defaults are accepted). However, if this is likely to overload the file system, consult with the server administrator and change it to a more suitable directory (e.g. "/var/FJSVgrmgr/log_1/" for Solaris OS and Linux, or "D:\ETERNUSmgr\log_1\" for Windows®).

[Parameter]

LOGFILE_PATH (up to 64 characters)

[Example]

- Changing the Solaris OS and Linux version setting to "var/FJSVgrmgr/log_1":

```
LOGFILE_PATH=/var/FJSVgrmgr/log_1/
```

- Changing the Windows® version setting to "D:\ETERNUSmgr\log_1\":

```
LOGFILE_PATH=D:\ETERNUSmgr\log_1\
```

Caution:

- When monitoring multiple target devices, set a different log file directory for each of the different targets.
Refer to ["2.5 Monitoring Multiple Target Devices" \(page 27\)](#) for details on how to monitor multiple target devices.
- If the specified log files directory does not exist, it will automatically be created. The directory does not need to be created manually.

■ Number of Days Log Files are Kept

This parameter specifies how long the log files are kept. Setting the number of days to "0" means that the files are not deleted.

[Default value]

7

[Parameter]

LOGFILE_DAY (0 ~ 65535 days)

[Example]

To store seven days worth of log files

```
LOGFILE_DAY=7
```

Caution:

For this parameter, if there is no need for any special setting, it is recommended not to enter any value. This parameter is commented out in the default setup file available after installation.

■ Output Log File

The output log file setting has the following modes:

- No log output (LOGFILE_MODE=0)
No logs are output.
In the case where a machine frequently has errors and the source of these errors is clear, a large number of similar system log events, none of which require any follow-up, can be generated. In such a case use the "no log" mode to allow the system to run without having to generate the useless log files.
- Output startup and error information (LOGFILE_MODE=1)
This outputs logs only when ETERNUSmgr starts up and in the event of an error. Use this mode when space in the log area is restricted.
- Output all log information (LOGFILE_MODE=2)
This mode outputs all possible log information from the startup of ETERNUSmgr. Regardless of its eventual success or failure, at least one log is generated by each polling event. It is recommended that the system normally be run in this mode.

The output mode is set by modifying the "LOGFILE_MODE" parameter in the setup file ("STX~.INI").

[Default value]

2

[Parameter]

LOGFILE_MODE(0-2)

Caution:

For this parameter, if there is no need for any special setting, it is recommended not to enter any value. This parameter is commented out in the default setup file available after installation.

2.4 Modifying the ETERNUSmgr Top Menu System

The ETERNUSmgr Top Menu files are generated automatically when ETERNUSmgr is installed. See the "ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide" of each OS for details of installing ETERNUSmgr.

The ETERNUSmgr Top Menu is written as a typical HTML file, and can easily be edited using a text editor.

Perform the following procedures if the Web server URL and alias set during the installation or the Top Menu Settings directory need to be changed.

There is no need to copy the files when using the directory specified during the installation as the Top Menu Settings directory. However, in such case, be sure to make a backup copy of the top menu file ("menu.htm") before editing the original.

Caution:

- ETERNUSmgr reads the Top Menu File ("menu.htm") in, and reoutputs it after adding the target device status information to it. Therefore, always stop ETERNUSmgr before making any changes to the base "menu.htm" file.
- The "menu.htm" file must be set to be writable.

2.4.1 Copying/Modifying the Top Menu Files

This section explains how to copy and edit the top menu files.

2.4.1.1 ETERNUSmgr for Solaris OS and Linux Procedure

This section explains what to do for the Solaris OS and Linux versions of ETERNUSmgr. This procedure shows how to change the top menu directory and then edit "menu.htm". If you are not going to change the top menu directory, start from [Step 4](#).

Procedure ►►

- 1 **Confirm the current Top Menu directory (specified during installation).**
Make sure that all the necessary files (fujitsu.gif, index.htm, menu.htm, eternus.gif) have been installed.

```
#ls /(current Top Menu directory)/www/  
fujitsu.gif index.htm menu.htm eternus.gif
```

- 2 **Copy all the Top Menu files to the new Top Menu directory.**

```
#cp /(current Top Menu directory)/www/* /(new Top Menu directory)/
```

- 3 **Confirm the copy results.**

```
# ls /(new Top Menu directory)/  
fujitsu.gif index.htm menu.htm eternus.gif
```

- 4 **Edit the copied Top Menu file.**

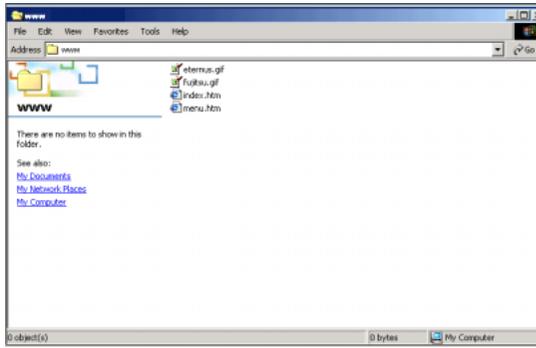
```
# vi /(new Top Menu directory)/menu.htm
```

2.4.1.2 ETERNUSmgr for Windows® Procedure

This section explains what to do for the Windows® versions of ETERNUSmgr. This procedure shows how to change the top menu directory and then edit "menu.htm". If you are not going to change the top menu directory, start from [Step 4](#).

Procedure ►►

- 1 **Check the current Top Menu directory (specified during installation) with Explorer.**
Make sure that all the necessary files (fujitsu.gif, index.htm, menu.htm, eternus.gif) have been installed.



- 2 Copy all the Top Menu files to the new Top Menu directory.
- 3 Confirm the copy results using Explorer.
- 4 Edit the copied Top Menu file. Use a text editor such as Note Pad.

2.4.2 Editing Top Menu file (menu.htm)

Describing how to add a link to the Alarm History files and a matching target device explanation to the Top Menu file.

■ Setting the Link to the Alarm History Files

Following the normal syntax rules for HTML, simply add the link address between the `` quotation marks to complete the setup.

■ Installation Location (Machine Name)

Add the target device name, etc. after ``. The character string may be changed as you like. For example, immediately after installation of ETERNUSmgr to ETERNUS3000 the top menu includes the following line containing links to the target device login.

- ETERNUS2000
`ETERNUS2000 #1`
The above line is for HTTP communication between the client and the target device. Change "http:" to "https:" and ":80" to ":443" to use HTTPS.
- Storage systems other than ETERNUS2000
(Example: ETERNUS3000)
`ETERNUS3000 #1`
The link to "login.htm" noted above displays the login screen for the English version. Change this to login_jp.htm to display the device login screen in Japanese.

See "ETERNUSmgr User Guide -Settings/Maintenance-" for details of machine login.

[Example]

The following example is for monitoring an ETERNUS3000 device.
Change the link in the Top Menu file, and add an explanation of the location.

- Target Address = 000.000.000.000
- Old Alarm History Index URL=http://domain-name/eternus-mgr/html_1/
- New Alarm History Index URL=<http://domain-name/eternus-mgr/alarm/>
Specify the same value of "HTML_ALARMFILE_URL" specified in the setup file (STX~.INI) to the new Alarm History Index URL.

```

<HTML>
  (omission)
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.000:80/login.htm" target="_blank">ETERNUS3000
  #1</a>
</OL>
</TD></TR></TABLE>
<HR>
<H2>Show hardware error detect log list</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://domain-name/eternus-mgr/html_1" target="_blank">ETERNUS3000
  #1</a>
<!-- Status of 000.000.000.000 --><font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
  (omission)
</HTML>

```

↓ Becomes

```

<HTML>
  (omission)
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.000:80/login.htm" target="_blank">ETERNUS3000
  #1</a>
</OL>
</TD></TR></TABLE>
<HR>
<H2>Show hardware error detect log list</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://domain-name/eternus-mgr/alarm/" target="_blank">ETERNUS3000
  #1</a>
<!-- Status of 000.000.000.000 --><font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
  (omission)
</HTML>

```

Caution:

- Bold text indicates the portions that have been changed.
- ETERNUSmgr is able to indicate the current status of each target device in the top menu. This is done using the following line after the link to the Alarm History Files Directory. When the device IP address is changed, also change this line. If status display is not performed, delete this line.

```
<!-- Status of 000.000.000.000 -- <font color="red">(*Offline*)</font>
"The "<font color="red">(*Offline*)</font>" portion of this line is overwritten
by either one of the following.
```

Normal	(Normal)
Offline	(*Offline*)
ATTENTION	(*ATTENTION*)
BUSY	(*BUSY*)

See "[Chapter 4 Control Interfaces \(Top Menu\)](#)" (page 39) for Top Menu details.

2.5 Monitoring Multiple Target Devices

This chapter explains how to monitor multiple target devices by creating new setup files and editing the top menu.

2.5.1 Setup File Cautions

To monitor multiple target devices, a new setup file must be created for each target device that is to be monitored:

The following naming format must be used for the setup files.

Format: STX-.INI

If the file name is other than as specified above, ETERNUSmgr will not be able to detect the file.

The only place setup files should be saved is the installation directory. If a setup file is saved in another directory, ETERNUSmgr will not be able to find it.

The next time the ETERNUSmgr starts, monitoring of the new target devices will start. To begin monitoring immediately, manually reboot ETERNUSmgr.

2.5.2 Creating a Setup File for Each Target Device

For each additional device that is to be monitored, save a renamed copy of the sample setup file (created by the installation procedure in the Installation Directory) and edit the parameters as necessary for the given target.

The following example procedures assume that the setup file for device 1 already exists and just creates a new setup file for device 2.

Caution:

No special text editor is required to edit a setup file.

2.5.2.1 ETERNUSmgr for Solaris OS and Linux

When adding extra machines, it is easiest to just copy and edit an existing setup file.

Procedure

1 Confirm the contents of the installation directory.

Make sure that the necessary files and directories (stxchk, _STXPOLL.INI, STXPOLL_1.INI, stxpoll, stxpoll, www/) have all been installed.

```
# ls /opt/FJSVgrmgr/
stxchk _STXPOLL.INI STXPOLL_1.INI stxpoll stxpoll www/
```

2 Copy an existing setup file.

File name starts with "STX" and ends with ".INI".

```
# cp /opt/FJSVgrmgr/STXPOLL_1.INI /opt/FJSVgrmgr/STXPOLL_2.INI
```

3 Confirm the copy results.

```
# ls /opt/FJSVgrmgr/
stxchk _STXPOLL.INI STXPOLL_1.INI STXPOLL_2.INI stxpoll stxpoll
www/
```

4 Edit the copied file. (The STXPOLL_2.INI file is used here.)

Vi editor is used here.

Refer to ["2.3 Setting Items" \(page 12\)](#) for details of how and which parameters should be changed in the new setup file.

```
# vi /opt/FJSVgrmgr/STXPOLL_2.INI
```

Caution:

"_STXPOLL.INI" is provided as a model file. If you copy this file to make a new setup file, be sure to keep the original file as is.

2.5.2.2 ETERNUSmgr for Windows®

When adding extra machines, it is easiest to just copy and edit an existing setup file.

Procedure

1 Confirm the contents of the installation directory using Explorer, etc.

Make sure the following files and folder have been installed in the installation directory: _stxpoll.ini, STXPOLL.exe, STXPOLL_1.INI, stxpoll.exe, stxsmail.exe, and \www (\www is a folder).

2 Copy an existing setup file.

Example: ***STXPOLL_1.INI***

3 Change the name of the copied file.

Setup file names must start with "STX" and end with ".INI".

Example: ***STXPOLL_2.INI***

4 Edit the copied file. (The STXPOLL_2.INI file is used here.)

Use a text editor such as Note Pad to edit the copied files.

Refer to ["2.3 Setting Items" \(page 12\)](#) for details of how and which parameters should be changed in the new setup file.

Caution:

"_stxpoll.ini" is provided as a model file. If you copy this file to make a new setup file, be sure to keep the original file as is.

2.5.3 Adding the Extra Target Devices to the Top Menu File

When monitoring multiple target devices, edit the Top Menu file as follows.

Note that if the target device is other than ETERNUS2000, each target address must have either "/login.htm" or "/login_jp.htm" added to the end.

The following example uses a configuration with two ETERNUS3000s and one ETERNUS2000 to show how the top menu file should be edited to allow all three devices to be monitored. The top menu file should be edited in the same way when monitoring other devices.

[Example]

- 1st Target Device (ETERNUS3000#1)
Target Address = http://000.000.000.001
Alarm History Files URL = domain-name/eternusmgr/ETERNUS3000_1
- 2nd Target Device (ETERNUS2000#1)
Target Address = http://000.000.000.002
Alarm History Files URL = domain-name/eternusmgr/ETERNUS2000_1
- 3rd Target Device (ETERNUS3000#2)
Target Address = http://000.000.000.003
Alarm History Files URL = domain-name/eternusmgr/ETERNUS3000_2

```
<HTML>
  (omission)
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.001:80/login.htm" target="_blank">ETERNUS3000
  #1</a>
</OL>
</TD></TR></TABLE>
<HR>
<H2>Show hardware error detect log list</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://domain-name/eternusmgr/ETERNUS3000_1" target="_blank">
  ETERNUS3000 #1</a>
<!-- Status of 000.000.000.001 --><font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
  (omission)
</HTML>
```

↓ Becomes

```

<HTML>
(omission)
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.001:80/login.htm" target="_blank">ETERNUS3000
#1</a>
<LI>
<a href="http://000.000.000.002:80/login.htm" target="_blank">ETERNUS2000
#1</a>
<LI>
<a href="http://000.000.000.003:80/login.htm" target="_blank">ETERNUS3000
#2</a>
</OL>
</TD></TR></TABLE>
<HR>
<H2>Show hardware error detect log list</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://domain-name/eternusmgr/ETERNUS3000_1/" target="_blank">
ETERNUS3000 #1</a>
<!-- Status of 000.000.000.001 --><font color="red">(*Offline*)</font>
<a href="http://domain-name/eternusmgr/ETERNUS2000_1/" target="_blank">
ETERNUS2000 #1</a>
<!-- Status of 000.000.000.002 --><font color="red">(*Offline*)</font>
<a href="http://domain-name/eternusmgr/ETERNUS3000_2/" target="_blank">
ETERNUS3000 #2</a>
<!-- Status of 000.000.000.003 --><font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
(omission)
</HTML>

```

Caution:

- Underlined text is displayed on screen.
- Bold text indicates the portions that have been changed.
- ETERNUSmgr is able to indicate the current status of each target device in the top menu. This is done using the lines after link to the Alarm History Files Directory. These lines should not be edited, but may be deleted if target status display is not required.

```
<!-- Status of 000.000.000.000 -- ><font color="red">(*Offline*)</font>
```

The "(*Offline*)" portion is dynamically changed to one of the following by ETERNUSmgr:

Normal	(Normal)
Offline	(*Offline*)
ATTENTION	(*ATTENTION*)
BUSY	(*BUSY*)

See "[Chapter 4 Control Interfaces \(Top Menu\)](#)" (page 39) for Top Menu details.

Chapter 3

Startup and Shutdown

This chapter explains how to startup and shutdown ETERNUSmgr.

3.1 ETERNUSmgr for Solaris OS and Linux

This section explains how to manually startup and shutdown ETERNUSmgr, for Solaris OS and Linux as well as how to set ETERNUSmgr for automatic startup.

3

3.1.1 Starting Up ETERNUSmgr

Perform the following to start ETERNUSmgr for Solaris OS and Linux:

Procedure ►►

- 1 Become the superuser.

```
# su
```

- 2 Execute the execution control script with the start option:

```
# /opt/FJSGrmgr/stxpoll start
```

- 3 Confirm the daemon is running:

```
# ps -e | grep stxpoll
999 ? 0:00 stxpoll
```

After ETERNUSmgr has started up, you need to view the log file to confirm whether or not ETERNUSmgr is in communication with the target device. If using the E-mail notification function, also check that E-mail notification of ETERNUSmgr startup and changes in the target device states is received. ETERNUSmgr startup can be confirmed by:

- Use the ps command to check that the service is activated.
- Checking the log, and making sure that communication with the target device is normal.
- Checking E-mails, and making sure that communication with the target device is normal (if the E-mail notification function is used).

When monitoring multiple target devices, you must check each target device separately. For example, if monitoring three devices, issue the ps command to check that all three devices are activated, and then browse each of the three logs to make sure that communications with all are normal.

The following message appears when you try to startup ETERNUSmgr by the above procedure and ETERNUSmgr is running already. ETERNUSmgr must be shutdown before it can be started up. For instructions on how to shut down ETERNUSmgr, refer to ["3.1.2 Shutting Down ETERNUSmgr" \(page 33\)](#).

```
/opt/FJSGrmgr/stxpoll: Already running.
*** stxpoll could not start. ***
```

As explained in ["2.1 Setup files" \(page 9\)](#) ETERNUSmgr treats any file that conforms to the "STX~.INI" format as a setup file and loads it accordingly. If ETERNUSmgr detects multiple setup files (for multiple devices), it will load all of them.

ETERNUSmgr automatically reads the setup file(s) at startup. If it fails to locate or read any setup files, the following message is displayed and startup is terminated.

```
stxchk: ETERNUSmgr could not start.  
Error detail: No INI file.  
*** stxpoll could not start. ***
```

ETERNUSmgr determines the device that is to be monitored according to the "TARGET_ADDR" parameter specified in the setup file and accesses it accordingly. If a "TARGET_ADDR" parameter is not specified, or if it is incorrect, the following message is displayed and startup is terminated.

```
stxchk: ETERNUSmgr could not start.  
Error detail: Invalid host name was defined at "STXPOLL_1.INI".  
Please check "TARGET_ADDR" parameter in this file.  
  
*** stxpoll could not start. ***
```

Note:

"STXPOLL_1.INI" indicates the name of the setup file in which the error was actually detected.

If ETERNUSmgr detects the "TARGET_ADDR" parameter to be missing, incorrect, or duplicated in multiple setup files, the following message is displayed and startup is terminated.

```
stxchk: ETERNUSmgr could not start.  
Error detail: Invalid host name were defined at following INI files.  
Please check "TARGET_ADDR" parameter in these files.  
  
STXPOLL_1.INI  
STXPOLL_2.INI  
*** stxpoll could not start. ***
```

Note:

"STXPOLL_1.INI" and "STXPOLL_2.INI" indicate the name of the setup files in which the error was actually detected.

If any such messages are displayed on the screen when ETERNUSmgr is starting up, check that a setup file exists and all parameter settings are correct.

In addition, the contents of all the displayed messages are logged in the "stxchk.sts" file stored in the directory in which ETERNUSmgr is installed (this file will be empty if ETERNUSmgr has started up normally).

3.1.2 Shutting Down ETERNUSmgr

Perform the following to shutdown ETERNUSmgr for Solaris OS and Linux:

Procedure ►►

- 1 Become the superuser.
su
- 2 Execute the execution control script with the start option:
/opt/FJSVgrmgr/stxpoll stop
- 3 Confirm the daemon is no longer running:
ps -e | grep stxpoll
(No display)

If you do not have authorization to become the superuser, consult with the server administrator.

3.1.3 Setting the ETERNUSmgr Daemon for Automatic Startup

The example below shows how to register the daemon for a Solaris OS installed server. The daemon registration location and registration method may vary according to the settings of each server (registration location will vary according to the run level in use). Therefore, refer to "1.7 Daemon Registration" in the "ETERNUSmgr Install Guide for Linux" when using Linux operating environments. Consult with the server administrator before registering the daemon.

■ Solaris OE example

Procedure ►►

- 1 Become the superuser.
su
- 2 Copy the execution control script to the /etc/init.d/ directory:
cp /opt/FJSVgrmgr/stxpoll /etc/init.d/
- 3 Create a link to the appropriate rc*.d directory:
ln -s /etc/init.d/stxpoll /etc/rc2.d/S nn stxpoll (nn is a number.)

nn in $Snnstxpoll$ shows the order of priority. Set the priority sequence. Consult with the server administrator before making this setting.

[Example]

```
# ln -s /etc/init.d/stxpoll /etc/rc2.d/S98stxpoll
```

From the next startup of Solaris OS and Linux the ETERNUSmgr daemon will start automatically. Refer to "[3.1.2 Shutting Down ETERNUSmgr](#)" (page 33) for details on how to manually shut down ETERNUSmgr.

Check the log files to see if ETERNUSmgr for Solaris OS and Linux is communicating with the target devices after automatic startup.

3.2 ETERNUSmgr for Windows®

Once installed, ETERNUSmgr for Windows® is registered as a service with the following conditions:

- Service Name: STXPOLL
- Condition: not displayed (=shutdown)
- Startup: automatic

This service will start up automatically the next time the server is started

After installation, certain parameters must be set before you can use ETERNUSmgr. See ["Chapter 2 Setup" \(page 9\)](#) for details on how to perform these settings.

Once the necessary parameters have been set, follow the instructions in ["3.2.1 Starting Up ETERNUSmgr" \(page 34\)](#) to startup ETERNUSmgr manually.

3.2.1 Starting Up ETERNUSmgr

Perform the following to manually startup ETERNUSmgr for Windows®:

Procedure ►

- 1 Select the [STXPOLL] service from [Services] under [Administrative Tools] on the [Control Panel], and click the [Start] button.

After ETERNUSmgr has started up, you need to view the log file to confirm whether or not ETERNUSmgr is in communication with the target device. If using the E-mail notification function, also check that E-mail notification of ETERNUSmgr startup and changes in the target device states is received.

ETERNUSmgr startup can be confirmed by:

- In the control panel or in management tool services, make sure that "STXPOLL" is activated.
- Checking the log, and making sure that communication with the target device is normal.
- Checking any E-mails, and making sure that communication with the target device is normal (if the E-mail notification function is used).

When monitoring multiple target devices, you must check each target separately. For example, if monitoring three devices, browse each of the three logs to make sure that communications with all are normal.

ETERNUSmgr treats any file that conforms to the "STX~.INI" format as a setup file, and loads it accordingly. If ETERNUSmgr detects multiple setup files (for multiple devices), it will load all of them. See ["2.1 Setup files" \(page 9\)](#) for information about setup files.

The setup files are read automatically when ETERNUSmgr is started, but processing stops when the following messages appear.

- When no setup files exist, or none can be read:



- When a "TARGET_ADDR" is not specified in a setup file, or is incorrect:



Note:

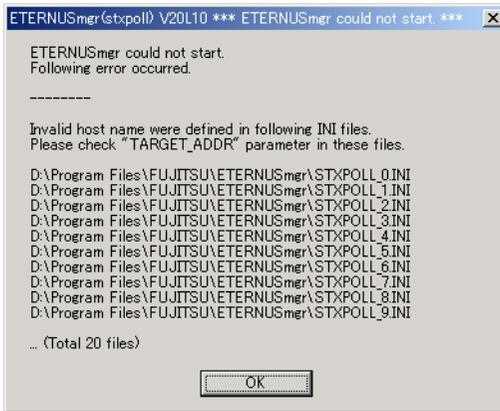
- "TARGET_ADDR" is the parameter that specifies the address of the target device.
 - "STXPOLL_1.INI" indicates the name of the setup file in which the error was actually detected.
- When a "TARGET_ADDR" is missing, incorrect, or duplicated in multiple setup files:



Note:

"STXPOLL_1.INI" and "STXPOLL_2.INI" indicate the name of the setup files in which the error was actually detected.

If ETERNUSmgr detects more than 10 faulty setup files, the first 10 will be listed along with the total number of faulty files.

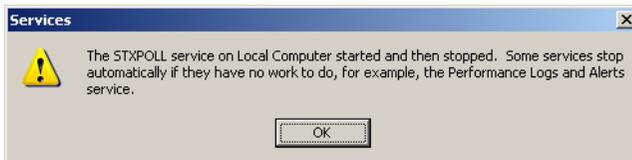


After clicking the [OK] button on any of the above dialog, Windows® may also display a message similar to the one shown below. This is not a problem, and will not affect future operation, so feel free to click the [OK] button. If such messages are displayed on the screen when ETERNUSmgr is starting up, check that a setup file exists and all parameter settings are correct.

- For Windows® 2000



- For Windows Server® 2003 or Windows Server® 2003 R2



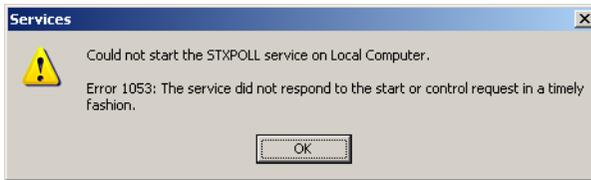
If you do not click the [OK] button when the above dialogs are displayed, Windows® may display a message similar to the one shown below.

In such a case, close the [Services] window ([Computer Manager] window for Windows® 2000), check the ETERNUSmgr settings, and retry the procedure from the beginning.

- For Windows® 2000



- For Windows Server® 2003 or Windows Server® 2003 R2



3.2.2 Shutting Down ETERNUSmgr

Perform the following to manually shutdown ETERNUSmgr for Windows®:

3

Procedure ▶▶

- 1 Select the [STXPOLL] service from [Services] on the [Administrative Tools] of the [Control Panel], and click the [Stop] button.

3.2.3 Registering the ETERNUSmgr Service for Automatic Startup

After installation is completed, ETERNUSmgr for Windows® is already registered as an automatic startup service that will become active the next time the server is rebooted, so there is no need to manually set ETERNUSmgr for automatic startup.

If, for any reason, the ETERNUSmgr automatic startup setting is disabled, do the following to restore it. This setting will be enabled at the next server reboot.

Procedure ▶▶

- 1 Select the [STXPOLL] service from [Services] on the [Administrative Tools] of the [Control Panel], then set the startup method to: [Automatic].

To disable automatic startup of ETERNUSmgr, set the startup method to [Manual] in the above procedure.

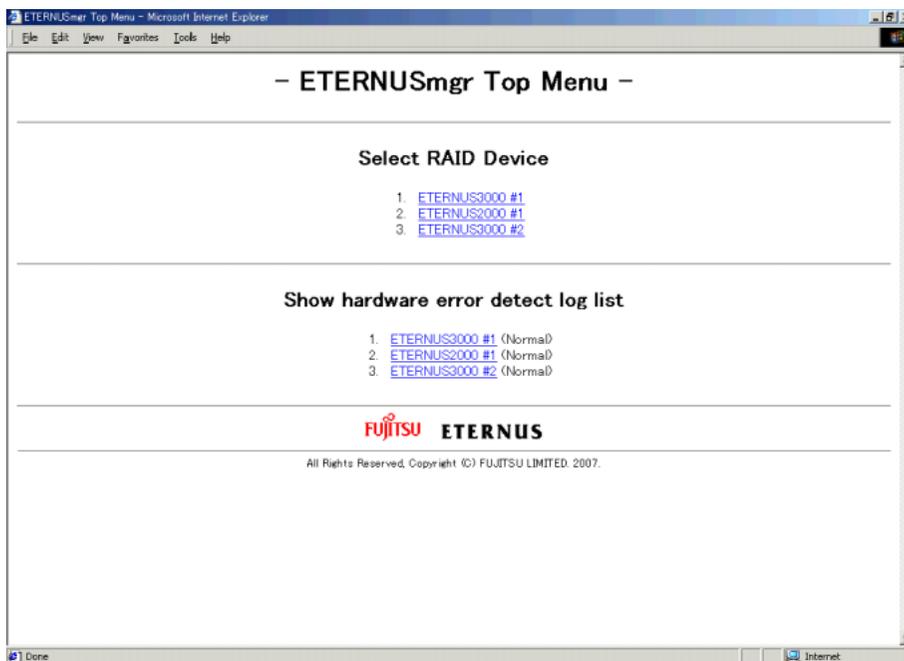
This page is intentionally left blank.

Chapter 4

Control Interfaces (Top Menu)

This chapter discusses the ETERNUSmgr Top Menu.

The following shows the [ETERNUSmgr Top Menu] screen.



4

Note:

The window is based on the example given in ["2.5.3 Adding the Extra Target Devices to the Top Menu File" \(page 29\)](#).

- **Select RAID Device menu**

Click the name of a target device listed in the [Select RAID Device] menu to access the device's login screen. For details on how to login, and operation after login, see "ETERNUSmgr User Guide -Settings/Maintenance-".

- Show hardware error detect log list menu

Click the name of a target device listed in the [Show hardware error detect log list] menu to get a listing of the target device's error logs (alarm history files). This will require use of the Web server's list display function. Refer to the User's Guide for the Web server being used for more details.

The status of the selected target device appears to the right of its alarm history files link. The various statuses are described below.

Normal	(Black). Indicates that the machine is operating without any errors.
Offline	(Red). Indicates that monitoring of the target device is not possible for one of the following reasons: the ETERNUSmgr monitoring function is not active (e.g. immediately after ETERNUSmgr installation), a problem has occurred with the target device (e.g. power supply shutdown, no response), a problem has occurred with the communication link between the ETERNUSmgr server and the target device (e.g. broken wiring, severe delays due to network overload). The target device status will also be set to "Offline" if the Target Address (TARGET_ADDR/TARGET_PORT) specified in the setup file is incorrect. Check that the target device is operating normally, there is no problem with the network connection, and that the setup file details are correct. This status will only be detected if a DETECT_OFFLINE=TRUE line is present in the setup file. If this setting is not present, the machine will not transition from "Normal" or "ATTENTION" to "Offline".
ATTENTION	(Red). Indicates that one or more errors have been detected in the machine. Login to the machine and check the location of the fault.
BUSY	(Red). For ETERNUS4000 models 80 and 100, and ETERNUS3000 Indicates that one of the controllers in the controller enclosure cannot boot up and needs to be serviced. For ETERNUS8000, ETERNUS4000 models 300 and 500, ETERNUS2000, and ETERNUS6000 Indicates that the target device cannot respond due to device stop status, abnormality of the communication link between the device and SVP, or device boot processing. Check that the target device is operating normally, and that there is no problem with the communication link between the device and SVP.

Caution:

The statuses displayed on the top menu reflect the most recent information available at the point of last reload of the top menu by the Web browser. The actual current status of the target device may therefore not be displayed until the top menu is reloaded. Always reload the top menu to check the current target device status. Note that some Web browsers may display a previously cached page even after the top menu is reloaded. See the manual or online help for your Web browser for details.

Note that, depending on the browser being used, "Reload" may be expressed as "Refresh," etc.

Chapter 5

Cautions

This chapter discusses cautions that should be observed when using ETERNUSmgr.

■ Solaris OS, Linux, and Windows® Version Cautions

● Failure Notification

- When the administrator is informed by ETERNUSmgr of a failure in a target device, use the ETERNUSmgr [Device Status Display] screen to find and confirm the status of the failed component. After confirmation, contact your Fujitsu engineer and pass along this information.
- Whenever necessary, ETERNUSmgr outputs history HTML files and log files for each Alarm. If the number of days to keep these files is set too high, or set to "0" (= "do not delete"), a large number of files may build up over an extended period of use. Have the administrator decide the appropriate number of days to keep these files.

● Network environment

- Polling and sending of E-mail may be impossible during a network failure on the ETERNUSmgr server due to LAN drop-out and failure of communications equipment (e.g. hubs, routers). During such failures, the target devices are not monitored, and if the Detect Offline Targets ("DETECT_OFFLINE") flag is not set, the administrator may be unaware of the failure. Enable the Detect Offline Targets parameter as necessary, and periodically check the ETERNUSmgr log file (only for the log acquisition setting).
- ETERNUSmgr may not be able to respond to an event due to a target device or network overload caused by a device failure. In such a case, refer to "[Chapter 3 Startup and Shutdown](#)" (page 31) and manually restart ETERNUSmgr. Before restarting, make sure that the network environment is free from any problem.
- If the ETERNUSmgr server's network settings are not correct, or there are hardware failures (LAN omissions, communications device failures, etc.) on the LAN path, it can take an overly long time to execute polling or send E-mail, making periodic monitoring of target devices impossible. In particular, in cases where a host name is specified for the target device to be monitored rather than an IP address, and multiple DNS servers are registered for the network, frequent inquiries must be made to the external network to resolve the host name. This can take from several minutes to tens of minutes when the network is not working well.
- When it takes an overly long time to execute polling or send E-mail, check that the network devices are operating normally, and that the network settings are correct.
- After rebooting a target device following a failure, etc., make sure that polling is successfully being conducted by checking the log file. If polling is unsuccessful after the target device has been rebooted (log information is not being output to the log file), refer to "[Chapter 3 Startup and Shutdown](#)" (page 31) and manually reboot ETERNUSmgr. Even after ETERNUSmgr is rebooted, ETERNUSmgr polling requests may still not be received by the target device (log information indicating polling failure is kept to be output to the log file). In this case, the ETERNUSmgr monitoring function may not be working due to network failure. Contact your Fujitsu engineer.

- Target device monitoring
 - When starting up or rebooting a target device with the ETERNUSmgr already activated and monitoring the device status, during the first few minutes until the target device is up and running, ETERNUSmgr will output alarm history messages and E-mails related to the addition/removal of target device components. These particular messages are output at startup as the target device tries to recognize its own configuration, and are not error messages.
 - An example of a message indicating the addition of a drive enclosure is:
"Increase Drive Enclosure # 12"
 - An example of a message indicating the removal of a drive enclosure is:
"Decrease Drive Enclosure # 34"
 - If, when monitoring multiple target devices, there is a specification error, such as duplication of information between the multiple setup files, ETERNUSmgr may try to monitor the same target device using the settings from different setup files and end up displaying an error message and terminating the process. When this happens, either delete one of the duplicate setup files or correct the error in the settings of the files. When looking for errors in the settings, in addition to verifying the address of the device that is being monitored ("TARGET_ADDR" parameter), make sure that you also check that the Alarm History Files Directory ("HTML_ALARMFILE_PATH" parameter) and Log Files Directory ("LOGFILE_PATH" parameter) are not duplicated in different setup files. If the values of these parameters are duplicated in different setup files, ETERNUSmgr will try to create conflicting log data in the same directory or file.
Refer to ["Chapter 2 Setup" \(page 9\)](#) for information on how to modify the setup files, and "ETERNUSmgr User Guide -Settings/Maintenance-" for information on ETERNUSmgr error messages and the procedures to use when they appear.
 - Configuring multiple ETERNUSmgr instances to monitor the same target device may burden the device and overload the connection, resulting in operational errors on the target device. Be careful not to start up multiple ETERNUSmgr instances to monitor the same target device (Excluding situations where ETERNUSmgr is installed into both nodes in a cluster system).
 - ETERNUSmgr sends a message to the administrator every time an abnormality is detected. Be aware that if the Alarm Mailing Interval is too short, an excessive number of E-mail messages may be sent to the administrator.
- ETERNUSmgr compatibility with GRmgr
 - ETERNUSmgr compatibility with GRmgr versions V10L20 and earlier
 - The operating logic, data files and log files for GRmgr versions V10L20 or earlier are not compatible with ETERNUSmgr. When upgrading GRmgr version V10L20 or earlier to ETERNUSmgr, uninstall the old GRmgr version before installing ETERNUSmgr. Also, use the new setup files ("STX - .INI") that are generated when ETERNUSmgr is installed.
 - The setup files of V10L20 and earlier are not compatible with ETERNUSmgr, and cannot be used.
Using these files will cause a "Bad parameter (CODE 913)" error to occur, and target device monitoring stops.
 - ETERNUSmgr compatibility with GRmgr versions V10L30 and later (V10L30, V10L40, V10L50, V10L60)
 - ETERNUSmgr is compatible with the operating logic, data files and log files of GRmgr versions V10L30 and later.
 - It is possible to use setup files ("STX - .INI") from GRmgr versions V10L30 and later, but the following procedure must be followed:
 - 1 Move the GRmgr V10L30 (or later) setup files to a temporary location.
 - 2 Uninstall V10L30 (or later) GRmgr.
 - 3 Install ETERNUSmgr.

- 4 Delete the setup files from the ETERNUSmgr directory created by the installation process.
- 5 Move the GRmgr V10L30 (or later) setup files from their temporary location (step 1) into the ETERNUSmgr directory.

Note that ETERNUSmgr must be installed in the same directory as was used by the previous version of GRmgr (V10L30, V10L40, V10L50, V10L60). Similarly, the new www files must be installed in the old www directory, and if the old top menu file ("menu.htm") has been edited, it should be backed up and used to replace the new version.

- When using a GRmgr V10L30 setup file, append the following Detect Offline Targets parameter description to the setup file if you wish to use the offline detection function (available from GRmgr V10L40 onward).

```
# Detect Offline status
DETECT_OFFLINE = TRUE
```

- This flag does not need to be added to the GRmgr V10L30 setup file if the offline detection function (available from GRmgr V10L40 onward) is not going to be used.

See "[Detect Offline Targets](#)" ([page 14](#)) for details of the Detect Offline Targets parameter.

● Setup files

- Always ensure that the ETERNUSmgr setup file's TARGET_FLAG parameter is correct for the monitored device type. ETERNUSmgr will be unable to monitor the target device if this setting is wrong. Note that even if the TARGET_TYPE and the TARGET_FLAG settings are different, ETERNUSmgr operations are not affected.

Any character string may be set in TARGET_TYPE, however it is recommended that the correct device type ("ETERNUS8000", "ETERNUS4000", "ETERNUS2000", "ETERNUS6000", "ETERNUS3000", "GR710", "GR720", "GR730", "GR740", "GR820", or "GR840") be set. The character string in TARGET_TYPE is used when the administrator is notified by E-mail, and in the alarm history files.

- Edit only the parameters in the ETERNUSmgr setup file which are explained in this document. Do not delete comments or blank lines from the default setup files provided, and do not add anything other than allowed parameters. Failure to follow these requirements may result in problems, and prevent future upgrades of ETERNUSmgr. See "[Chapter 2 Setup](#)" ([page 9](#)) for details.

● Install/Uninstall

See the "ETERNUS8000, ETERNUS4000, ETERNUS2000, ETERNUS6000, ETERNUS3000 ETERNUSmgr Install Guide" for details of installing and uninstalling ETERNUSmgr.

■ Windows® only cautions

● Uninstall

- Uninstallation deletes only those files created and copied during installation. Files (folders, setup files, log files) created after installation by the user and/or ETERNUSmgr are not deleted. After uninstalling ETERNUSmgr, any remaining files and folders should be deleted manually. Be careful not to delete folders and files necessary for other software.
- After uninstalling ETERNUSmgr, if you delete or change the name of the original installation directory, a "This may have an effect on the registered application. Are you sure you want to continue?" message will appear. If uninstallation has completed normally, this will not be a problem.

● Various settings

- Windows® 2000, Windows Server® 2003, and Windows Server® 2003 R2 have an energy saving mode, but since the ETERNUSmgr monitoring functions are inoperative when the OS is suspended or sleeping, use of this mode should be avoided.
- With a GRmgr V10L30 or V10L40 setup file, the following parameter descriptions must be added before the E-mail notification function (available from GRmgr V10L50) can be used by ETERNUSmgr:
 - # Admin Mail Address
ADMIN_MAIL = (Admin Mail Address)
 - # Mail Server Address
ADMIN_MAILSV = (Mail Server Address)
 - # Mail Server SMTP Port
SMTP_PORT = (Mail Server SMTP Port)

These additions are not necessary if the E-mail notification function is not used.

For details on the above parameters, see "[Admin Mail Address](#)" (page 15) and "[Mail Server Address \(ETERNUSmgr for Windows® only\)](#)" (page 16).

- The Mail Server SMTP Port description must be added when the SMTP port No. is other than the default (25). For details on the above parameters, see "[Mail Server SMTP Port \(ETERNUSmgr for Windows® only\)](#)" (page 16).

Chapter 6

Messages

This chapter explains the messages and message files of ETERNUSmgr. Messages are categorized into the following types:

- Alarm History Messages
- Alarm Text Files
- E-mail Messages
- Log Messages

6.1 Alarm History Messages

This section explains the alarm history messages generated by ETERNUSmgr.

If, after ETERNUSmgr polls a target device, the current status of the target device differs from the status at the previous polling operation (i.e. the status of the target device has changed), an ETERNUSmgr alarm history message is issued and saved in an alarm history file. If ETERNUSmgr detects that the target device is offline, an alarm history file is not created.

The alarm history file is saved using the following file naming convention in the directory specified in the setup file. See "[Alarm History File Directory](#)" (page 17) for more information about the setup files.

YYYYMMDDHHmmSSn.html

YYYY	: Year
MM	: Month
DD	: Day
HH	: Hour
mm	: Minute
SS	: Second
n	: Sequence number

For example, the alarm history file "200301011020300.htm" was created on January 1st 2003 at 10:20:30. The sequence number is normally 0, but is used to number files sequentially if multiple files are created within the same second.

An alarm history file is created when a change in the target device status is detected while ETERNUSmgr is polling the target device. Alarm history files are automatically deleted when they are older than the limit specified in the setup file. See "[Number of Days Alarm History Files are Kept](#)" (page 18) for more information about the setup files.

Alarm history files are in HTML format for viewing in a Web browser.

Alarm history files are displayed as follows in the Web browser.

Example Alarm History File

The following alarm history file was created on January 1st 2003 for an ETERNUS3000 with the target address 10.20.30.40.

<pre> ETERNUS3000 Hardware Status List Date:1/1/2003 ETERNUS3000 Address:10.20.30.40 ----- ControllerEnclosure#0001:ALARM ControllerEnclosure#0002:BTU-CAUTION ControllerEnclosure#0003:ALARM&BTU-CAUTION DriveEnclosure#0003:ALARM ----- ETERNUSmgr(stxpoll) V20L20 </pre>	<div style="margin-bottom: 10px;"> } Header (title, date, address of the target device) </div> <div style="margin-bottom: 10px;"> } Alarm List </div> <div> } Footer (ETERNUSmgr Version) </div>
---	---

The "alarm history messages" shown above indicate the status results obtained from the target device. The following message is output when all components of the target device are normal.

```
"No hardware error detected."
```

If target device monitoring does not work properly (due to LAN drop-out, failure on the network path, or incorrect target address setting, etc.), and the Detect Offline Targets parameter has been set, the following message will be output.

```
"No hardware report detected. (Offline)"
```

See ["6.3 E-mail Messages" \(page 47\)](#), "Hardware Status was changed. See below ..." for details of the messages displayed in the alarm history file.

Note that "Hardware Status was changed. See below ..." is not an actual alarm history message.

6.2 Alarm Text Files

This section explains the alarm text files that are generated by ETERNUSmgr.

Alarm text files are a compilation of the alarm history messages for a single day in a text format. See ["6.1 Alarm History Messages" \(page 45\)](#) for more information on the alarm history messages.

Alarm text files are categorized into the following types:

- Alarm Text Date Files
Contains the individual alarm history messages that record the ongoing status of the target device, collected on a day-by-day basis.
- Alarm Text Fixed File
Contains the same alarm history messages as the latest alarm text date file, saved under a settable name.

■ Alarm Text Date Files

The alarm text date file is saved in the directory specified in the setup file using the following file naming convention. See ["2.3.4 Alarm Text File Settings" \(page 19\)](#) for more information about the setup files.

```
stxgrYYYYMMDD.log
```

```

YYYY      : Year
MM        : Month
DD        : Day

```

For example, "stxgr20030101.log" indicates an alarm text date file that was created on January 1, 2003. Alarm text date files are created/updated when an alarm history file is created. Alarm text date files are created/updated when an alarm history file is created.

Alarm text date files are automatically deleted when they are older than the limit specified in the setup file. See ["Number of Days Alarm Text Date Files are Kept" \(page 20\)](#) for more information about the setup files.

■ Alarm Text Fixed File

This is stored in the same directory as the alarm text date files using whatever name is specified in the setup file. See ["2.3.4 Alarm Text File Settings" \(page 19\)](#) for more information about the setup files. When an alarm history file is created, a line formatted as "Year, Month, Day, Hour, Minutes, Seconds, Machine Address, and Machine Status as Recorded in the Alarm History File" is added to the alarm text file.

An example of an alarm text is shown below.

```
20030101130100 10.20.30.40 No hardware error detected.
20030101130600 10.20.30.40 ControllerEnclosure#00:ALARM
20030101144100 10.20.30.40 No hardware error detected.
```

See ["6.1 Alarm History Messages" \(page 45\)](#) and ["6.3 E-mail Messages" \(page 47\)](#) for more information on the target device status output to the alarm text files.

6.3 E-mail Messages



The administrator can be sent E-mail messages that contain notices of ETERNUSmgr startup and changes in the target device status. These messages indicating changes in the target device status are identical in format to the alarm history messages.

This section explains the E-mail messages sent by ETERNUSmgr and how to respond to them.

ETERNUSmgr VxxLxx - HTTP Polling engine was started.

- [Explanation] The polling engine has started.
- [Response] None

Hardware Status was changed. See below...

- [Explanation] There has been a change in the target device's status.
- [Response] If the component that caused the problem is displayed after this message, login to the target device and check the status of that component.
 - When "No hardware error detected." is displayed, there is no need to do anything.
 - Detection of offline status is indicated when "No hardware report detected. (Offline)" is displayed. In this case, check for problems with the target device, failures in the communications route, and errors in the setup file.
 - When "An error has occurred in controller enclosure. (BUSY)" is displayed, perform the following:
 - For ETERNUS3000
 - It has been detected that one of the controllers in the controller enclosure cannot start up. The controller needs to be serviced.
 - For ETERNUS6000
 - Indicates that the target device cannot respond due to device stop status, abnormality of the communication link between the device and SVP, or device boot processing. Check that the target device is operating normally, and that there is no problem with the communication link between the device and SVP.
 - For ETERNUS8000, ETERNUS4000, and ETERNUS2000
 - Indicates that the target device cannot respond due to device stop status or device boot processing. Check that the target device is operating normally.

When "SYSYSTEMERR(XXXXXXXX)" (XXXXXXXX is an error code) is displayed, contact your maintenance engineer.

"When a message such as "<Component>#<Serial Number>:<Status>" is displayed, it indicates a device component and the status. Check the details, and contact your maintenance engineer.

When "Hardware Status was changed. See below..." is displayed, the following message may also be displayed to indicate the location and status of the affected component.

<Component>#<Serial Number>:<Status>

- **Component**

Indicates the relevant component of the target device. Components vary depending on Target Type, however they are generally as follows:

- ControllerEnclosure
- DriveEnclosure
- BatteryEnclosure
- FCCable
- RCICable
- DEICable
- PANEL
- BatteryUnit
- BatteryChargerUnit

Caution:

See ["1.2 ETERNUSmgr Functions" \(page 4\)](#) for details of which components of each device are monitored.

- **Serial number**

Indicates the index number of the component. This may differ according to the type of target device, however it is generally in the form of "#nn" or "#nnnn". Some components have no serial numbers, and some always return "#00" or "#0000".

- **Status**

The following component status conditions are possible:

- | | |
|---------------|---|
| - ALARM | A failure has occurred (all components) |
| - WARNING | Warning (all components) |
| - BTU-CAUTION | Battery replacement limit exceeded (Controller Enclosure, and Battery Enclosure) |
| - BTU-WARNING | Less than six months to battery replacement limit (Controller Enclosure, Battery Enclosure, and Battery Unit) |

Caution:

FC cables of ETERNUS3000, ETERNUS GR710, GR720, and GR730 have no WARNING status.

Multiple statuses for a component are output joined by "&" symbols.

[Example]

```
ControllerEnclosure#00:ALARM&BTU-WARNING
DriveEnclosure#00:ALARM
DriveEnclosure#10:WARNING
BatteryEnclosure#00:ALARM
```

The following message is output when all components of the target device are normal.

"No hardware error detected."

Depending on the Target Type or version of firmware used, actual format and contents of messages may differ slightly from the above.

6.4 Log Messages

This section describes the messages output by ETERNUSmgr to the log files and how to respond to them. ETERNUSmgr's log files are saved in text format.

■ Regular Messages (CODE 0XX)

stxpoll Service Started (CODE 001)

[Explanation] stxpoll service has started.

[Response] None

Get Status Success "server:port/status" (CODE 004)

[Explanation] Current status was successfully obtained from the target device.

[Response] None

Send Mail "name@server" (CODE 005)

[Explanation] An E-mail was sent.

[Response] None

Initialize "parameter" (CODE 006)

[Explanation] The values set at start-up are displayed.

[Response] None

Create File "file name" (CODE 007)

[Explanation] A file was created.

[Response] None

Erase File "file name" (CODE 008)

[Explanation] A file was deleted.

[Response] None

Server Status Change (CODE 012)

- [Explanation] There has been a change in the target device's status.
 [Response] If the component that caused the problem is included in the message, login to the target device and check the status of that component.
 When "No hardware error detected." is displayed, there is no need to do anything. Detection of the offline status is indicated when "No hardware report detected. (Offline)" is displayed. In this case, check for problems with the target device, failures in the communications route, and errors in the setup file.

Work files create to "temp directory" (CODE 014)

- [Explanation] ETERNUSmgr has created a work file in the directory indicated in this message.
 [Response] None

■ Warning Messages for Parameter Settings (CODE 1XX)

Bad Parameter "parameter" (CODE 102)

- [Explanation] This parameter setting is invalid.
 [Response] Correct the parameter setting.

Undefined Parameter "parameter" (CODE 103)

- [Explanation] This parameter setting is not recognized.
 [Response] Correct the parameter setting.

Parameter too long "parameter" (CODE 104)

- [Explanation] Too many characters are used in this parameter setting.
 [Response] Correct the parameter setting.

Not NULL Parameter "parameter" (CODE 105)

- [Explanation] NULL is not allowed for this parameter setting.
 [Response] Set the parameter.

Directory Name too long "directory name" (CODE 106)

- [Explanation] The directory name is too long.
 [Response] Set a shorter directory name.

■ Warning Messages (CODE 3XX)

Can't Connect Server "server:port" (CODE 301)

- [Explanation] Failed to connect to the machine.
 [Response] Check the network environment (IP address, etc.).

Can't Send Mail "name@server" (CODE 304)

- [Explanation] Failed to send an E-mail.
 [Response] Check the mail server is operating.

Can't Erase File "file name" (CODE 305)

[Explanation] Failed to delete a file.

[Response] Confirm your access permissions to the file and its directory. If the file you wish to erase does not exist, there is no problem.

Get Status Failed "server:port/path" (CODE 306)

[Explanation] Failed to obtain the machine status.

[Response] Check the target device operating status, LAN connection, and LAN status.

Send Data Failed "server:port/path" (CODE 307)

[Explanation] Failed to communicate with the target device
(ETERNUSmgr → target).

[Response] Check the target device operating status, LAN connection, and LAN status.

Receive Data Failed "server:port/path" (CODE 308)

[Explanation] Failed to communicate with the target device (target → ETERNUSmgr)

[Response] Check the target device operating status, LAN connection, and LAN status.

Can't update hardware status (CODE 309)

[Explanation] ETERNUSmgr failed to write the status of the target device onto "menu.htm".

[Response] Check your access permissions to "menu.htm".
Check to see if "menu.htm" is being edited while ETERNUSmgr is in operation.

■ Fatal Error Messages (CODE 9XX)

Can't Create File "file name" (CODE 901)

[Explanation] Failed to create a new file.

[Response] Confirm your access permissions to the directory in which the file is to be created.

Check to see if there is enough space to save the file.

Can't Open File "file name" (CODE 902)

[Explanation] Failed to open a file.

[Response] Confirm your access permissions to the file.

Can't Get File Status "file name" (CODE 903)

[Explanation] Cannot acquire file status.

[Response] Confirm your access permissions to the file and its directory.

Can't Create Socket (CODE 904)

[Explanation] Failed to create a socket.

[Response] Confirm system resources.

Can't Allocate Memory (CODE 905)

[Explanation] Failed to reserve an open area in memory.

[Response] Allocate the necessary memory.

Bad IP Address "host name or IP address" (CODE 906)

[Explanation] The specified target IP address is invalid.

[Response] Set the correct IP address.

Can't Create Directory "path" (CODE 908)

[Explanation] Failed to create a directory.

[Response] Confirm your access permissions to the directory.

Confirm that the name of the specified directory is correct.

Not NULL Parameter "parameter" (CODE 909)

[Explanation] NULL is not allowed for this parameter setting.

[Response] Set the parameter.

Not Find Parameter "parameter" (CODE 910)

[Explanation] This parameter setting cannot be found.

[Response] Set the parameter.

Parameter too long "parameter" (CODE 911)

[Explanation] Too many characters are used in this parameter setting.

[Response] Correct the parameter setting.

Directory Name too long "directory name" (CODE 912)

[Explanation] The directory name is too long.

[Response] Set a shorter directory name.

Bad Parameter (CODE 913)

[Explanation] The "TARGET_FLAG" parameter is either incorrect or not set.

[Response] Correct the "TARGET_FLAG" parameter.

An example of log message output is shown below.

```

ETERNUSmgr(stxpoll) V20L20 (build 63211)
=====
MESSAGE [001]:STXPOLL_1.INI 20:45:41 >> Service Started (*1)
=====
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize TARGET_TYPE=E3000 (*2)
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize TARGET_FLAG=1
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize TARGET_ADDR=10.20.30.40
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize TARGET_PORT=80
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize POLLING_GET=cgi_bs_alarm.cgi/eventcode=2
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize POLLING_TIME=300
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize HTML_ALARMFILE_URL=http://domain-name
/ETERNUSmgr/html_1/
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize HTML_ALARMFILE_PATH=C:\inetpub
?wwwroot?eternusmgr?html_1?
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize HTML_ALARMFILE_DAY=7
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize LOGFILE_PATH=C:\Program Files\FUJITSU
?ETERNUSmgr?log_1?
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize LOGFILE_DAY=7
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize LOGFILE_MODE=2
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize ADMIN_MAIL=admin@foo.bar.com
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize MAIL_SEND_TIME=300
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize ADMIN_MAILSV=mailsv.foo.bar.com
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize SMTP_PORT=25
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize DETECT_OFFLINE=TRUE
MESSAGE [006]:STXPOLL_1.INI 20:45:42 >> Initialize BUSY_TIME=1800
MESSAGE [004]:10.20.30.40 20:45:42 >> Get Status Success 10.20.30.40:80/cgi_bs_alarm.cgi
/eventcode=2 (*3)
MESSAGE [012]:10.20.30.40 20:45:42 >> Server Status Change (*4)
MESSAGE [007]:10.20.30.40 20:45:42 >> Create File C:\inetpub?wwwroot?eternusmgr?
html_1?200210072045420.html (*5)

```

- *1: ETERNUSmgr boot message
- *2: Checking the setup file (Initialization)
- *3: Result of a target device status inquiry (Success)
- *4: A change was detected in the target device since the last inquiry (a change is always detected at each reboot)
- *5: An HTML alarm history file was created

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ETERNUSmgr User Guide -Introduction-

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