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GRmgr

User Guide

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-Introduction-



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# Preface

This guide discusses the procedures and safeguards on how to use GRmgr to configure the ETERNUS3000, GR series devices as well as how to conduct maintenance, display the status, and monitor these devices.

This document is specifically written for GRmgr administrators and operators.

Knowledge of UNIX or Windows NT®/Windows® 2000 system administration and Web server administration are required by this document.

## Structure of this Manual

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This guide consists of the following 6 chapters.

### **Chapter 1 About GRmgr**

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

### **Chapter 2 Setup**

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

### **Chapter 3 Startup and Shutdown**

This chapter discusses how to startup and shutdown GRmgr.

### **Chapter 4 Control Interfaces**

This chapter explains the screens used by GRmgr.

### **Chapter 5 Cautions**

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

### **Chapter 6 Messages**

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

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## Related Material

The following are related materials:

- ETERNUS3000 GRmgr User Guide -Settings/Maintenance-
- ETERNUS GR740, GR820, GR840 GRmgr User Guide -Settings/Maintenance-
- ETERNUS GR710 GRmgr User Guide -Settings/Maintenance-
- ETERNUS3000, GR series GRmgr Install Guide for Solaris™ Operating Environment
- ETERNUS3000, GR series GRmgr Install Guide for Windows®
- ETERNUS3000, GR series GRmgr Install Guide for Linux
- ETERNUS3000, GR series GRmgr Install Guide for AIX
- ETERNUS3000, GR series GRmgr Install Guide for HP-UX
- ETERNUS3000 storage system User Guide for model 50
- ETERNUS3000 storage system User Guide for model 100
- ETERNUS3000 storage system User Guide for model 200, 400, 600

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## Abbreviations

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

- Microsoft® Windows NT® Server operating system Version 4.0 is abbreviated as Windows NT®.
- Microsoft® Windows® 2000 Server operating system and Microsoft® Windows® 2000 Advanced Server operating system are abbreviated as Windows® 2000.
- Windows® refers to both Windows NT® and Windows® 2000.
- Solaris™ Operating Environment is abbreviated as Solaris OE.

June 2003

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# 1 About GRmgr

# 1

This chapter outlines the functions of GRmgr.

## 1.1 GRmgr Outline

The GRmgr has an administration function to display and monitor the status as well as save settings for the ETERNUS3000, GR series device (hereafter referred to as "target devices"). GRmgr can be installed on any server (hereafter referred to as "GRmgr server") with a Windows NT®, Windows® 2000, Solaris OE, HP-UX, AIX, or Linux operating system installed. The GRmgr server connects to the target devices through a Local Area Network (LAN). An administrator can access the GRmgr server's Web interface from any computer with a Web browser installed, and from there determine the state of the target devices or perform maintenance procedures.

Administrators can be notified by E-mail of the details of hardware failures detected by GRmgr. It is possible to disable mail notification in GRmgr V10L60.

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

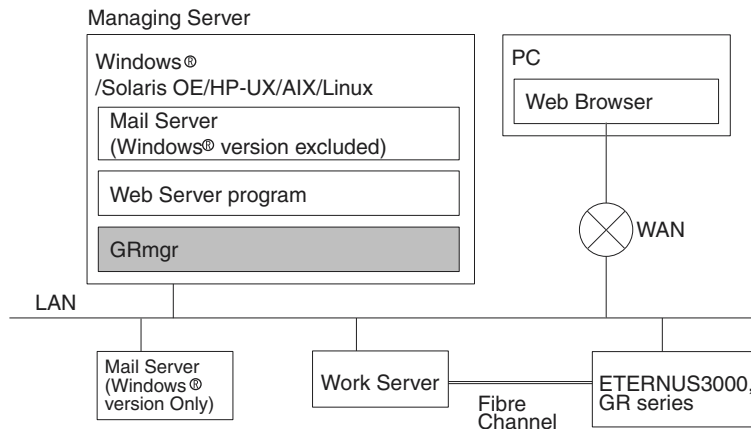


Figure 1.1 Example: GRmgr System Configuration

The GRmgr server and work server may be colocated on the same physical host. However if the machine is to be monitored 24 hours per day with GRmgr, the server on which GRmgr is installed must be running 24 hours per day. Also, the managing server must be running when GRmgr is used to perform maintenance tasks.

The server on which GRmgr is installed must include a Web server.

When using the E-mail notification function with Solaris OE, HP-UX, AIX, and Linux versions, the server on which GRmgr is installed must include a mail server.

To use the E-mail notification function on Windows® versions, a separate mail server is required.

For details on configuring the SP500 connection, see the "SP500 GRmgr User's Guide."

### 1.2 GRmgr Functions

GRmgr 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

Server failure is monitored. When a failure occurs, a history of the fault is saved as an HTML file (simply called "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 saved for a fixed period of time, the administrator can browse the failure history later on.

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

Specifically, an error has been detected when the red warning light for an enclosure (Drive Enclosure, Controller Enclosure, Battery Enclosure) on the [Device Status Display] window activates. For details on the [Device Status Display] window, see "GRmgr 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 device are shown in the following list. For details of which SP500 components can be monitored, see the "SP500 GRmgr User's Guide."

Table 1.1 List of areas that can be monitored for each device

Areas that can be monitored	Target Type					
	GR710	GR720	GR740/ GR820/ GR840	ETERNUS3000		
				model 50	model 100	model 200/ 400/600
Controller enclosure	Yes	Yes	Yes	Yes	Yes	Yes
Drive enclosure	No	Yes	Yes	No	Yes	Yes
Battery enclosure	No	No	No	No	No	Yes
FC cable	No	Yes	Yes	No	Yes	Yes
RCL cable	No	Yes	Yes	No	Yes	Yes

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

Besides being able to detect a change in a target device's condition from normal to faulty operation and vice-versa, the system 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

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The following software and hardware are required to use GRmgr.

See the operation connection configuration diagram "Figure 1.1 Example: GRmgr System Configuration" (p.1).

- GRmgr server (server with GRmgr installed)
- Web server program
- Mail server function (mail server program or mail server)
- Admin PC (PC with Web browser installed)
- Web browser

#### **GRmgr Server**

The following software is also needed on the GRmgr server.

Use the mail server program included with GRmgr if the OS is Solaris OE, HP-UX, AIX, or Linux.

##### **Web server program**

The alarm history files from GRmgr are generated in HTML format. A Web server program is necessary for an administrator to be able to view the alarm history files with a Web browser from an external terminal such as client PC.

A special Web server is not required, however, the Web server must have the capability to show a list of directory contents, in order to display the list of alarm history files.

##### **Mail server program (GRmgr for Solaris OE, HP-UX, AIX, and Linux)**

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

GRmgr for Solaris OE, HP-UX, AIX, and Linux uses Sendmail, which should come with each OS, and this must be setup on the GRmgr server.

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

#### **Mail Server (GRmgr for Windows®)**

GRmgr supports a function to notify the administrator of the alarm status by E-mail, but for Windows a separate mail server is needed to send E-mail.

##### **[Suitable mail servers]**

- UNIX server with Sendmail that supports the SMTP protocol
- Windows® 2000 Server that supports the SMTP service (standard feature)

If the managing server is a Windows® 2000 Server 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.

## PC (Admin)

An administrator can perform machine settings and maintenance with GRmgr from an external client PC, providing it has a Web browser installed.

### Web browser

The alarm history files from GRmgr are generated in HTML format. Also, machine settings and maintenance are performed using CGI scripts which also require a Web browser. Operation windows used by GRmgr 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 ETERNUS3000 model 100, 200, 400, 600

#### [Web Browsers]

- Microsoft® Internet Explorer 5.5 + Service Pack 2 or later
- Netscape 6.0 or later

#### Caution:

When a browser other than the ones listed above the screens may appear distorted.

The required software and hardware are shown in the following list.

Table 1.2 Hardware and Software Required by each OS

Hardware	Software	Solaris OE/HP-UX/AIX/Linux	Windows®
Managing server	Web server program	Required	Required
	Mail server program	Maybe Required *1	Maybe Required *1*2
Mail server	Mail server program	Not Required	
PC	Web Browsers	Required	Required

\*1) The mail server is not required if the E-mail notification function is not used.

\*2) You need to install a separate mail server for the Windows® version of GRmgr.

However, you do not need to install a separate mail server if on a Windows® 2000 Server that supports the SMTP service (standard feature).



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# 2 Setup

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This chapter explains how to setup GRmgr.

## 2.1 Setup Files

A GRmgr setup file is used to setup GRmgr to monitor a target device. The initial setup files are generated automatically in the installation directory when GRmgr is installed. See the "ETERNUS3000, GR series GRmgr Install Guide" for details of installing GRmgr.

The parameters in each setup file must be adjusted to match the target device. After making the necessary settings, shutdown and reboot GRmgr to enable the changes to the system. Refer to "3 Startup and Shutdown" (p.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:**

Edit only the setup file parameters described in the 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:

Setup file name : STX~.INI
----------------------------

If the file name is other than as specified above, GRmgr 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, GRmgr will not be able to find it.

The following setup file parameters must be set:

- Target Address (See -> p.11)
- Target Type (See -> p.12 )
- Target Flag (See -> p.13)
- Alarm History Files Directory (See -> p.16)

The setup file parameters required will vary according to the operating system and target device type (see below).

## 2.1 Setup Files

Table 2.1 Setting Items and Parameters Required by each OS

Setting item	Parameter	Solaris OE, HP-UX, AIX and Linux ver- sions	Windows ver- sion®
Target Address	TARGET_ADDR	Required	Required
	TARGET_PORT	Optional	Optional
Polling Interval	POLLING_TIME	Optional	Optional
Admin Mail Address	ADMIN_MAIL	Optional *1	Optional *1
Alarm Mailing Interval	MAIL_SEND_TIME	Optional *1	Optional *1
Alarm History Files Direc- tory	HTML_ALARMFILE_PATH	Required	Required
Alarm History Index URL	HTML_ALARMFILE_URL	Optional *1*2	Optional *1*2
Number of Days Alarm History Files are Kept	HTML_ALARMFILE_DAY	Optional	Optional
Log Files Directory	LOGFILE_PATH	Optional	Optional
Number of Days Log Files are Kept	LOGFILE_DAY	Optional	Optional
Output Log Files	LOGFILE_MODE	Optional	Optional
Target Type	TARGET_TYPE	Required	Required
Target Flag	TARGET_FLAG	Required	Required
Detect Offline Targets	DETECT_OFFLINE	Optional	Optional
Mail Server Address	ADMIN_MAILSV	Not Settable	Optional *1*2
Mail Server SMTP Port	SMTP_PORT	Not Settable	Optional *1
Busy Target Detection Time	BUSY_TIME	Optional *4	Optional *4
Alarm Text Files Directory	TEXT_ALARMFILE_NAME	Optional *3*4	Optional *3*4
Number of Days Alarm Text Files are Kept	TEXT_ALARMFILE_DAY	Optional *3*4	Optional *3*4

\*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), and the Busy Target Detection Time (BUSY\_TIME) are not described in the initial setup file. Add these items if they are required.

Table 2.2 Device Specific Setup Parameters (differences only)

Setting item	Parameter	Target Type		
		GR710/GR720/ GR730/ ETERNUS3000	GR740/ GR820/GR840	SP500
Target Address (may be changed)	TARGET_PORT	Initially '80'	Initially '80'	Initially '9980'
Target Type (may be changed)	TARGET_TYPE	Initially 'GR710,' 'GR720,' 'GR730' or 'E3000'	Initially 'GR740,' 'GR820,' or 'GR840'	Initially 'SP500'
Target Flag (can- not be changed)	TARGET_FLAG	Fixed at '1'	Fixed at '2'	Fixed at '3'

### 2.2 Modifying the GRmgr Setup

---

This section explains how to change the setup of GRmgr for Solaris OE, HP-UX, AIX, 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 For Solaris OE, HP-UX, AIX, and Linux

---

The following describes how to edit a setup file for GRmgr for Solaris OE, HP-UX, AIX, or Linux.

The procedure shown is for changing the settings that were set during installation.

This explanation uses GRmgr's default installation directory `"/opt/FJSVgrmgr/."`

##### *Procedure*

#### **1 Confirm the contents of the installation directory.**

Make sure the following files and directory have been installed in the installation directory: `stxchk`, `_STXPOLL.INI`, `STXPOLL_1.INI`, `stxpoll`, `stxpoll.d`, and `www/`

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

#### **2 Edit the STXPOLL\_1.INI file.**

The following example uses the "Vi" editor.

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

When setting up multiple target devices, copy an existing setup file to make the set up easier. For details on how to do this, see "2.5 Monitoring Multiple Target Devices" (p.26).

#### 2.2.2 For Windows®

---

The following describes how to edit a setup file for GRmgr 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 directory have been installed in the installation directory: `_stxpoll.ini`, `STXPOLL.exe`, `STXPOLL_1.INI`, `stxpoll.d.exe`, `stxsmail.exe`, and `\www` (`www` is a directory).

#### **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 GRmgr to monitor a target device.

#### Target Address

The address parameter is used to set the host name or IP address assigned to the target device. This is a required setting. GRmgr cannot be started unless an address has been set. If required a port number parameter may also be set.

**[Default value]**

TARGET\_PORT = 80  
(TARGET\_ADDR must be set. There is no default.)

**[Parameter]**

TARGET\_ADDR (Maximum: 64 characters)  
TARGET\_PORT (0 ~ 65535)

**[Example]**

TARGET\_ADDR=127.0.0.1 or TARGET\_ADDR=host-name.domain-name.com  
TARGET\_PORT=80 (TARGET\_PORT is not set so port number 80 is assumed.)

**Caution:**

- As the default port number is normally used, the target port is initially commented out.
- When changing the port number, the machine address port number on the top menu ("menu.htm") must also be changed.

#### 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

**[Parameters]**

POLLING\_TIME (1 ~ 65535)

**[Examples]**

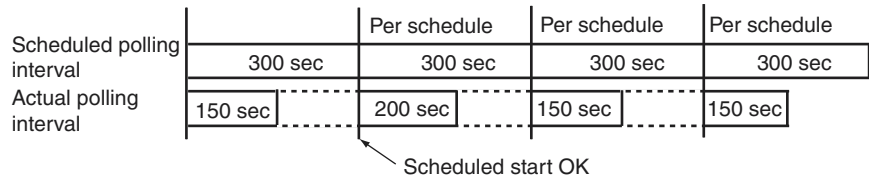
POLLING\_TIME=300

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

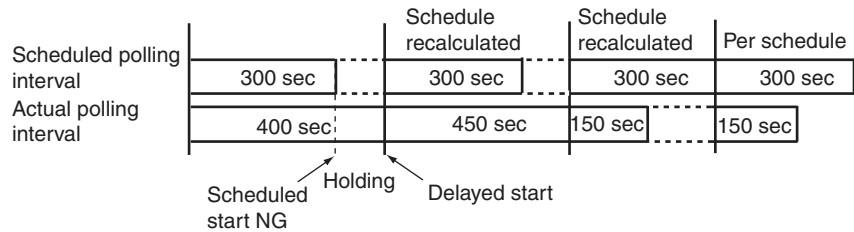
## 2.3 Setting Items

Due to network or device burden 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

This parameter is used to specify the type of target device being monitored. This is a required setting. The program cannot be started unless this parameter has been set.

### [Parameter]

TARGET\_TYPE (Maximum : 256 characters)

### [Example]

Enter any name to represent the type of target device to be monitored. When the type of target device is ETERNUS3000:

```
TARGET_TYPE=E3000
```

### Caution:

- You can specify a TARGET\_TYPE name that does not correspond to the TARGET\_FLAG without affecting GRmgr operation.
- Any character string (name) can be set for the TARGET\_TYPE, but since this character string (name) will be used for E-mail notification and in the alarm history files, we recommend using the correct Target Type ("GR710," "GR720," "GR730," "GR740," "GR820," "GR840," "SP500," or "E3000").

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## Target Flag

This parameter is used to specify the type of target device being monitored. Set to either 1, 2, or 3 according to the Target Type being monitored.

### [Parameter]

TARGET\_FLAG (1 to 3)

- 1: ETERNUS GR710, GR720, GR730, ETERNUS3000
- 2: ETERNUS GR740, GR820, GR840
- 3: SP500

### [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. GRmgr will not function properly if an incorrect Target Type is specified.
- You can specify a TARGET\_TYPE name that does not correspond to the TARGET\_FLAG without affecting GRmgr operation.

## Detect Offline Targets

This parameter determines whether or not notification is sent when a device goes offline. The "Offline" condition is entered when GRmgr 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 GRmgr server and the target device (e.g. bad connection, timeouts due to network overload).

If this happens, the GRmgr 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.

GRmgr 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 delay. Units are seconds.

**[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.

### 2.3.2 E-mail Notification Settings

---

This section explains how to setup the E-mail notification function (only needed if this function is to be used). See "E-mail Messages" (p.50) 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 is 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 (Max: 64 characters)

**[Examples]**

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 to 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.

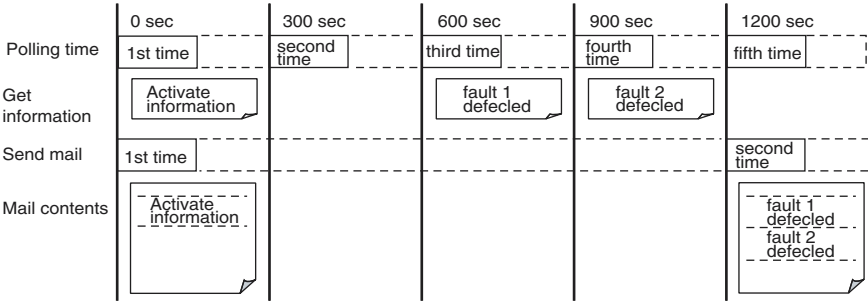
Due to network or device burden the time to send the E-mail may exceed the expected time. In such cases, the E-mail sending times are recalculated the same way as for the polling time.

**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:**

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



**Mail Server Address (GRmgr for Windows® only)**

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

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 (GRmgr for Windows® only)**

This parameter is used to specify a SMTP port No. for the mail server (ADMIN\_MAILSV).

**[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.

### 2.3.3 Alarm History File Settings

---

This section explains the alarm history file settings. See "Alarm History Messages" (p.47) for details of the alarm history files.

#### Alarm History Files 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. GRmgr 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 OE, HP-UX, AIX, and Linux versions, and "C:\Program Files\FUJITSU\GRmgr\www\html\_1\" for the Windows® version, if the normal installation defaults are accepted.). However, if this is likely to overburden 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 OE, HP-UX, AIX, and Linux, or "D:\GRmgr\www\html\_1\" for Windows®).

**[Parameter]**

HTML\_ALARMFILE\_PATH (max. 64 characters)

**[Examples]**

- Changing the Solaris OE, HP-UX, AIX, and Linux versions setting to "var/FJSVgrmgr/www/html\_1"

```
HTML_ALARMFILE_PATH=/var/FJSVgrmgr/www/html_1/
```

- Changing the Windows® version setting to "D:\GRmgr\www\html\_1\"

```
HTML_ALARMFILE_PATH=D:\GRmgr\www\html_1\
```

**Caution:**

- The alarm history files must be saved in a directory immediately under the directory in which the GRmgr 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 (GRmgr 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 GRmgr 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 "Monitoring Multiple Target Devices" (p.26) for details on how to monitor multiple machines.
- 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 "Modifying the GRmgr Top Menu System" (p.22).
- If the specified Alarm History Files Directory does not exist, it will automatically be created.

## Alarm History Index URL

Specify a URL for HTTP browsing of the Alarm History Files Directory setup in "Alarm History Files Directory" (p.16). 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. an Admin Mail Address has been set). In this case GRmgr will not start unless this parameter is set. This parameter may be omitted if the E-mail notification function is not used (i.e. an Admin Mail Address has not been set).

### [Parameter]

HTML\_ALARMFILE\_URL (max. 64 characters)

### [Example]

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

HTML\_ALARMFILE\_URL= http://host-name/grlog/

### Caution:

When monitoring multiple target devices, set a different Alarm History Index URL for each device's Alarm History Files Directory.

Refer to "Monitoring Multiple Target Devices" (p.26) for details on how to monitor multiple target devices.

## 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 to not enter any value. This parameter is initially commented out in the default setup file available after installation.

### 2.3.4 Alarm Text File Settings

---

There are two different types of alarm text files:

- Alarm text date file  
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 files will then be created in the same directory as the alarm text fixed file.

**[Parameter]**

TEXT\_ALARMFILE\_NAME (max. 64 characters)

**[Examples]**

- 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 "GRfix.log" are to be created in "/opt/FJSVgrmgr/txt\_1/":

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

**Caution:**

- When monitoring and generating alarm text files for multiple target devices, set different directories for each device's alarm text files. See "Monitoring Multiple Target Devices" (p.26) for information on how to monitor multiple target devices.
- If the specified Alarm Text Files Directory does not exist, it will be automatically created.
- This setting is not included in the default setup file available after installation. Add it 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 it if necessary.

### 2.3.5 Log File Settings

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

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

The following messages are output to the GRmgr log file. For details on individual log messages, refer to "Log Messages" (p.52).

- **Startup messages (LOGFILE\_MODE=1,2)**  
Indicates that GRmgr has started up.
- **Parameter information (LOGFILE\_MODE=1,2)**  
Lists the parameters used at startup. Check this section to ensure that GRmgr 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. This outputs is 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 GRmgr.

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 OE, HP-UX, AIX, and Linux version and "C:\WINNT\SYSTEM32\" for the Windows® version.

Initially, immediately after GRmgr installation, the setup file should contain a parameter that is set to the "log\_1" directory under the GRmgr installation directory specified at installation (specifically, "/opt/FJSVgrmgr/log\_1/" for the Solaris OE, HP-UX, AIX, and Linux versions, and "C:\Program Files\FUJITSU\GRmgr\log\_1" for the Windows® version if the normal installation defaults are accepted). However, if this is likely to overburden the file system, consult with the server administrator and change it to a more suitable directory (e.g. "/var/FJSVgrmgr/log\_1/" for Solaris OE, HP-UX, AIX, and Linux, or "D:\GRmgr\log\_1\" for Windows®).

#### [Parameter]

LOGFILE\_PATH (max. 64 characters)

#### [Example]

- Changing the Solaris OE, HP-UX, AIX, and Linux version setting to "var/FJSVgrmgr/log\_1":

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

- Changing the Windows® version setting to "D:\GRmgr\log\_1":

```
HTML_ALARMFILE_PATH=D:\GRmgr\log_1\
```

#### Caution:

- When monitoring multiple target devices, set a different log file directory for each of the different targets.  
Refer to "Monitoring Multiple Target Devices" (p.26) for details on how to monitor multiple target devices.
- If the specified Log Files Directory does not exist, it will be automatically created.

### 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 to not 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)  
Absolutely 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 GRmgr 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 GRmgr. 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 ("STXPOLL.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 to not enter any value. This parameter is initially commented out in the default setup available after installation.

### 2.4 Modifying the GRmgr Top Menu System

---

The GRmgr Top Menu files are generated automatically when GRmgr is installed. See the "ETERNUS3000, GR series GRmgr Install Guide" for more on installing GRmgr.

The GRmgr 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:**

- GRmgr reads the Top Menu File ("menu.htm") in, and reoutputs it after adding the target device status information to it. Therefore, always stop GRmgr 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 GRmgr for Solaris OE, HP-UX, AIX, and Linux Procedure

This section explains what to do for the Solaris OE, HP-UX, AIX, and Linux versions of GRmgr. 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 /(installation directory)/www/* /(new Top Menu direc-  
tory)/
```

**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
```

**5 Change the Top Menu file attribute to Writable.**

```
# chmod 666 / (new Top Menu directory) / menu.htm
```

**2.4.1.2 GRmgr for Windows® Procedure**

This sections explains what to do for the Windows® versions of GRmgr. 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.****5 Check the security of the Top Menu File using Explorer.**

Give "Everyone" the Write privilege if it is not already set.

**2****2.4.2 Editing the 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 <a href=""> quotation marks to complete the setup.

**Installation Location (Machine Name)**

Add the target device name, etc. after <a href="">. The character string may be changed as you like.

For example, immediately after installation of GRmgr to ETERNUS3000 the top menu includes the following line containing links to the target machine login.

```
<LI><a href="http://000.000.000.000:80/login.htm" target="_blank">E3000 #1</a>
```

The link to "login.htm" noted above displays the login screen for the English version.

Change this to login\_jp.htm to display the machine login screen in Japanese.

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

## 2.4 Modifying the GRmgr Top Menu System

---

### [Example]

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

- Target Address = `http://000.000.000.000`
- Old Alarm History Index URL=`http://domain-name/gr-mgr/html_1/`
- New Alarm History Index URL=`http://domain-name/gr-mgr/alarm/`

```
<HTML>
.
.
.
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.000:80/login.htm" target="_blank">E3000 #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/gr-mgr/html_1" target="_blank">E3000 #1</a>
<!-- Status of 000.000.000.000 -->
<font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
.
.
.
</HTML>
```

↓ Becomes

```
<HTML>
.
.
.
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.000:80/login.htm" target="_blank">E3000 #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/gr-mgr/alarm/" target="_blank">E3000 #1</a>
<!-- Status of 000.000.000.000 -->
<font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
.
.
.
</HTML>
```

### Caution:

- Bold text indicates the portions that have been changed.
- GRmgr is able to indicate the current status of each target device in the top menu. This is done using the lines after the link to the Alarm History Files Directory:

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

The "<font color="red">(\*Offline\*)</font>" portion of this line is dynamically changed to one of the following by GRmgr.

```
Normal      <font color="black">(Normal)</font>  
Offline     <font color="red">(*Offline*)</font>  
ATTENTION  <font color="red"><b>(*ATTENTION*)</b></font>  
BUSY       <font color="red">(*BUSY*)</font>
```

See "4.1 Top Menu" (p.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, GRmgr 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, GRmgr will not be able to find it.

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

#### 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 GRmgr for Solaris OE, HP-UX, AIX, 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 d www/
```

### 4 Edit the copied file.

Vi editor is used here.

Refer to "Setting Items" (p.11) 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

## 2.5.2.2 GRmgr 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.

Make sure that the following have been all installed: \_stxpoll.ini, STXPOLL.exe, STXPOLL\_1.INI, stxpoll.exe, stxsmail.exe, \www (\www is a directory)

#### 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 "Setting Items" (p.11) 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 Monitoring Multiple Target Devices

### 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 each target address must have "/login.htm" added to its end.

The following example uses a configuration with two ETERNUS3000s and one ETERNUS GR730 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 Directory = http://domain-name/grmgr/E3000\_1
- 2nd Target Device (ETERNUS GR730#1)  
Target Address = http://000.000.000.002  
Alarm History Files Directory = http://domain-name/grmgr/GR730\_1
- 3rd Target Device (ETERNUS3000#2)  
Target Address = http://000.000.000.003  
Alarm History Files Directory = http://domain-name/grmgr/E3000\_2

```
<HTML>
.
.
.
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.001:80/login.htm" target="_blank">E3000 #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/grmgr/E3000_1" target="_blank">E3000 #1</a>
<!-- Status of 000.000.000.001 -->
<font color="red">(*Offline*)</font>
</OL>
</TD></TR></TABLE>
.
.
.
</HTML>
```

↓ Becomes

```

<HTML>
.
.
.
<H2>Select RAID Device</H2>
<TABLE><TR><TD>
<OL>
<LI>
<a href="http://000.000.000.001:80/login.htm" target="_blank">E3000 #1</a>
<LI>
<a href="http://000.000.000.002:80/login.htm" target="_blank">GR730 #1</a>
<LI>
<a href="http://000.000.000.003:80/login.htm" target="_blank">E3000 #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/grmgr/E3000_1/" target="_blank">E3000 #1</a>
<!-- Status of 000.000.000.001 -->
<font color="red">(*Offline*) </font>
<a href="http://domain-name/grmgr/GR730_1/" target="_blank">GR730 #1</a>
<!-- Status of 000.000.000.002 -->
<font color="red">(*Offline*) </font>
<a href="http://domain-name/grmgr/E3000_2/" target="_blank">E3000 #2</a>
<!-- Status of 000.000.000.003 -->
<font color="red">(*Offline*) </font>
</OL>
</TD></TR></TABLE>
.
.
.
</HTML>

```

2

**Caution:**

- Underlined text is displayed on screen.
- Bold text indicates the portions that have been changed.
- GRmgr is able to indicate the current status of each target device in the top menu. This is done using the lines after the link to the Alarm History Files Directory:

```

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

```

The "<font color="red">(\*Offline\*)</font>" portion of this line is dynamically changed to one of the following by GRmgr:

Normal	<font color="black">(Normal)</font>
Offline	<font color="red">(*Offline*)</font>
ATTENTION	<font color="red"><b>(*ATTENTION*)</b></font>
BUSY	<font color="red">(*BUSY*)</font>

See "4.1 Top Menu" (p.39) for Top Menu details.



---

# 3 Startup and Shutdown

---

This chapter explains how to startup and shutdown GRmgr.

## 3.1 GRmgr for Solaris OE, HP-UX, AIX, and Linux

This section explains how to manually startup and shutdown GRmgr, for Solaris OE, HP-UX, AIX, and Linux as well as how to set GRmgr for automatic startup.

### 3.1.1 Starting Up GRmgr

Perform the following to start GRmgr for Solaris OE, HP-UX, AIX, and Linux:

#### *Procedure*

**1 Become the superuser.**

```
# su
```

**2 Execute the exciton control script with the start option:**

```
# /opt/FJSVgrmgr/stxpoll start
```

**3 Confirm the daemon is running:**

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

After GRmgr has started up, you need to view the log file to confirm whether or not GRmgr is in communication with the target device. If using the E-mail notification function, also check that E-mail notification of GRmgr startup and changes in the target device states is received. GRmgr 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 the three logs to make sure that communications with all are normal.

### 3.1 GRmgr for Solaris OE, HP-UX, AIX, and Linux

---

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

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

As explained in "2.1 Setup Files" (p.7) GRmgr treats any file that conforms to the "STX~.INI" format as a setup file and loads it accordingly. If GRmgr detects multiple setup files (for multiple devices), it will load all of them.

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

GRmgr determines the device that it is to be monitored by 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: GRmgr 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 GRmgr 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: GRmgr 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 GRmgr 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 GRmgr is installed (this file will be empty if GRmgr has started up normally).

### 3.1.2 Shutting Down GRmgr

Perform the following to shutdown GRmgr for Solaris OE, HP-UX, AIX, and Linux:

#### *Procedure*

**1 Become the superuser:**

```
# su
```

**2 Execute the execution control script with the stop 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 GRmgr Daemon for Automatic Startup

This section explains how to register the GRmgr daemon for Solaris OE, HP-UX, AIX, and Linux.

The example below shows how to register the daemon for a Solaris OE installed server. The procedure is the same for servers running HP-UX, AIX, or Linux, but 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).

Consult with the server administrator before registering the daemon.

#### *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/Snnstxpoll (nn is a  
number.)
```

*nn* in *nnstxpoll* 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
```

## 3.1 GRmgr for Solaris OE, HP-UX, AIX, and Linux

---

From the next startup of Solaris OE, HP-UX, AIX, and Linux the GRmgr daemon will start automatically. Refer to "3.1.2 Shutting Down GRmgr" (p.33) for details on how to manually shut down GRmgr.

Check the log files to see if GRmgr for Solaris OE, HP-UX, AIX, and Linux is communicating with the target devices after automatic startup.

## 3.2 GRmgr for Windows®

Once installed, GRmgr 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 GRmgr. See "2 Setup" (p.7) for details on how to perform these settings.

Once the necessary parameters have been set, follow the instructions in "3.2.1 Starting Up GRmgr" (p.35) to startup GRmgr.

### 3.2.1 Starting Up GRmgr

Perform the following to startup GRmgr for Windows®:

#### *Procedure*

- For Windows NT®  
Select the [STXPOLL] service from [Services] on the [Control Panel], and click the [Start] button.
- For Windows® 2000  
Select the [STXPOLL] service from [Services] under [Management Tools] on the [Control Panel], and click the [Start] button.

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

GRmgr treats any file that conforms to the "STX~.INI" format as a setup file, and loads it accordingly. If GRmgr detects multiple setup files (for multiple devices), it will load all of them. See "2.1 Setup Files" (p.7) for information about setup files.

## 3.2 GRmgr for Windows®

---

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

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



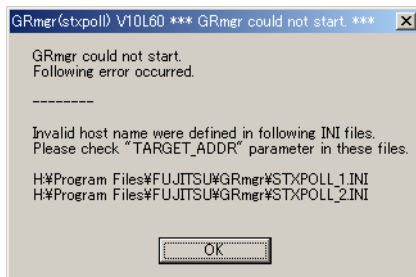
- When a "TARGET\_ADDR" is not specified in a setup file, or is incorrect:



**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.

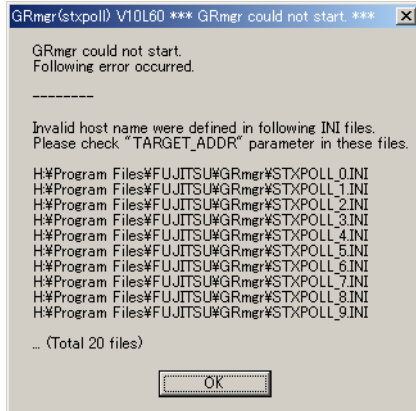
- When a "TARGET\_ADDR" is missing, incorrect, or duplicated in multiple setup files:



**Note:**

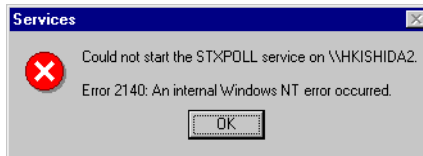
- "STXPOLL\_1.INI" and "STXPOLL\_2.INI" indicate the name of the setup files in which the error was actually detected.

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

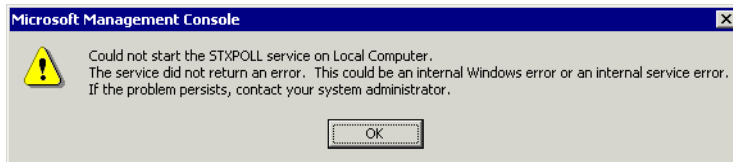


After clicking the [OK] button on any of the above dialog, Windows® may also display a message similar to the one shown below. This is not a problem, and will not affect future operation, so feel free to click the [OK] button. If such messages are displayed on the screen when GRmgr is starting up, check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

#### For Windows NT®



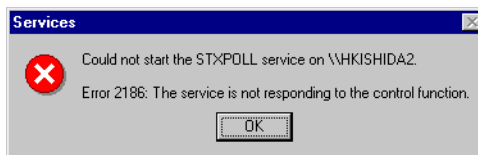
#### For Windows® 2000



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 GRmgr settings, and retry the procedure from the beginning.

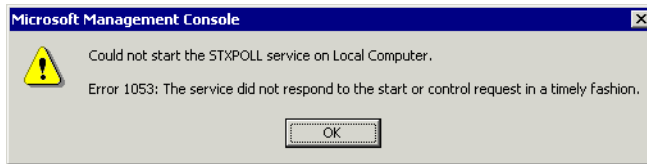
#### For Windows NT®



## 3.2 GRmgr for Windows®

---

### For Windows® 2000



### 3.2.2 Shutting Down GRmgr

---

Perform the following to manually shutdown GRmgr for Windows®:

#### *Procedure*

- For Windows NT®  
Select the [STXPOLL] service from [Services] on [Control Panel], and click the [Stop] button.
- For Windows® 2000  
Select the [STXPOLL] service from [Computer Manager], and click the [Stop] button.

### 3.2.3 Registering the GRmgr Service for Automatic Startup

---

After installation is completed, GRmgr 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 GRmgr for automatic startup.

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

#### *Procedure*

- For Windows NT®  
Select the [STXPOLL] service from Services on [Control Panel], and set the startup method to: [Automatic].
- For Windows® 2000  
Select the [STXPOLL] service from [Computer Manager], then set the startup method to: [Automatic].

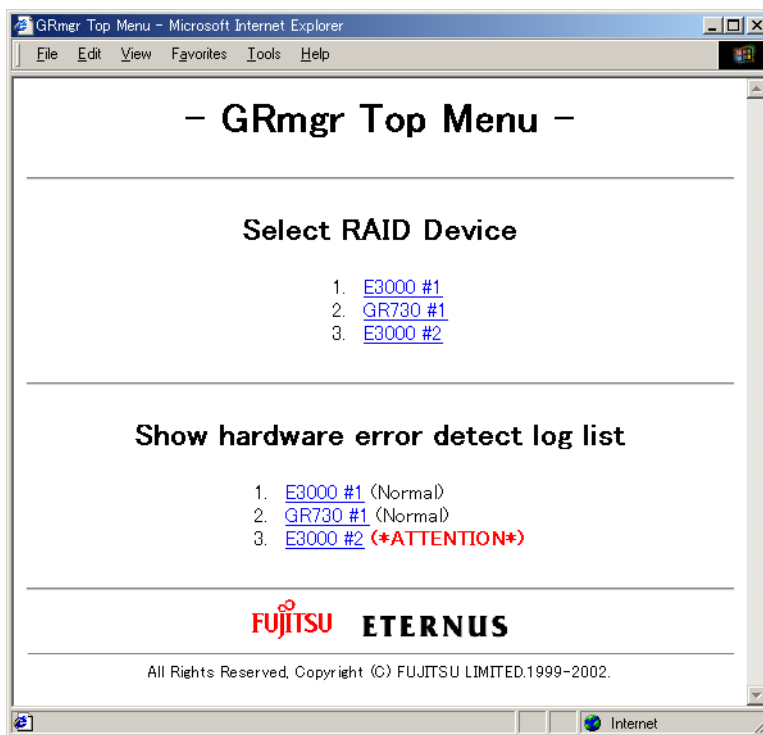
To disable automatic startup of GRmgr, set the startup method to: [Manual].

# 4 Control Interfaces

This chapter discusses the screens used by GRmgr.

## 4.1 Top Menu

The following shows the [GRmgr Top Menu] screen.



**Note:**

The window shown above is based on the example given in "2.5.3 Adding the Extra Target Devices to the Top Menu File" (p.28).

### 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, see "GRmgr 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.

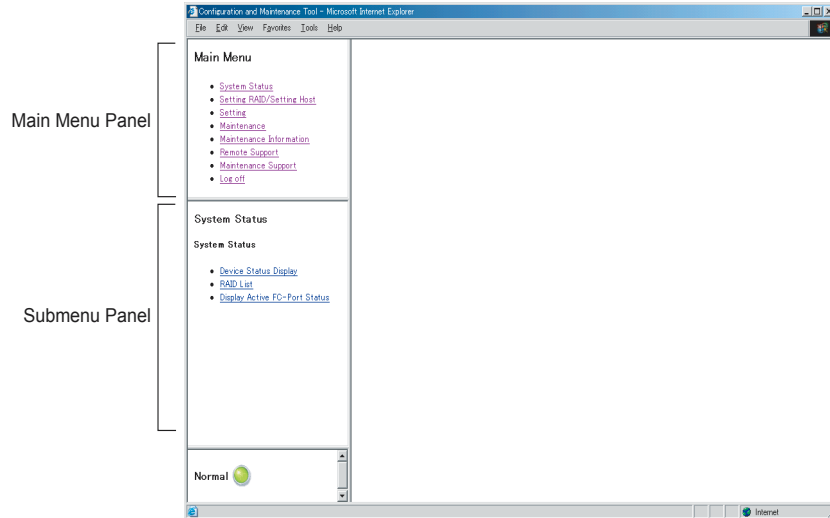
Normal	(Black). Indicates that the machine is operating without any errors.
*BUSY*	(Red). Indicates that one of the controllers in the controller enclosure cannot boot up and needs to be serviced.
*ATTENTION*	(Bold Red). Indicates that one or more errors have been detected in the machine. Login to the machine and check the location of the fault.
*Offline*	(Red). Indicates that monitoring of the target device is not possible for one of the following reasons: the GRmgr monitoring function is not active (e.g. immediately after GRmgr 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 GRmgr 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."

#### 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.

## 4.2 Operations Menu

The operations menu consists of a main menu and submenus. Selecting an item from the Main Menu will result in the relevant submenu list being displayed.



The actual items of the operations menu will vary depending on the model of target device being accessed. For details, please refer to the "GRmgr User Guide -Settings/Maintenance-."

### 4.3 Screen Operations

---

This section describes the various windows used to setup and/or perform maintenance on ETERNUS3000, GR series devices using GRmgr.

If you wish a detailed explanation of a function during operation, click the [?] button to display a help window.

Refer to the error messages displayed during operation in each setting window to deal with errors. For the detailed explanation regarding error messages, refer to "GRmgr User Guide - Settings/Maintenance-."

**Caution:**

Be careful of the following when using GRmgr.

- Unless specified otherwise, never use the Back (<-), Forward (->), and Close Window (X) browser buttons. Reloading a window may cause program to errors.
- Reloading is also necessary when the windows are not loaded successfully.
- You can use the window's buttons to change the size of the window. However, when Netscape Communicator is used on Solaris OE, you may need to reload if you change the window size when logging on.
- It is recommended to set the screen resolution to 800 x 600 for a better display of contents (component names, etc.) to make it easier to perform setting and maintenance.
- It is recommended to hide the standard Web browser buttons and address bar to prevent incorrect operations while performing settings and maintenance. Once the login window is displayed, hide the standard Web browser buttons and address bar.
- Be sure to log off after all necessary operations are completed. If the system administrator account is not logged off, a message will be displayed the next time you try to login. For details, see "2.3.1 Login."
- With a registered user account, you can operate only the status display menu.

---

# 5 Cautions

---

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

## All Version Cautions

### Failure notice

- When the administrator is informed by GRmgr of a failure in a target device, use the GRmgr [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, GRmgr 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 GRmgr 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 GRmgr log file (only for the log acquisition setting).
- GRmgr 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 "3 Startup and Shutdown" (p.31) and manually restart GRmgr. Before restarting, make sure that the network environment is free from any problem.
- If the GRmgr 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 "3 Startup and Shutdown" (p.31) and manually reboot GRmgr. Even after GRmgr is rebooted, GRmgr 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 GRmgr 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 GRmgr already activated and monitoring the device status, during the first few minutes until the target device is up and running, GRmgr 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, GRmgr 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, GRmgr will try to create conflicting log data in the same directory or file. Refer to "2 Setup" (p.7) for information on how to modify the setup files, and "GRmgr User Guide -Settings/Maintenance-" for information on GRmgr error messages and the procedures to use when they appear.
- Configuring multiple GRmgr 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 GRmgr instances to monitor the same target device.
- GRmgr 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.

## Compatibility

- 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 GRmgr V10L60. When upgrading GRmgr version V10L20 or earlier to GRmgr V10L60, uninstall the old GRmgr version before installing GRmgr V10L60. Also, use the new setup files ("STX - .INI") that are generated when GRmgr V10L60 is installed.
  - The setup files of V10L20 and earlier are not compatible with GRmgr V10L60, and cannot be used. Using these files will cause a "Bad parameter (CODE 913)" error to occur, and target device monitoring stops.

- Compatibility with GRmgr versions V10L30 and later (V10L30, V10L40, V10L50)
  - 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 V10L30 (or later) setup files to a temporary location.
    - 2 Uninstall the V10L30 (or later) GRmgr.
    - 3 Install the V10L60 GRmgr.
    - 4 Delete the setup files from the GRmgr version V10L60 directory created by the installation process.
    - 5 Move the V10L30 (or later) setup files from their temporary location (step 1) into the GRmgr version V10L60 directory.

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

```
# 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 is not going to be used. See "Detect Offline Targets" (p.13) for details of the Detect Offline Targets flag.

### Setup files

- Always ensure that the GRmgr setup file's TARGET\_FLAG parameter is correct for the monitored device type. GRmgr 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, GRmgr operations are not affected.

Any character string may be set in TARGET\_TYPE, however it is recommended that the correct device type ("GR710," "GR720," "GR730," "GR740," "GR820," "GR840," "SP500," or "E3000") 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 GRmgr 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 GRmgr. See "2 Setup" (p.7) for details.

### Install/Uninstall

See the "ETERNUS3000, GR series GRmgr Install Guide" for the applicable OS for details on how to install and uninstall GRmgr.

---

## Windows® only cautions

### Supported OS

For Windows NT® Server, it is necessary to use Service Pack 6 or later.  
For Windows® 2000, either Windows® 2000 Server or Windows® 2000 Advanced Server may be used.  
Correct operation of GRmgr is not guaranteed with Windows® 2000 Professional.  
For Windows® 2000, it is necessary to use Service Pack 3 or later.

### 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 GRmgr are not deleted. After uninstalling GRmgr, any remaining files and folders should be deleted manually. Be careful not to delete folders and files necessary for other software.
- After uninstalling GRmgr, 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 has an energy saving mode, but since the GRmgr monitoring functions are inoperative when the OS is suspended or sleeping, use of this mode should be avoided.
- To use the E-mail notification function (available from V10L50) with a GRmgr V10L30 or V10L40 setup file, the following parameter descriptions must be added to the setup file:
  - # 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" (p.14) and "Mail Server Address (GRmgr for Windows® only)" (p.15).

- 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 (GRmgr for Windows® only)" (p.15).

# 6 Messages

This chapter explains the messages and message files of GRmgr.

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 GRmgr.

If, after GRmgr 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), a GRmgr alarm history message is issued and saved in an alarm history file. If GRmgr 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 Files Directory" (p.16) 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 GRmgr 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" (p.17) 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.

## 6.1 Alarm History Messages

---

### 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>E3000 Hardware Status List Date:1/1/2003 E3000 Address:10.20.30.40 ----- ControllerEnclosure#0001:ALARM ControllerEnclosure#0002:BTU-CAUTION ControllerEnclosure#0003:ALARM&amp;BTU-CAUTION DriveEnclosure#0003:ALARM ----- GRmgr(stxpoll) V10L60</pre>	<p>Target Details (title, date, address of the target device)</p> <p>Alarm List</p> <p>GRmgr Version</p>
--	--

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 do 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 "E-mail Messages" (p.50), "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 GRmgr.

Alarm text files are a compilation of the alarm history messages for a single day in a text format. See "Alarm History Messages" (p.47) 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 File

The alarm text date file is saved in the directory specified in the setup file using the following file naming convention. See "Alarm Text File Settings" (p.18) 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 automatically deleted when they are older than the limit specified in the setup file. See "Number of Days Alarm Text Date Files are Kept" (p.19) 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 "Alarm Text File Settings" (p.18) 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 "Alarm History Messages" (p.47) and "E-mail Messages" (p.50) for more information on the target device status output to the alarm text files.

## 6.3 E-mail Messages

The administrator can be send E-mail messages that contain notice of 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 GRmgr and how to respond to them.

### **GRmgr 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 the offline status is indicated when "No hardware report detected. (Offline)" is displayed. In this case, check for normal operation of the target device, a fault in the communications route, or an error in the setup file. When "An error has occurred in controller enclosure. (BUSY)" is displayed, it has been detected that one of the controllers in the controller enclosure cannot start up. The controller needs to be serviced.

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>#<Series 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

#### **Caution:**

- Only the controller enclosure is covered for the ETERNUS GR710 and ETERNUS3000 model 50. Note that GRmgr treats the ETERNUS GR710 and ETERNUS3000 model 50 as controller enclosures.
- Battery enclosure is monitored only for the ETERNUS3000 model 200, 200M, 400, 400M, 600. See "GRmgr Functions" (p.2) for details of which components of each device are monitored.

- **Series 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 (Controller Enclosure, Drive Enclosure, Battery Enclosure, RCI Cable)
BTU-CAUTION	Battery replacement limit exceeded (Controller Enclosure only)
BTU-WARNING	Less than six months to battery replacement limit (Controller Enclosure only)

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 GRmgr to the log files and how to respond to them.

GRmgr's log files are saved in text format.

#### Regular Messages (CODE 0XX)

##### [001] stxpoll Service Started

[Explanation] stxpoll service has started.  
[Response] None

##### [004] Get Status Success "server:port/status"

[Explanation] Current status was successfully obtained from the target device.  
[Response] None

##### [005] Send Mail "name@server"

[Explanation] An E-mail was sent.  
[Response] None

##### [006] Initialize "parameter"

[Explanation] The values set at start-up are displayed.  
[Response] None

##### [007] Create File "file name"

[Explanation] A file was created.  
[Response] None

##### [008] Erase File "file name"

[Explanation] A file was deleted.  
[Response] None

##### [012] Server Status Change

[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 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.

##### [013] Delete previous work file if exist

[Explanation] If a work file created by a previous GRmgr session is found, it is deleted.  
[Response] None

---

## Warning Messages for Parameter Settings (CODE 1XX)

**[102] Bad Parameter "parameter"**

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

**[103] Undefined Parameter "parameter"**

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

**[104] Parameter too long "parameter"**

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

**[105] Not NULL Parameter "parameter"**

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

**[106] Directory Name too long "directory name"**

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

## Warning Messages (CODE 3XX)

**[301] Can't Connect Server "server:port"**

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

**[304] Can't Send Mail "name@server"**

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

**[305] Can't Erase File "file name"**

[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.

**[306] Get Status Failed "server:port/path"**

[Explanation] Failed to obtain the machine status.  
 [Response] Check the target device operating status, LAN connection, and LAN status.

**[307] Send Data Failed "server:port/path"**

[Explanation] Failed to communication with the target device  
 (GRmgr -> target).  
 [Response] Check the target device operating status, LAN connection, and LAN status.

### **[308] Receive Data Failed "server:port/path"**

- [Explanation] Failed to communicate with the target device (GRmgr -> target)
- [Response] Check the target device operating status, LAN connection, and LAN status.

### **[309] Can't update hardware status**

- [Explanation] GRmgr 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 GRmgr is in operation.

## **Fatal Error Messages (CODE 9XX)**

### **[901] Can't Create File "file name"**

- [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.

### **[902] Can't Open File "file name"**

- [Explanation] Failed to open a file.
- [Response] Confirm your access permissions to the file.

### **[903] Can't Get File Status "file name"**

- [Explanation] Cannot acquire file status.
- [Response] Confirm your access permissions to the file and its directory.

### **[904] Can't Create Socket**

- [Explanation] Failed to create a socket.
- [Response] Confirm system resources.

### **[905] Can't Allocate Memory**

- [Explanation] Failed to reserve an open area in memory.
- [Response] Allocate the necessary memory.

### **[906] Bad IP Address "host name or IP address".**

- [Explanation] The specified target IP address is invalid.
- [Response] Set the correct IP address.

### **[908] Can't Create Directory "path"**

- [Explanation] Failed to create a directory.
- [Response] Confirm your access permissions to the directory.  
Confirm that the name of the specified directory is correct.

### **[909] Not NULL Parameter "parameter"**

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

**[910] Not Find Parameter "parameter"**

[Explanation] This parameter setting cannot be found.  
[Response] Set the parameter.

**[911] Parameter too long "parameter"**

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

**[912] Directory Name too long "directory name"**

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

**[913] Bad Parameter**

[Explanation] The "TARGET\_FLAG" parameter is either incorrect or not set.  
[Response] Correct the "TARGET\_FLAG" parameter.

## 6.4 Log Messages

---

An example of log message output is shown below.

```
GRmgr(stxpoll) V10L60 (build 29271)
=====
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
/GRmgr/html_1/
MESSAGE [006]:STXPOLL_1.INI 20:45:41 >> Initialize HTML_ALARMFILE_PATH=C:\inetpub
\wwwroot\grmgr\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
\GRmgr\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\grmgr\html_1
\200210072045420.html (*5)
```

- \*1) GRmgr 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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## GRmgr User Guide -Introduction-

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