

NEC Express5800/100,ft Series

Global Array Manager
Ver. 5.00

Installation Manual
[Linux Server Edition]

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Preface

This guide explains how to operate Global Array Manager that manages and maintains Fibre Channel Disk Array Unit (ST12000) and Mylex disk array controller in the Express5800 series on the operating system. Use SANArray Manager Client (SAM Client) to manage and maintain Fibre Channel Disk Array Unit (ST12000).

See “Global Array Manager Ver.4.00/5.00 Operation Manual” for the features of GAM.

The readers of this manual are required to be familiar with the functions and operations of Linux. Refer to the online help of OS for the operations and unknown information on Linux.

Just the contents of GAM Server and SAM Client are applicable for Linux servers.

See the publications provided with Fibre Channel Disk Array Unit (ST12000) and Mylex disk array controller for the information specific to them.

Text Conventions

The following conventions are used throughout this guide.

Note Items that are mandatory or require attention when using the utilities and the server.

Tips Helpful and convenient piece of information

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1. Overview

The Global Array Manager (called GAM hereafter) is a client/server application used to configure, initialize, manage, monitor, and maintain the following disk array systems.

- Disk array system consisting of Fibre Channel Disk Array Unit (ST12000)

1.1. Global Array Manager

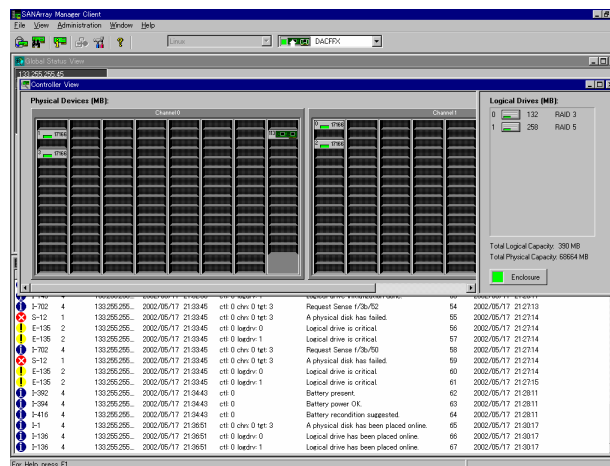
GAM consists of GAM Server that operates on the Express5800 series server and SAM Client that operate on the administrative computer.

GAM Server: Operates on the Express5800 series containing Fibre Channel Disk Array Unit (ST12000), and enables their management from SAM Client.

SAM Client: Manages Fibre Channel Disk Array Unit (ST12000), connected to the Express5800 series on which GAM Server is operating, locally or from the administrative computer (Windows 2000, Windows 98/Me, or Windows NT) via the network by the GUI.

Note SAM Client cannot be installed in Express5800 series built on Linux. Prepare a administrative computer which has been installed Windows 2000, Windows 98/Me, or Windows NT, then install SAM Client in the computer without fail.

SAM Client



1.2. Major Functions

The GAM has the following three functions.

- Configuration functions

The GAM can set up (configure) or reconfigure a disk array easily using the RAID Assist.

- Monitoring functions

GAM Server collects information about the disk array status and resource use status and reports the contents to SAM Client.

SAM Client monitors the information and display the contents graphically.

Events and errors are recorded in the specified log file.

- Maintenance functions

SAM Client manages and maintains a disk array system through the GUI. It enables you to remove a hard disk from an active disk array (disconnecting the hard disk or placing it in offline state), rebuild a hard disk, select a hot spare disk, and initialize a disk array.

See “Global Array Manager Ver.4.00/5.00 Operation Manual” for the preceding functions of GAM.

2.Setup of GAM Server

2.1. System Requirements

This section describes the environment required to enable GAM Server to operate.

- Hardware
 - Main computer:
NEC Express5800 series connected with Fibre Channel Disk Array Unit (ST12000)
 - Hard disk space:
10MB or larger
- Software
 - Red Hat Linux 7.2/7.3
 - Miracle Linux Standard Edition 2.0/2.1
 - Red Hat Linux Advanced Server 2.1 powered by Miracle
 - Red Hat Enterprise Linux AS/ES 2.1/3.0
 - Linux for NEC Express5800/ft series
 - GAM Utilities (using NEC Express5800/ft series)
 - Fibre Channel Disk Array Controller Driver for Fibre Channel Disk Array Unit (ST12000)
- Corresponding SAM Client
 - SAM Client 5.00

Tips See [Control Panel]-[Add or Remove Program] for the version of SAM Client.

2.2. Installation

2.2.1 Preparation

The following preparations are required to install GAM Server:

- Completion of TCP/IP setting
- Completion of connection with Fibre Channel Disk Array Unit (ST12000)
- Built-in of Fibre Channel Disk Array Controller Driver for Fibre Channel Disk Array Unit (ST12000)

Tips Input the following command to affirm the installation of Fibre Channel Disk Array Controller Driver.

```
# lsmod | grep qla2200
qla2200          xxxx  yy
```

Fibre Channel Disk Array Controller Driver is installed if the contents above are displayed. Here, xxxx means the size of driver and yy does the number of use.

Grasp the contents above regarding “qla2200” as “qla2300” on NEC Express5800/ft series.

2.2.2 Installing GAM Server

This section describes how to install GAM Server. If GAM Server has been already installed, the installed GAM Server is still available.

Tips Input the following command to affirm the information of installed GAM Server.

```
# rpm -qi gam-server
```

After the affirmation of downloaded RPM package file by ls command, install GAM Server according to the following procedure.

1. Login by **root** user.
2. Input the following command.

```
# rpm -iv gam-server-5.00-xx.i386.rpm (5.00-xx: the version of installing GAM Server)
```

Tips Input the following command to verify the contents of RPM package file.

```
# rpm -qpi gam-server-5.00-xx.i386.rpm
```

2.3. Environment Setting

2.3.1 Registration of Administrative Account

The following account as GAM administrator is required to manage the disk array controller in GAM Server from SAM Client. Login as root user, create the following account, and set the password for it.

Administrator Account Name : **gamroot** (little letters)

Belonging Group Name : **root**

Tips The followings are described about how to use useradd command to create a new account.

```
# useradd -u <UID> -g root gamroot
```

Input <UID> an user ID which never overlaps other accounts' ID. It is essential for the account itself to be set a password, which can be set by passwd command as follows.

```
# passwd gamroot
```

2.3.2 Setting of Configuration File of GAM Server

It is essential to edit the startup file “/etc/rc.d/init.d/gam” of GAM Server to destine the client which is reported GAM event messages. Edit the file according to the following procedure.

1. Edit the following rows for the actual network environment. Set the IP address of administrative computer after each -h option.

#gamevent -h host1 -h host2 -h host3 &

e.g.) gamevent -h 192.168.0.148 &

Tips If there are plural administrative computers on which SAM Client works, describe plural -h options. Besides, take notice that the IP addresses of administrative computers require to be changed to the new ones if the actual network environment setting is changed.

2. Remove the comment marks ‘#’.

#gamevlog -f \$EVENTLOGFILE & -> gamevlog -f \$EVENTLOGFILE &

3. Restart GAM Server according to the following procedure.

- 1) Stop GAM Server.

```
# /etc/rc.d/init.d/gam stop
```

- 2) Make sure that GAM Server processes are not existing.

```
# ps -ef | grep gam
```

- 3) If some GAM Server processes are still existing after the preceding command was input, kill them.

```
# kill -9 <process ID>
```

- 4) Restart GAM Server.

```
# /etc/rc.d/init.d/gam start
```

Tips GAM Server can be restarted by rebooting the system.

2.3.3 Change of Firewall Configuration

If firewall has been set to some configuration, SAM Client on the administrative computer cannot retrieve the correct information of RAID controllers. Change the configuration of firewall according to the following procedure.

1. Login as **root** user.
2. Input **setup** command.

```
# setup
```

3. Select "**Firewall configuration**", and push **Return** key.
4. There are some procedures to configure due to Security Level on Firewall Configuration window.
 - In case **High** or **Medium** was selected
 - 1) Select **Customize**.
 - 2) Input "**gamserv**" to "Other ports" on Customize window, and select **OK**.
 - 3) Select **OK** on Firewall Configuration window.
 - In case **No firewall** was selected
 - 1) Select **OK** on Firewall Configuration window.
5. Select **Quit** on Choose a Tool window.
6. Restart network function.

```
# /use/sbin/xinetd -restart
```

Tips Network function can be restarted by rebooting the system.

2.3.4 Installing GAM Utilities

NEC Express5800/ft series requires to be installed "GAM Utilities".

If GAM Utilities has been already installed, it is still available.

Tips Input the following command to affirm the information of installed GAM Utilities.

```
# rpm -qi gamutil
```

After the affirmation of downloaded RPM package file by ls command, install GAM Utilities according to the following procedure.

1. Login by **root** user.
2. Input the following command.

```
# rpm -iv gamutil-x.xx-xx.i386.rpm (x.xx-xx: the version of installing GAM Utilities)
```

Tips Input the following command to verify the contents of RPM package file.

```
# rpm -qpi gamutil-x.xx-xx.i386.rpm
```

2.4. Uninstallation

2.4.1 Uninstalling GAM Server

Uninstall GAM Server according to the following procedure.

1. Login as **root** user.
2. Stop GAM Server.

```
# /etc/rc.d/init.d/gam stop
```

3. After affirming GAM Server stopped by **ps** command, remove GAM Server software package.

```
# rpm -ev gam-server
```

4. Remove gamserv file by the following command.

```
# rm -f /etc/xinetd.d/gamserv
```

5. Edit /etc/services file by a text editor such as vi editor, etc.

```
# vi /etc/services
```

6. Remove the following rows from the preceding file.

```
gamserv          157/tcp        # Mylex GAM service port
```

Tips As for administrative account and the configuration of firewall which were created or changed in mentioned “**Environment Setting**”, recover to the status before installation of GAM Server as occasion demands.

Change the configuration according to the following procedure to recover to the status before installation.

- 1) Removal of Administrative Account

Input the following command and remove the administrative account.

```
# userdel gamroot
```

- 2) Change of Firewall Configuration

Refer mentioned “**Change of Firewall Configuration**” and change the configuration. However, if Security Level was set to High or Midium, remove “**gamserv**” in Other ports.

- 3) Uninstallation of GAM Utilities (using NEC Express5800/ft series)

Input the following command and uninstall GAM Utilities.

```
# rpm -ev gamutil
```

3.Setup of SAM Client

3.1. System Requirements

This section describes the environment required to enable SAM Client to operate.

- Hardware
 - Main computer:
NEC Express5800 series or PC/AT compatible machine
 - Memory:
Capacity of memory required for OS + 4MB or larger
(Capacity of memory required for OS + 16MB or larger recommended)
 - Hard disk space:
8MB or larger (16MB or larger recommended)
- Software
 - Windows 2000
 - Windows NT
 - Windows 98
 - Windows Me
- Corresponding GAM Server
 - GAM Server 5.00

3.2. Installation

3.2.1 Preparation

The following preparations are required to install SAM Client:

- Availability of mouse or another pointing device
- Logon in administrators group (for OS of Windows 2000 or Windows NT)
- Completion of TCP/IP setting

Note ■ It is not recommended to use a network tasked fee between GAM Server and SAM Client since they periodically communicate each other.

■ If an older SAM Client has been already installed, it will be uninstalled forcibly, then the newest version will be installed.

3.2.2 Installing SAM Client

This section describes how to install SAM Client.

A downloaded setup program is used for installation of SAM Client.

Install SAM Client according to the following procedure.

1) Decompress the downloaded ZIP file, and start the setup program "Setup.exe".

[Welcome] dialog box will appear.

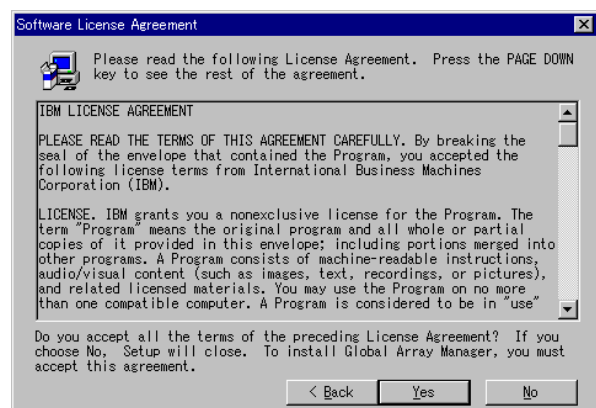
2) Click [Next] button.

[Software License Agreement] dialog box will appear.



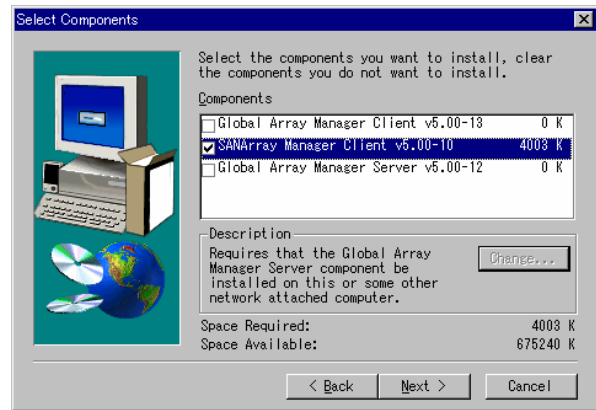
3) Click [Yes] button.

[Select Components] dialog box will appear.

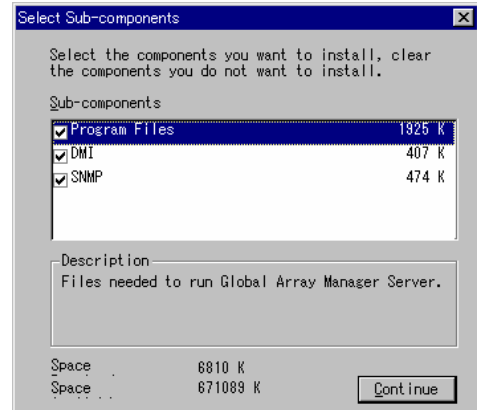


- 4) Select “SANArray Manager Client”, and Click [Next] button.

[Select Components] dialog box will appear.

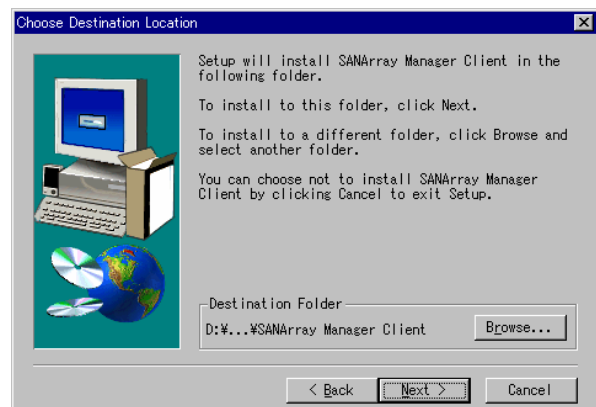


Tips To select preferable sub-components, click [Change...] button, and select components on [Select Sub-components] dialog box.



- 5) Affirm the destination folder name, and Click [Next] button.

[Start Copying Files] dialog box will appear.



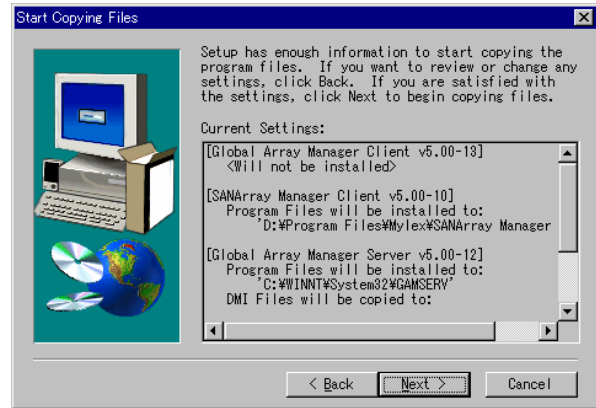
Tips To change the destination folder, click [Browse...] button, and select another preferable folder on [Choose Folder] dialog box.

In installing SAM Client in an environment in which an older one has been installed, take notice not to overlap the destination folder.

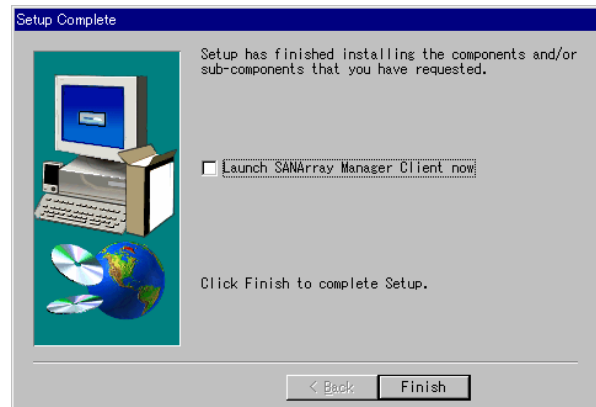


6) Affirm the selected components and files to be installed, and click [Next] button.

Installation will start, and [Setup Complete] dialog box will appear.



7) Click [Finish] button.



3.3. Uninstallation

3.3.1 Uninstalling SAM Client

This section describes how to uninstall SAM Client.

Uninstall SAM Client according to the following procedure.

- 1) **Start [Add or Remove Program] on Control Panel, and select “Mylex SAN Array Manager Client...” on [Add or Remove Program] dialog box, then click [Add/Remove] button.**
[Confirm File Deletion] dialog box will appear.
- 2) **Click [OK] button on [Confirm File Deletion] dialog box.**
Uninstallation will start, and [Remove Programs From Your Computer] dialog box will appear.
- 3) **Click [OK] button on [Remove Programs From Your Computer] dialog box.**