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ETERNUS DX60/DX80 Web GUI

User Guide



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Preface

This guide provides a variety of basic information about Web GUI for the ETERNUS DX60/DX80. It should be referred to when setting up and maintaining the ETERNUS DX60/DX80. This guide is specially written for ETERNUS DX60/DX80 Web GUI system administrators and operators. Knowledge of UNIX or Windows® systems is required.

Second Edition October 2009

Structure of This Manual

This manual consists of the following 8 chapters and an Appendix.

Chapter 1 Outline

This chapter describes the outlines, features, operation environment, and operating topology for GUI.

Chapter 2 Startup and Shutdown

This chapter describes how to start, exit, log on and log off from GUI, and information about operation screens.

Chapter 3 Initial Setup

This chapter describes the Initial Setup menu.

Chapter 4 Status Menu

This chapter describes the status display menu for the device.

Chapter 5 Configuration

This chapter describes the configuration related menu. Details for Configuration Wizard, RAID group management, volume management, and Advanced Copy management are provided.

Chapter 6 Global Settings

This chapter describes the user management, network settings, remote support settings, system settings, and Host I/F (host interface) management.

Chapter 7 Maintenance

This chapter describes the hardware maintenance procedures.

Chapter 8 Display and Download Information (Diagnosis)

This chapter describes how to display and download ETERNUS DX60/DX80 related information.



Procedures to install the site certificate of the Web site are provided for the Appendix.

Latest Information

The information in this document is subject to change without notice for functionality expansion of ETERNUS DX60/DX80 and improvement. The latest version of this document and the latest information about the ETERNUS DX60/DX80 is released in the following web-site. Access the following address if needed.

http://www.fujitsu.com/global/services/computing/storage/eternus/products/diskstorage/dx60-dx80/

Related Materials

Other manuals for the ETERNUS DX60/DX80 are as follows:

- ETERNUS DX60/DX80 Disk storage systems User Guide
- ETERNUS DX60/DX80 Command Line Interface (CLI) User's Guide
- ETERNUS Disk storage systems Server Connection Guide (Fibre Channel) (*1)
- ETERNUS Disk storage systems Server Connection Guide (iSCSI) (*1)
- ETERNUS Disk storage systems Server Connection Guide (SAS) (*1)
- *1: Download the required manuals for your device environment (server OS and Fibre Channel card type, etc.) from the specified web site. Refer to the Document CD provided with the ETERNUS DX60/DX80 for URLs of the manual download site.

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Abbreviations

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

- Microsoft® Windows® 2000 Server operating system and Microsoft® Windows® 2000 Advanced Server operating system are abbreviated as Windows® 2000.
- Microsoft® Windows Server® 2003, Standard Edition, and Microsoft® Windows Server® 2003, Enterprise Edition are abbreviated as Windows Server® 2003.
- Microsoft® Windows Server® 2008, Standard Edition, and Microsoft® Windows Server® 2008, Enterprise Edition are abbreviated as Windows Server® 2008.
- Windows® Server refers to both the Windows Server® 2003 and Windows Server® 2008.
- Windows® refers to all the Windows products listed here: Windows® 2000, Windows Server® 2003, and Windows Server® 2008.
- Solaris[™] Operating System is abbreviated as Solaris OS.

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Chapter 1 Outline

This chapter describes the outlines, features, operating environment, and operating topology for ETERNUS DX60/DX80 Web GUI (hereinafter referred to as "GUI"). GUI is installed in controllers of the ETERNUS DX60/DX80 (hereinafter also referred to as "the

GUI is installed in controllers of the ETERNUS DX60/DX80 (hereinafter also referred to as "the device"), and used for performing settings and maintenance via web browser.

1.1 Outline

Use GUI to set the operating environment and check status for the ETERNUS DX60/DX80. GUI can be operated from a web browser by connecting the PC via a LAN connection.



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Refer to "2.1 Startup" (page 13) for details of GUI start up.

1.2 Features

The features for GUI are as follows:

Initial and basic settings by the wizard

The wizard enables you to set the minimum requirement to run the ETERNUS DX60/DX80 by following the instructions on the wizard screen.

System status

This function displays the device installation image.

Disk configuration check function

This function displays a list of disk drives. It is also possible to display the number of constructible RAID groups by specifying the RAID group configuration requirements.

Checking the extent of a failure

If a disk drive failure occurs, "Host Port", "Affinity Group", "Volume", "RAID group", and "installation location" can be referenced to determine the extent of the failure.

Easy operation

If a hardware failure is detected, the system administrator can receive a mail containing detected failure information.



1.3 Operating Environment

| The following server of FC environment is required for the use of GOI. | | | | | |
|--|------------------------------|------------|--|--|--|
| Confirmed | Version | | | | |
| Browsers | Microsoft® Internet Explorer | 6.0 or 7.0 | | | |
| | Mozilla Firefox™ | 3.0.x | | | |
| Image resolution | 1024 x 768 or more | - | | | |
| | | | | | |
| • Set the web browser not to use a proxy server and cache (Temporary Internet Files). | | | | | |
| Browsers require the following operating environment. Enable t following functions for each browser. JavaScript and Style Sheet Cookie | | | | | |
| | | | | | |

The following server or PC environment is required for the use of GUI.

1.4 Operating Topology

GUI can be operated by a PC or workstation with a web browser installed, that is connected via a LAN.

Two connection topologies are allowed:

- Direct connection of the PC to the device
- Network connection via an existing LAN

The operating topology diagram below shows a direct connection with a LAN cable.



*1: Connect the setting PC and the ETERNUS DX60/DX80 with a LAN cable Either a straight through or crossover LAN cable can be used.

The operating topology diagram below shows operation on an existing network.



*2: Connects the operation server and the ETERNUS DX60/DX80 using a Fibre Channel (FC), iSCSI, or SAS cable.



Chapter 2 Startup and Shutdown

This chapter describes how to start, exit, log on and log off from GUI, and information about operation screens.

2.1 Startup

Startup the logon screen for GUI.

Connect the PC and the ETERNUS DX60/DX80 using a LAN cable, and display the logon screen via the web browser.

The procedure to start up the logon screen for GUI is as follows:

Procedure

- **1** Directly connect the PC and MNT port of the ETERNUS DX60/DX80 via LAN cable.
- 2 Set the IP address and subnet mask for the PC to match the ETERNUS DX60/ DX80 network settings.
- 3 Enter the URL to the address bar in the web browser. Specify "http://IP address of the device/" or "https://IP address of the device" (Default IP address is "192.168.1.1").
 - → The logon screen for GUI is displayed. Refer to <u>"2.2 Logon" (page 15)</u> for detailed procedure to logon.

| - | | | |
|----|-----|----|--|
| Ca | uti | on | |

The confirmation screens for site certificate may be displayed when using SSL (https) to start up GUI (the display contents vary according to your web browser). However, this should not cause any problems. Accept the site certificate and continue the process. The following shows an example when using Internet Explorer 7. There is a problem with this website's security certificate. The security certificate presented by this website was not issued by a trusted certificate authority. Security certificate problems may indicate an attempt to fool you or intercept data you send to the server. We recommend that you close this webpage and do not continue to this Web site. This warning will not be displayed after installing the site information. Refer to "Appendix A Install Site Certificate" (page 236) for procedure to install the site certificate to the your web browser. • Refer to "6.2.1 Setup Network Environment" (page 147) for 🚺 Note procedure to set the IP address of the MNT port. The following ports should be used for http and https connections: •

| Protocol | Port to be used (Default) | | |
|----------|---------------------------|--|--|
| http | 80 | | |
| https | 443 | | |

2.2 Logon

Log on to GUI to start the operation. The GUI operation screen appears.

The menu displayed pertains to the logged on user role. An Advanced privilege user (CE) can access various maintenance/settings menus, a Standard user (SE) has operational access, and a Monitor user (general user) can access the status display menus.





| | ΓΤΓΟΝΙΙς | DV80 |
|--------------------------------------|--------------------------|------|
| | | DAOU |
| Storage System Name Serial Number | ETERNUS_01 0000000000 | |
| Username | root | |
| Password | •••• | |
| Language | English 💌 | |
| (| Logon | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

 \rightarrow The operation screen appears.

Caution 🖉

Up to four users can be logged on concurrently. Logging on five or more users is not allowed.

Also note that a warning message appears in the following conditions and some functions cannot be used. Confirm the current GUI usage state and start operation.

- When attempting to logon, another user is already logged on and performing one of the following operations.
 - Applying controller firmware
 - Applying disk firmware
 - RAID group diagnosis
 - Disk diagnosis



2.3 Logoff

Log off from GUI to finish the operation. The procedure for logging off is as follows:

Procedure

1 Click the [Logoff] link on the top right of the screen.

| 🚈 ETERNUS DX80 - Microsoft Internet Explorer | | | | <u>- 🗆 ×</u> |
|--|--------------------------------|---|--------------------|--------------|
| <u>File E</u> dit <u>View</u> Favorites <u>T</u> ools <u>H</u> elp | | | | R |
| 🚱 Back 🔹 🕞 - 💌 😰 🏠 🔎 Search Favorites 🥝 | 🗞 🔜 🦫 🕼 | | | |
| Address Addres | cgi_PgDeviceStatus&csplang=en# | | | 💌 🔁 Go |
| ETERNUS DX80 | | | User : roll Logoff | FUมีทรบ |
| ETERNUS_01 Serial Number: 00000000 | Date : 2009-08-28 10:21:0 | 2 | | <u>Help</u> |
| Status Easy Setup Volume Settings Global Settings M | aintenance Diagnosis | | | |
| RAID Group Management 🔻 Volume Management 👻 Advanced Copy | Management 🔻 | | | |
| Storage System Status Setup Snap Dat | a Pool | | | _ |
| This screen displays the status of the storage system. Manage Copy S | ession | tree on the left-hand side of a screen. | | |
| Register Copy | icense | | | |

 \rightarrow A confirmation screen appears.

2 Click the [OK] button.



 \rightarrow This completes the logging off process. The logon screen appears.



2.4 Exit





2.5 Operation Screens

This section provides a description about GUI operation screens. Click the [Help] link or [Help] button for a detailed explanation of the functions used during operation. An explanation (help) screen of the function is displayed.



2.5.1 Screen structures

The following shows the main contents that configure the operation screen. They are always displayed.

• Global Header

ETERNUS DX60 or ETERNUS DX80 logo, [Logoff] and [Help] links, general status, device serial number, and date and time are displayed in the Global Header.

General status of ETERNUS DX60/DX80 is displayed as an image with character strings.

| 🖉 ETERNUS DX80 - Microsoft Internet Explorer | | | | | |
|---|---|---|--|--|--|
| Ejle Edit Vjew Favorites Tools Help | | | | at 1997 - | |
| 🚱 Back 🛛 🕤 - 💌 💈 🏠 🔎 Search 🚽 | 🍸 Favorites 🤣 🍰 🍓 🖾 | | | | |
| Address A http://102.160.1.1/cai.bio/con2conid_ou/CDUDio | oVduTal&consaaa.coi DaDauicaStatur&coslanaa.co# | | | - B.c. | |
| ETERNUS DX80 | ETERNUS DX80 Usercroot Logoff FUJTSL | | | | |
| Normal ETERNUS_01 Serial Number: 000000000 Date : 2009-08-28 10:21:02 | | | | He | |
| oluluo Luoyoolup volume oclumgo ol | oourocumgo mannenance pragnosio | | | | |
| RAID Group Management 🔻 Volume Management 🔻 | Advanced Copy Management 🔻 | | | | |
| Storage System Status | Setup Snap Data Pool | | | | |
| This screen displays the status of the storage system. | Manage Copy Session | tree on the left-hand side of a screen. | | | |
| | Register Copy License | | | | |

🔵 Menu Bar

Clicking the tabs in the menu bar displays sub menus related to the selected function. Clicking the sub menu with the " $\mathbf{\nabla}$ " symbol displays pull-down menu options.



Title Bar

The current function name is displayed.

| 🚰 ETERNUS DX80 - Microsoft Internet Explorer | <u>_0×</u> |
|--|---------------------------|
| <u>File Edit View Favorites Iools Help</u> | |
| 🚱 Back + 🕥 - 🖹 🙆 🏠 🔎 Search 👷 Favorites 🤣 🎅 + 😓 🖂 🖄 | |
| Agdress 🖉 http://192.168.1.1/cgi-bin/csp?cspid=eWCRW0jec9XduTal&csppage=cgi_PgDeviceStatus&csplang=en# | 💌 🔁 Go |
| ETERNUS DX80 | User:root Logoff FUĴÎTSU |
| Normal ETERNUS_01 Serial Number: 000000000 Date: 2009-08-28 10:21:02 | Help |
| Status Easy Setup Volume Settings Global Settings Maintenance Diagnosis | |
| Storage System Status Setup Snap Data Pool | |
| Register Copy License | |

2.5.2 User Role

The available menus for GUI will differ according to the account type. The following table shows the difference between user roles.

| User role | Available functions | Default account |
|-----------|--|-----------------|
| Advanced | "Advanced" is a maintenance engineer privilege. Setting maintenance such as status display, configuration management, and maintenance functions are available. | f.ce |
| Standard | "Standard" is a system administrator privilege. Functions such as status display and configuration management are available. | root |
| Monitor | "Monitor" is a general user privilege. Only the status display function is available. | None |

Settings and functions for an Advanced privilege user

- Initial Setup
- Status
- Volume Settings
- Global Settings
- Maintenance
- Diagnosis
- Utilities

Settings and functions for a Standard privilege user

- Initial Setup
- Status
- Volume Settings
- Global Settings
- Maintenance (Add Drive Enclosures)
- Diagnosis
- Settings and functions for a Monitor privilege user
- Status
- Diagnosis (Display Event Log and Display Performance Information)



| | Ostanana | | User Role | | |
|---------------|-------------------|---------------------------------|-----------|----------|----------|
| Chapter | Category Function | | Monitor | Standard | Advanced |
| Startup and | Logon | | ОК | ОК | ОК |
| Shutdown | Logoff | | OK | ОК | ОК |
| Initial Setup | Set Date and Tim | e | - | OK | OK |
| | Set Storage Syste | em Name | - | ОК | OK |
| | Change Passwore | d | _ | OK | OK |
| | Setup Network Er | nvironment | _ | OK | OK |
| Status Menu | Storage System S | Status | OK | ОК | OK |
| | RAID Group Statu | IS | OK | OK | OK |
| | Volume Status | | OK | OK | OK |
| | Advanced Copy S | Status | OK | OK | OK |
| Configuration | Configuration Wiz | ard | - | OK | OK |
| | RAID Group | Create RAID Group | - | ОК | OK |
| | Management | Delete RAID Group | - | ОК | OK |
| | | Assign Hot Spare | - | ОК | OK |
| | | Release Hot Spare | - | ОК | OK |
| | | Logical Device Expansion | _ | ОК | ОК |
| | | Set RAID Group Name | - | ОК | OK |
| | | Set Eco-mode Schedule | - | OK | OK |
| | | Change CM Ownership | _ | ОК | OK |
| | | Modify RAID Group Parameters | - | - | ОК |
| | Volume | Create Volume | _ | OK | OK |
| | Management | Delete Volume | _ | OK | OK |
| | | Format Volume | _ | ОК | OK |
| | | Encrypt Volume | _ | ОК | ОК |
| | | LUN Concatenation | - | OK | OK |
| | | RAID Migration | _ | ОК | OK |
| | | Initialize Snap Data Volume | - | ОК | ОК |
| | | Modify Cache Parameters | - | - | ОК |
| | | Release Reservation | _ | OK | OK |
| | | Set Volume Name | - | ОК | OK |
| | | Configure LUN Mapping | - | ОК | OK |
| Configuration | Advanced Copy | Setup Snap Data Pool | - | ОК | ОК |
| | Management | Manage Copy Session | - | ОК | ОК |
| | | Register Copy License | - | ОК | ОК |
| | | Modify Copy Parameters | - | ОК | ОК |
| | | Modify EC/OPC Priority | - | ОК | OK |
| | | Modify Copy Table Size | - | OK | OK |

The following table shows the availability of functions for each user role.



| Chaptor | Catagory | Eurotion | | User Role | |
|-------------------|-----------------------|--|---------|-----------|----------|
| Chapter | Calegory | Function | Monitor | Standard | Advanced |
| Global | User | Setup User Account | - | OK | OK |
| Settings | Management | Change User Password | - | OK | OK |
| | | Initialize User Account | - | OK | OK |
| | Network Settings | Setup Network Environment | - | OK | OK |
| | | Setup SNMP Agent | - | OK | OK |
| | | Download MIB File | - | OK | OK |
| | | Perform SNMP Trap Test | - | OK | ОК |
| | | Setup E-Mail Notification | - | OK | OK |
| | | Display SMTP Log | - | OK | OK |
| | | Setup Event Notification | - | OK | OK |
| | Renew SSL Certificate | - | OK | OK | |
| Remote Support | | Display Support Information | - | OK | ОК |
| | | Display Communication Log | - | OK | ОК |
| | | Setup Remote Support | - | OK | OK |
| | | Update Customer Information | - | OK | ОК |
| | | Update Communication Environment Information | - | ОК | ОК |
| | | Setup Log Sending Parameters | _ | ОК | ОК |
| | | Stop/Restart Remote Support | - | OK | ОК |
| | | Download Controller Firmware | - | _ | ОК |
| | | Setup Firmware Update from Peer Storage System | _ | _ | OK |



| Chapter | Catagony | Function | User Role | | | | |
|-------------------|-------------------------|--------------------------------------|-----------|----------|----------|--|--|
| Chapter | Calegory | Function | Monitor | Standard | Advanced | | |
| Global | System | Modify Date and Time | - | OK | OK | | |
| Settings Settings | | Modify Storage System Name | - | OK | ОК | | |
| | | Setup Encryption Mode | - | OK | OK | | |
| | | Change Box ID | - | OK | OK | | |
| | | Setup Power Management | - | ОК | ОК | | |
| | | Setup Subsystem Parameters | - | - | ОК | | |
| | | Setup Disk Patrol | - | _ | OK | | |
| | | Setup SMI-S Environment | _ | - | ОК | | |
| | Host I/F | Set Port parameters | - | OK | OK | | |
| | Management | Setup Host | - | OK | OK | | |
| | | Setup Host Response | - | OK | OK | | |
| | | Modify Reset Group | - | OK | OK | | |
| Maintenance | Start/End Mainten | ance | - | - | OK | | |
| | Hardware Maintenance | Hot Maintenance (*1) | - | - | - | | |
| | | Concurrent Preventive Maintenance | - | - | ОК | | |
| | | Force Disable | - | - | OK | | |
| | | Force Enable | - | - | OK | | |
| | | Add Drive Enclosure | - | OK | OK | | |
| | | Remove Drive Enclosure | - | - | ОК | | |
| | | Add Disk ^(*1) | - | - | - | | |
| | | Reduce Disk | - | - | OK | | |
| | | Add Controller Module | - | OK | OK | | |
| | Firmware Maintenance | Apply Controller Firmware | - | - | ОК | | |
| | | Register Disk Firmware | - | - | OK | | |
| | | Apply Disk Firmware | - | - | OK | | |
| | | Delete Disk Firmware | - | - | OK | | |
| | Clear Sense Data | | - | - | OK | | |
| Diagnosis | Display Event Log |) | ОК | OK | OK | | |
| | Export/Delete Log | 1 | - | OK | OK | | |
| | Export Panic Durr | ıp | - | OK | OK | | |
| | Start/Stop Perforn | nance Monitoring | - | OK | OK | | |
| | Display Performa | nce Information | OK | OK | OK | | |
| | Display Error Info | rmation | - | OK | OK | | |
| | Export Configurat | ion | - | - | OK | | |
| | Get G-List | | - | - | ОК | | |



| Chapter | Category | Function | | User Role | |
|--|-------------------|-------------------------------------|---------|-----------|----------|
| Chapter | Category | runction | Monitor | Standard | Advanced |
| Utilities | Shutdown/Restart | Storage System | - | - | OK |
| | Initialize System | Disks | - | _ | OK |
| | Cache | Manage Pinned Data | - | _ | OK |
| | Utilities | Force Write Back | - | _ | OK |
| Recovery Utilities Diagnostic Utilities | Recovery | Apply Configuration | - | - | OK |
| | Utilities | Backup Configuration | - | - | OK |
| | | Reset Backup/Restore Fail | - | - | OK |
| | | Force Restore | - | _ | OK |
| | | Reset Machine Down Recovery Fail | - | - | OK |
| | | Reboot All CMs | - | - | OK |
| | Diagnostic | Perform Disk Diagnostic | - | - | OK |
| | Utilities | Perform RAID Group Diagnostic | - | - | OK |

OK: Available -: Not available

*1: Function does not require any operation from GUI.

| þ | N | o t | е |
|---|---|-----|---|
| | | | |
| | | | |

- Some functions are not displayed for some firmware versions and device model names.
 - <u>"5.3.4 Encrypt Volume" (page 99)</u> function will be available after using the <u>"6.4.3 Setup Encryption Mode" (page 187)</u> function. However, when the encryption function is not available, the "Setup Encryption Mode" is not displayed in the menu.



Chapter 3 Initial Setup





Start the Initial Setup. The initial setup procedure is as follows:

Procedure

- Click the [Initial Setup] menu on the [Easy Setup] tab.
 → The Start screen of the [Initial Setup] function appears.
- 2 Click the [Next >] button.



 \rightarrow Initial Setup starts. The "Set Date and Time" screen appears.

- **3** Set the following parameters, and click the [Next >] button.
 - Date/Time Information
 - Current Time
 - Current date and time setting is displayed.
 - Date
 - To change the "Current Time", input the new date and time.
 - Time Zone

Set the time difference (GMT).

- Time Zone

Select the Time Zone from the list box. If the appropriate Time Zone does not exist, select "Direct Input", and specify the time difference using "+" or "-", hour, and minute.

- Daylight Saving Time
 - Set

Select whether to set the Daylight Saving Time "ON" or "OFF" with the radio button.

- Range

If "Set" is "ON", set the Daylight Saving Time period. Select "by day of the week" or "by Date" with the radio button, and input the required parameters.



- NTP Service
 - NTP server

Select "NTP enabled" or "NTP disabled" with the radio button. When NTP is enabled, input the IP address or domain name for the NTP server in the text box. ETERNUS DX60/DX80 is synchronized with the NTP server in a step mode fashion.

- LAN Port used for NTP

Select the LAN port to be used for NTP connection from "MNT" or "RMT".

- Access Status Access state to the NTP server is displayed.

Click the [Skip >>] button to move on to the next screen without

setting.

| internal real time clock is confi | gured. Date, Time, and Time zone are set. |
|---|---|
| start Set Date and Time Set Storage System Name Change Password Setup Network Environment | Date Time Information Current Time 2009-05-15 18:39:27 Date Year 2009 - Month 5 - Day 15 Hour 18 : Minute 39 : Second 24 |
| inish | Time Zone (GMT+09:00) Tokyo, Osaka, Kyoto, Fukuoka, Sapporo 💌 |
| | Daylight Saving Time |
| | Set C ON G OFF |
| | by day of the week Start January w - [1st w] Sunday 00 :00 by day by day End January w] - [1st w] Sunday 00 :00 by day by Date End January w] - [01 Sunday 00 :00 by Date End January w] - [01 Sunday 00 :00 |
| | NTP Service |
| | NTP server C NTP enabled © NTP disabled |
| | LAN Port used for NTP MNT Z Access Status Not yet Set |
| | |

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



- \rightarrow The date and time setting is set, and the "Set Storage System Name" screen appears.
- **5** Set the following parameters, and click the [Next >] button.

Values specified in this screen are used for SNMP.

Name

Enter the storage system name between 1 to 16 alphanumeric characters and symbols (including blanks).

Installation Location
 Enter the instillation location of the ETERNUS DX80 or ETERNUS DX60 Disk storage

system between 1 to 50 alphanumeric characters and symbols (including blanks).

Administrator

Enter the name of system administrator between 1 to 50 alphanumeric characters and symbols (including blanks).



Description

Enter the description of the ETERNUS DX80 or ETERNUS DX60 Disk storage system between 1 to 50 alphanumeric characters and symbols (including blanks).

| Initial Setup | | | | | |
|---|------------------------|--------------------------------|---|---------------------------------|---------|
| The name of the Storage System, Le | ocation, Administrator | name and other attributes abou | t the storage system are defined and modified her | e. | |
| ✓ Start | Set the Name of thi | s Storage System | | | |
| Set Date and Time Set Storage System Name | Name | ETERNUS_01 | (1 - 16 characters(alphanumeric character | blanc sign)) | |
| Change Password | Installation | Server Center | | (1 - 50 characters(alphanumeric | |
| Setup Network Environment | Location | character blanc sign)) | | | |
| Finish | Administrator | Fujitsu Taro | | (1 - 50 characters(alphanumeric | |
| _ | Autoritisti ator | character blanc sign)) | | | |
| | Description | Test | | (1 - 50 characters(alphanumeric | |
| | Description | character blanc sign)) | | | |
| | | | | | |
| | | | | | |
| | | | | < Back Next> | Skip >> |

 \rightarrow A confirmation screen appears.

6 Click the [OK] button.

| Windows Internet Explorer | x |
|---------------------------|---|
| Are you sure? | |
| OK Cancel | |

 \rightarrow The storage system name is set, and the "Change Password" screen appears.

- 7 Set the following parameters, and click the [Next >] button.
 - User Name
 - The current (your) user account name is displayed.
 - User Role The current (your) user role is displayed.
 - Old Password Enter the current password.
 - New Password Enter the new password between 4 to 16 characters.
 Alphanumeric characters and symbols ([!], [-], [_], [_]) can be used.
 - Confirm New Password
 - Enter the same character strings as the value entered in the "New Password" field for confirmation.





- \rightarrow A confirmation screen appears.
- 8 Click the [OK] button.



 \rightarrow The password is changed, and the "Setup Network Environment" screen appears.



9 Set the following parameters, and click the [Next >] button.

- Select Network Port
 Select the port to be
 - Select the port to be used from the "MNT" or "RMT".
- Interface
 - Speed and Duplex
 - Select the communication speed and mode from the following. The default setting is [Auto Negotiation].
 - Auto Negotiation
 - 1Gbps
 - 100Mbps Half
 - 100Mbps Full
 - 10Mbps Half
 - 10Mbps Full
 - Master CM IP Address

Enter the IP address (0 to 255) for the Master CM in the ETERNUS DX60/DX80 Disk storage system.

- Slave CM IP Address

Enter the IP address (0 to 255) for the Slave CM in the ETERNUS DX60/DX80 Disk storage system. This setting is required to duplicate LAN path.

When the ETERNUS DX60/DX80 has only one CM, a Slave IP address cannot be specified.

Subnet Mask

Set the Subnet Mask (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.

- Default Gateway Set the Gateway address (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.
- Primary DNS

Set the IP address for the Primary DNS server (0 to 255) for the ETERNUS DX60/ DX80 Disk storage system.

- Secondary DNS Set the IP address for the Secondary DNS server (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.
- Allowed IP List

The value entered in this field is enabled when the Gateway has been set. Set the destination network address (IP address and Subnet Mask).

Up to 16 addresses can be set. Make sure to set the IP address and Subnet Mask in pairs.



Caution 🖉

| Note the following | when specifyi | ng the IP addres | s and Subnet Mask. |
|------------------------------------|---------------|------------------|----------------------|
| Specify the IP | address using | g IPv4 notation | (character string in |

- d.d.d format based on the 256 radix system).RMT port is used when it is required to use the dedicated network
- for Remote Support. IP addresses for the RMT port and MNT port must be in different subnets.
- "Slave CM IP Address" is specified when connecting to the Slave CM. IP addresses for the Slave CM and Master CM must be in the same subnet.
- Specify the IP address of "Default Gateway" when allowing access from outside of the subnetwork. The IP address must be in the same subnetwork as the port.
- For "Allowed IP List", specify the IP address or network address that allows access to the ETERNUS DX60/DX80. These settings are not required for access from the network address (same subnetwork) which the ETERNUS DX60/DX80 belongs to.

For the two CMs in the ETERNUSDX60/DX80, the CM that has the priority to manage the device is called the Master CM, and the other is called the Slave CM. If a CM or LAN failure occurs, ETERNUS DX60/DX80 changes the Master CM automatically. The IP address for prior Master CM is taken over to the new Master CM. Specifying an IP address for the Slave CM enables forcible changing of the Master CM. When an error occurs and access to the Master CM is disabled, users can access the Slave CM and change the Master CM.

| tial Setup | | | | | | | _ | | | | |
|------------------------------------|----------|--------------------|----------|------------|-------|-------|--------|-----|-----|--|--|
| etwork environment for the storage | system m | anagement interfac | ce ports | are setup. | | | | | | | |
| Start | | | | | | | | | | | |
| Set Date and Time | Select N | etwork Port | | | | | | | | | |
| Set Storage System Name | € MN | TORMT | | | | | | | | | |
| Setup Network Environment | - | | | | | | | | | | |
| Finish | Interfa | ice | | | | | | | | | |
| | C | ad and Dunlas | Course 1 | | 1001 | | | | | | |
| | spe | ed and Duplex | Auton | laco | | _ | - | | | | |
| | Mas | ster CM IP Address | 192 | . 108 | . 1 | | 1 | | | | |
| | Slav | veCMIP Address | 0 | . 0 | . 0 | | 0 | | | | |
| | Sub | onet Mask | 255 | . 255 | . 255 | i . | 0 | | | | |
| | Def | ault Gateway | 0 | . 0 | . 0 | | 0 | | | | |
| | Prir | mary DNS | 0 | 0 | . 0 | | 0 | | | | |
| | Sec | condary DNS | 0 | . 0 | . 0 | | 0 | | | | |
| | | | | | | | | | | | |
| | Allowe | ed IP List | | | | | | | | | |
| | No. | IP Address | | | 1.1 | Subne | t Mask | | | | |
| | #1 | 0.0 | . 0 | . 0 | ٦. | 0 | . 0 | . 0 | . 0 | | |
| | #2 | 0.0 | . 0 | . 0 | | 0 | 0 | 0 | . 0 | | |
| | #3 | 0.0 | . 0 | . 0 | ٦. | 0 | . 0 | . 0 | . 0 | | |
| | #4 | 0.0 | . 0 | . 0 | = - | 0 | . 0 | . 0 | . 0 | | |
| | #5 | 0.0 | . 0 | . 0 | ۰. | 0 | . 0 | . 0 | . 0 | | |
| | #6 | 0.0 | 0 | . 0 | ۰. | 0 | . 0 | . 0 | . 0 | | |
| | #7 | 0 0 | 0 | 0 | - | 0 | 0 | - | | | |

 \rightarrow A confirmation screen appears.



10 Click the [OK] button.



- \rightarrow The Network Environment is set, and the "Finish" screen appears.
- **11** Click the [Finish] button.

| Initial Setup | |
|---|---|
| Initial configuration which is necess | ary in order to use this storage system is performed with this wizard. |
| Start SetDate and Time Set Storage System Name Change Password Setup Network Environment Finish | Information Initial configuration was completed. Please continue to next step using the "Configuration Wizard" in order to perform steps to enable storage access. Click [Finish] to exit this wizard and return to "Storage System Status". |
| | |
| | |
| | |
| | |
| | <back finish="" skip="" ⇒=""></back> |

 \rightarrow The [Initial Setup] completes.



Device setting operation cannot be continued if the IP address is changed. Logon again with the new IP address is required.



Chapter 4 Status Menu

This chapter describes the status display menu for the storage system, RAID groups, volumes, and Advanced Copy function.

4.1 Storage System Status

This function is used to check the status of components configuring the ETERNUS DX60/DX80. Status of each component in the ETERNUS DX60/DX80 is monitored periodically, and the result is displayed as a general status image with character strings.

General Status

The general status of ETERNUS DX60/DX80 is displayed as an image with character strings in the Global Header.

The general status is determined by each component status.

| 🖉 ETERNUS DX80 - Microsoft Internet Explorer | | | |
|---|-------------|--------|---------|
| Eile Edit View Favorites Iools Help | | | A |
| 🚱 Back + 🕤 - 🙁 😰 🐔 🔎 Search 🤺 Favorites 🤣 🌫 🍃 😹 | | | |
| Agdress 🖗 http://192.168.1.1/cgi-bin/csp?cspid=eWCRW0jec9XduTal&csppage=cgi_PgDeviceStatus&csplang=en | | | 💌 🄁 Go |
| ETERNUS DX80 | User : root | Logoff | FUĴĨTSU |
| Normal ETERNUS_01 Serial Number : 0000000000 Date : 2009-08-28 10:19:53 | | | Help |
| Easy Setup Volume Settings Global Settings Maintenance Diagnosis | | | |
| Storage System Status RAID Group Status Volume Status Advanced Copy Status | | | |
| Storage System Status | | | |
| This screen displays the status of the storage system. Select the parts status to be displayed by using the tree on the left-hand side of a screen. | | | |

A "Normal (green)" general status image indicates normal status, while other color images indicate a failure.

The following table shows an each status images.

| Image | Description |
|------------------|---|
| Normal (Green) | ETERNUS DX60/DX80 is in normal state. |
| Not Ready (Red) | "Not Ready" is a status where an abnormality is detected at a power-off, and I/O access from the host cannot be received. |
| Error (Red) | ETERNUS DX60/DX80 is in error state. |
| (Orange) | ETERNUS DX60/DX80 is under maintenance. |
| Warning (Yellow) | ETERNUS DX60/DX80 is in warning state. |
| Offline (Gray) | The component is installed in the ETERNUS DX60/DX80, but not used. |



General status image display priority

A general status image is determined by integrated status of components such as Controller Enclosure, Drive Enclosure, and cables, which configures the ETERNUS DX60/DX80. The following shows the general status display priority.

| $High \leftarrow Not Ready$ | (Red: Not Ready) - | Error | (Red: Error) | Maintenance | (Orange | : During |
|---|----------------------------|------------|--------------|-------------|----------|----------|
| maintenance work |) — Warning (Yellow | : Warning) | - Normal | (Green: Nor | mal) – [| Offline |
| (Gray: Installed, but not used) \rightarrow Low | | | | | | |

When the general status is changed, check the component status. Expand the device tree in the [Storage System Status] menu on the [Status] tab, and select the target component.

Component Status

Status of each component is displayed as a status symbol in the device tree of [Storage System Status] menu on the [Status] tab.

The following table shows the component status symbols.

| Symbol | Description |
|--------------------|---|
| 🥏 (Green) | The component is in normal status. |
| 😵 _(Red) | An error occurs in the component. |
| 1 (Yellow) | The component requires the preventive maintenance. |
| (Orange) | The component is under maintenance. |
| O (Blue) | The component is installed, but not used. (Caution) If a disk is in this state, "Normal (green)" is displayed instead of "Warning (yellow)" as a general status. |
| 🕜 (Gray) | Status other than described above is detected in the component. |

Component list

The following table shows the each component name in the device tree displayed on the left of the [Storage System Status] menu.

| Component name | Description | Remarks |
|--|----------------------|---|
| Enclosure (Storage system name registered in the <u>"Chapter 3</u> <u>Initial Setup" (page 25) or</u> <u>"6.4.2 Modify Storage Sys- tem Name" (page 186)</u>) | Storage system name | _ |
| Controller Enclosure | Controller enclosure | _ |
| Drive Enclosure | Drive enclosure | _ |
| Controller Module | Controller module | Displayed under the "Controller Enclosure". |
| Expander | Expander | Displayed under the "Drive Enclosure". |



| Component name | Description | Remarks |
|-------------------|--|--|
| Port | Host I/F port | Displayed under the "Controller Module". |
| Power Supply Unit | PSU (Power Supply Unit) | Displayed under the "Controller |
| Disks | All disks in the device | Enclosure" and "Drive Enclosure". |
| Disk | Each disk in the controller enclosure or drive enclosure | Displayed under the "Disks". |
| SAS Cable | SAS cable | _ |

The procedure to display the storage system status is as follows:

Procedure

- 1 Click the [Storage System Status] menu on the [Status] tab.
 - \rightarrow The [Storage System Status] screen appears.

The device tree in the left of the screen displays the components that configure the ETERNUS DX60/DX80.

| Terension Image: Status to be despined by using the ree on the left-hand side of a status. Image: Status Image: Status to be despined by using the ree on the left-hand side of a status. Image: Status Image: Status to be despined by using the ree on the left-hand side of a status. Image: Status Image: Status Image: Status Image: Status | Storage System Status | | | | |
|--|---------------------------------------|---|----------------------------|------------------------------------|---------------------------------------|
| Controller Enclosure#2 Drive Enclosure#3 Drive Enclosure#2 Normal Drive Enclosure#3 Drive Enclosure#3 Normal Drive Enclosure#4 Normal Drive Enclosure#3 Normal Drive Enclosure#4 Drive Enclosure#4 Normal Drive Enclosure#4 Drive Enclosure#4 Normal Drive Enclosure#4 Drive Enclosure#4 Normal Drive Enclosure#5 No. Message | This screen displays the status of th | e storage system. Select the parts status to be d | isplayed by using the tree | on the left-hand side of a screen. | |
| Current Production Amme ETERNUS_01 Current Production Serial Number 00000000 Status Normal Cache Mode Write Back Mode Operation Mode Onder Ontgreed Operation Mode Onter Ontgreed Operation Mode Controller Finctosure Operation Mode Current Operation Mode Morenal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#5 Normal No. Message < | | Enclosure View | | | |
| Name ETERNUS_01 Orive Enclosure#2 Model Name Drive Enclosure#3 Status Note Enclosure#3 Normal Cache Mode Write Back Mode Remote Support Not Configured Operation Model Ache Controller Enclosure#1 Normal Drive Enclosure#1 Normal Drive Enclosure#4 Normal Drive Enclosure#4 Normal Drive Enclosure#4 Normal Drive Enclosure#4 Normal System Messages No. No. Message | Controller Enclosure | | | | |
| Other End baur #3 Chrie End baur #3 Dirve Endosure#1 Dirve Endosure#1 Dirve Endosure#1 Dirve Endosure#3 Dirve Endosure#1 Dirve Endosure#1 Dirve Endosure#1 Dirve Endosure#3 Dirve Endosure#4 Dirve Endosure#5 No. Message | Drive Enclosure#1 | Name | ETERNUS_01 | | · · · · · · · · · · · · · · · · · · · |
| Serial Number 00000000 Cheb Enclosure#4 Normal Cheb Enclosure#5 Normal Cheb Mode Ache Opration Mode Ache Onve Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#3 Normal Drive Enclosure#4 Normal Drive Enclosure#5 Normal System Messages Normal No. Message | Orive Enclosure#2 | Model Name | ET08F22AU | 🥗 i 📖 🖓 | |
| Status Normal Cache Mode Write Back Mode Operation Mode Active Controller Module connected to the GUI CMØ Firmware Version V1020-0000 Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#4 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal Drive Enclosure#6 Normal Drive Enclosure#6 Normal Drive Enclosure#6 Normal Drive Enclosure#75 Normal Drive Enclosure#6 Normal Drive Enclosure#75 Normal No. Message | H-ODrive Enclosure#4 | Serial Number | 000000000 | Sector A sector | |
| Cache Mode Write Back Mode Remote Support Not Configured Operation Mode Active Controller Module connected to the GU CM#0 Firmware Version V10.20-0000 Controller Colosure Undefined Drive Enclosure#1 Normal Drive Enclosure#73 Normal Drive Enclosure#75 Normal Drive Enclosure#75 Normal | 🗉 🧭 Drive Enclosure#5 | Status | Normal | a | ±4 |
| Remote Support Not Configured Operation Mode Actve Controller Module connected to the GUI CM#0 Firmware Version V10L20-0000 Controller Enclosure Undefined Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#4 Normal System Messages Normal No. Message | • | Cache Mode | Write Back Mode | B. Statistics & A. Statistics | |
| Operation Mode Active Controller Modue connected to the GU CM#0 Firmware Version V1020-0000 Controller Enclosure Undefined Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal | | Remote Support | Not Configured | | ±3 |
| Controller Module connected to the GUI CM#0 Firmware Version V10.20-0000 Controller Enclosure Undefined Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#5 Normal Drive Enclosure#6 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal Drive Enclosure#5 Normal System Messages Normal No. Message | | Operation Mode | Active | - TA- | |
| Firmware Version V10L20-0000 Controller Enclosure Undefined Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#5 Normal System Messages No. No. Message | | Controller Module connected to the GUI | CM#0 | | |
| Controller Enclosure Undefined Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#4 Normal Drive Enclosure#5 Normal System Messages Normal No. Message | | Firmware Version | V10L20-0000 | | |
| Drive Enclosure#1 Normal Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#5 Normal System Messages No. No. Message | | Controller Enclosure | Undefined | a Received a received and | |
| Drive Enclosure#2 Normal Drive Enclosure#3 Normal Drive Enclosure#4 Normal Drive Enclosure#5 Normal | | Drive Enclosure#1 | Normal | | |
| Drive Enclosure#3 Normal Drive Enclosure#4 Normal Drive Enclosure#5 Normal System Messages No. Message Refresh | | Drive Enclosure#2 | Normal | | |
| Drive Enclosure#4 Normal Drive Enclosure#5 Normal System Messages No. Message Refresh | | Drive Enclosure#3 | Normal | | |
| Drive Enclosure#5 Normal System Messages No. Message Refresh | | Drive Enclosure#4 | Normal | | |
| System Messages No. Message | | Drive Enclosure#5 | Normal | | |
| System Messages No. Message | | | - | | |
| No. Message | | System Messages | | | |
| Refresh | | No | Moreago | | |
| Refresh | | NO. | message | | |
| Refresh | | | | | |
| | | | | | Refresh |



2 Click the component icon to display the status.

 \rightarrow Detailed information of the selected component is displayed on the right of the screen.

| Storage System Status | | | | | | | | | |
|--|---------------------|---------------|------------------|-------------|--------------|-------------------------|------------------------|----|-------|
| This screen displays the status of the storage | system. Select | the parts sta | tus to be displa | yed by usin | g the tree o | n the left-hand side of | a screen. | | |
| Controller Enclosure | er Enclosure D | isplay | | | | | | | 1 |
| Controller Module#1 Power Supply Unit#0 Power Supply Unit#0 Power Supply Unit#1 Disks One Enclosure#1 Power Supple.enclosure#1 | View | 0 0 2 | 0 0 0 |) | | | | | |
| | Rear View | | | | | | | | |
| Informa | tion | | | | | | | | i 📘 |
| CE Inf | ormation | | | | | | | | |
| Locat | tion | | | St | atus | 1 | Error Code | | |
| Intake | e Temp | | | N | ormal | | 0x0000 | | |
| Exha | ust Temp | | | N | ormal | | 0x0000 | | |
| Front | View | | | | | | | | |
| Parts | s Status | Capacity | Speed (rpm) | Туре | Usage | | | | |
| Disk | 🔨 Available | 300GB | 15000 | 3.5" SAS | System | | | | |
| Diska | <u>#1</u> Available | 300GB | 15000 | 3.5" SAS | System | | | | |
| Disk | Present | 300GB | 15000 | 3.5" SAS | Data | | | | |
| Disk | Resent | 300GB | 15000 | 3.5" SAS | Data | | | | |
| UISK | F4 Present | 300GB | 15000 | 3.5" SAS | Data | | | | - |
| Distr | PJ Flesen | 30000 | 13000 | 3.3 ana | Data | | Turn on locator beacon | Re | fresh |

For details about displayed information, refer to the following sections.



When clicking the [Turn on locator beacon] button, "IDENTIFY LED" on the ETERNUS DX60/DX80 front cover blinks blue or turns off. This button is used to identify the target controller or drive enclosure.

End of procedure

4.1.1 Storage System

Detailed information of the ETERNUS DX60/DX80 is displayed.

Enclosure Status Display

The following contents are displayed for the enclosure status display.

| Display contents | Description |
|------------------|--|
| Enclosure View | |
| Name | Storage system name ("Friendly Name" for the VDS ^(*1)) Refer to <u>"6.4.2 Modify Storage System Name" (page 186)</u> for detailed procedure to register the storage system name. |
| Model Name | Model of the ETERNUS DX60/DX80 |
| Serial Number | Serial number of the ETERNUS DX60/DX80 |
| Status | General status of the ETERNUS DX60/DX80 |
| Cache Mode | Operational state of the cache (factor of "Write Through" state) (Write Back Mode/Write Through Mode (Pinned Data/Battery/ Maintenance)) |
| Remote Support | Status of the remote support (Operating/Stopping/Maintenance/Not Configured) |


| Display contents | Description |
|--|--|
| Operation Mode | Operational state of the ETERNUS DX60/DX80 (Active/Maintenance) |
| Controller Module connected to the GUI | Controller module that can be controlled via GUI |
| Firmware Version | Current controller firmware version |
| Controller Enclosure | Status of the controller enclosure |
| Drive Enclosure | Status of the drive enclosure |
| System Message | |
| No. | Number of the system message |
| Message | Details of the system message |

*1: Virtual Disk Service (VDS) is a storage management function of the Windows Server®.

4.1.2 Controller Enclosure

This screen shows the status of controller enclosure and its components.

Controller Enclosure Status Display

The following contents are displayed for the Controller Enclosure status display.

| Display contents | Description | |
|---|---|--|
| Controller Enclosure Display | | |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 | |
| Information | | |
| CE information | | |
| Serial Number | Serial number of the controller enclosure | |
| Other Information | Other information for the controller enclosure | |
| Intake Temp | External temperature of the ETERNUS DX60/DX80 (Normal/Error/Warning) | |
| Exhaust Temp | Internal temperature of the ETERNUS DX60/DX80 (Normal/Error/Warning) | |
| Front View | | |
| Status, Capacity, Speed (rpm), Type, Usage, and RAID group of each component (disk) | | |
| Rear View | | |
| Status and Expanded Information of each component (CM and PSU) are displayed | | |



Controller Module Status Display

The following contents are displayed for the Controller Module status display.

| Display contents | Description |
|------------------------------------|---|
| CM Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CM Information | |
| CM Information | |
| Location | Number of the controller module |
| Status | Status of the controller module (Normal/Maintenance/Error/Check1/Undefined/Unconnected/ Unmounted/ Warning) |
| Status Code | Status code of the controller module |
| Error Code | Error factor of the controller module |
| Memory Size (GB) | Cache memory capacity of the controller module (GB) |
| Туре | Type of the Host I/F port installed in the controller module (Fibre Channel (FC) model/iSCSI model/SAS model) |
| WWN (for FC model or SAS model) | WWN of the controller module |
| Part Number | Component number of the controller module |
| Serial Number | Serial number of the controller module |
| Hardware Revision | Hardware revision of the controller module |
| CPU Clock (MHz/GHz) | Clock frequency of the CPU in the controller module |
| Active EC | Edition Control (EC) number of the currently running firmware |
| Next EC | EC number of the firmware that is to be run after the next power-on |

CM Internal Parts Information

Status, Error Code, and Note for the following Parts (components) are displayed.

- [for FC model/iSCSI model/SAS model]
 - Memory
 - BE Expander
 - BE EXP Port
 - DI Port
 - SCU
 - NAND Controller
 - Flash ROM
- [for FC model only]
 - SAS Cable
 - FC Port
- [for iSCSI model only]
 - SAS Cable
 - iSCSI Port
- [for SAS model only]
 - SAS Port
- FE Expander



Port Status Display (for FC model)

The following contents are displayed for the FC port status display.

| Display contents | Description |
|----------------------|---|
| CM Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CM Port Information | |
| Location | Number of the port |
| Status | Status of the port (Normal/Maintenance/Error/Undefined) |
| Status Code | Status code of the port |
| Error Code | Error factor of the port |
| Туре | FC port type |
| Connection | Connection method to the host (Loop/Fabric) |
| Loop ID | Allocated ID when the fixed Loop ID is used (0x00 – 0x7D) |
| Transfer Rate | Port transfer rate (For 4Gbps model: 4Gbps/2Gbps/1Gbps/Auto Negotiation) (For 8Gbps model: 8Gbps/4Gbps/2Gbps/Auto Negotiation) |
| Link Status | Link status (For 4Gbps model: 4Gbps Link Up/2Gbps Link Up/1Gbps Link Up/Link Down) (For 8Gbps model: 8Gbps Link Up/4Gbps Link Up/2Gbps Link Up/Link Down) |
| WWN | WWN of the port |
| Host Affinity | Current Host Affinity function setting (enabled or disabled) |
| Host Response | Host response allocated to the port when the Host Affinity function is not used. |
| Part Number | Component number of the port |
| Serial Number | Serial number of the port |
| Hardware Revision | Hardware revision of the port |

Port Status Display (for iSCSI model)

The following contents are displayed for the iSCSI port status display.

| Display contents | Description |
|---------------------|--|
| CM Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CM Port Information | |
| Location | Number of the port |
| Status | Status of the port (Normal/Maintenance/Error/Undefined) |
| Status Code | Status code of the port |
| Error Code | Error factor of the port |
| Туре | iSCSI port type |
| Transfer Rate | Port transfer rate (1Gbps) |



| Display contents | Description |
|------------------|--|
| Link Status | Link status (1Gbps Link Up/Link Down) |
| iSCSI Name | iSCSI name of the port |
| iSCSI Alias Name | iSCSI alias name of the port |
| Host Affinity | Current Host Affinity function setting (enabled or disabled) |
| Host Response | Host response allocated to the port when the Host Affinity function is not used. |

Port Status Display (for SAS model)

The following contents are displayed for the SAS port status display.

| Display contents | Description |
|---------------------|---|
| CM Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CM Port Information | |
| Location | Number of the port |
| Status | Status of the port (Normal/Maintenance/Error/Undefined) |
| Status Code | Status code of the port |
| Error Code | Error factor of the port |
| Туре | SAS port type |
| Transfer Rate | Port transfer rate (3Gbps) |
| Link Status | Link status (Phy#0: 3.0Gbps Link Up/1.5Gbps Link Up/Link Down) (Phy#1: 3.0Gbps Link Up/1.5Gbps Link Up/Link Down) (Phy#2: 3.0Gbps Link Up/1.5Gbps Link Up/Link Down) (Phy#3: 3.0Gbps Link Up/1.5Gbps Link Up/Link Down) |
| SAS Address | SAS Address of the port |
| Host Affinity | Current Host Affinity function setting (enabled or disabled) |
| Host Response | Host response allocated to the port when the Host Affinity function is not used. |

SAS Cable Status Display

The following contents are displayed for the SAS cable status display.

| Display contents | Description |
|--------------------------|--|
| CM Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CM SAS Cable Information | |
| Status | Status of the SAS cable (Normal/Error/Maintenance/Warning) |
| Status Code | Status code of the SAS cable |
| Error Code | Error factor of the SAS cable |

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Power Supply Unit Status Display

The following contents are displayed for the Power Supply Unit (PSU) status display.

| Display contents | Description |
|----------------------|--|
| CE PSU Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| CE PSU Information | |
| Location | Number of the power supply unit |
| Status | Status of the power supply unit (Normal/Error/Maintenance) |
| Status Code | Status code of the power supply unit |
| Error Code | Error factor of the power supply unit |
| Part Number | Component number of the power supply unit |
| Serial Number | Serial number of the power supply unit |
| Hardware Revision | Hardware revision of the power supply unit |

Disks Status Display

The following contents are displayed for the Disks status display.

| Display contents | Description |
|--|---|
| Controller Enclosure Display | |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 |
| Information | |
| Front View | |
| Status, Capacity, Speed (rpm), Type, Usage, and RAID group for each component (disk) are displayed | |

Disk Status Display

The following contents are displayed for the Disk status display.

| Display contents | Description |
|-----------------------------------|---|
| Controller Enclosure Disk Display | |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 |
| Information | |
| Location | Disk slot number |
| Status | Status of the disk (Unknown/Available/Broken/Not Available/Not Supported/ Present/Readying/Rebuild/Copyback/Failed Usable/Spare/ Formatting/Not Format/Not Exist/Redundant Copy) |
| Status Code | Status code of the disk |
| Error Code | Error factor of the disk |
| Capacity | Disk capacity (GB/TB) |
| Туре | Disk size (3.5") and type (SAS/SSD) |
| Speed (rpm) | Speed of the disk |
| Usage | Usage of the disk (Data/System/Spare/-) |
| RAID Group | RAID group where disks are registered |

| Display contents | Description |
|----------------------------------|---|
| Motor Status | Status of the disk motor (Active/In the Boot Process/Idle/In the Stop Process) |
| Rebuild/ Copyback Progress | Rebuild/Copyback progress (%) |
| Vender ID | Vendor ID of the disk |
| Product ID | Product name of the disk |
| Serial Number | Serial number of the disk |
| WWN | WWN for the disk |
| Firmware Revision | Disk firmware version |

4.1.3 Drive Enclosure

This screen shows the status of drive enclosure and its components.

Drive Enclosure Status Display

The following contents are displayed for the Drive Enclosure status display.

| Display contents | Description |
|------------------------|--|
| Drive Enclosure Displa | ау |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| Information | |
| DE Information | |
| Serial Number | Serial number of the drive enclosure |
| Other Information | Other information for the drive enclosure |
| Intake Temp | External temperature of the ETERNUS DX60/DX80 (Normal/Error/Warning) |
| Exhaust Temp | Internal temperature of the ETERNUS DX60/DX80 (Normal/Error/Warning) |
| Front View | |
| Status, Capacity, Spee | ed (rpm), Type, Usage, and RAID group of each component (disk) |
| Rear View | |
| Status and Expanded | Information of each component (EXP and PSU) are displayed |
| | |

Expander Status Display

The following contents are displayed for the Expander status display.

| Display contents | Description | | | | | |
|-------------------------|--|--|--|--|--|--|
| Drive Enclosure Display | | | | | | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 | | | | | |



| Display contents | Description |
|-----------------------|---|
| DE EXP Information | |
| DE EXP Information | |
| Status | Status of the expander (Normal/Maintenance/Error/Undefined/Warning) |
| Status Code | Status code of the expander |
| Error Code | Error factor of the expander |
| WWN | WWN of the expander |
| Part Number | Component number of the expander |
| Serial Number | Serial number of the expander |
| Hardware Revision | Hardware revision of the expander |
| Active EC | EC number of the currently running firmware |
| Next EC | EC number of the firmware that is to be run after the next power-on |
| DE EXP Internal Parts | s Information |

Status and error code of each component (SAS Cable) are displayed

SAS Cable Status Display

The following contents are displayed for the SAS cable status display.

| Display contents | Description | | | | | |
|--|-------------------------------|--|--|--|--|--|
| Drive Enclosure Displa | ау | | | | | |
| Rear View Installation diagram for the rear of the ETERNUS DX60/DX80 | | | | | | |
| DE EXP SAS Cable Information | | | | | | |
| Status Status of the SAS cable (Normal/Error/Maintenance/Warning) | | | | | | |
| Status Code | Status code of the SAS cable | | | | | |
| Error Code | Error factor of the SAS cable | | | | | |

• Power Supply Unit Status Display

The following contents are displayed for the Power Supply Unit (PSU) status display.

| Display contents | Description |
|----------------------|---|
| DE PSU Display | |
| Rear View | Installation diagram for the rear of the ETERNUS DX60/DX80 |
| DE PSU Information | |
| Location | Number of the power supply unit |
| Status | Status of the power supply unit (Normal/Error/Maintenance) |
| Status Code | Status code of the power supply unit |
| Error Code | Error factor of the power supply unit |
| Part Number | Component number of the power supply unit |
| Serial Number | Serial number of the power supply unit |
| Hardware Revision | Hardware revision of the power supply unit |



Disks Status Display

The following contents are displayed for the Disks status display.

| Display contents | Description |
|------------------------|---|
| Drive Enclosure Displa | ay |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 |
| Information | |
| Front View | |
| Otative Oceanity Orac | d (mm) Type Heere and DAID group for each component (diak) |

Status, Capacity, Speed (rpm), Type, Usage, and RAID group for each component (disk) are displayed

Disk Status Display

The following contents are displayed for the Disk status display.

| Display contents | Description |
|----------------------------------|---|
| Drive Enclosure Disk | Display |
| Front View | Installation diagram for the front of the ETERNUS DX60/DX80 |
| information | |
| Location | Disk slot number |
| Status | Status of the disk (Unknown/Available/Broken/Not Available/Not Supported/Present/ Readying/Rebuild/Copyback/Failed Usable/Spare/Formatting/ Not Format/Not Exist/Redundant Copy) |
| Status Code | Status code of the disk |
| Error Code | Error factor of the disk |
| Capacity | Disk capacity (GB/TB) |
| Туре | Disk size (3.5") and type (SAS/SSD) |
| Speed (rpm) | Speed of the disk |
| Usage | Usage of the disk (Data/System/Spare/-) |
| RAID Group | RAID group where disks are registered |
| Motor Status | Status of the disk motor (Active/In the Boot Process/Idle/In the Stop Process) |
| Rebuild/ Copyback Progress | Rebuild/Copyback progress (%) |
| Vender ID | Vendor ID of the disk |
| Product ID | Product name of the disk |
| Serial Number | Serial number of the disk |
| WWN | WWN for the disk |
| Firmware Revision | Disk firmware version |



4.2 RAID Group Status

The [RAID Group Status] displays the status of RAID groups registered in the ETERNUS DX60/ DX80.

The procedure to display the RAID group status is as follows:

Procedure

- 1 Click the [RAID Group Status] menu on the [Status] tab.
 - → The [RAID Group Status] screen appears. The tree and list of the registered RAID groups are displayed.
- 2 Click the target RAID group icon in the tree or link in the "RAID Group List" to display detailed information.





 \rightarrow The detailed information of the RAID group is displayed.



End of procedure



4.3 Volume Status

The [Volume Status] displays the status of volumes registered in the ETERNUS DX60/DX80. The procedure to display the volume status is as follows:

Procedure

- 1 Click the [Volume Status] menu on the [Status] tab.
 - \rightarrow The [Volume Status] screen appears.
 - The tree and list of the registered volumes are displayed.
- **2** Click the target volume icon in the tree or link in the "Volume List" to display detailed information.

| JS | Volume | List | | | | | | |
|---------|--------|---------|------------------|------|---------------|------------|---------------------|--------------------|
| Volume0 | No | Name | Status | Type | Canacity (MB) | RAID Group | Formatting Progress | Migration Progress |
| Volume1 | 0 | Volume0 | Available | Onen | 2048 | 0 RAID 01 | - | - |
| Volume2 | 1 | Volume1 | Available | Open | 1024 | 0:RAID 01 | | |
| olume3 | 2 | Volume2 | Available | Open | 1024 | 0:RAID 01 | 2 | 12 |
| med | 3 | Volume3 | Available | Open | 1024 | 0:RAID 01 | - | - |
| ne5 | 4 | Volume4 | Available | Open | 1024 | 0:RAID 01 | | |
| meß | 5 | Volume5 | Available | Open | 1024 | 0:RAID 01 | - | - |
| me7 | 6 | Volume6 | Available | Open | 1024 | 0:RAID 01 | - | - |
| -8 | Z | Volume7 | Available | Open | 1024 | 0:RAID 01 | | - |
| 00 | 8 | Volume8 | Available | Open | 1024 | 0:RAID 01 | - | |
| 200 | 9 | Volume9 | Available | Open | 1024 | 0:RAID 01 | - | - |
| me1 | | | | | | | | |
| me? | 15 | < (| /4) <u>2 3 4</u> | > > | Filter: All | • | | |
| nes | | | | | | 02.00 | | |
| lume4 | | | | | | | | |
| me5 | | | | | | | | |
| 100 | | | | | | | | |
| 107 | | | | | | | | |
| ne8 | | | | | | | | |
| 0.69 | | | | | | | | |
| me00 | | | | | | | | |
| ne01 | | | | | | | | |
| 1e02 | | | | | | | | |
| e03 | | | | | | | | |
| 04 | | | | | | | | |
| e000 | | | | | | | | |
| | | | | | | | | |
| 0000 | | | | | | | | |
| 000 | | | | | | | | |



 \rightarrow Detailed information of the volume is displayed.





The volume number and the location of the volume in the RAID group may be different.

End of procedure



4.4 Advanced Copy Status

The [Advanced Copy Status] displays the Advanced Copy related status. The procedure to display the Advanced Copy status is as follows:

Procedure

1 Click the [Advanced Copy Status] menu on the [Status] tab.

→ The [Advanced Copy Status] screen appears.
 Current Advanced Copy status and list of sessions are displayed.

| dvanced (| opy License | Registered | <u>6</u> | | | | | | | | | | | | |
|---------------------------------------|---|-------------------------|----------|------------|--------|-------|---------------|---------------------------|--------------------------------|-------------------------------|----------------------------------|---------------------|--------------------|--------------------------|-----|
| ession Ty | pe | All | | <u>•</u> | | | | | | | | | | | |
| dvanced (| opy Property | | | | | | | | | | | | | | |
| EC/OPC | riority | | Automati | c Priority | | | | | | | | | | | |
| Advance | d Copy Table S | size (MB) | 32 | | | | | | | | | | | | |
| EC Sessi | ons | | 0 | | | | | | | | | | | | |
| OPC Ses | sions | | 0 | | | | | | | | | | | | |
| QuickOP | C Sessions | | 0 | | | | | | | | | | | | |
| SnapOPO | + Sessions | | 1 | | | | | | | | | | | | |
| Monitor S | Sessions | | 0 | | | | | | | | | | | | |
| st of Adva Source Volume No. | nced Copy Se Destination Volume No. | ssions Session ID | Туре | Generation | Status | Phase | Error Code | Elapsed Time (sec.) | Copied Data Size (MB) | Total Data Size (MB) | Modified Data Size (MB) | SDP Used (MB) | Copy Resolution | Requestor Information | |
| | 20 | 0x0000 | SOPC+ | 1/1 | Active | - | 0x00 | 48 | 0 | 1024 | - | 0 | x1 | GUI/CLI | 191 |
| 0 | | | | | | | | | | | | | | | |

End of procedure



ETERNUS

Chapter 5 Configuration

This chapter describes the ETERNUS DX60/DX80 configuration related menu. The following menus are provided:

- Configuration Wizard
- RAID Group Management
- Volume Management
- Advanced Copy Management

5.1 Configuration Wizard

The [Configuration Wizard] function provides series of settings required for ETERNUS DX60/ DX80 operation on the wizard screen.

This function provides configurations in the following order: Create RAID Group, Create Volume, Define Host, Configure Affinity Group, and Define LUN Mapping.

Also, adding volumes and changing settings for existing RAID groups are available.

| Caution 🖉 | • The value specified in each screen is immediately reflected to the ETERNUS DX60/DX80. Even if the operation is canceled in the middle of it, the specified contents cannot be canceled. |
|-----------|--|
| | • Perform <u>"6.5.1 Set Port Parameters" (page 195)</u> before starting the Configuration Wizard. When using the Host Affinity functions, make sure to "Enable" the Host Affinity setting of the port. |
| | Refer to <u>"6.5 Host I/F Management" (page 193)</u> for details about the host affinity |

Create RAID Group

Create a RAID group (group of disks configuring RAID in the device) on this screen.

Create Volume

Create volumes (disk area in the RAID group) on this screen. The server recognizes the volume as units of RAID configuration.

Define Host

Register the server information to be connected to the ETERNUS DX60/DX80 via a port. This setting is not needed when the Host Affinity function is not used.



Configure Affinity Group

Creates the group of volumes to be recognized from the server (affinity group). Associate a server recognized Logical Unit Number (LUN) and volume numbers. The server recognizes the affinity group using the Host Affinity setting that allocates the affinity group to the server.

This setting is not needed when the host affinity function is not used.

Define LUN Mapping

Specify the volume to be recognized from the server.

- When the host affinity function is used Allocate the affinity group for each server connected to the port (Host Affinity setting).
- When the host affinity function is not used Allocate the volume number managed in the ETERNUS DX60/DX80 and server recognized LUN for each port (LUN mapping setting).

Note that the value specified in the Configuration Wizard menu can be changed subsequently. Refer to the following sections for details.

| Configuration Wizard | Refer to |
|--------------------------|--|
| Create RAID Group | Refer |
| Create Volume | Refer |
| Define Host | Refer |
| Configure Affinity Group | Refer |
| Define LUN Mapping | 5.5. TO Configure LON Mapping (page 112) |

The following shows the procedure of configuration wizard:

Procedure

1 Click the [Configuration Wizard] button on the [Easy Setup] tab.

 \rightarrow The [Configuration Wizard] menu appears.



2 Click the [Start] button.

| Series of procedures required to provision storage. |
|---|
| Start Configuration Wizard |
| This wizard will guide the user through the following configuration tasks. Configuration options selected here can be modified individually later. |
| Create RAID Group A new RAID Group is created or an existing RAID Groups is selected in order to create a new Logical Volume. |
| 2) Create Volume Create Volume in Created/Selected RAID Group. |
| 3) Configure Host Access Configure Host Access connection. |
| 4) Set Affinity Group Create or Modify Affinity Group. |
| 5) Define LUN Map Specify LUN Map for access by Host(s) connected to each Port. |
| Click [Start] to start the Configuration Wizard. |
| |
| |
| |
| |
| |
| |
| Start |

 \rightarrow The Configuration Wizard starts. The [Create RAID Group] screen appears.

3 Set the following items, and click the [Next >] button.

Select the RAID group creating method from the following:

- Create RAID Group (Disks are assigned automatically) Creates a RAID group with an automatically selected disk.
- Create RAID Group (Disks are selected manually) Creates a RAID group with a user specified disk.
- Select existing RAID Group Creates volumes in an existing RAID group of ETERNUS DX60/DX80.
 When this item is selected, the "Select Target RAID Group" field is displayed. Select the RAID group to create volumes. Note that <u>Step 4</u> and <u>Step 5</u> of in the following procedure are skipped in this method.
- Create RAID Group (Disks are assigned automatically)

| iguration Wizard |
|--|
| Create RAID Group Create Volume Create RAID Group Create Volume Create Volume |
| ste RAID Group |
| rate new RAID Groups. Select Way to create RAID Group, or Select existing RAID Group. |
| ecify how the new RAID Group is to be created. |
| Create RAID Group (Disks are assigned automatically) |
| C Create RAID Group (Disks are selected manually) |
| C Select existing RAID Group |
| |
| Help Next> Cance |



- Create RAID Group (Disks are selected manually)

| Create RAID Group Create Volume Define Host Configure Affinity Group Define LUN Mapping create RAID Groups Select Way to create RAID Group, or Select existing RAID Group. Specify how the new RAID Group is to be created. Create RAID Group (Disks are assigned automathcally) © Create RAID Group (Disks are selected manually) © Select existing RAID Group |
|---|
| reate RAID Groups. Select Way to create RAID Group, or Select existing RAID Group. Specify how the new RAID Group is to be created. C create RAID Group (Disks are assigned automatically) C create RAID Group (Disks are selected manually) C Select existing RAID Group |
| ireate new RAID Group. Select Way to create RAID Group, or Select existing RAID Group. Specify how the new RAID Group (Disks are assigned automaticality) C Create RAID Group (Disks are selected manuality) © Create RAID Group (Disks are selected manuality) © Select existing RAID Group |
| Specify how the new RAID Group is to be created. C Create RAID Group (Disks are assigned automatically) © C reate RAID Group (Disks are selected manually) © Select existing RAID Group |
| C Create RAID Group (Disks are assigned automatically) C Create RAID Group (Disks are selected manually) C Select existing RAID Group |
| C Create RAID Group (Disks are selected manually) Select existing RAID Group |
| C Select existing RAID Group |
| |
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| |
| |
| |
| |
| |
| |
| |
| Help Next> Cancel |

- Select existing RAID Group

| Crea | ate RAID |) Group 💦 🕨 | Create Vo | lume 📄 🕨 🤇 | Define Host 💦 🕨 Config | ure Affinity Group 📄 🕨 🦳 De | efine LUN N | lapping | |
|---------|------------|----------------|-------------------|---------------------|------------------------|-----------------------------|-------------|-------------|---|
| ate R/ | AID Gro | up | _ | | | | _ | | _ |
| eate ne | w RAID | Groups. Selec | t Way to create R | AID Group, or Selec | t existing RAID Group. | | | | |
| pecify | how the | new RAID Gro | oup is to be crea | ted. | | | | | |
| 0.0 | reate Rå | ID Group (Dis | ke are accimed | automaticalhà | | | | | |
| O Cr | reate RA | ID Group (Disi | ks are selected n | nanually) | | | | | |
| ⊙ Se | elect exis | sting RAID Gro | up | ,, | | | | | |
| | | - | | | | | | | |
| | | | | | | | | | |
| elect T | arget R | AID Group | | | | | | | |
| | No. | Name | Status | RAID Level | Total Capacity (MB) | Total Free Space (MB) | | Assigned CM | |
| œ | 0 | RAID01 | Available | RAID1 | 67328 | | 58112 | CM#0 | A |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

→ When "Create RAID Group (Disks are assigned automatically)" or "Create RAID Group (Disks are selected manually)" is selected: Move on to <u>Step 4</u>. When "Select existing RAID Group" is selected: Move on to <u>Step 6</u>.



4 Specify the following items, and click the [Create] button.

RAID Group Name

Enter the RAID group name to be created.

Up to 16 alphanumeric characters and symbols (including blanks) can be used (required).

RAID Level

Select the RAID level from the following:

- RAID0
- RAID1
- RAID1+0
- RAID5
- RAID6
- RAID5+0
- Disk Capacity

Select the capacity and number of disk to be used in the RAID group. Available disk capacity is as follows:

- 300GB SAS
- 450GB SAS
- 750GB SAS
- 1TB SAS
- 100GB SSD
- 200GB SSD

Available number of disks varies depending on the specified RAID level.

- RAID0: 2 16
- RAID1: 2
- RAID1+0: 4 32 (even number)
- RAID5: 3 16
- RAID6: 5 16
- RAID5+0: 6 32 (even number)
- Assigned CM

Select the assigned CM for the RAID group from "Automatic", "CM#0", or "CM#1". Normally, select the "Automatic". When the "Automatic" is selected, the control CM to be assigned varies according to the RAID group number. If the RAID group number is an even number, CM#0 is assigned to the new RAID group. For an odd number RAID group, CM#1 is assigned to the new RAID group.



When the ETERNUS DX60/DX80 has only one CM, CM#1 cannot be specified as the Assigned CM.

Select Disk

When "Create RAID Group (Disks are selected manually)" is selected in <u>Step 3</u>, select the disks to be registered in the RAID Group (required).





- A RAID group name that is already registered in the ETERNUS DX60/DX80 cannot be specified.
- It is not possible to select more than, or less than, the specified number of configuration disks for each RAID level.
- RAID0 has no data redundancy. RAID1, RAID1+0, RAID5, RAID6, and RAID5+0 are recommended for the RAID level.
- If disks of different capacities exist in a RAID group, the smallest capacity becomes the standard, and all other disks are regarded as having the same capacity as the smallest disk. In this case, the remaining disk space will NOT be used.
- Different disks and types (SAS/SSD) cannot exist together in one RAID group.
- Create RAID Group (Disks are assigned automatically)

| onfiguration Wizard | |
|---------------------|--|
| Create RAID Gro | up 🔰 🕨 (Create Volume) 🛌 (Define Host) 🕨 (Configure Affinity Group) 🕨 (Define LUN Mapping) |
| reate RAID Group | |
| New RAID Groups are | created using this screen. Please select the RAID Level and specify the constituent disks of the new RAID Group. |
| New RAID Group | |
| RAID Group No. | 0 |
| RAID Group Name | RAID01 (1 - 16 characters(alphanumeric character blank sign)) |
| RAID Level | RAID1 🔽 |
| Disk Capacity | 300GB SAS 💌 x 2 💌 |
| Capacity (MB) | 135936MB |
| Assigned CM | Automatic 💌 |
| | |
| | |
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| | |
| | |
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| | |
| нер | < Back Create Cancel |



- Create RAID Group (Disks are selected manually)

| Configuration Wizard | | | | | | | |
|----------------------|-----------------------------|--|-----------------|-------------------------|-----------------|-----------|----------------|
| Create RAID Gr | oup 📄 🕨 🚺 Create Vo | ilume 📄 🕨 🖉 Define Host | ► Configure | Affinity Group | Define LUN Mapp | ing | |
| Create RAID Group | | | | | | | |
| New RAID Groups ar | e created using this screer | . Please select the RAID Level and specify | the constituent | disks of the new RAID (| Group. | | |
| New RAID Group | | | | | | | |
| RAID Group No. | 0 | | | Controller Enclosur | | | |
| RAID Group | RAID01 | (1 - 16 characters(alphanumeric | | | | | |
| Name | character blank sign)) | | |), 🗆 🔾 🚺 🗍 |) 🗆 🔾 🗎 |) 🗆 🔾 🗉 |)• 🗆 🔍 💷 |
| RAID Level | RAID1 | | | | . 🖸 🛈 🖬 🕯 |) 🗆 🔿 🗉 🗌 |), [01 |
| Assigned CM | Automatic 💌 | | | | , | | |
| | | | | | | | |
| Help | | | | | < Back | Create | Cancel |

- \rightarrow A confirmation screen appears.
- **5** Click the [OK] button.

| Microsoft Internet Explorer | × |
|-----------------------------|---|
| Are you sure? | |
| OK Cancel | |

 \rightarrow A RAID Group is created. Move on to the [Create Volume] screen.



- 6 Specify the following items, and click the [Create] button.
 - Volume Name
 - Enter the volume name to be created.

Up to 16 alphanumeric characters and symbols (including blanks) can be used (required).

Type

Select the volume type (Open or SDV).

Size (MB)

Specify the volume capacity to be created in units of MB. Set the value between 24 to 8,388,607 (MB), or maximum capacity of the RAID group.



When creating an SDV, the total SDV capacity (MB) and 0.1% of the copy source volume capacity is secured in the ETERNUS DX60/DX80. 0.1% of the copy source volume is the capacity used for the controlling information area in the SDV.



- Source Volume Size (MB) (SDV only) When SDV is selected for "Type", specify the total capacity of the copy source volume in units of MB.
- Encryption

This item is displayed only when encryption mode is enabled. Select whether to "Enable" or "Disable" encryption mode for the new volume. An encrypted volume cannot be changed to a non-encrypted volume. Refer to <u>"6.4.3 Setup Encryption Mode" (page 187)</u> and <u>"5.3.4 Encrypt Volume" (page 99)</u> for details.

Number of Volumes

When creating multiple volumes with the same type and capacity, enter the number of volumes to be created.

Note that all the volumes are created with the same name. Change the volume name (refer to "5.3.9 Set Volume Name" (page 111)) if needed.

| figuration Wizard | |
|---|---|
| Create RAID Group | Create Volume Define Host |
| ate Volume | |
| eate Volume(s) in selected RA | JD Group. |
| AID Group 0 Information | |
| RAID Group No. | 0 |
| Name | RAID01 |
| RAID Level | RAID1 |
| Total Capacity (MB) | 67328 |
| Total Free Space (MB) | 67328 |
| Largest Free Space (MB) | 67328 |
| Volume List | |
| No. Name Type Capa | city (MB) Source Volume Capacity (MB) |
| Volume No. | 0 |
| Volume Name | Volume_0 (1 - 16 characters(ASCII code(0x20 - 0x7E))) |
| Туре | Open C SDV (SDV is the Snap Data Volume is required for SnapOPC+) |
| Capacity (MB) | 1024 (Specify the volume capacity to be created in units of (24 to 8,388,607) MB of the maximum capacity of the RAID group) |
| Source Volume Capacity (M (SDV only) | B) (Specify the total capacity of the copy source for SDV in units of MB) |
| Number of Volumes | 9 (1 - 128) (Set the number of volumes of the same type and capacity to be created) |
| | |
| | |
| | |
| | |
| Help | < Back Create Cance |

- \rightarrow A confirmation screen appears.
- 7 Click the [OK] button.



 \rightarrow Volumes are created. Move on to the [Define Host] screen.



8 Click the [Add] button.



- \rightarrow The "Add New FC Host" field is displayed.
- For iSCSI host



 \rightarrow The "Add New iSCSI Host" field is displayed.



For SAS host



- \rightarrow The "Add New SAS Host" field is displayed.
- **9** Specify the following items, and click the [OK] button.
 - For FC host
 - FC Port

The list of FC ports that exist in the ETERNUS DX60/DX80 is displayed.

Caution

When the fibre channel switch is connected to the ETERNUS DX60/DX80, settings between the fibre channel switch and server (FC host) must be completed in advance.

- WWN

Select the WWN, or directly input a WWN (required). 16 capital letters and numerals can be used.

- Name

Input the FC Host Name (required). Up to 16 alphanumeric characters and symbols (including blanks) can be used.

Host Response

Specify the host response for the target host (required). Refer to "ETERNUS Disk storage systems Server Connection Guide (Fibre Channel)" for details.



| onfiguration | Wizard | | | | |
|--------------|-------------------------|---|--|----------------|----------|
| mgurauon | WIZUU | | | | |
| Create R/ | AID Group | Create Volume Define Host | Configure Affinity Group | ne LUN Mapping | |
| tup FC Ho | st | | | | |
| ost Informa | tion used to enable acc | ess for FC interfaces is defined here. | | | |
| Notice | | | | | |
| 🔔 If any i | nformation regarding a | tive hosts is being modified or deleted please stop | p any access from the corresponding host s | ervers. | |
| | | | | | |
| Registered | FC Host List | | | | |
| | Name | WWN | Host Response | Status | |
| | 0:server1 | 0000000C9457CA8 | 0:Default | Inactive | |
| | 1:server2 | 0000000C9457CA7 | 0:Default | Inactive | |
| Add | Edit E | Delete Delete All | | | |
| | | | | | |
| Add New FC | Host | | | | |
| CO Deat | Course D - 180 | | | | |
| FC POR | | | | | |
| WWN * | 000000000 | Re-Discover WWN | | | |
| | 00000000000 | (16 characters) | | | |
| Name * | server3 | (1 - 16 characters(alphanumeric charac | ter blank sign)) | | |
| Res | ponse * 0:Default 💌 | | | | |
| OK Ca | incel | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Help | | | | < Back Next | t> Cance |

- \rightarrow The target FC host is displayed in the "Registered FC Host List" field.
- For iSCSI host
 - iSCSI Port
 - The list of iSCSI ports that exist in the ETERNUS DX60/DX80 is displayed.
 - iSCSI Name

Select the iSCSI Name, or directly input the iSCSI Name. Between 4 and 223 alphanumeric characters and symbols (required) can be used.

Caution 🖉

In the following conditions, iSCSI Name cannot be obtained automatically:

- When the [Discover] button is inactivated
- When "Disable" is selected for the "iSNS server" in the "Set iSCSI Port Parameters"
- IP address

Specify the IP address of the target host (iSCSI port) (required).

- Name

Specify the target host (iSCSI port) name (required). Between 1 and 16 alphanumeric characters and symbols (including blanks) can be used.

- Host Response

Specify the host response for the target host (required). Refer to "ETERNUS Disk storage systems Server Connection Guide (ISCSI)" for details.

- Alias Name

Specify the alias name of the target host (iSCSI port). Up to 31 alphanumeric characters and symbols can be used.

- CHAP User ID

Specify the user ID that accesses the target host (iSCSI port). Up to 255 alphanumeric characters and symbols can be used.

It is not necessary to set this item if CHAP Authentication is not performed.



- CHAP Password

Specify the password to access the target host. Between 12 and 100 alphanumeric characters and symbols can be used (required).



Make sure to set the user name and password in pairs.

- Confirm CHAP Password

Enter the same password as in the CHAP Password field (required).

| Configuration Wizard | | | | | | | | |
|------------------------------------|-------------------------|---------------------------------|-------------------|----------------------|---------------|--------------|----------|-----|
| Create RAID Group | Create Volume | Define Host | 📄 🕨 🤇 Configu | ire Affinity Group 👌 | Define LU | N Mapping | | |
| Setup iSCSI Host | _ | | | _ | | | | |
| Host Information used to enable ac | ccess for iSCSI interfa | ces is defined here. | | | | | | |
| Notice | | | | | | | | ŕ |
| 1 If any information regarding | active hosts is being r | nodified or deleted please stop |) any access from | n the corresponding | host servers. | | | |
| | | | | | | | | |
| Registered iSCSI Host List | | | | | | | | |
| Name iSCSI Name | e | | IP Address | Host Response | Alias Name | CHAP User ID | Status | |
| C:server1 iqn.2009-10 | 0.sample.com.iscsi.1 | 2341234123412341234-10 | 192.168.1.48 | 0:Default | | | Inactive | |
| Add Edit | Delete Delete A | 11. | | | | | | |
| | | | | | | | | |
| Add New iSCSI Host | | | | | | | | |
| iSCSI Port C | CM#0 Port#0 💌 | | | | | | | |
| iscsi Name / | | | • | Discover | | | | |
| iqi | n.2009-10.sample.co | m.iscsi.123 (4 - 223 characters | (alphanumeric cl | naracter sign)) | | | | |
| IP Address * 19 | 92 .168 .1 .48 | | | | | | | |
| Name ' | erver2 | | | | | | | |
| Host Response * 0: |):Default 💌 | | | | | | | |
| Alias Name | | (Max 31 characters) | | | | | | |
| CHAP User ID | | (Max 255 characters) | | | | | | |
| CHAP Password * | | (12 - 100 characters(alphanur | neric character s | ign)) | | | | |
| Confirm CHAP Password * | | (12 - 100 characters(alphanur | neric character s | ign)) | | | | |
| OK Cancel | | | | | | | | |
| | | | | | | | | |
| Help | | | | | < Ba | sk Nex | t> Cano | cel |

- \rightarrow The target iSCSI host is displayed in the "Registered iSCSI Host List" field.
 - For SAS host
 - SAS Port
 - The list of SAS ports that exist in the ETERNUS DX60/DX80 is displayed.
 - SAS Address

Select the SAS address, or directly input a SAS address (required). 16 capital letters and numerals can be used.

- Name

Specify the target host (SAS port) name (required). Up to 16 alphanumeric characters and symbols (including blanks) can be used.

- Host Response

Specify the host response for the target host (required). Refer to "ETERNUS Disk storage systems Server Connection Guide (SAS)" for details.



| Create RADD Group Create Volume Define Host Configure Affinity Group Define LUN Mapping Status Status Harry information used to enable access for SAS Interfaces is defined here. Notice If any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. Registered SAS Host List Image: SAS Address Host Response Status Add Delete Delete All Image: SaS Address Status SAS Host Image: SaS Address Image: Server! Image: S | onfiguration Wizard | | | | | |
|--|----------------------------|---|--|-----------------|--------|--------|
| Setup SAS Host Host Information used to enable access for SAS interfaces is defined here. Notice If any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. Registered SAS Host List Interface SAS Address Host Response Status Add Delete Delete All Add New SAS Host SAS Port CM#0 Port#0 Discover SAS Address' 50000509000004F4 (16 characters) Name' server1 (1 - 16 characters(alphanumeric character blank sign)) CMC Pancel | Create RAID Group | Create Volume | Define Host | Define LUN Mapp | oing | |
| Host Information used to enable access for SAS interfaces is defined here. Notice I dany information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. Registered SAS Host List Name SAS Address Host Response Status Add Edit Delete Delete All Add New SAS Host SAS Port CM##0 Port#0 Discover SAS Address' 50080580000604F4 (16 characters) Name' server1 (1 - 16 characters(alphanumeric character blank sign)) OK Tancel | etup SAS Host | | | | | |
| Notice A If any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. Registered SAS Host List Registered SAS Host List Add New SAS Host SAS Port CM#0 Port#0 Discover SAS Address Discover SAS Address Discover (1 - 16 characters(alphanumeric character blank sign)) Response* OCDefault Control of the characters (alphanumeric character blank sign) Add New Sas Port CM#0 Port#0 Control of the characters (alphanumeric character blank sign) Control of the characters (alphanumeric characters blank sign) Control of t | Host Information used to e | nable access for SAS interfaces is defined | here. | | | |
| If any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. Registered SAS Host List Name SAS Address Host Response Status Add Edit Delete Delete All Add New SAS Host SAS Address* 50060560000604F4 (16 characters) Name' server1 (1 - 16 characters(alphanumeric character blank sign)) Note Response Defeault Default Defaul | Notice | | | | | |
| Registered SAS Host List Name SAS Address Host Response Status Add Edit Delete Delete All Add New SAS Host SAS Address* 50060560000604F4 (16 characters) Name server1 (1 - 16 characters(alphanumeric character blank sign)) 1000000000000000000000000000000000000 | 1 If any information re | garding active hosts is being modified or d | eleted please stop any access from the corresponding hos | t servers. | | |
| Registered SAS Host List Name SAS Address Host Response Status Add Delete Delete Atl Add New SAS Host SAS Address* 50080580000804F4 Discover SAS Address* 50080580000804F4 (16 characters) Name* server1 (1 - 16 characters(alphanumeric character blank sign)) | | | | | | |
| Name SAS Address Host Response Status Add Edit Delete Delete All Add Market SAS Address' Image: Discover SAS Address' S000050000004F4 (16 characters) Name' server1 (1 - 16 characters(alphanumeric character blank sign)) Image: Better the server the serve | Registered SAS Host Lis | t | | | | |
| Add Edit Delete Delete All Add New SAS Host SAS Port Ch#D Port#0 Discover SAS Address' 50080580000604F4 (16 characters) Name' server1 (1 - 18 characters(alphanumeric character blank sign)) tot Response [0.Default] [0.D | Name | SAS Address | Host Response | Sta | itus | |
| Add New SAS Host SAS Port CM#0 Port#0 SAS Address' Discover SAS Address' S0060580000604F4 (16 characters) Name server1 (1 - 16 characters(alphanumeric character blank sign)) ' ' Response' ODefault incel | Add Edi | t Delete Delete All | | | | |
| Add New SAS Host SAS Port CM#0 Port#0 ▼ SAS Address* 50080598000064F4 (16 characters) Name* server1 (1 - 16 characters(alphanumeric character blank sign)) ***Response* 0.Default ▼ | | | | | | |
| SAS Port CM#0 Port#0 SAS Address* Discover 500605B0000804F4 (16 characters) Name* server1 (1 - 16 characters(alphanumeric character blank sign)) *** Response* 0.Default ok rancel | Add New SAS Host | | | | | |
| SAS Address' Discover 50060550000604F4 (16 characters) Name' server1 (1 - 16 characters(alphanumeric character blank sign)) int Response' [D.Default] ok ancel | SAS Port CM | ≠0 Port#0 ▼ | | | | |
| Name* Server1 (1 - 16 characters(alphanumeric character blank sign)) Marcesponse* 0.Default T Ook sancel | SAS Address' | Discover | | | | |
| Name' Servert (1 - 16 characters(alphanumeric character blank sign)) The Response' (0.Default Cock ancel | 5006 | 305B0000604F4 (16 charact | ers) | | | |
| ince | Name* serv | er1 (1 - 16 characters(alph | anumeric character blank sign)) | | | |
| | " * Response* 0:De | efault 💌 | | | | |
| | OK | | | | | |
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| Help Can | Heln | | | e Rock | Nevt > | Cancel |

 \rightarrow The target SAS host is displayed in the "Registered SAS Host List" field.

10 Click the [Next >] button.

For FC host

| nfiguration V | Vizard | | | | |
|---------------|------------------------|---|---|------------|-------|
| Create RAI | D Group | Create Volume Define Host | Configure Affinity Group | IN Mapping | |
| up FC Hos | t T | | | | |
| st Informatio | on used to enable acc | ess for FC interfaces is defined here. | | | |
| otice | | | | | |
| 🔔 If any inf | formation regarding ar | ctive hosts is being modified or deleted please sto | op any access from the corresponding host servers | l. | |
| | | | | | |
| egistered F | C Host List | | | | |
| | Name | WWN | Host Response | Status | |
| | 0:server1 | 0000000C9457CA8 | 0:Default | Inactive | |
| | 1:server2 | 0000000C9457CA7 | 0:Default | Inactive | |
| | 2:server3 | 0000000C9457CA6 | 0:Default | Inactive | |
| Add | Edit | Delete All | | | |
| | | | | | |
| | | | | | |
| Help | | | < | ack Next > | Cance |



For iSCSI host

| figurati | on Wizard | | | | | | | | | | | |
|-----------|--------------|----------------|--------------|---------------|--------------|-----------------|--------------------|-------------------|---------------|--------------|----------|-------|
| Crea | ate RAID Gro | oup 📄 🕨 🦳 | Create V | olume | • | Define Host | 📄 🕨 Configur | re Affinity Group | Define LUN | Mapping | | |
| tup iSC | SI Host | _ | _ | _ | _ | _ | _ | | _ | _ | _ | _ |
| ost Infor | mation used | d to enable ac | cess for iSC | SI interfaces | s is defined | here. | | | | | | |
| lotice | | | | | | | | | | | | |
| 🔔 lf a | ny informati | on regarding a | active hosts | is being mo | dified or de | leted please st | op any access from | the corresponding | host servers. | | | |
| | | | | | | | | | | | | |
| tegister | ed iSCSI Ho | st List | | | | | | | | | | |
| | Name | iSCSI Name | • | | | | IP Address | Host Response | Alias Name | CHAP User ID | Status | 1 H H |
| | 0:server1 | iqn.2009-10 |).sample.co | m.iscsi.1234 | 412341234 | 12341234-10 | 192.168.1.48 | 0:Default | | | Inactive | |
| | 1:server2 | iqn.2009-10 |).sample.co | m.iscsi.1234 | 412341234 | 12341234-11 | 192.168.1.50 | 0:Default | | | Inactive | |
| , | Add | Edit | Delete | Delete All | | | | | | | | |
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| Heln | | | | | | | | | < Back | Nexts | | Cance |

For SAS host

| Configuration Wiz | zard | | | |
|-------------------|-------------------------------|--|--|----------------------|
| Create RAI | ID Group | e Volume 💦 🕨 Define Host | 🕨 🖡 🕐 Configure Affinity Group 🗅 🕨 💭 Defin | e LUN Mapping |
| Setup SAS Hos | t | | | |
| Host Information | n used to enable access for S | BAS interfaces is defined here. | | |
| Notice | | | | |
| 🥼 If any info | rmation regarding active hos | ts is being modified or deleted please s | top any access from the corresponding host serve | ers. |
| | | | | |
| Registered SA | S Host List | | | |
| | Name | SAS Address | Host Response | Status |
| | 0:server1 | 500605B0000604F4 | 0:Default | Inactive |
| Add | Edit Delete | Delete All | | |
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| Help | | | | < Back Next > Cancel |

 \rightarrow A confirmation screen appears.

11 Click the [OK] button.



 \rightarrow The specified host setting is registered. Move on to the [Configure Affinity Group] screen.

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12 Click the [Create] button.



This setting is required when using the host affinity function. When the host affinity function is not used, click the [Next >] button to move on to the " Configure LUN Mapping" setting menu. Also, this setting is not required when using an existing affinity group (displayed in the "List of Affinity Group(s)" field).



When using the existing affinity group, select the target group from the "List of Affinity Group(s)" field and click the [Edit] button.

| urration Wizard Create RAID Group Create Volume Dafine Host Configure Affinity Group) | Define LUN Mapp | ing | |
|--|-----------------|--------|--------|
| ity Group Setting | | _ | _ |
| de or Modify Affinity Group Setting. Are ready to continue? | | | |
| t of Affinity Group(s) | | | |
| Not yet Set | | | |
| | | | |
| Help | < Rark | Next > | Cancel |

- \rightarrow The "Affinity Group Setting" and "Define LUN Mapping" fields are displayed.
- **13** Enter the affinity group name and specify a volume number corresponding to the LUN number, and click the [Set] button.

| Configuration W | Azard | | | | | | |
|--------------------------------|---|--------------------------------------|----------------------|---------------------------|------|--------|---|
| Create R | AID Group 🔰 🚺 Oreate 🗤 | Volume 🕨 Define Host | Configure Affinity G | roup 🕨 Define LUN Mapping | | | |
| Affinity Group Specify Name | Setting for this Affinity Group and define | the LUN map for the hosts. | | | | | |
| Affinity Group | o Setting | | | | | | 1 |
| No. | 0 | | | | | | |
| Name | host_1 | (1 - 16 characters(alphanumeric char | acter blank sign)) | | | | |
| Number of | LUN(s) 3 | | | | | | |
| | | | | | | | |
| Define LUN M | lapping | | | | | | |
| LUN | Volume No. | | Volume Name | Capacity (MB) | | | |
| | 0 | 0 | Volume_00 | | 1024 | - | |
| | 1 | 1 | Volume_01 | | 1024 | | |
| | 2 | 2 | Volume_02 | | 1024 | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | | | | | |
| | 9 | | | | | -1 | |
| | | | | | | - | |
| Specify | Range Clear | | | | | | |
| | | | | | | | * |
| Help | | | | < Back Set | | Cancel | |

 \rightarrow A confirmation screen appears.



14 Click the [OK] button.



15 Click the [Next >] button.

| figuration Wiz | ard | | | |
|-------------------|-----------------------------|------------------------|--|------------------|
| Create RAI | D Group | ate Volume 🌒 🕨 🖉 Defin | e Host 💦 🕨 🕨 Configure Affinity Group 🕨 🖉 De | fine LUN Mapping |
| nity Group S | etting | | | |
| eate or Modify. | Affinity Group Setting. Are | ready to continue? | | |
| ist of Affinity G | Group(s) | | | |
| | No. | Name | Number of LUN(s) | |
| C | 0 | host_1 | 3 | * |
| | | | | |
| Edit | Create | | | |
| LOR | Create | | | |
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 \rightarrow Move on to the [Define LUN Mapping] screen.

16 Select the port that is connected to the target server from the "Port List" field.

- When using the Host Affinity function:
 - (1)Click the [Edit] button.

| sign LUN | s to each port accessing fro | m hosts. Click [Exit] to complete | Configuration Wizard | | |
|----------|------------------------------|-----------------------------------|----------------------|-------------------|--|
| rt List | | | | | |
| | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | |
| • | CM#0 Port#0 | Enable | - | - | |
| 0 | CM#0 Port#1 | Enable | - | - | |
| 0 | CM#1 Port#0 | Disable | 2 | - | |
| 0 | CM#1 Port#1 | Disable | - | - | |
| | | | | | |
| | | | | | |

 $\rightarrow\,$ The "Host Affinity Setting" field is displayed.



(2) Assign the affinity group to the server, and click the [Set] button.

| figuration Wizard | | | | | | |
|--------------------------|---|----------------|--------------------------|--------------------|-------|-------|
| Create RAID Group | Create Volume | Define Host | Configure Affinity Group | Define LUN Mapping | | |
| figure LUN Mappi | ng | | | | | |
| fining Affinity Group fo | r access by Host(s) connected to this port. | | | | | |
| ort Setting | | | | | | |
| Port | CM#0 Port#0 | | | | | |
| Host Affinity | Enable | | | | | |
| Number of Host(s) | 3 | | | | | |
| Host | | Affinity Group | | | | |
| ast Affinity Setting | | | | | | |
| O'server1 | | O host 1 - | | | | |
| 1:server2 | | Disable V | | | | |
| Clear | | | | | | - |
| Clear | | | | | | |
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| | | | | | | |
| Help | | | | < Back | Set _ | Cance |

 \rightarrow A confirmation screen appears.

(3)Click the [OK] button.



 \rightarrow Returns to the "Port List" screen.

| guration | Wizard | | | | <u>. </u> | |
|----------|------------------------------|-----------------------------------|----------------------|-----------------------------|--|-----|
| Create R | AID Group | ate Volume 🔰 🕨 De | fine Host | Group 🕨 🕨 Define LUN Mappir | ng | |
| igure Ll | UN Mapping | | | | | _ |
| gn LUNs | s to each port accessing fro | m hosts. Click [Exit] to complete | Configuration Wizard | | | |
| rt List | | | | | | |
| | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | | |
| • | CM#0 Port#0 | Enable | - | 3 | | |
| 0 | CM#0 Port#1 | Enable | - | | | |
| 0 | CM#1 Port#0 | Disable | 2 | - | | |
| 0 | CM#1 Port#1 | Disable | - | - | | |
| | | | | | | |
| Help | | | | < Back | Finish | Can |



■ When the Host Affinity function is not used:

(1)Click the [Edit] button.



Click the [Copy] button to copy the LUN mapping information from the other port.

| ign LUN | s to each port accessing fro | m hosts. Click [Exit] to complete | Configuration Wizard | | |
|---------|------------------------------|-----------------------------------|----------------------|-------------------|--|
| rt List | | | | | |
| | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | |
| 0 | CM#0 Port#0 | Enable | - | - | |
| 0 | CM#0 Port#1 | Enable | - | - | |
| • | CM#1 Port#0 | Disable | - | - | |
| 0 | CM#1 Port#1 | Disable | - | - | |
| | | | | | |

 \rightarrow The [Define LUN Mapping] field is displayed.

(2)Adjust the LUN mapping information for the target port, and click the [Set] button.

| fining LUN Map for : | access by Host(s) connected to th | iis port. | | | | |
|----------------------|-----------------------------------|-----------|-------------|---------------|------|---|
| ort Setting | | | | | | |
| Port | CM#1 Port#0 | | | | | |
| Host Affinity | Disable | | | | | |
| Number of LUN(s) | 2 | | | | | |
| fine LUN Mapping | | | | | | |
| LUN V | olume No. | | Volume Name | Capacity (MB) | | |
| 0 | | 3 | Volume_03 | | 1024 | |
| 1 | | 4 | Volume_04 | | 1024 | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | - |
| | | | | | | |

 \rightarrow A confirmation screen appears.



(3) Click the [OK] button.



 \rightarrow Returns to the "Port List" screen.

| guration | n Wizard | | | | | |
|----------|-------------------------------|-----------------------------------|-------------------------------|-------------------------|---|--|
| Create F | RAID Group | ate Volume 💿 🕨 🖉 De | efine Host Configure Affinity | Group Define LUN Mappin | g | |
| igure L | UN Mapping | | | | | |
| ign LUN | Is to each port accessing fro | m hosts. Click [Exit] to complete | Configuration Wizard | | | |
| rt List | | | | | | |
| | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | | |
| • | CM#0 Port#0 | Enable | - | - | | |
| 0 | CM#0 Port#1 | Enable | - | - | | |
| 0 | CM#1 Port#0 | Disable | 2 | | | |
| 0 | CM#1 Port#1 | Disable | - | | | |
| | | | | | | |
| | | | | | | |

17 Click the [Finish] button.

 \rightarrow A confirmation screen appears.

18 Click the [OK] button.



 \rightarrow The Configuration Wizard screen is closed.

End of procedure



5.2 RAID Group Management

The following settings are available for RAID group management.

- Create/Delete RAID Group
- Assign/Release Hot Spare
- Logical Device Expansion
- Set RAID Group name
- Set Eco-mode Schedule
- Change CM Ownership

5.2.1 Create RAID Group

The RAID groups are usually set at the time of shipping. However if you wish to change the RAID settings or add extra disks, then you need to create new RAID groups. You can confirm the groups that are created from the [RAID Group Status] menu on the [Status] tab.

Number of disks that can be set for each RAID level

The number of disks that can be set for each RAID level is as follows. The available number of disks varies according to ETERNUS DX60/DX80.

| RAID level | Number of disks that can be created | | Recommended number of disks |
|------------|-------------------------------------|--------------|--|
| | ETERNUS DX60 | ETERNUS DX80 | |
| RAID0 | 2 – 16 | 2 – 16 | - |
| RAID1 | 2 | 2 | 2(1D+1M) |
| RAID1+0 | 4 – 24 | 4 – 32 | 4(2D+2M), 6(3D+3M), 8(4D+4M), 10(5D+5M) |
| RAID5 | 3 – 16 | 3 – 16 | 3(2D+1P), 4(3D+1P), 5(4D+1P), 6(5D+1P) |
| RAID6 | 5 – 16 | 5 – 16 | 5(3D+2P), 6(4D+2P), 7(5D+2P) |
| RAID5+0 | (3 – 12) × 2 | (3 – 12) × 2 | $3(2D+1P) \times 2, 4(3D+1P) \times 2, 5(4D+1P) \times 2, 6(5D+1P) \times 2$ |



The maximum number of RAID groups that can be set to each RAID level

The maximum number of RAID groups that can be created is 12 for the ETERNUS DX60, and 60 for the ETERNUS DX80.

The maximum number of RAID groups that can be set for each RAID level is as follows. The available number of RAID groups varies according to each device.

| RAID level | Number of RAID groups that can be created | | | | |
|------------|---|---------------|--|--|--|
| | ETERNUS DX60 | ETETRNUS DX80 | | | |
| RAID0 | 12 | 60 | | | |
| RAID1 | 12 | 60 | | | |
| RAID1+0 | 6 | 30 | | | |
| RAID5 | 8 | 40 | | | |
| RAID6 | 4 | 24 | | | |
| RAID5+0 | 4 | 20 | | | |

The maximum number of volumes that can be set

The maximum number of volumes that can be set for each RAID group and device is as follows.

The available number of volumes varies according to each device.

| Device name | per RAID group | per device |
|--------------|----------------|-------------|
| ETERNUS DX60 | Up to 128 | Up to 512 |
| ETERNUS DX80 | Up to 128 | Up to 1,024 |

| Caution | RAID groups can be created when the disk satisfies all the following conditions: The disk is not one that configures a RAID group The disk is not specified as a hot spare The disk status is "Available" or "Present" In the following conditions, RAID groups cannot be created: There are no disks to configure the RAID group When the maximum number of RAID groups has already been created |
|---------|---|
| | Creating RAID groups is required before creating volumes. |

The procedure to create a RAID group is as follows:

Procedure

- 1 Click the [Create RAID Group] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Create RAID Group] screen appears.



- 2 Specify the following items, and click the [Next >] button. Select one of the following items:
 - Create RAID Group (Disks are assigned automatically) Creates a RAID group with automatically selected disks.
 - Create RAID Group (Disks are selected manually) Creates a RAID group with user specified disks.
 - Create RAID Group (Disks are assigned automatically)

| Create RAID Group | |
|--|-------|
| New RAID Groups are created using this screen. Please select the RAID Level and specify the constituent disks of the new RAID Group. | |
| Specify how the new RAID Group is to be created. | |
| Create RAID Group (Disks are assigned automatically) | |
| C Create RAID Group (Disks are selected manually) | |
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| | Next> |
| Prosto DAID Crown (Diaka are calented manually) | |
| reate RAID Group (Disks are selected manually) | |
| reate RAID Group | |





3 Specify the following items, and click the [Create] button.

RAID Group Name

Enter the RAID group name to be created.

Up to 16 alphanumeric characters and symbols (including blanks) can be used (required).

RAID Level

Select the RAID level from the following:

- RAID0
- RAID1
- RAID1+0
- RAID5
- RAID6
- RAID5+0
- Disk Capacity

When selecting "Create RAID Group (Disks are assigned automatically)" in <u>Step 2</u>, select the capacity and number of disks to be used in the RAID group.

- 300GB SAS
- 450GB SAS
- 750GB SAS
- 1TB SAS
- 100GB SSD
- 200GB SSD

Available number of disks varies depending on the specified RAID level.

- RAID0: 2 16
- RAID1: 2
- RAID1+0: 4 32 (even number)
- RAID5: 3 16
- RAID6: 5 16
- RAID5+0: 6 32 (even number)
- Assigned CM

Select the assigned CM for the RAID group from "Automatic", "CM#0", or "CM#1". Normally, select the "Automatic". When the "Automatic" is selected, the control CM to be assigned varies according to the RAID group number. If the RAID group number is an even number, CM#0 is assigned to the new RAID group. For an odd number RAID

group, CM#1 is assigned to the new RAID group.



When the ETERNUS DX60/DX80 has only one CM, CM#1 cannot be specified as the Assigned CM.


Select Disk

When "Create RAID Group (Disks are selected manually)" is selected in <u>Step 2</u>, select the disks to be registered in the RAID Group (required).



- A RAID group name that is already registered in the ETERNUS DX60/DX80 cannot be specified.
- It is not possible to select more than, or less than, the specified number of configuration disks for each RAID level.
- RAID0 has no data redundancy. RAID1, RAID1+0, RAID5, RAID6, and RAID5+0 are recommended for the RAID level.
- If disks of different capacities exist in a RAID group, the smallest capacity becomes the standard, and all other disks are regarded as having the same capacity as the smallest disk. In this case, the remaining disk space will NOT be used.
- The different disks and types (SAS/SSD) cannot exist together in one RAID group.
- Create RAID Group (Disks are assigned automatically)

| 3 1 SAS Y . 2 Y | (1 - 16 charact | ters(alphanumeric ct | haracter blank sign)) | | |
|-------------------------------|-----------------|----------------------|-----------------------|------|------|
| t v B SAS v 2 v MAB | | | | | |
| B SAS . 2 . BMB natic . | | | | | |
| 8MB natic 💌 | | | | | |
| natic 💌 | | | | | |
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- Create RAID Group (Disks are selected manually)

| lew RAID Group | | | |
|----------------|-------------|---|----------------------|
| RAID Group No. | 1 | | Controller Enclosure |
| RAID Group | RAID 2 | (1 - 16 characters(alphanumeric character blank | |
| Name | sign)) | | |
| RAID Level | RAID1 - | | |
| Assigned CM | Automatic 💌 | | |
| | | | |
| | | | |

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The RAID group is created.



End of procedure

5.2.2 Delete RAID Group

The [Delete RAID Group] function deletes the registered RAID groups. When a RAID group is deleted, the status of the disks that configured the RAID group change to data disks that are not used by any RAID group.



RAID groups that have volumes registered cannot be deleted. All volumes must be deleted before deleting a RAID group. Refer to <u>"5.3.2 Delete Volume" (page 96)</u> for procedure to delete volumes.



The procedure to delete RAID group is as follows:

Procedure

- 1 Click the [Delete RAID Group] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Delete RAID Group] function screen appears.
- **2** Select the target RAID group, and click the [Delete] button.

| | RAID G | roup L | ist | | | | | | |
|----------------------------------|--------|--------|--------|-----------|---------------|------------------------|----------------|------------------------------|-----------------------|
| D Groups 0:RAID_1 1:RAID_2 | | No. | Name | Status | RAID Level | Total Capacity (MB) | Assigned CM | Rebuild/Copyback Progress | Expansion Progress |
| 2:RAID_3 | E | Q | RAID_1 | Available | RAID1 | 279040 | CM#0 | - | - |
| | | 1 | RAID_2 | Available | RAID1 | 67328 | CM#1 | 53 | - |
| | | 2 | RAID_3 | Available | RAID1 | 374528 | CM#0 | 2 | - |
| | | | | | | | | | |
| | | | | | | | | | |

- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The selected RAID group is deleted.

End of procedure

5.2.3 Assign Hot Spare

The [Assign Hot Spare] function registers a hot spare, which enables automatic data copy (Rebuild) in the background when a disk failure occurs.

Hot spare is a disk that is available as a substitute for a failed disk.

There are two types of hot spare as follows:

- Global Hot Spare
 Hot spare used by all the RAID groups
 Dedited block Occurs
- Dedicated Hot Spare Hot spare used by the dedicated RAID group (one specific RAID group)





The procedure to assign a hot spare is as follows:

Procedure

- 1 Click the [Assign Hot Spare] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Assign Hot Spare] screen appears.
- **2** Specify the following items, and click the [Assign] button.
 - Hot Spare Type
 Select from the following items:
 - Global Hot Spare Global hot spare is shared by any RAID group in the device.
 - Dedicated Hot Spare Dedicated hot spare is used by specified RAID group.
 - Select an existing RAID Group When selecting the "Dedicated Hot Spare", specify the target RAID group.
 - Select Disk
 - Select the disk to be used as hot spare.



- When adding "Global Hot Spare"

| Assign Hot Spare Select the disk drive to I | be assigned to one of the two types of hot spare pools | | | | | |
|--|--|------------------|-------|--|-------|--------|
| Hot Spare Type | | Controller Encir | isura | | | |
| Hot Spare Type | C Global Hot Spare C Dedicated Hot Spare | | | | | |
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| | | | | | Reset | Assign |

When adding "Dedicated Hot Spare"

| Hot Spare Type C Global Hot Spare P Dedicated Hot Spare Select an existing RAID Group Total Total No. Name Status RAID Total G 0 RAID Total Group G 0 RAID Total Group G 0 RAID Total Group G 0 RAID 279040 299824 CM#0 G 0 RAID 279040 299824 CM#0 | Hot Spare Type C Global Hot Spare @ Dedicated Hot Spare Select an existing RAID Group No. Name Status RAID Total Level (MB) (MB) (MB) (MB) (MB) (1/1) (1/1) | pare Ty | /pe | | | | | | | Controller Fo | closure | | | |
|---|--|-----------|--------|----------|-----------|---------------|---------------------------|--------------------------------|----------------|---------------|---------|------|--------|---|
| Ho. Name Status RAD Total Graphicly (MB) Total Space (MB) Total (CA Total Space (MB) Image: CA Image: Character Status RAD 279040 299824 CMH0 Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status Image: Character Status | Heelect an existing RAID Group No. Name Status RAID (MB) Total Capacity (MB) Total Space (MB) Assigned Space (MB) Image: Comparison of the status of | t Spare | Туре | + C | Global Ho | at Spare | Dedicate | id Hot Spar | re | |) |) 03 | | |
| No. Name Status RAID Level Total capacity (MB) Total Space (MB) Assigned CM (* 0 RAID_1 Available RAID 279040 299824 CM#0 (* (1/1) * < | No. Name Status RAD Level Total Free (MB) Assigned Sec © 0 RAD_1 Available RAD 1 279040 299824 CM#0 Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) Image: Control (MB) | lect an e | existi | ing RAID | Group | | | | | |) 01 |) 01 |). TOB | 1 |
| G 0 RAID_1 279040 269824 CMM0 Image: Club Image: Club | G 0 RAID_1 Available RAID1 279040 26982.4 CMM0 Image: Comparison of the state | N | io. 1 | Name | Status | RAID Level | Total Capacity (MB) | Total Free Space (MB) | Assigned CM |). 01 |). 01 | | | Ī |
| | | 1= | < | (1/1) | 2.1 | | | | | | | | | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The hot spare is added.



5.2.4 Release Hot Spare

The [Release Hot Spare] function deletes a registered hot spare. A released disk can be used as a data disk after it is registered in a RAID group.

| Caution | Hot spare cannot be deleted in the following conditions: When the usage of the hot spare is other than "Spare" When the status of the hot spare is other than "Present" When one of the following operations is in progress: Registering controller firmware Applying controller firmware Registering disk firmware Applying disk firmware During the RAID group diagnosis During the disk diagnosis |
|---------|---|
| | - During the disk diagnosis |

The procedure to delete hot spare is as follows:

Procedure

- 1 Click the [Release Hot Spare] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Release Hot Spare] screen appears.
- **2** Specify the following items, and click the [Release] button.
 - Hot Spare Type
 - Select one of the following as a condition of the hot spare to be released.
 - Global Hot Spare Global hot spare is shared by any RAID group in the device.
 - Dedicated Hot Spare
 - Dedicated hot spare is used by a specified RAID group.
 - Criteria for Target Disk This field is displayed when selecting the "Dedicated Hot Spare". If the "Specify RAID Group" checkbox is checked, the target RAID group can be specified.
 - Select Disk Select the disk to be released as hot spare.



- When releasing "Global Hot Spare"

| arrow Target Disk (| Criteria | | Cont | rollar Encl | 0.01070 | | | | | | | |
|---------------------|------------------|-------------------------|------|-------------|---------|----|-----|-----|-----|----|--|--|
| Hot Spare Type | Global Hot Spare | e C Dedicated Hot Spare | D. | OI | | 01 | 10. | 01 | 10. | OB | | |
| | | | 5. | 7 O 1 | 5 | 01 | 10. | 0.1 | 0. | 01 | | |
| | | | Di | 01 | 10.1 | 01 | 15. | 01 | 10. | 01 | | |
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When releasing "Dedicated Hot Spare"

| HOW IA | arget D | lisk Criteri | ia | | | | | Contro | oller Enclo | sure | | | | | | |
|----------|---------|--------------|-----------|---------------|---------------------------|--------------------------------|----------------|--------|-------------|------|-----|-----|-----|------|-----|---|
| Hot Spa | are Typ | le | C Global | Hot Spare | a 🗭 Dedica | sted Hot Sp | pare | 0. | 01 | 1). | 01 | 10. | 01 | 0. | 01 | |
| Criteria | for Ta | rget Disk | Specify | RAID Gro | kup | | | | 01 | D. | 0.0 | IN. | 0.1 | 10.1 | 0.0 | 1 |
| Select I | RAID Gr | roup | | | | | | | 00 | | | | 0.0 | | 0.0 | 1 |
| | No. | Name | Status | RAID Level | Total Capacity (MB) | Total Free Space (MB) | Assigned CM | 121 | | | | | | | | 1 |
| 4 | 0 | RAID_1 | Available | RAID1 | 279040 | 269824 | CM#0 | | | | | | | | | |
| 1< | \leq | (1/1) | 2 | | | | | | | | | | | | | |
| E | | (1/1) | | | | | | | | | | | | | | |
| | | (1/1) | | | | | | | | | | | | | | |
| | | (1/1) | | | | | | | | | | | | | | |
| I | | (1/1) | | | | | | | | | | | | | | |
| I | | (1/1) | | | | | | | | | | | | | | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The selected hot spare is deleted.



5.2.5 Logical Device Expansion

The [Logical Device Expansion] function expands the capacity of an existing RAID group by adding new disks or changing RAID levels.

Normally, volume expansion requires adding RAID groups. This method requires multiple disks to be installed (used). However, this function can add disks to the existing RAID group in units of one disk. This enables capacity expansion of RAID groups with smaller number of disk expansion.

This function can be performed with taking over data in the disks.

| Caution | Disks that are a different type (SAS/SSD) than the disks that configure the RAID group cannot be added. Logical Device Expansion is not available in the following conditions: RAID groups are not in normal status (Rebuilding, Copybacking, or using hot spare etc.) When another Logical Device Expansion is being performed When the target RAID level or changed RAID level is RAID5+0 Changing RAID level to RAID0 |
|---------|---|
| _ | Note that existing volume size is not changed even if the RAID level is |
| 🚺 Note | changed or capacity is expanded. |

The procedure for Logical Device Expansion is as follows:

Procedure

- 1 Click the [Logical Device Expansion] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Logical Device Expansion] screen appears.



2 Select the target RAID group, and click the [Next >] button.

| Logical Device Expansion | | | | | | | | | | |
|------------------------------------|-------------|---------|--------------|-----------|------------|---------------------|-----------------------|-------------|--------|---------|
| Configuration of RAID Group is cha | anged to ex | (pand i | ts capacity. | 6 | | | | | | |
| Select RAID Group | Select | Targe | t RAID Gro | up | | | | | | |
| Configuration | | No. | Name | Status | RAID Level | Total Capacity (MB) | Total Free Space (MB) | Assigned CM | | |
| Confirm Execution | 0 | 0 | RAID_1 | Available | RAID1 | 279040 | 268800 | CM#0 | | |
| | • | 1 | RAID_2 | Available | RAID1 | 67328 | 57088 | CM#1 | | - · · |
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- \rightarrow The "Modify RAID Group Configuration" screen appears.
- **3** Specify the following items, and click the [Next >] button.
 - RAID Level Select (change) the RAID level.



Select Disk

Select (add) disks according to the new RAID level.

| Select RAD Group Controller Enclosure Confirm Execution Image: Controller Enclosure Image: Confirm Execution Image: Confirm Execution Image: Confirm Execution Im |
|--|
| Please select disks for expansion and specify desired RAID Level RAID Group No. 1 RAID Group No. 1 RAID Group No. 1 RAID Group No. 1 RAID Core Name RAID 2 RAID Level RAID 5 |
| |
| |

 \rightarrow A confirmation screen appears.

4 Click the [Start] button.

| Logical Device Expansion | | | |
|---|--|--------|-------|
| Configuration of RAID Group is cha | inged to expand its capacity. | | |
| ✓ Select RAID Group | Confirm Execution | | |
| Modify RAID Group Configuration | Please click [Start] button to start Logical Device Expansion. | | |
| Confirm Execution | | | |
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- \rightarrow A confirmation screen appears.
- **5** Click the [OK] button.



 $\rightarrow\,$ Logical Device Expansion is performed.

End of procedure

5.2.6 Set RAID Group Name

The [Set RAID Group Name] function can change the existing RAID group name. The procedure to change RAID group name is as follows:





2 Change the target RAID group name, and click the [Set] button.

Enter the volume name between 1 to 16 alphanumeric characters and symbols (including blanks).

 Caution
 RAID group name that is already registered in the ETERNUS DX60/ DX80 cannot be specified.

 Set RAID Group Name
 This function changes the name of RAID Group. Please select the broat RAID Group.

| AID Groups | | | | | Total | | | |
|------------|-----|---------|-------------|-----------------|------------------|----------------|------------------------------|-----------------------|
| 1:RAID_2 | No. | Name | Statu | s RAID Level | Capacity (MB) | Assigned CM | Rebuild/Copyback Progress | Expansion Progress |
| | Q | RAID_01 | Availa | ble RAID1 | 279040 | CM#0 | - | 1 |
| | 1 | RAID_02 | Availa | ble RAID5 | 134656 | CM#1 | 1711 | |
| | P | (1/1) | Filter: All | | | | | |
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 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The RAID group name is changed.

End of procedure

5.2.7 Set Eco-mode Schedule

The [Set Eco-mode Schedule] provides the following functions:

Eco-mode General Setting

Enables or disables the Eco-mode setting for ETERNUS DX60/DX80. Also, this function specifies the disk monitoring time. If the disk is not accessed for a specified time, the disk motor is inactivated

Eco-mode Schedule Setting

Specifies the disk operating time (term for activating disk motor constantly) as an Eco-mode schedule.



Apply Eco-mode Schedule

Applies the created Eco-mode schedule for each RAID group.

If an access occurs while a motor is stopped, the disk drive is immediately spun up and access proceeds normally after one to three minutes. If a disk drive is activated more than a set amount of times in a day, a state of increased access frequency is assumed and the Eco-mode will cease stopping the disk drive motor. Disk operation time varies depending on the Eco-mode schedule settings and disk access. The following shows examples:

 Operation schedule is set as 9:00 to 21:00, the allowed number of activations is one time, and there are no accesses outside of the scheduled period



 Operation schedule is set as 9:00 to 21:00, the allowed number of activations is one time, and there are accesses outside of the scheduled period







• The target disks where Eco-mode schedule can be set are SAS disks and Nearline SAS disks. SSDs are not available for this function.

Eco-mode General Setting

Enables or disables the Eco-mode setting for ETERNUS DX60/DX80. The procedure for Eco-mode General Setting is as follows:

Procedure

- 1 Click the [Set Eco-mode Schedule] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Set Eco-mode Schedule] screen appears.



- 2 Specify the following items, and click the [Set] button.
 - Eco-mode
 - Select whether to "Enable" or "Disable" the Eco-mode for ETERNUS DX60/DX80.
 - Host I/O Monitoring Interval (min.) Specify the disk access monitoring time between 10 and 60 (minutes) before inactivating the disk motor.

If disk access is detected during the monitoring time, extend the monitoring time for specified minutes after completing the relevant disk access. When the monitoring time has passed, the disk motor is inactivated.

Monitoring disk access is performed for each RAID group.

 Disk Motor Spin-down Limit Count (Maximum Spin-downs/Day) Specify the maximum number of disk motor spin-downs (per day) between 1 and 5 times.

The disk motor spin-down limit indicates the number of times to stop the activating disk motor. GUI monitors the number of inactivation per day. If the number of disk motor spin-downs reaches the specified maximum number, the motor is not stopped again. Monitoring the disk motor spin-down is performed for each RAID group. Number of inactivations is reset to "0" at 0:00 everyday.



 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow Eco-mode commonness setting is applied.

When the Eco-mode has been disabled, the setting switches to "Enabled". When the Eco-mode has been enabled, the setting switches to "Disabled".



Eco-mode Schedule Setting

Specify the disk operation time as an Eco-mode schedule. Up to 64 Eco-mode schedules can be created. The procedure to create the Eco-mode schedule is as follows:

Procedure

- 1 Click the [Set Eco-mode Schedule] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Set Eco-mode Schedule] screen appears.
- 2 Click the "Schedule" icon from the tree in the left of the screen. \rightarrow The "Schedule" field is displayed.
- **3** Click the [Create] button.



 \rightarrow The setting fields for new schedule is displayed.





When changing or deleting the Eco-mode schedules, select the target event in the "Schedule" field or the tree in the left of the screen, and click the [Set] or [Delete] button.

| | Schedule | | | |
|----------------------------|------------|--|-----------------------------|---------|
| | No. | 1 | | |
| - 例 0:ECO_01 例 1:ECO_02 | Schedul | e Name ECO_02 (1 - 16 characters(alphanume | eric character blank sign}) | |
| | Event List | | | |
| | | Event | From Time | To Time |
| | | Every the 1st Monday of Every Month | 01:00 | 02:00 |
| | N | Every week Monday | 02:30 | 03:30 |
| | Ad | d Edit Delete Delete All | | |
| | | | | |
| | | | | |

4 Set the following items.

Schedule Name

Enter the schedule name between 1 to 16 alphanumeric characters and symbols (including blanks).

Event List

Set the schedule event in this field. Click the [Add] button.

The "Set Event" field is displayed.

Up to eight events per schedule can be created.



- When changing the event details, select the target event, and click the [Edit] button.
 - When deleting the event, select the target event(s) to be deleted (multiple selections can be made), and click the [Delete] button.
 - Clicking the [Delete All] button deletes all the specified events in the schedule.

Set Event

Specify the following items, and click the [Apply] button.

- Event Type

Select one of the following items:

- Every Month
- Every week
- everyday
- Specific days
- Specific week

Also, enter a Period (when selecting other than "everyday"), Month (when selecting "Every week" or "Specific week"), and start/end time of the disk activation.



| AID Groups | Schedule 1 | | | |
|--------------|-----------------------------|---------------------------------------|------------------------|-------|
| New Schedule | Schedule Name ECO_01 | (1 - 16 characters(alphanumeric | character blank sign)) | |
| | Event List | | | |
| | Event | From Time | To Time | |
| | Add Edit E | Delete Delete All | | |
| | Set Event | | | |
| | Event Type O everyday O Eve | ery week O Specific days ⓒ Specific w | eek | _ |
| | Month Every Month 💌 | | | |
| | Period 1st Monday | ▼ ~ Monday ▼ | | |
| | From Time 01 💌 : 00 💌 | | | |
| | To Time 02 • : 00 • | | | |
| | Apply Cancel | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

5 Click the [Set] button.

| Set ECO Mode Schedule | | | | |
|--|-------------------------------|--|--------------------------------|----------------|
| ECO Mode Schedule is created. De | atailed schedule c | an be browsed and modified using the tree on the left si | ide of the screen. | |
| ECO Mode : Enable RAID Groups Schedule O:ECO_01 New Schedule | Schedule No. Schedule N | 1 ame ECO_02 (1 - 16 characters(alphar | numeric character blank sign)) | |
| | Event List | | | |
| | | Event | From Time | To Time |
| | | Monday of 1st in Every Month | 01:00 | 02:00 |
| | | every week Monday | 02:30 | 03:30 |
| | Add | Edit Delete Delete All | | |
| | | | Cre | ate Set Delete |

- \rightarrow A confirmation screen appears.
- 6 Click the [OK] button.



 \rightarrow The new Eco-mode schedule setting is started.



Apply Eco-mode Schedule

This function applies the Eco-mode schedule to the RAID group. The procedure to apply the Eco-mode schedule is as follows:

Procedure

- 1 Click the [Set Eco-mode Schedule] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Set Eco-mode Schedule] screen appears.
- **2** Click the "RAID Groups" icon from the tree in the left of the screen.
 - \rightarrow The "Assign RAID Groups" field is displayed.
- **3** Specify the following items, and click the [Set] button.
 - Schedule Name
 Select the Eco-mode schedule to be applied
 - When disabling the Eco-mode schedule for the relevant RAID group, select "Disable".
 - Action

Select whether to turn the Eco-mode schedule "ON" or "OFF" for the RAID group to be applied.



 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The Eco-mode schedule is applied for the RAID groups.



5.2.8 Change CM Ownership

The [Change CM Ownership] function changes the assigned CM specified when creating the RAID group.

Usually, the assigned CM is automatically allocated. If the load is not balanced evenly between CMs, the assigned CMs can be manually allocated to balance the load.



The procedure to change RAID group assigned CM is as follows:

Procedure

- 1 Click the [Change CM Ownership] under the [RAID Group Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Change CM Ownership] screen appears.
- **2** Specify the following items, and click the [Change] button.
 - Select Automatic or Manual assignment of ownership.
 Select the method for assigning the CM from "Auto" or "Manual".
 If changing the current setting, a confirmation screen appears.
 - RAID Group List

When selecting the "Manual" for "Select Automatic or Manual assignment of ownership." field, specify the assigned CM for the RAID group.

| elect | Automatic o | or Manual as | ssignment of (| ownership. | | |
|-------|-------------|--------------|----------------|---------------------|-------------|--|
| O A | Auto 💿 Man | nual | | | | |
| | | | | | | |
| AID G | roup List | | | | | |
| No. | Name | Status | RAID Level | Total Capacity (MB) | Assigned CM | |
| 0 | RAID_01 | Available | RAID1 | 279040 | CM#1 • | |
| 1 | RAID_02 | Available | RAID5 | 134656 | CM#0 V | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The assigned CM is changed.



5.3 Volume Management

The following settings are available as the volume management.

- Create/Delete Volume
- Format Volume
- Encrypt Volume
- LUN Concatenation
- RAID Migration
- Initialize Snap Data Volume
- Release Reservation
- Set Volume Name
- Configure LUN Mapping

5.3.1 Create Volume

The [Create Volume] function creates the volumes in the existing RAID group. Open or Snap Data Volume (SDV) can be created with this function. After completing the volume creation, the new volumes are formatted automatically.

Volumes can be accessed from the host when created in the RAID group and LUN mapped.

The maximum number of volumes that can be registered

The following table shows the maximum number of volumes can be created for each device.

| Device Type | per RAID group | per Device |
|--------------|----------------|-------------|
| ETERNUS DX60 | Up to 128 | Up to 512 |
| ETERNUS DX80 | Up to 128 | Up to 1,024 |



- When the maximum number of volumes has already been created in the ETERNUS DX60/DX80, more volumes cannot be created. In this case, to create a new volume, first delete volumes using the <u>"5.3.2 Delete Volume" (page 96)</u> function, and then try creating a new volume again.
 - A volume is allocated to uninterrupted free space in the order of creation.
 If an area with the necessary capacity cannot be acquired from the free

space available, use the <u>"5.3.5 LUN Concatenation" (page 101)</u> function to concatenate multiple spaces into a volume.

SDV is the Snap Data Volume that is required for SnapOPC+. Refer to <u>"5.4.2 Manage Copy Session" (page 129)</u> for details about SnapOPC+.



The procedure to create a volume is as follows:

Procedure

1 Click the [Create Volume] under the [Volume Management] menu on the [Volume Settings] tab.

 \rightarrow The [Create Volume] screen appears.

2 Select the RAID group where the volumes are created from the tree in the left of the screen, or RAID Group List.

| ERNUS_01 | DAID C | roup List | | | | | | | | | | |
|-------------|----------|-----------------|-----------|------------|---------------------|-------------|---------------------------|--------------------|--|--|--|--|
| RAID Groups | RAIDG | KAID Group List | | | | | | | | | | |
| 0:RAID_1 | No. | Name | Status | RAID Level | Total Capacity (MB) | Assigned CM | Rebuild/Copyback Progress | Expansion Progress | | | | |
| | <u>Q</u> | RAID_1 | Available | RAID1 | 279040 | CM#0 | - | | | | | |
| 2:RAID_3 | 1 | RAID_2 | Available | RAID1 | 67328 | CM#1 | - | - | | | | |
| | 2 | RAID_3 | Available | RAID1 | 374528 | CM#0 | | - | | | | |
| | 100 | | _ | and the | | | | | | | | |
| | | < | (1/1) | Filter: | All 🗾 | | | | | | | |
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- \rightarrow The detailed information of the selected RAID group is displayed.
- **3** Specify the following items, and click the [Create] button.
 - Volume Name

Enter the volume name between 1 to 16 alphanumeric characters and symbols (including blanks).

Type

Select the volume type (Open or SDV).

 Capacity (MB) Specify the volume capacity to be created in units of MB.
 Set the value between 24 to 8,388,607 (MB), or the maximum capacity of the RAID group.



When creating an SDV, the total SDV capacity (MB) and 0.1% of the copy source volume capacity is secured in the ETERNUS DX60/DX80. 0.1% of the copy source volume is the capacity used for the controlling information area in the SDV.

 Source Volume Capacity (MB) (SDV only) Specify the total capacity of the copy source for SDV in units of MB.



Encryption

Select whether to "Enable" or "Disable" encryption mode for the new volume. An encrypted volume cannot be changed to non-encrypted volumes. Refer to <u>"5.3.4 Encrypt Volume" (page 99)</u> for details.

Number of Volumes

When creating multiple volumes of the same type and capacity, set the number of volumes to be created. All the volumes are created with the same name. Change the volume names as required (Refer to "5.3.9 Set Volume Name" (page 111)).

| iouto i olumo | | |
|------------------------------|-----------------------------|--|
| Create Volume(s) in selected | RAID Group. | |
| ETERNUS_01 | RAID Group 1 Information | |
| | RAID Group No. 1 | |
| | Name R4 | IAID_2 |
| 2:RAID_3 | RAID Level RA | AID1 |
| | Total Capacity (MB) 67 | 7328 |
| | Total Free Space (MB) 67 | 7328 |
| | Largest Free Space (MB) 67 | 7328 |
| | Volume List | |
| | No. Name Type Capacit | ity (MB) Source Volume Capacity (MB) |
| | | |
| | New Volume | |
| | Volume No. | 9 |
| | Volume Name | Volume_09 (1 - 16 characters(alphanumeric character blank sign)) |
| | Туре | © Open C SDV |
| | Capacity (MB) | 1024 |
| | Source Volume Capacity (MB) | 0 |
| | (SDV only) | |
| | Encryption | C Enable O Disable |
| | Number of Volumes | 1 (1 - 128) |

- \rightarrow A confirmation screen appears.
- 4 Click the [OK] button.



 \rightarrow The volumes are created.



5.3.2 Delete Volume

The [Delete Volume] function deletes the volumes in the RAID group. Make sure to backup any necessary data before proceeding.

| Caution 🔎 | The following volumes cannot be deleted. Volumes that are allocated to a Host Affinity or mapped LUN. Volumes during RAID migration. Copy source and destination volumes during Advanced Copy session. Volumes in the RAID group during Logical Device Expansion |
|-----------|---|
| | A volume is allocated to uninterrupted free space in order of creation. When a volume is deleted, the space where the volume existed becomes free space. By repeating creation and deletion of volumes, free space may be dispersed in the RAID group. Up to 128 volumes can be deleted at once. |

The procedure to delete a volume is as follows:

Procedure

- 1 Click the [Delete Volume] under the [Volume Management] menu on the [Volume Settings] tab.
 - $\rightarrow\,$ The [Delete Volume] screen appears.
- 2 Select the volume to be deleted from the "Volume List" field (multiple selections can be made), and click the [Delete] button.

| olume_00 | | | | | | | | | |
|----------|-------|----------|-----------|-----------|--------|---------------|-------------|---------------------|--------------------|
| lume_02 | Volum | e List | | | | | | | |
| lume_04 | | No. | Name | Status | Туре | Capacity (MB) | RAID Group | Formatting Progress | Migration Progress |
| lume_05 | E | <u>0</u> | Volume_00 | Available | Open | 1024 | 0:RAID 01 | - | |
| lume_06 | | 1 | Volume_01 | Available | Open | 1024 | 0:RAID 01 | 2 | 121 |
| lume 08 | E | 2 | Volume_02 | Available | Open | 1024 | 0:RAID 01 | | - |
| lume_09 | | 3 | Volume_03 | Available | Open | 1024 | 0:RAID 01 | - | 1.01 |
| | | 4 | Volume_04 | Available | Open | 1024 | 0:RAID 01 | 17 | 174 |
| | | 5 | Volume_05 | Available | Open | 1024 | 0:RAID 01 | 2 | 121 |
| | | <u>6</u> | Volume_06 | Available | Open | 1024 | 0:RAID 01 | 14 | 2 |
| | | Z | Volume_07 | Available | Open | 1024 | 0:RAID 01 | - | 100 |
| | | 8 | Volume_08 | Available | Open | 1024 | 0:RAID 01 | 10 | 151 |
| | • | 9 | Volume_09 | Available | Open | 1024 | 0:RAID 01 | 1 | 121 |
| | | Select | All Reset | | < (1/1 | 1) > > | Filter: All | | |
| | | | | | | | | | |
| | | | | | | | | | |

 \rightarrow A confirmation screen appears.



3 Click the [OK] button.



 \rightarrow The selected volumes are deleted.

End of procedure

5.3.3 Format Volume

The [Format Volume] function is used to format (clear data in) the selected volume.

| Caution 🕗 | If selecting and formatting a volume that is in use, the data stored in the volume will be deleted. |
|-----------|---|
| | For a newly created volume, formatting with this function is not required. Newly created volumes are formatted automatically. |
| | The following volumes cannot be formatted. |
| | Volumes with a status other than "Readying" or "Available" |
| | Volumes in the RAID group during Logical Device Expansion |
| | Volumes for which Advanced Copy is being performed |
| | Volumes during RAID migration |
| | |
| Note | Progress of formatting can be checked from the [Volume Status] menu on the [Status] tab. |

The procedure to format a volume is as follows:

Procedure

1 Click the [Format Volume] under the [Volume Management] menu on the [Volume Settings] tab.

 $\rightarrow\,$ The [Format Volume] screen appears.



2 Select the volume to be formatted from the tree in the left of the screen, or "Volume List" field (multiple selections can be made), and click the [Format] button.

| ormat Volume | | | | | | | | | |
|--|----------------|----------|-----------|-----------|--------|---------------|-------------|---------------------|--------------------|
| This function formats the seler | cted Volume(s) | | | | | | | | |
| ETERNUS_01 | Volume | e List | | | | | | | |
| - 📀 0:Volume_00 | | No. | Name | Status | Туре | Capacity (MB) | RAID Group | Formatting Progress | Migration Progress |
| | V | Q | Volume_00 | Available | Open | 1024 | 0:RAID 01 | - | - |
| 2:Volume_02 | | 1 | Volume_01 | Available | Open | 1024 | 0:RAID 01 | 14 II. | - |
| 3:Volume_03 | | 2 | Volume_02 | Available | Open | 1024 | 0:RAID 01 | | 2.00 |
| 4:volume_04 | | 3 | Volume 03 | Available | Open | 1024 | 0:RAID 01 | | - |
| | | 4 | Volume_04 | Available | Open | 1024 | 0:RAID 01 | | 1241 |
| 7:Volume_07 | | 5 | Volume 05 | Available | Open | 1024 | 0:RAID 01 | 14 | - |
| - 🤣 8:Volume_08 | | 6 | Volume 06 | Available | Open | 1024 | 0:RAID 01 | - | - |
| 9:Volume_09 | | 7 | Volume 07 | Available | Onen | 1024 | 0'RAID 01 | - | - |
| | | 4 | Volume_09 | Available | Open | 1024 | 0.RAID 01 | | |
| 211:Volume_11 | | 2 | Volume_00 | Available | Open | 1024 | 0.RAID 01 | - | |
| - 13:Volume_13 - 14:Volume_14 - 15:Volume_15 - 16:Volume_15 - 16:Volume_16 - 17:Volume_17 - 18:Volume_18 - 19:Volume_19 | S | Select / | All Reset | | < (1/2 | 2) 2 > >1 | Filter: All | ¥ | |
| | | _ | | | | | | | |

- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The selected volumes are formatted.



5.3.4 Encrypt Volume

The [Encrypt Volume] function encrypts the data in the disks to prevent the data leakage caused by theft or loss when removing disks.

| Caution 🔎 | • When encrypting volumes, enable the encryption mode using the <u>"6.4.3</u> <u>Setup Encryption Mode" (page 187)</u> function. However, when the "Setup Encryption Mode" is not displayed in the menu, the encryption function is not available. However, when the encryption function is not available, the "Setup Encryption Mode" is not displayed in the menu. | | | | | | | |
|-----------|--|--|--|--|--|--|--|--|
| | • This function prevents data leakage from removal of disks. Therefore, when accessing from the server, data in the disks is not encrypted. Note that this function cannot prevent data leakage by server access. | | | | | | | |
| | Once a volume has been encrypted, it cannot be changed back to a non-encrypted volume. | | | | | | | |
| | Canceling volume encryption is not possible. | | | | | | | |
| | This function cannot be used under the following conditions: | | | | | | | |
| | Encryption mode is not set (refer to <u>"6.4.3 Setup Encryption Mode"</u> (page 187)) | | | | | | | |
| | A warning status component exists in the controller enclosure | | | | | | | |
| | There is no volume to be encrypted | | | | | | | |
| | Volumes in the following conditions cannot be selected as an encryption target volume (not displayed in the Volume List). | | | | | | | |
| | Volumes which are not in normal status (Rebuilding/Copybacking, etc.) | | | | | | | |
| | Volumes which are being formatted | | | | | | | |
| | Volumes in RAID migration operation | | | | | | | |
| | Volumes in a RAID group in which Logical Device Expansion is being executed | | | | | | | |
| | Volumes which are already encrypted | | | | | | | |
| | Volumes which are being encrypted | | | | | | | |
| | When encrypting Advanced Copy target volumes, both the copy source and copy destination volumes must be encrypted. | | | | | | | |
| | • The following performance may be degraded for encrypted volumes compared with non-encrypted volumes. | | | | | | | |
| | Access to the encrypted volumes | | | | | | | |
| | - Copy transfer of encrypted volumes | | | | | | | |
| | | | | | | | | |
| Note | The progress of an encryption operation can be checked from [Volume Status] menu on the [Status] tab screen. | | | | | | | |



The procedure to encrypt a volume is as follows:

Procedure

- 1 Click the [Encrypt Volume] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Encrypt Volume] screen appears.
- 2 Select the volume to be encrypted from the tree in the left of the screen or "Volume List" field (multiple selections can be made), and click the [Encrypt] button.

| crypt volume | | |
|--------------------------------|--|------|
| This function converts between | en unencrypted and encrypted volumes. | |
| ETERNUS_01 | Volume List | |
| Volumes | No. None Carbon Trans. Consult (197). DAID Convert Examples Deserves. Minutes Deserves | |
| 0:Volume_00 | No. Name Status Type Capacity (MB) RAID Group Formatting Progress Migration Progress | |
| 1:Volume_01 | ☑ 20 Volume_20 Available Open 1024 0.RAID 01 | |
| 2:Volume_02 | | |
| 3:Volume_03 | Select All Reset I< < 12 (3/3) > > Filter: All | |
| 4:Volume_04 | | |
| 5:Volume_05 | | |
| 6:Volume_06 | | |
| Volume_07 | | |
| 8:volume_08 | | |
| 9:Volume_09 | | |
| 10:volume_10 | | |
| | | |
| 2.volume_12 | | |
| 13.volume_13 | | |
| 4.volume_14 | | |
| O 15. Volume_15 | | |
| 17:Volume_17 | | |
| 10:Volume_17 | | |
| 10:Volume_10 | | |
| 201/olume_19 | | |
| 20.volume_20 | | |
| | | |
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| | | |
| | | |
| | | Enco |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The selected volume is encrypted.



5.3.5 LUN Concatenation

LUN concatenation adds new space for volumes and expands the volume capacity that can be used from the server.

This function enables the use of free area in the RAID group, and solves capacity shortages.

This function obtains the area to be used for capacity expansion from unused areas in an existing RAID group. LUN concatenation creates a new volume with the obtained area, and concatenates these volumes to be used as a large capacity volume.

Concatenation of multiple free areas from different RAID groups is possible. Also, concatenation is possible even if the RAID levels of the groups are different.

Up to 16 volumes can be concatenated. The maximum volume capacity after concatenation is 32TB.

- Conditions of the volumes to be concatenated
- The volume type must be "Open" (Open volume)
- The volume status must be "Available"
- The volume capacity must be 1,024MB to 8,388,607MB
- Cannot be concatenated during RAID Migration
- · Cannot be concatenated when there is an Advanced Copy session
- The RAID group to which the volume belongs is not in the Logical Device Expansion process
- Conditions of RAID groups to obtain unused area
- The RAID Group status must be "Available"
- A RAID group with less than 128 volumes registered
- A RAID group must not be blocked

Caution
 Concatenation of volumes is not possible in RAID groups configured with disks of different types (SAS/SSD).
 When expanding the existing volume capacity using the [LUN Concatenation] function, the server is required to recognize the expanded volume capacity after the concatenation.
 A new concatenated volume is automatically formatted. The progress of formatting may be checked in the [Volume Status] screen on the [Status] tab.



The procedure for LUN Concatenation is as follows:

Procedure

- 1 Click the [LUN Concatenation] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [LUN Concatenation] screen appears.
- **2** Select the volume to be concatenated from the tree in the left of the screen, or Volume List.

| UN Concatenation | | | | | | | | | |
|---------------------------------|---------------|----------------|---------------|-----------|---------------|-------------|--|--------------------|--|
| /olume capacity is increased dy | mamically by: | assigning a ne | ew storage to | o an exis | ting volume. | | | | |
| ETERNUS_01 | Volume | e List | | | | | | | |
| | No. | Name | Status | Туре | Capacity (MB) | RAID Group | Formatting Progress | Migration Progress | |
| | 10 | Volume_10 | Available | Open | 1024 | 0:RAID 01 | and the second sec | | |
| - 2:Volume_02 | 11 | Volume_11 | Available | Open | 1024 | 0:RAID 01 | | | |
| | 12 | Volume_12 | Available | Open | 1024 | 0:RAID 01 | | | |
| | 13 | Volume_13 | Available | Open | 1024 | 0:RAID 01 | - | - | |
| 5:Volume_05 | 14 | Volume_14 | Available | Open | 1024 | 0:RAID 01 | - | | |
| - Colume_06 | 15 | Volume_15 | Available | Open | 1024 | 0:RAID 01 | 2 | 2 | |
| | 16 | Volume_16 | Available | Open | 1024 | URAID 01 | - | - | |
| 😌 8:Volume_08 | 1/ | Volume_17 | Available | Open | 1024 | 0:RAID 01 | | | |
| | 10 | Volume 19 | Available | Open | 1024 | 0.RAID 01 | | | |
| | 10 | relative_re | 1 Wallabio | opon | 1021 | 0.10 100 01 | - | - | |
| 🤣 11:Volume_11 | Le la | 1 1/2 | (2) | 2 | Hor All | - | | | |
| | 10 | | | | iter. [/ ai | 1000 | | | |
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- \rightarrow Detailed information of the target volume is displayed.
- **3** Click the [Next >] button.

| Volumes 0:Volume_00 | Volume 19 | |
|---------------------|---------------------|-----------|
| | | |
| - All Volume 01 | No. | 19 |
| | Name | Volume_19 |
| 2:Volume_02 | Status | Available |
| - 3:Volume_03 | Type | Open |
| 4:Volume_04 | Capacity (MB) | 1024 |
| S:Volume_05 | Encryption | OFF |
| 7:Volume_07 | Encryption Progress | |
| 8:Volume 08 | RAID Group | 1:RAID 02 |
| 9:Volume_09 | Formatting Progress | |
| | Migration Drogross | |
| - 💙 11:Volume_11 | migration Progress | |
| 212:Volume_12 | LUN Mapping List | |
| | Host/Port LUN | |
| - 214:Volume_14 | | |
| 15:Volume_15 | | |
| 16:Volume_16 | | |
| | | |
| 18:Volume_18 | | |

- **4** Set the following items, and click the [Concatenation] button.
 - RAID Group Select the existing RAID group where the concatenation volume is obtained.
 - Capacity (MB) Specify the capacity of concatenation volume, and click the [Add] button. Concatenation volume is added in the "Volume Information" field.

| | icatenation | | | | | | | | | | | |
|---|--|---|---|---|-------------------------|------------|------|------|------|--|--|---|
| lume | capacity is incr | eased d | ynamically by | assigning a n | ew storage to an e | xisting vo | ume. | | | | | |
| olume | e 19:Volume_1 | 9 Inform | nation | | | | | | | | | |
| Total | Capacity (MB) | 3072 | | | | | | | | | | |
| | | | | | 2112.2 | | | | | | | |
| | No. | | Status C | apacity (MB) | RAID Group | | | | | | | |
| - | Volume_19 (| (1/2) A | wailable 10 | 24 | 1:RAID_02 | | | | | | | |
| | Volume_19 (| (2/2) A | vailable 20 | 48 | 0:RAID_01 | | | | | | | |
| Del | oto | | | | | | | | | | | |
| Dei | UIU I | | | | | | | | | | | |
| | | | | | | | | | | | | - |
| pecify | y source of add | ditional | capacity. | | | | | | | | | |
| RAID | Group 0:F | AID_01 | - | | | | | | | | | |
| | | | | | | | | | | | | |
| Com | (BAD) 004 | 10 | 14.00 | 1 0007500 4 | | | | | | | | |
| Capa | acity (MB) 204 | 18 | (102 | 24 - 266752) A | bb | | | | | | | |
| Capa | acity (MB) 204 | 18 | (102 | 24 - 266752) A | bb | | | | | | | |
| Capa AID G | acity (MB) 204 | tion | (102 | 24 - 266752) <u>A</u> | dd | | | | | | | |
| Capa AID G RAID | acity (MB) 204 roup 0 Informa) Group No. | tion | 0 | 24 - 266752) <u>A</u> | bb | | | | | | | |
| Capa AID G RAID Nam | acity (MB) 204 roup 0 Informa) Group No. le | tion | 0 RAID_01 | 24 - 266752) <u>A</u> | da | | | | | | | |
| Capa AID G RAIE Nam RAIE | acity (MB) 204 roup 0 Informa) Group No. le) Level | ition | 0 RAID_01 RAID1 | 24 - 266752) <u>A</u> | 14 | | | | | | | |
| Capa AID G RAIE Nam RAIE Tota | acity (MB) 204 roup 0 Informa) Group No. le) Level I Capacity (MB | ition | 0 RAID_01 RAID1 279040 | 24 - 266752) <u>A</u> | | | | | | | | - |
| Capa RAID G RAIE Nam RAIE Tota Tota | acity (MB) 204 roup 0 Informa) Group No. Ie) Level I Capacity (MB I Free Space (I | ition) WB) | 0 RAID_01 RAID1 279040 268800 | 24 - 266752) <u>A</u> | | | | | | | | |
| Capa RAID G RAIE Nam RAIE Tota Tota Larg | acity (MB) 204 roup 0 Informa) Group No. le) Level I Capacity (MB I Free Space (I jest Free Space (I | ition) MB) e (MB) | 0 RAID_01 RAID1 279040 268800 268800 | 24 - 266752) <u>A</u> | 30 | | | | | | | - |
| Capa AID G RAIE Nam RAIE Tota Tota Larg | acity (MB) 204 roup 0 Informa) Group No. le) Level I Capacity (MB I Free Space (I jest Free Spac | ition) MB) e (MB) | 0 RAID_01 RAID1 279040 268800 268800 | 24 - 266752) <u>A</u> | <u>ad</u> | | | | | | | - |
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| Capa AID G RAIE Nam RAIE Tota Tota Larg Volur No. | acity (MB) 204 roup 0 Informa 0 Group No. 1e 1 Capacity (MB I Free Space (I jest Free Space ne List Name Volume, 00 | ition) MB) e (MB) Type | 0 RAID_01 RAID1 279040 268800 268800 Capacity (W | AB) Source \ | dd /olume Capacity (| MB) | | | | | | |
| Capa AID G RAIE Nam RAIE Tota Larg Volur No. 0 1 | acity (MB) 204 roup 0 Informa 0 Group No. 1e 0 Level 1 Capacity (MB 1 Free Space (I lest Free Space (I lest Free Space Name Volume_00 | ition) MB) e (MB) Open Open | 0 RAID_01 RAID1 279040 268800 268800 Capacity (N 10 | 124 - 266752) A 124 124 | Id Volume Capacity | MB) | | | | | | |
| Capa KAID G RAIE Nam RAIE Tota Larg Volur No. 0 1 | acity (MB) 204 roup 0 Informa 0 Group No. le 1 Capacity (MB I Free Space (I Jest Free Space (I Jest Free Space ne List Name Volume_00 Volume_01 | ition (MB) e (MB) Open Open Open | (102 0 RAID_01 RAID1 279040 268800 268800 268800 268800 10 10 10 10 | AB) Source V 124 - 266752) A 124 124 124 124 | Id folume Capacity | MB) | | | | | | |

 \rightarrow A confirmation screen appears.

5 Click the [OK] button.



→ LUN concatenation is started.

End of procedure

5.3.6 RAID Migration

This function migrates a volume in a RAID group to a free area in another RAID group.

Setting (expanding) the volume capacity is also available. This function enables load balancing of host access. Creation and format of new volumes and

host interface establishment are automatically performed. Because data in the volume will be moved to a new volume, users are allowed to access the data anytime without being affected by the migration. After the RAID migration is completed, the migration source volume is deleted.



- Conditions of the migration source volume
- The volume type must be "Open" (Open volume)
- The volume status must be "Available"
- · Cannot be migrated while formatting
- Cannot be migrated during RAID Migration
- Cannot be migrated during Advanced Copy
- A concatenated volume cannot be migrated
- The RAID group to which the volume belongs is not in the Logical Device Expansion process.
- The total capacity of the Open Volume to be migrated and the capacity of the volumes being migrated must not exceed 8TB
- Conditions of the migration destination RAID group
- If Open Volumes are created in the RAID group, the number of volumes in the RAID group must be less than 128
- The total number of defined Open Volumes and Snap Data Volumes must be 128 or less
- · No volumes in Advanced Copy status exist in the RAID Group
- The status of the RAID group must be "Available" or "Present"
- A RAID group must not be blocked
- The free area (sequential space) for the RAID group must be equal to or larger than the migration source volume capacity
- The migration destination is not in the same RAID group as the migration source (migration in the same RAID group is not available)
- The RAID group to which the volume belongs is not in the Logical Device Expansion process.
- Conditions of the RAID migration session
- · Up to 32 RAID migration sessions can be migrated at the same time
- Up to 8TB capacity of RAID migration can be executed at the same time
- The maximum number of volumes that can be registered

RAID Migration creates a new volume. Refer to table <u>"The maximum number of volumes that</u> <u>can be registered" (page 93)</u> in <u>"5.3.1 Create Volume" (page 93)</u> for the maximum number of volumes that can be created for ETERNUS DX60/DX80.

The procedure for RAID migration is as follows:

Procedure

- 1 Click the [RAID Migration] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [RAID Migration] screen appears.



2 Select the migration source volume, and click the [Next >] button.

| ct Volume | Select | Sourc | e Volume | | | | | | |
|-------------------|--------|-------|-----------|-----------|------------|------|---------------|------------|--------------------|
| t Volume Capacity | | No. | Name | Status | Error Code | Туре | Capacity (MB) | RAID Group | Migration Progress |
| | œ | 0 | Volume_00 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | 0 | 1 | Volume_01 | Available | 0x00 | Open | 1024 | 0:RAID_01 | |
| | 0 | 2 | Volume_02 | Available | 0x00 | Open | 1024 | 0:RAID_01 | 2 |
| | 0 | 3 | Volume_03 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | 0 | 4 | Volume_04 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | 0 | 5 | Volume_05 | Available | 0x00 | Open | 1024 | 0:RAID_01 | 5 |
| | C | 6 | Volume_06 | Available | 0x00 | Open | 1024 | 0:RAID_01 | 2 |
| | C | 7 | Volume_07 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | C | 8 | Volume_08 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | 0 | 9 | Volume_09 | Available | 0x00 | Open | 1024 | 0:RAID_01 | - |
| | | < | (1/2) 2 > |] >] | | | | | |

- \rightarrow The "Select Destination RAID Group for the migrated Volume" setting field is displayed.
- **3** Select the migration destination RAID group, and click the [Next >] button.

| Poloct Volumo | | | | oup. | | | | | |
|----------------------|--------|--------|-------------|--------------|---------------|---------------------|-----------------------|--------------|--|
| Select RAID Group | Select | Destir | nation RAID | Group for th | e migrated Vo | lume | | | |
| nput Volume Capacity | | No. | Name | Status | RAID Level | Total Capacity (MB) | Total Free Space (MB) | Volume Count | |
| inish | 0 | 0 | RAID_01 | Available | RAID1 | 279040 | 268800 | 10 | |
| | ۲ | 1 | RAID_02 | Available | RAID5 | 134656 | 124416 | 10 | |
| | | < | (1/1) | M. | | | | | |
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 \rightarrow The "Input Volume Capacity" setting field is displayed.



4 Input the new volume capacity (in MB), and click the [Next >] button. Specifying (Expanding) the target volume capacity is available at the RAID migration. Added capacity is created as a new volume in the migration destination RAID group.



5 Click the [Migration] button.

| nigrated to a different RAID Group. | |
|---|--|
| Message If (Migrate) button is clicked, RAID Migration will start. | |
| | |
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| | |
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| | |
| | |
| | |
| | < Back Migration |
| | Ingrated to a different RAID Group. Message If [Migrate] button is clicked, RAID Migration will start. |

 \rightarrow A confirmation screen appears.



6 Click the [OK] button.



 \rightarrow The RAID migration process is started.



If the RAID migration process cannot be continued during the operation, the process is canceled and the RAID migration destination volume is deleted.

End of procedure

5.3.7 Initialize Snap Data Volume

The [Initialize Snap Data Volume] function initializes the management information for the Snap Data Volume (SDV) that is created as the copy destination for SnapOPC+.

When using the SnapOPC+, create the Snap Data Volume as the copy destination from the screen to create a volume. The Snap Data Volume includes the data area and copy management information area.

This function is used to initialize the management information for the Snap Data Volume when changing the copy source or canceling the copy. Note that data area will not be initialized (formatted).

 Caution
 In the following conditions, the management information for the Snap Data Volume (SDV) cannot be initialized.

 • When there is no volume to be initialized

 • When the target volume is not Snap Data Volume

 • When the target volume status is not "Available"

 • When the copy session is specified for the target volume

 • When this function is already in operation in the ETERNUS DX60/DX80

The procedure to initialize a Snap Data Volume is as follows:

Procedure

- 1 Click the [Initialize Snap Data Volume] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Initialize Snap Data Volume] screen appears.



2 Select the Snap Data Volume to be initialized from the tree in the left of the screen, or "Volume List" field.

| Initialize Snap Data Volume | |
|----------------------------------|---|
| Snap Data Volume is initialized. | |
| CETERNUS_01 | Volume List |
| 20:Volume_20 | No. Name Status Type Capacity (MB) RAID Group Formatting Progress Migration Progress 20 Volume 20 Available SDV 1024 n Paulo 01 |
| | |
| | Filter: Ali |
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- \rightarrow The detailed information of the selected volume is displayed.
- **3** Click the [Initialize] button.

| Initialize Snap Data Volume | | |
|----------------------------------|---------------------------------|------------|
| Snap Data Volume is initialized. | | |
| CETERNUS_01 | Volume 20 | |
| 20:Volume_20 | No. | 20 |
| | Name | Volume_20 |
| | Status | Available |
| | Туре | SDV |
| | Capacity (MB) | 1024 |
| | Logical Capacity (MB) | 2048 |
| | Physical Capacity (MB) | 1024 |
| | Capacity Used by Hosts (MB) | 0 |
| | Capacity Used for Copy (MB) | 0 |
| | SDP Capacity Used by Hosts (MB) | 0 |
| | SDP Capacity Used for Copy (MB) | 0 |
| | Encryption | OFF |
| | Encryption Progress | |
| | RAID Group | 1:RAID_02 |
| | Formatting Progress | |
| | Migration Progress | |
| | | |
| | | |
| | | |
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| | | |
| | | |
| | | |
| | | |
| | | Initialize |
| | | |

- \rightarrow A confirmation screen appears.
- 4 Click the [OK] button.



 \rightarrow The selected Snap Data Volumes are initialized.


5.3.8 Release Reservation

Some server may reserves volumes.

A volume in Reserve (Persistent Reserve) status set by the server can be released, and all Reservation Keys can be deleted with GUI.

Normally, the server executes Reserve (occupation) and Release (release occupation) of a volume. This function is used only when the server cannot release the volume reservation because of a server failure, etc.

Caution Be sure to pay attention when using this function as it may cause data corruption.

The procedure to release reservation is as follows:

Procedure

- 1 Click the [Release Reservation] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Release Reservation] screen appears.
 - The following items are displayed:
 - No.

The volume number is displayed.

Name

The volume name is displayed.

CM Port

The CM port to which the volume is LUN mapped is displayed.

Affinity Group

When the host affinity function is used, the affinity group to which the volume is LUN mapped is displayed.

LUN

The reserved LUN is displayed. When the volume is not reserved, "-" is displayed.

Registrant Count

The number of Reservation Keys registered in the volume is displayed.

Reservation Type

When the volume is in persistent reservation status, one of the following persistent reservation types is displayed.

- WE (Write Exclusive)
- EA (Exclusive Access)
- WE-RO (Write Exclusive-Registrants Only)
- EA-RO (Exclusive Access-Registrants Only)
- WE-AR (Write Exclusive-All Registrants)
- EA-AR (Exclusive Access-All Registrants)

When the volume is in reservation status other than persistent reservation status, "-" is displayed.



Reservation Status

The volume reservation status is displayed.

- "Yes": In persistent reservation status
- "No": In reservation status, but not in persistent reservation status
- "-": Only the reservation key is registered (not reserved)
- APTPL

Whether or not persistent reservation information is kept after the ETERNUS DX60/ DX80 has been shutdown/rebooted is displayed.

"Yes": The persistent reservation information is kept.

"No": The persistent reservation information is not kept.

When the volume is in reservation status other than persistent reservation status, "No" is displayed.

2 Select the volumes to release the reservation (multiple selections can be made), and click the [Release] button.

Clicking the [Reset] button clears selections for all volumes.

| st Io. Na I SI_ 19 SI_ ect All | ame CI _R1 _R3 | M Port - - set | Affinity Group 0:affinity_1 0:affinity_1 | LUN 9 29 | Registrant Count 0 | Reservation Type | Reservation Status | APTPL No |
|--|------------------------------|-------------------------|--|----------------|----------------------------|------------------|--------------------|-------------|
| IO. Na I SI_ I9 SI_ Rect All | ame CI _R1 _R3 _Res | M Port - - set | Affinity Group 0:affinity_1 0:affinity_1 | LUN 9 29 | Registrant Count 0 0 | Reservation Type | Reservation Status | APTPL No |
| I SI_ I SI_ I SI_ | _R1 _R3 | - set | 0:affinity_1 0:affinity_1 | 9 29 | 0 | - | No | No |
| 9 SI_ | _R3 Res | et [* | 0:affinity_1 | 29 | 0 | | | |
| ect All | Res | set [* | < (0/0) | _ | | - | No | No |
| | | | | A | 2 | | | |
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 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The reservation status for the selected volume is released.

End of procedure

5.3.9 Set Volume Name

The [Set Volume Name] function changes the existing volume name. The procedure to set volume name is as follows:

Procedure

- 1 Click the [Set Volume Name] under the [Volume Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Set Volume Name] screen appears.
- 2 Select the volume to change the volume name from the tree in the left of the screen, or "Volume List" field.

| et Volume Name | | | | | | | |
|--|-----------|-----------|------|---------------|------------|---------------------|--------------------|
| Modify the Volume Name of a selected Volur | ne. | | | | | | |
| ETERNUS_01 Volumes | ne List | | | | | | |
| 0:Volume_00 No | Name | Status | Туре | Capacity (MB) | RAID Group | Formatting Progress | Migration Progress |
| 1:Volume_01 0 | Volume_00 | Available | Open | 1024 | 0:RAID 01 | | |
| 2:Volume_02 1 | Volume_01 | Available | Open | 1024 | 0:RAID 01 | 2 | 2 |
| - 3:Volume 03 2 | Volume_02 | Available | Open | 1024 | 0:RAID 01 | 2 | 2 |
| ✓ 4:Volume 04 3 | Volume_03 | Available | Open | 1024 | 0:RAID 01 | - | |
| | Volume_04 | Available | Open | 1024 | 0:RAID 01 | - | - |
| | Volume_05 | Available | Open | 1024 | 0:RAID 01 | - | ÷ |
| 27.Volume_07 | Volume_06 | Available | Open | 1024 | 0:RAID 01 | - | ÷ |
| 28:Volume 08 7 | Volume_07 | Available | Open | 1024 | 0:RAID 01 | | * |
| 9 Volume 09 8 | Volume_08 | Available | Open | 1024 | 0:RAID 01 | - | × . |
| 2 10:Volume 10 | Volume_09 | Available | Open | 1024 | 0:RAID 01 | - | - |
| <pre>0 11 Volume_11 0 12 Volume_12 0 13 Volume_13 0 14 Volume_14 0 15 Volume_16 0 17 Volume_17 0 18 Volume_17 0 18 Volume_18 0 19 Volume_19 0 20 Volume_20</pre> | < (1/3) |)23 > | Ā | Filter. All | × | | |

 \rightarrow The "Set Volume Name" field is displayed.

- **3** Specify the following items, and click the [Set] button.
 - Current Volume Name The current volume name is displayed.
 - New Volume Name Enter the new volume name between 1 and 16 alphanumeric characters and symbols (including blanks).



 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The selected volume name is changed.

End of procedure

5.3.10 Configure LUN Mapping

The [Configure LUN Mapping] function sets the relationship between a Logical Unit Number (LUN) and volume number. LUN mapping enables the server access to the volumes in the ETERNUS DX60/DX80.

• Maximum number of LUNs that can be accessed

Note that the number of LUNs that can be accessed varies depending on the host specific mode of host response that is set for the server.

The following table shows the maximum number of LUN mappings for each port.

| Host specific mode of host response | ETERNUS DX60 | ETERNUS DX80 |
|-------------------------------------|--------------|--------------|
| Normal (other than HP-UX mode) | 256 | 256 |
| HP-UX mode | 512 | 1,024 |



When using the Host Affinity function

This section describes the following settings:

- LUN Mapping
- Affinity Group
- Port connected to the server
- · Specific information (HBA) for the server to access the affinity group

This function creates an "affinity group", a combination of volumes and LUN (multiple groups may be created), and allocates them to each server.

The procedure to set LUN mapping when using the Host Affinity function is as follows:

Procedure

1 Click the [Configure LUN Mapping] under the [Volume Management] menu on the [Volume Settings] tab.

 \rightarrow The [Configure LUN Mapping] screen appears.

2 Click the "Affinity Group" icon on the left of the screen.

3 Click the [Create] button.

| Configure LUN Mapping | | | | |
|---|---------------------|-------------------------------|---|----------------------|
| LUN Map defines mapping between | en Volumes and LUN | s as seen from the host. It i | s possible to browse and set the configuration as well as | detailed attributes. |
| CUN Mapping | List of Affinity Gr | oup(s) | | |
| - 69 0:host_1 | No. | Name | Number of LUN(s) | |
| € € 0005C1 € € 0000 Port#1 € € CM#1 Port#0 € € CM#1 Port#1 | <u>0</u> | host_1 | 3 | |
| | | | | |
| | | | | Create |
| | | | | |

- \rightarrow The "Affinity Group Setting" and "Define LUN Mapping" fields are displayed.
- **4** Set the affinity group name, and volume number corresponding to the LUN, and click the [Set] button.

| Configure LUN Mapping | | | | | | | | |
|--------------------------------|-----------------|---------------------|-------------------------------------|-----------------------------|--------------------------------|------|----------|---|
| LUN Map defines mapping betwee | n Volumes and L | UNs as seen from th | ne host. It is possible to browse a | nd set the configuration as | s well as detailed attributes. | | | |
| Affinity Group | Affinity Group | Setting | | | | | | 1 |
| 🚱 0:host_1 | No. | 1 | | | | | | |
| New Group | Name | host_2 | (1 - 16 characters(al | phanumeric character blar | nk sign)) | | | |
| CM#0 Port#0 | Number of | LUN(s) 3 | | | | | | |
| | | | | | | | | |
| CM#1 Port#0 | | | | | | | | |
| CM#1Port#1 | Define LUN M | apping | | | | | | |
| | LUN | Volume No. | | Volume Name | Capacity (MB) | | | |
| | | 0 | 5 | Volume_05 | | 1024 | <u> </u> | |
| | | 1 | 6 | Volume_06 | | 1024 | | |
| | | 2 | 7 | Volume_07 | | 1024 | | |
| | | 3 | | | | | | |
| | | 4 | | | | | | |
| | | 5 | | | | | | |
| | | 6 | | | | | | |
| | | 7 | | | | | | |
| | | R | | | | | | |
| | | 0 | | | | | | |
| | 4 | - n | | | | | | |
| | | 0 | | | | | - | |
| | | | | | | | | |
| | Specify F | Range Clear | | | | | | |
| | | | | | | | | |
| | | | | | | Set | Cancel | |

 \rightarrow A confirmation screen appears.

5 Click the [OK] button.



 \rightarrow The new affinity group is created. Go on to the next setting to allocate affinity group to the server.

6 Click the [Configure LUN Mapping] under the [Volume Management] menu on the [Volume Settings] tab.

 \rightarrow The [Configure LUN Mapping] screen appears.

- 7 Click the "Ports" icon on the left of the screen.
- **8** Select the port to be connected to the server from the tree in the left of the screen or Port List.

Select a port in which "Host Affinity" is "Enable".

| N Mapping Affinity Group | Port List | | | | |
|-----------------------------|-------------|---------------|------------------|-------------------|--|
| Ports | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | |
| CM#0 Port#0 | CM#0 Port#0 | Enable | - | 1 | |
| CM#0 Port#1 | CM#0 Port#1 | Enable | - | - | |
| CM#1 Port#0 | CM#1 Port#0 | Disable | 2 | - | |
| CM#1 Port#1 | CM#1 Port#1 | Disable | - | - | |
| | | | | | |
| | | | | | |
| | | | | | |

- \rightarrow Detailed information of the selected port is displayed.
- 9 Click the [Edit] button.

Caution 🕖

| Configure LUN Mapping | | |
|--------------------------------|-------------------------|---|
| LUN Map defines mapping betwee | n Volumes and LUNs as s | een from the host. It is possible to browse and set the configuration as well as detailed attributes. |
| LUN Mapping | Port Setting | |
| E-& Ports | Port | CM#0 Port#1 |
| | Host Affinity | Enable |
| CM#0 Port#1 | Number of Host(s) | 0 |
| CM#1 Port#0 | | |
| 0 | | |
| | Affinity Group Setting | |
| | Not yet Set | |
| | | |
| | | |
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| | | |
| | | |
| | | Edit |

 \rightarrow The "Host Affinity Setting" field is displayed.

10 Allocate the affinity group to the server, and click the [Set] button.

| Configure LUN Mapping | | | |
|--------------------------------|-------------------------|---|---|
| LUN Map defines mapping betwee | n Volumes and LUNs as s | een from the host. It is possible to browse and set the configuration as well as detailed attributes. | |
| LUN Mapping | Port Setting | | |
| E & Ports | Port | CM#0 Port#1 | |
| | Host Affinity | Enable | |
| CM#0 Port#1 | Number of Host(s) | 2 | |
| | | | |
| | Heat Affinity Catting | | |
| | Host Annity Setting | | |
| | Host | Affinity Group | |
| | 0:server1 | 0:host_1 | |
| | 1:server2 | 1:host_2 | |
| | | | |
| | Clear | | |
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| | | | _ |
| | | Set Cancel | |

- \rightarrow A confirmation screen appears.
- **11** Click the [OK] button.



 \rightarrow The host affinity setting is executed. LUN mapping configuration when using an affinity group completes.



When changing or deleting the an affinity group, select the target affinity group from the tree in the left of screen or target affinity group listed in the "Affinity Group List" field, and click the [Edit] or [Delete] button.

| nngure CON Mapping UN Nao defines macoing,bi | tween Volumes and LUNs | as seen from the host. I | t is possible to browse and set th | e configuration as well as | detailed affributes. | | | | |
|---|------------------------|--------------------------|------------------------------------|----------------------------|----------------------|---|--|--|--|
| UN Mapping | Affinity Group Set | ling | | | | | | | |
| Caffinity 1 | No. 0 | | | | | | | | |
| 😌 1:affinity2 | Name at | finity_1 | | | | | | | |
| Ports | LUN Count 3 | LUN Count 3 | | | | | | | |
| CM#0 Port#1 | | | | | | | | | |
| CM#1 Port#1 | Modify LUNs | | | | | | | | |
| | LUN No. | Volume No. | Volume Name | Status | Size (MB) | | | | |
| | 0 | 1 | Volume01 | Available | 1024 | * | | | |
| | 2 | 2 | Volume02 Volume03 | Available | 1024 | - | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

End of procedure

When the Host Affinity function is not used

This section describes the following settings:

- LUN Mapping
- Port connected to the server

This function specifies the Host LUN allocation to the volume for each port. The procedure to configure LUN Mapping when the Host Affinity function is not used is as follows:

Procedure

1 Click the [Configure LUN Mapping] under the [Volume Management] menu on the [Volume Settings] tab.

Select a port in which "Host Affinity" is "Disable".

 \rightarrow The [Configure LUN Mapping] screen appears.

- **2** Click the "Ports" icon on the left of the screen.
- **3** Select the target port from the tree in the left of the screen, or Port List.

| LUN Map defines mapping be | tween Volumes and LUNs as se | een from the host. It is possib | le to browse and set the configuration | as well as detailed attributes. | |
|----------------------------|------------------------------|---------------------------------|--|---------------------------------|--|
| LUN Mapping | Port List | | | | |
| Prove Annual Group | Port | Host Affinity | Number of LUN(s) | Number of Host(s) | |
| CM#0 Port#0 | CM#0 Port#0 | Enable | - | 1 | |
| - 🕼 CM#0 Port#1 | CM#0 Port#1 | Enable | - | | |
| - 🚱 CM#1 Port#0 | CM#1 Port#0 | Disable | 2 | - | |
| | CM#1 Port#1 | Disable | - | - | |
| | | | | | |
| | | | | | |

 \rightarrow Detailed information of the selected port is displayed.

4 Click the [Edit] button.

| Configure LUN Mapping | | | | |
|-----------------------------------|---------------------------------|---|------|------|
| LUN Map defines mapping between V | /olumes and LUNs as s | seen from the host. It is possible to browse and set the configuration as well as detailed attribut | es. | |
| LUN Mapping | Port Setting | | | |
| E Ports | Port | CM#1 Port#1 | | |
| | Host Affinity | Disable | | |
| 💓 CM#0 Port#1 | Number of LUN(s) | 0 | | |
| CM#1 Port#0 | | - | | |
| CM#1 Pon#1 | | | | |
| | Define LUN Mapping | | | |
| | Not yet Set | | | |
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| | | | Сору | Edit |

- \rightarrow The "Define LUN Mapping" field is displayed.
- **5** Change the LUN Mapping information for the target port, and click the [Set] button.

| Configure LUN Mapping | | | | | | | |
|---------------------------------|----------------|----------------------|----------------------------------|--------------------------------|------------------------------|------|----------|
| LUN Map defines mapping between | Volumes and LL | INs as seen from the | host. It is possible to browse a | and set the configuration as v | well as detailed attributes. | | |
| UN Mapping | Port Setting | | | | | | |
| E Ports | Port | CM#1 Port# | 1 | | | | |
| 🛷 CM#0 Port#0 | Host Affinity | Disable | | | | | |
| CM#0 Port#1 | Number of L | UN(s) 2 | | | | | |
| CM#1 Port#1 | | | | | | | |
| | | | | | | | _ |
| | Define LUN Ma | pping | | | | | |
| | LUN | Volume No. | | Volume Name | Capacity (MB) | | _ |
| | 0 | | 8 | Volume_08 | | 1024 | ^ |
| | 1 | | 9 | Volume_09 | | 1024 | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | | | | | |
| | | | | | | | |
| | 10 | | | | | | |
| | 10 | | | | | | - |
| | | | | | | | _ |
| | Specify R | ange Clear | | | | | |
| | | | | | | | |
| | | | | | | Set | Cancel |

- \rightarrow A confirmation screen appears.
- 6 Click the [OK] button.



 \rightarrow LUN mapping is set.

End of procedure

5.4 Advanced Copy Management

Advanced Copy Management provides the following functions.

- Setup Snap Data Pool
- Manage Copy Session
- Register Copy License
- Modify Copy Parameters
- Modify EC/OPC Priority
- Modify Copy Table Size
- Advanced Copy function

Advanced Copy is a function used to quickly copy data (volume) to another volume in the same device, at any given point in time. By using the copy destination volume, it is possible to backup data without suspending operations.

The copy function of ETERNUS DX60/DX80 can be used by the following methods:

- · Copy in units of volumes using GUI or CLI command
- Obtaining snapshots of volumes by using the Windows Volume Shadow Copy Service function
- Obtaining backup and replication that is associated with operation by using the ETERNUS SF AdvancedCopy Manager

The copy function of ETERNUS DX60/DX80 creates a snapshot of the selected volume. Copy usage (such as backup and replication) and the procedure for copy vary depending on the OS and software to be used. Refer to the manuals for each OS and software for details.

Type of Advanced Copy

Equivalent Copy (EC) function and One Point Copy (OPC) function ^(*1) are available as the Advanced Copy function.

• EC

EC is used when copying large volumes, or when processing time can be estimated easily.

OPC

OPC is used when it is difficult to estimate the backup time.

*1: In this manual, "OPC function" indicates OPC, QuickOPC, and SnapOPC+.

Each function is described below.

EC (Mirror Breaking method)

EC makes a mirror copy of the copy source to the copy destination beforehand and then keeping it up to date while it is needed, at which time the mirror relationship is "broken" to reveal the desired copy.

The updated data in the copy source will be reflected to the copy destination volume after completing the operation. After mirror is established, all writes are also duplicated.



OPC (Background Copy method)

The OPC function logically copies all data from the copy source to the copy destination in the same device, when the host requests the operation. The ETERNUS DX60/DX80 immediately returns an OPC completion response to the copy request. This function then allows prompt access to both the original and copied data while the actual physical copying proceeds in the background. Unlike EC, the updated data in the copy source will not be reflected to the copy destination volume after completing the operation.



The following functions relating to the OPC are also available.

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QuickOPC

Just as for OPC, QuickOPC copies all the data in the copy source volume at the initialphysical copy. After the initial-physical copy has completed, only updated data needs to be copied hereafter. Because it reduces the copy volume and realizes high-speed backup, QuickOPC is recommended for backing up a large-scale database.



SnapOPC+

SnapOPC+ manages data by allocating OPC data and sessions that form generations, and copies updated data only to the latest generation.

SnapOPC+ manages generations of differences between updated data as modification history. It enables copying to be performed with less physical capacity. Maximum number of generations varies depending on the ETERNUS models and software.

SnapOPC+ is recommended for backing up less updated volumes such as the file server.



*3: Original data is referenced when an uncopied area is read.

SnapOPC+ uses the unique volume (Snap Data Volume: SDV) as a copy destination. Also, a setting pool area for SDV (Snap Data Pool Volume), to continue the copy session even when the amount of update data exceeds the SDV capacity, is available.

SDV (Snap Data Volume)
 SDV is an area used as a copy destination for SnapOPC+.
 Only one copy destination can be specified per SDV.
 Refer to <u>"5.3.1 Create Volume" (page 93)</u> for detailed procedure to create SDV.



SDP (Snap Data Pool)

SDP is a standby storage area to continue sessions even when the amount of update data exceeds the SDV capacity. It enables the storage area to be supplied from SDP to SDV as required. This continues the copy session even when the amount of update data exceeds the SDV capacity.

Note that SDP is configured by a unique volume Snap Data Pool Volume (SDPV). Creating SDPV enables SDP.

- SDPV (Snap Data Pool Volume)
 SDPV is a unique volume for SDP.
 Created SDPV is automatically added to the SDP.
- SDPE (Snap Data Pool Element)

SDPE is a unit of SDP that is managed in the ETERNUS DX60/DX80.

Once the copy destination SDV capacity runs out, SDPEs are supplied from SDP to SDV and the storage area is automatically expanded. Supplied storage (SDPE) returns to SDP after the copy session complete.



Note that SDPE capacity is fixed to 1GB.

*4: After the ETERNUS SF AdvancedCopy Manager completes the session instead of a user, another SnapOPC+ copy session may be created. ETERNUS disk storage system roturns the SDPE when according a Score OPC+ consistent delation of

ETERNUS disk storage system returns the SDPE when accepting a SnapOPC+ session deletion request.

| nction. ons are available. Ire is purchased, refer to <u>"5.4.3 Regi</u> o register the license. SDP. pied data (SDV) and the pool area to d (SDPV). |
|---|
| ure is purchased, refer to <u>"5.4.3 Regi</u> o register the license. SDP. pied data (SDV) and the pool area to ed (SDPV). |
| SDP. pied data (SDV) and the pool area to ed (SDPV). |
| SDP. pied data (SDV) and the pool area to ed (SDPV). |
| |
| in the RAID group. |
| Volume (SDPV). |
| copy source and copy destination ca prepare physical or SDPV area in th cording to the amount of copy sourc ion cannot be used when either th ation volume is encrypted. Encrypt th |
| of copy target volume.). |
| (D) (D) (34) |

Refer to <u>"5.4.4 Modify Copy Parameters" (page 132)</u>.

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Copy session management

After preparation for Advanced Copy is complete, create a copy session to start copying volumes. During operation, also check the status of the copy sessions and delete unnecessary copy sessions.

- SnapOPC+ copy execution Create a copy session to start the SnapOPC+ copy. Refer to <u>"5.4.2 Manage Copy Session" (page 129)</u>.
- SnapOPC+ copy check
 Check the status of created SnapOPC+ session using the [Advanced Copy Status] screen.
 The [Advanced Copy Status] displays the status of all the copy sessions.
 Refer to <u>"4.4 Advanced Copy Status" (page 49)</u>.
- Copy session deletion
 Delete unnecessary copy sessions.
 SDPs used by the deleted copy sessions are released. Data in the copy destination volume loses its meaning (becomes undefined).
 Refer to <u>"5.4.2 Manage Copy Session" (page 129)</u>.

5.4.1 Setup Snap Data Pool

This section describes how to setup Snap Data Pool (SDP), the pool area for SDV.

Create SDPV

This function creates the SDPV in the registered RAID group. When the SDPV creation process is completed, the SDPV will be formatted automatically. The following table shows the conditions for SDPV creation.

Condition of SDPV

The SDPV capacity must be smaller than 2TB (2,048GB)

- Conditions of the RAID group to create SDPV
- The status of the RAID group must be "Available" or "Present"
- If volumes are created in the RAID group, the number of volumes in the RAID group must be less than 128
- The free area for the RAID group must be equal or larger than 1GB
- The RAID group must not be blocked
- The RAID group must not be in the Logical Device Expansion process
- The maximum number of SDPVs that can be set

The maximum number of SDPVs for ETERNUS DX60/DX80 is shown below.

| Device name | per RAID group | per device |
|--------------|----------------|-------------|
| ETERNUS DX60 | Up to 128 | Up to 512 |
| ETERNUS DX80 | Up to 128 | Up to 1,024 |



| Caution | If the encryption mode is disabled, encrypted SDPV cannot be created. The following functions cannot be used for SDPV: Host Affinity settings LUN mapping Volume Encryption LUN Concatenation RAID Migration This function cannot be used in the following conditions: No RAID groups are registered in the ETERNUS DX60/DX80 When no SDPV is created in the ETERNUS DX60/DX80, and the RAID group is in the following conditions: Only one RAID group is registered in the ETERNUS DX60/DX80, and Logical Device Expansion is in progress in the RAID group The status of all the RAID groups is not "Available", or "Present" When no SDPV is created in the ETERNUS DX60/DX80, and the maximum number of volumes for each model is already registered. |
|---------|---|
| Note | Unlike other volumes, SDPV cannot be created by "5.3.1 Create Volume" (page 93) menu or deleted by "5.3.2 Delete Volume" (page 96) menu. While SDPV can be created in any level RAID group, it is recommended that the same RAID group configuration be used for all SDPVs created. The maximum capacity of SDP is 32TB for ETERNUS DX60, and 64TB for ETERNUS DX80. Allocated space (SDPE) to SDV from the SDPV is released in the following conditions: When deleting the SnapOPC+ session: If one SnapOPC+ session is deleted, all the SnapOPC+ sessions started earlier than that session are also deleted. The space used in the SDV for the stopped generation is released. When the SnapOPC+ session turns to "Error" status: If one SnapOPC+ session status turns to Error, the status for all the SnapOPC+ sessions started earlier than that session also change to Error. The space used in the SDV for the stopped used in the SDV for the generation in Error status is released. |

The procedure to create SDPV is as follows:

Procedure

- 1 Click the [Setup Snap Data Pool] under the [Advanced Copy Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Setup Snap Data Pool] screen appears.

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2 Click the [Create] button.

| Volumes | Notice | | | | | | |
|---------|---------------------------|---|--|---------------------------------------|----------------------------------|-----|--|
| | A Once SDPV The maximu | acheduled for deletion m number of volumes | n, it cannot be forcibly o s to be deleted per tasl | deleted, Please wait for k is 128. | r the scheduled deletion to occu | ur. | |
| | SDP Information | | | | | | |
| | | Total Capacity (GB) | Host Capacity (GB) | Copy Capacity (GB) | | | |
| | Unencrypted | 0 | 0 | 0 | | | |
| | Encrypted | 0 | 0 | 0 | | | |
| | No. Name Select All | Status Deletion | <pre>Scheduled Capacit < (0/0) > ></pre> | ty (MB) Filter: All | × | | |
| | No. Name Select All | e Status Deletion | Scheduled Capacit | ty (MB) Filter: All | × | | |
| | No. Name Select All | e Status Deletion | Capacit | y (MB) | × | | |
| | No. Name Select All | Status Deletion | Scheduled Capacit (0/0) 2 | y (MB) Filter: All | • | | |

3 Select the target RAID group icon in the tree on the left of the screen or RAID Group List where the SDPV is created.

| Setup Snap Data Pool | | | | | | | | | |
|--|----------------|----------------------|------------------------|----------------|---------------------|--------------|---------------------------|--------------------|------|
| Snap Data Pool Volume (SDPV) whi | ich constit | tute Snap Da | ata Pool (SD | P) are create | d and deleted here. | | | | |
| ETERNUS_01 CRAID Groups 0:RAID_01 1:RAID_02 | Informa I P | ation lease selec | t the RAID G | roup used to | create SDPV. | | | | |
| | RAID G | roup List | | | | | | | |
| | No. | Name | Status | RAID Level | Total Capacity (MB) | Assigned CM | Rebuild/Copyback Progress | Expansion Progress | |
| | <u>0</u> 1 | RAID_01 RAID_02 | Available Available | RAID1 RAID5 | 279040 134656 | CM#0 CM#1 | - | | |
| | Is | | /1) >[| Filter | All | | | | |
| | | | | - Tinter. | | | | | |
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 \rightarrow The detailed information of the selected RAID group is displayed.

- **4** Specify the following items, and click the [Create] button.
 - Volume Name Enter the SDPV name to be created.
 - Type

The volume type (SDPV) is displayed.

- Capacity (GB) Specify the SDPV capacity.
- Encryption
 - Select "Yes" or "No" to enable or disable the encryption mode for the new volume.
- Number of Volumes

When creating multiple volumes with the same type and capacity, enter the number of volumes to be created.

Note that all the volumes are created with the same name. Change the volume name (refer to <u>"5.3.9 Set Volume Name" (page 111)</u>) if needed.

| ETERNUS_01 | Larg | est Free Spac | e (MB) | 123389 | | | |
|-------------|-----------|----------------|------------|-----------|---------------|--|-----------|
| RAID Groups | Assi | gned CM | | CM#1 | | | |
| 0:RAID_01 | Rebu | uild/Copyback | Progress | - | | | |
| | Expa | ansion Progres | 5S | - | | | |
| | Volun | ne List | | | | | |
| | No. | Name | Status | Туре | Capacity (MB) | | |
| | 10 | Volume_10 | Available | Open | 1024 | | |
| | 11 | Volume_11 | Available | Open | 1024 | | |
| | 12 | Volume_12 | Available | Open | 1024 | | |
| | 13 | Volume_13 | Available | Open | 1024 | | |
| | 14 | Volume_14 | Available | Open | 1024 | | |
| | 15 | Volume_15 | Available | Open | 1024 | | |
| | <u>16</u> | Volume_16 | Available | Open | 1024 | | |
| | 17 | Volume_17 | Available | Open | 1024 | | |
| | 18 | Volume_18 | Available | Open | 1024 | | |
| | 19 | Volume_19 | Available | Open | 1024 | | |
| | 20 | volume_20 | Available | SDV | 1024 | | |
| | Parame | eters for SDP | / Creation | | | | |
| | Volu | me No. | 21 | | | | |
| | Volu | me Name | SDPV_0 | 2 | (1 - 16 chara | (1 - 16 characters(alphanumeric character blank sign)) | |
| | Туре |) | SDPV | | | | |
| | Capa | acity (GB) | | 1 (1 | 120) | | |
| | Encr | yption | C Yes | No No | | | |
| | Num | ber of Volume | s | 1 (1 - 1 |) | | |
| | | | | | | | |
| | | | | | | | s Back Cr |

 \rightarrow A confirmation screen appears.

5 Click the [OK] button.



→ Snap Data Pool setting is started. The SDPV is created in the selected RAID group. After SDPV is created, new volume is automatically formatted.

End of procedure

Delete SDPV

This function deletes the registered SDPV.

There are two methods for deletion: "Reserve Delete" and "Force Delete".

Reserve Delete

If the target SDPV is being used, the SDPV is scheduled for deletion. SDPV that is scheduled for deletion will be deleted after the Advanced Copy session completes (when the usage of SDPV becomes "0").

Force Delete

The selected SDPV is forcibly deleted even if the copy session is under progress. However, SDPV that is scheduled for deletion cannot be deleted. Wait for the scheduled deletion to occur.

Caution Up to 128 SDPVs can be deleted at the same time.

The procedure to delete SDPV is as follows:

Procedure

1 Click the [Setup Snap Data Pool] under the [Advanced Copy Management] menu on the [Volume Settings] tab.

 \rightarrow The [Setup Snap Data Pool] screen appears.

2 Select the target SDPV from the tree on the left of the screen or "SDPV List" field, and click the [Reserve Delete] button or [Force Delete] button.

| Setup Snap Data Pool | | | | | | |
|--------------------------------|--|--|--|---|-----------------------------|---------------------|
| Snap Data Pool Volume (SDPV) w | which constitute Snap I | Data Pool (SDP) are c | reated and deleted her | е. | | |
| CETERNUS_01 | Notice | | | | | |
| 21:SDPV_02 | A Once SDPV The maximu | scheduled for deletio um number of volume | n, it cannot be forcibly o s to be deleted per tasl | deleted. Please wait for the s < is 128. | cheduled deletion to occur. | |
| | SDP Information | | | | | |
| | | Total Capacity (GB) | Host Capacity (GB) | Copy Capacity (GB) | | |
| | Unencrypted | 1 | 0 | 0 | | |
| | Encrypted | 0 | 0 | 0 | | |
| | SDPV List No. Ni V 21 SI Select All | ame Status DPV_02 Available Reset 2 | Deletion Scheduled No | Capacity (MB) 1024 | | |
| | -16- | | | | | |
| | | | | | Reserve Delete | Force Delete Create |

3 Click the [OK] button.



 \rightarrow The selected SDPV is deleted.

End of procedure

5.4.2 Manage Copy Session

The [Manage Copy Session] function creates and deletes the Advanced Copy session.



Create Copy Session

The procedure to create copy session is as follows:

Procedure

- 1 Click the [Manage Copy Session] under the [Advanced Copy Management] menu on the [Volume Settings] tab.
 - → The [Manage Copy Session] screen appears. The Advanced Copy session list is displayed.
- **2** Click the [Start New Session] button.

| anage | Copy Ses | ssion | | | | | | | | | | | |
|--------|------------|-----------------|-----------------|-----------------|-----------|-----------|------------------|---------------|---------------|-------------------|------------|-------------|-------------|
| dvance | d Copy set | ssions are star | rted and cancel | led. | | | | | | | | | |
| Notice | | | | | | | | | | | | | |
| 🔺 if : | a SnapOP | C+ session is | cancelled the o | Ider generation | n snapshi | ot sessio | ons of this volu | ume will also | be cancelled. | | | | |
| | | | | | | | | | | | | | |
| Advanc | ced Copy S | status | | | | | | | | | | | |
| Adva | anced Cop | v License Red | pistered | | | | | | | | | | |
| Sess | sion Type | Sn | apOPC+ (by LA | N, all) 🔻 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Adva | anced Copy | y Session List | | | | | | | | | | | |
| | Source | Destination | Session ID | | | Error | Elapsed | Copied | Total | SDP Used Canacity | | Client | |
| | Volume | Volume | (SID) | Generation | Status | Code | Time | Data Size | Data Size | (MB) | Resolution | Information | |
| | | | | | | | (sec.) | (MB) | (MB) | | | | 11 |
| | | | | | | | | | | | | | |
| S | Select All | Reset | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | Start New | Session | Stop Sessio |



3 Select the copy source volume and copy destination volume, and click the [Start New SnapOPC Session] button.

| No. | Name | Status | Type | Physical Capacity (MB) | |
|---------------|---|--|---|--|---|
| 0 | Volume 00 | Available | Open | | 1024 |
| 1 | Volume 01 | Available | Open | | 1024 |
| 2 | Volume 02 | Available | Open | | 1024 |
| 3 | Volume 03 | Available | Open | | 1024 |
| 4 | Volume 04 | Available | Open | | 1024 |
| 5 | Volume 05 | Available | Open | | 1024 |
| 6 | Volume 06 | Available | Open | | 1024 |
| 7 | Volume 07 | Available | Open | | 1024 |
| 8 | Volume 08 | Available | Open | | 1024 |
| 9 | Volume_09 | Available | Open | | 1024 |
| 10 | Volume 10 | Available | Open | | 1024 |
| 11 | Volume_11 | Available | Open | | 1024 |
| 12 | Volume_12 | Available | Open | | 1024 |
| 13 | Volume_13 | Available | Open | | 1024 |
| •• | | A | - | | ···· 🔳 |
| | | | | | |
| Ination Volum | e | | | | |
| No. | Name | Status | Туре | Logical Capacity (MB) | |
| 20 | Volume_20 | Available | SDV | | 2048 |
| 1 | No. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 ination Volum No. 20 | No. Name 0 Volume_00 1 Volume_01 2 Volume_02 3 Volume_03 4 Volume_03 4 Volume_06 7 Volume_06 7 Volume_06 9 Volume_09 10 Volume_11 12 Volume_11 12 Volume_13 ination Volume Name 20 Volume 20 | No. Name Status 0 Volume_00 Available 1 Volume_01 Available 2 Volume_02 Available 3 Volume_03 Available 4 Volume_05 Available 5 Volume_06 Available 6 Volume_07 Available 8 Volume_08 Available 9 Volume_09 Available 10 Volume_10 Available 11 Volume_11 Available 12 Volume_12 Available 13 Volume_13 Available 14 Volume_13 Available 15 Volume_20 Available | No. Name Status Type 0 Volume_00 Available Open 1 Volume_01 Available Open 2 Volume_02 Available Open 3 Volume_03 Available Open 4 Volume_04 Available Open 5 Volume_05 Available Open 6 Volume_06 Available Open 8 Volume_08 Available Open 9 Volume_09 Available Open 10 Volume_10 Available Open 11 Volume_11 Available Open 12 Volume_13 Available Open 13 Volume_13 Available Open 14 Volume_20 Yout Yout | No. Name Status Type Physical Capacity (MB) 0 Volume_00 Available Open 1 Volume_01 Available Open 2 Volume_02 Available Open 3 Volume_03 Available Open 4 Volume_04 Available Open 5 Volume_05 Available Open 6 Volume_06 Available Open 7 Volume_06 Available Open 8 Volume_08 Available Open 9 Volume_10 Available Open 11 Volume_11 Available Open 12 Volume_12 Available Open 13 Volume_13 Available Open 13 Volume_13 Available Open 13 Volume_13 Available Open 14 Volume_13 Available Open 15 Volume_14 Available Open 16 Volume_13 Available Open 17 Volume_14 Available Open 18 Volume_20 Available Open |

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The created Advanced Copy session is started.

End of procedure

Delete Copy Session

The procedure to delete copy session is as follows:

Procedure

- 1 Click the [Manage Copy Session] under the [Advanced Copy Management] menu on the [Volume Settings] tab.
 - → The [Manage Copy Session] screen appears. The list of Advanced Copy session registered in the ETERNUS DX60/DX80 is displayed.



2 Select the copy session to be deleted from the "Advanced Copy Session List", and click the [Stop Session] button.

| vanced | d Copy Sta | atus | | | | | | | | | | | | | |
|------------------|-------------------------------|-----------------------|---------------------|----------|------------|--------|-------|---------------|---------------------------|--------------------------------|-------------------------------|----------------------------------|---------------------------------|------------|-----------------------|
| Advanc Sessio | ed Copy L n Type | .icense Regis | tered | <u>-</u> | 1 | | | | | | | | | | |
| Advanc | ed Copy S Source Volume | Destination Volume | Session ID (SID) | Туре | Generation | Status | Phase | Error Code | Elapsed Time (sec.) | Copied Data Size (MB) | Total Data Size (MB) | Incremental Data Size (MB) | SDP Used Capacity (MB) | Resolution | Client Information |
| V | 0 | 20 | 0x0000 | SOPC+ | 1/1 | Active | - | 0x00 | 93 | 0 | 1024 | - | 0 | x1 | GUI/CLI |
| Sel | ect All | Reset | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The selected Advanced Copy session is deleted.

End of procedure

5.4.3 Register Copy License

The [Register Copy License] function is used to register an Advanced Copy license. The procedure to register a copy license is as follows:

Procedure

1 Click the [Register Copy License] under the [Advanced Copy Management] menu on the [Volume Settings] tab.

 \rightarrow The [Register Copy License] screen appears.



2 Input the license key, and click the [Register Copy License] button.

| Register Copy Lic | ense | | | | _ |
|-------------------|---|------------|--|---------------------|-----|
| Advanced Copy Lic | ense key is registered in the storage s | ystem. | | | |
| Register Copy Lic | ense | | | | |
| License Key | 95ACE95B6004E564 | | | | |
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| | | | | Perieter Corv Licer | 100 |
| | | | | | |
| A con | firmation scree | n appears. | | | |
| | | | | | |
| Click the | e [OK] button. | | | | |
| | | | | | |



 \rightarrow The Advanced Copy License is registered.

End of procedure

5.4.4 Modify Copy Parameters

3

The [Modify Copy Parameters] function sets the parameters to enable automatic reporting and processing when a SDP capacity shortage occurs during the SnapOPC+ operation.

If the copy source data exceeds the physical capacity of copy destination (and when the free SDP does not exist), an error occurs in the relevant copy session and other older copy sessions. This function prevents stopping copy session when the capacity shortage occurs.

There are three methods for notification; E-mail, SNMP Trap, and Host Sense. ETERNUS DX60/ DX80 reports the notification using the method specified in the "Setup Event Notification" screen. Select whether to notify when a SDP capacity shortage occurs. When notifying, select the notification method in advance.

The procedure to modify copy parameters is as follows:

Procedure

- 1 Click the [Modify Copy Parameters] under the [Advanced Copy Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Modify Copy Parameters] screen appears.

2 Specify the following items, and click the [Set] button.

Select the threshold for SDP usage ratio.

- Policy Level 1 (Informational) of Snap Data Pool
 - Threshold (%)
 - Specify the usage ratio of SDP between 1 and 97.

If the copy source data exceeds the specified value, the ETERNUS DX60/DX80 notifies that effect.

- Policy Level 2 (Warning) of Snap Data Pool
 - Threshold (%)

Specify the usage ratio of SDP between 2 and 98.

If the copy source data exceeds the specified value, the ETERNUS DX60/DX80 notifies that effect.

- Policy Level 3 (Error) of Snap Data Pool
 - Threshold (%)

Specify the usage ratio of SDP between 3 and 99.

If the copy source data exceeds the specified value, the ETERNUS DX60/DX80 notifies that effect.



- When reporting automatically if the threshold is exceeded, set the notification method using the method specified in the <u>"6.2.7 Setup</u> Event Notification" (page 160) in advance.
- Notification of the shortage of SDP capacity is sent only once for each policy level. Even if the threshold is satisfied again within the 24 hours from the first notification, the ETERNUS DX60/DX80 does not report that effect. After 24 hours has passed, the device sends a notification again.
- If the threshold for multiple policies is satisfied at the same time, the ETERNUS DX60/DX80 notifies of the highest policy level.

| dify Copy Parameters |
|--|
| rameters defining Advanced Copy function are modified. |
| volicy Level 1 (Informational) of Snap Data Pool |
| Threshold (%) 50 (1 - 97) |
| olicy Level 2 (Warning) of Snap Data Pool |
| Threshold (%) 70 (2-98) |
| olicy Level 3 (Error) of Snap Data Pool |
| Threshold (%) 99 (3 - 99) |
| |
| |
| |
| |
| |
| |
| |
| Set |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The specified copy parameters are registered.

End of procedure

5.4.5 Modify EC/OPC Priority

The [Modify EC/OPC Priority] function is used to set the copy speed when using EC and OPC (OPC, QuickOPC, and SnapOPC+).

The EC/OPC speed is usually set in consideration of the host's I/O load and copy processing load. The set speed of EC/OPC becomes effective when the next session starts.

Select the EC/OPC priority from the following:

• Automatic Priority This mode changes the EC/OPC priority automatically in response to the operating load status.

This is the default setting.

High Priority

This mode operates by making maximum use of internal resources. This mode greatly affects host access performance, thus should not be used during normal

operation. Use when the operation load is low.

• Low Priority This is a mode in which the influence on host access is reduced to a minimum.

Set this mode when using EC and/or OPC during operation.

The procedure to modify EC/OPC priority is as follows:

Procedure

- 1 Click the [Modify EC/OPC Priority] under the [Advanced Copy Management] menu on the [Volume Settings] tab.
 - \rightarrow The [Modify EC/OPC Priority] screen appears.



- 2 Specify the following item, and click the [Set] button.
 - EC/OPC Priority Select the EC/OPC speed from "Automatic Priority", "High Priority", or "Low Priority".



- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The selected EC/OPC priority is set.

End of procedure

5.4.6 Modify Copy Table Size

The [Modify Copy Table Size] function is used to set the control table size on the CM cache memory installed in the ETERNUS DX60/DX80, which is used by the device firmware. When an EC, or OPC (OPC, QuickOPC, or SnapOPC+) function is in use, this control table (hereafter: copy table) is used as the bitmap area that manages the progress of the copy. Changed settings will be effective when the next session is started.



Status] screen on the [Status] tab.

Copy table size (table size) and resolution vary according to the copy capacity and number of sessions that are operated at the same time.

(1) Resolution

This value determines the amount of data each bit in the copy bitmap represents.

The allowed resolution settings of "1 (standard)", "2", "4", "8", and "16" respectively give 8KB, 16KB, 32KB, 64KB, and 128KB regions of data per bitmap bit. The same value is used in the ETERNUS DX60/DX80.

The resolution should be set as small as possible to reduce the internal process overhead. Set "1" if possible.

(2) Copy Table Size

A dedicated memory area is required for Advanced Copy management and is allocated as a table size.

The table size and resolution settings are determined by the copy capacity and the number of sessions (volumes) that will be run simultaneously. The following shows the table sizing formula.

- S (Table size) [MB] =
 - S1 (EC table size) [MB]
 - + S2 (OPC table size without OPC Restoration) [MB]
 - + S3 (OPC table size with OPC Restoration) [MB]
 - + S4 (QuickOPC table size without OPC Restoration) [MB]
 - + S5 (QuickOPC table size with OPC Restoration) [MB]

+ S6 (SnapOPC+ table size) [MB]

• Round the derived value up to the next multiple of 8 to obtain the correct setting for the copy table size.

- A copy table of the appropriate size (as derived above) is created in each controller (CM0/CM1).
- If the total table size value (S) exceeds the maximum size allowed, adjust the resolution (M) upward until the maximum table size is no longer exceeded. The resolution should be kept as small as possible.
- Maximum allowed table sizes are as follows: ETERNUS DX60: 64MB ETERNUS DX80: 128MB
- Allowance should be made for possible future increases in the copy capacity when calculating the EC/OPC/QuickOPC/SnapOPC+ table size.
- If the resolution is changed during an existing copy session, the following table sizing formula is not applied.

EC table size (S1)

M: Resolution

```
C1: EC copy capacity [GB]<sup>(*1)</sup>
```

N1: Number of EC sessions

S1 [MB] = $((2 \times C1 / M) + N1) \times 8$ [KB] / 1024 (counting fractions as one)

• OPC table size without OPC Restoration (S2)

M: Resolution

C2: Copy capacity for OPC where OPC is not used for OPC Restoration [GB]^(*1)

N2: Number of OPC sessions where OPC is not used for OPC Restoration

S2 [MB] = $((2 \times C2 / M) + N2) \times 8$ [KB] / 1024 (counting fractions as one)

OPC table size with OPC Restoration (S3)

M: Resolution

C3: Copy capacity for OPC where OPC is used for OPC Restoration [GB]^(*1) N3: Number of OPC sessions where OPC is used for OPC Restoration

S3 [MB] = $((2 \times C3 / M) + N3) \times 2 \times 8$ [KB] / 1024 (counting fractions as one)

QuickOPC table size without OPC Restoration (S4)

M: Resolution

C4: Copy capacity for QuickOPC where QuickOPC is not used for OPC Restoration [GB]^(*1) N4: Number of QuickOPC sessions where QuickOPC is not used for OPC Restoration

S4 [MB] = $((2 \times C4 / M) + N4) \times 2 \times 8$ [KB] / 1024 (counting fractions as one)

QuickOPC table size with OPC Restoration (S5)

M: Resolution

C5: Copy capacity for QuickOPC where QuickOPC is used for OPC Restoration [GB]^(*1) N5: Number of QuickOPC sessions where QuickOPC is used for OPC Restoration

S5 [MB] = $((2 \times C5 / M) + N5) \times 3 \times 8$ [KB] / 1024 (counting fractions as one)

SnapOPC+ table size (S6)

M: Resolution

C6: Copy capacity for SnapOPC+ [GB]^(*2)

N6: Number of SnapOPC+ sessions^(*3)

S6 [MB] = $((2 \times C6 / M) + N6) \times 8$ [KB] / 1024 (counting fractions as one)

*1: For EC, OPC, and QuickOPC copy sources, the copy capacity is the total capacity of all volumes (slices or partitions) in the ETERNUS DX60/DX80 that are defined as copy sources. For multi-copy sessions, the copy capacity is the total capacity of multi-copy source volumes (slices or partitions), multiplied by the number of multi-copy destinations for each copy source.

[Example] Calculating capacity of multi-copy sessions:

Copy area in the copy source volume A: 200MB, Multi-copy destination: 4

Copy area in the copy source volume B: 500MB, Multi-copy destination: 8



 $200 \times 4 + 500 \times 8 = 4800$ MB.

Add this 4,800MB to the copy capacity C1, C2, or C4, depending on the copy type. (For EC, add the value to C1. For OPC, add the value to C2. For QuickOPC, add the value to C4.)

When using EC, add the number of multi-copy sessions to obtain N1. When using OPC, add the number of multi-copy sessions to obtain N2. When using QuickOPC, add the number of multi-copy sessions to obtain N4. In this example, use 12 (= 4 + 8) for N1, N2, or N4, depending on the copy type. When using multi-copy and executing OPC Restoration from the copy destination, select one copy destination and apply the above formula. (For QuickOPC, the QuickOPC destination should be used.) Other copy destinations are calculated as for normal multi-copy.

*2: For SnapOPC+, copy capacity indicates the total capacity of SnapOPC+ copy source volumes (slices or partitions) × number of generations in a device.

[Example] Calculating capacity of SnapOPC+ sessions: SnapOPC+ copy area in the copy source volume C: 200MB, Number of SnapOPC+ generations: 8 SnapOPC+ copy area in the copy source volume D: 500MB, Number of SnapOPC+ generations: 4



Capacity of SnapOPC+ copy source = 200 [MB] × 8 + 500 [MB] × 4 = 3600 [MB] 3600 [MB] derived above is the copy source capacity C6.

*3: In the example above, use 12 (= 8 + 4) for N6, the number of SnapOPC+ sessions (total number of generations).

The procedure to set the copy table size is as follows:

Procedure

1 Click the [Modify Copy Table Size] under the [Advanced Copy Management] menu on the [Volume Settings] tab.

 \rightarrow The [Modify Copy Table Size] screen appears.

2 Specify the following items, and click the [Set] button.

- Advanced Copy feature enabled Select whether to turn the Advanced Copy feature "On" or "Off".
- Resolution
 Select from "× 1", "× 2", "× 4", "× 8", or "× 16".
- Table Size (MB)
 Example 2 (MB)

For ETERNUS DX60, select between 0 and 64 (MB). For ETERNUS DX80, select between 0 and 128 (MB). (Unit: 8MB)



Stop the copy session before reducing the table size.

| odify Copy Table Size | |
|---|-----|
| ne parameters associated with control table used in Advanced Copy function are modified. | |
| Notice | |
| ▲ In case you need to decrease the copy table size, please do so after stopping all copy sessions. (The state of the copy sessions can be checked in "Advanced Copy Status" or each Advanced Copy Management Software.)" | |
| Advanced Copy feature enabled | |
| © On © Off | |
| Copy Table Size | |
| Resolution x1 - Table Size (MB) 32 - | |
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| | |
| | Set |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The copy table size is set.

End of procedure



ETERNUS

Chapter 6 Global Settings

This chapter describes the ETERNUS DX60/DX80 global setting menu. The global settings provides the following functions:

- User Management
- Network Settings
- Remote Support
- System Settings
- Host I/F Management

6.1 User Management

This section describes how to manage the user account.

User Role

The available functions depend on the user role (privileges of the account) used to logon. The following table provides the description for each user role.

| User role | Available functions | Default account |
|-----------|--|-----------------|
| Advanced | "Advanced" is a maintenance engineer privilege. Functions such as status display, configuration management, and maintenance functions are available. | f.ce |
| Standard | "Standard" is a system administrator privilege. Functions such as status display and configuration management are available. | root |
| Monitor | "Monitor" is a general user privilege. Only the status display function is available. | None |



6.1.1 Setup User Account

The [Setup User Account] function adds, edits, and deletes the user account.

| Caution | • Up to 16 users including default accounts (f.ce and root) can be registered. |
|---------|---|
| | Default accounts (f.ce and root) can be edited or deleted. |
| | Entered letters are case-sensitive. |
| | The current user account (your account) can be changed or deleted. When deleting a user account, at least one manager account (Standard or Advanced) must remain. The changed or deleted setting will be avail- able from next logon. |

The procedure to add a new user is as follows:

Procedure

1 Click the [Setup User Account] under the [User Management] menu on the [Global Settings] tab.

 \rightarrow The [Setup User Account] screen appears.

2 Click the [Add] button.



 \rightarrow The "Add New User Account" field is displayed.



When editing or deleting the user account, select the target user account from the "Registered user Account List" field, and click the [Edit] or [Delete] button. When deleting all the registered user accounts, click the [Delete All] button.

| Informa | ation | | | |
|---------|--|--|---|--|
| C PI | irst you need to n therwise your se | egister your sett tlings won't be s | gs by pressing the [Apply] button and finally continuit using the [Set] button, wed. | |
| Registe | ered User Acco | unt List | | |
| | User Name | User Role | Account | |
| | User01 | Monitor | Enable | |
| | tce | Advanced | Enable | |
| Γ. | root | Standard | Enable | |
| ₩. | User_01 | Monitor | Enable | |
| AC | Edit Delete | Detete All | | |
| AO | Edt Delete | Delete All | | |

3 Specify the following items, and click the [Apply] button.

User Name
 Set the user name between

Set the user name between 4 to 16 characters. Alphanumeric characters and symbols ([!], [-], [_], [_]) can be used.

New Password

Set the password between 4 to 16 characters.

- Alphanumeric characters and symbols ([!], [-], [], [.]) can be used.
- Confirm New Password Input the same character strings as the value entered in the "New Password" field for confirmation.
 - User Role

Select the user role from "Advanced", "Standard", and "Monitor". Select "Advanced" for the maintenance engineer account, select "Standard" for the system administrator account, and select "Monitor" for a general user account. Refer to <u>"2.5 Operation Screens" (page 19)</u> for available functions for each privilege.

Account

Select whether to "Enable" or "Disable" the user account.

Caution

When registering a user account, an error occurs in the following conditions.

- When the specified user name is already registered
- When the "User Name", "New Password", and/or "Confirm New Password", are not entered
- · When the password does not match the confirmation password
- When the user name or password is less than 4, or more than 16 characters (If 17 or more characters are entered, ETERNUS DX60/DX80 ignores the 17th and later characters, and the password is registered using the first 16 characters only)
- When the user name or password includes characters other than alphanumeric characters and symbols ([!], [-], [_], [_])



| Information | | | |
|--|---|--|--|
| First you need to Otherwise your s | register your settings b ettings won't be saved. | pressing the [Apply] button and finally confirm it using the [Set] button. | |
| Registered User Acco | ount List | | |
| User Name | User Role Ac | unt | |
| User01 | Monitor Ena | e | |
| f.ce | Advanced Enal | e | |
| root | Standard Ena | e | |
| Add New User Accour User Name New Password | User_01 | (4 - 16 characters) | |
| Confirm New Pass | word | (4 - 16 characters) | |
| User Role | Monitor + | | |
| Account | CEnable C Di | able | |
| Apply Cancel | | | |
| | | | |

 \rightarrow The new user account is added in the "Registered User Account List" field.

- Note R
- Repeat <u>Step 3</u> as required.
- 4 Click the [Set] button.

| | stion | | | |
|--------|---------------------------------------|--|--|---------------------------|
| I FI | rst you need to r therwise your se | egister your sett ttings won't be s | s by pressing the [Apply] button and finally confirm it ed. | t using the (Set) button. |
| egiste | ered User Accou | unt List | | |
| | User Name | User Role | Account | |
| | User01 | Monitor | nable | |
| | f.ce | Advanced | nable | |
| | root | Standard | nable | |
| | User_01 | Monitor | nable | |
| - | - | | | |
| Add | Edit Delete | Delete All | | |
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- \rightarrow A confirmation screen appears.
- **5** Click the [OK] button.



 \rightarrow New user account is registered in the ETERNUS DX60/DX80.

End of procedure

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6.1.2 Change User Password

The [Change User Password] function changes the current user's (your) password. The procedure to change your password is as follows:

Procedure

- 1 Click the [Change User Password] under the [User Management] menu on the [Global Settings] tab.
 - \rightarrow The [Change User Password] screen appears.
- **2** Specify the following items, and click the [Change] button.
 - User Name
 Current user's (your) name is displayed.
 - User Role Current user's (your) user role is displayed.
 - Old Password
 Input the current password.
 - New Password
 Set the new password between 4 to 16 characters.
 Alphanumeric characters and symbols ([!], [-], [], [.]) can be used.
 - Confirm New Password Input the same character strings as the value entered in the "New Password" field for confirmation.



When changing a user password, an error occurs in the following conditions.

- When the "Old Password" does not match the current password
- When the "New Password", "Confirm New Password", and/or "Old Password" is not entered
- · When the password does not match the confirmation password
- When the password is less than 4, or more than 16 characters (If 17 or more characters are entered, ETERNUS DX60/DX80 ignores the 17th and later characters, and the password is registered using the first 16 characters only)
- When the password includes characters other than alphanumeric characters and symbols ([!], [-], [_], [.])


| Chango Heor Password | | | |
|------------------------------|--|---------------------|---------|
| The password associated with | th currently active session will be ch | nanded. | |
| Change Password | , | * | |
| liser Name | root | | |
| User Role | Standard | | |
| Old Password | •••• | (4 - 16 characters) | |
| New Password | •••• | (4 - 16 characters) | |
| Confirm New Password | •••• | (4 - 16 characters) | |
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 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The password is changed.

End of procedure

6.1.3 Initialize User Account

The [Initialize User Account] function initializes a registered user account. By using this function, registered accounts are deleted and the default accounts (f.ce and root) revert back to factory settings. Passwords for default accounts are also restored to default settings. The procedure to initialize user account is as follows:

Procedure

1 Click the [Initialize User Account] under the [User Management] menu on the [Global Settings] tab.

 \rightarrow The [Initialize User Account] screen appears.



2 Click the [Initialize] button.

| Initialize User Account Al User Account for GU and CLI access are deleted and the user account list is initialized. | 1 1.1 11 11 1 | | |
|--|-------------------|---|------------|
| All ber Account List User Account List User Name User, OI Monitor | Initialize User A | iccount | |
| User Account List User Name User Role User Advanced root Standard User_01 Monitor | All User Accounts | s for GUI and CLI access are deleted and the user account list is initialized | |
| User0 Monitor fce Advanced root Standard User_01 Monitor | User Account I | ist | |
| User None Tee Advanced Tool Standard User_01 Monitor | | | |
| User_01 Monitor foot Standard User_01 Monitor | User Name | User Role | |
| fee Advanced root Standard User_01 Monitor | User01 | Monitor | |
| root Standard User_01 Monitor | f.ce | Advanced | |
| User_01 Monitor | root | Standard | |
| | User_01 | Monitor | |
| 1000/22 | | | |
| Intidize | | | |
| 1000/2/2 | | | |
| 1000/2/2 | | | |
| 1000/2/2 | | | |
| 1050/22 | | | |
| 1000/2/2 | | | |
| Initialize | 1 | | |
| Initialize | | | |
| | | | Initialize |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The user accounts are initialized.

End of procedure



6.2 Network Settings

6.2.1 Setup Network Environment

Set the environment for the ETERNUS DX60/DX80 to communicate with external hosts on TCP/ IP based network.

The IP address, subnet mask, Gateway, DNS server of the ETERNUS DX60/DX80, and network address for the remote operation from outside of the subnet can be set.

Network environment setting is required for each MNT and RMT port.

MNT port

MNT port is used for general communication between ETERNUS DX60/DX80 and external hosts.

RMT port

RMT port is used for communication between ETERNUS DX60/DX80 and Remote Support center.

| Caution | If the IP address or the subnet mask for the ETERNUS DX60/DX80 is changed, changing the network address (IP address or subnet mask) of the FST may be required. |
|---------|--|
| | If the IP address of the ETERNUS DX60/DX80 becomes uncertain, refer to "ETERNUS DX60/DX80 Disk storage system User Guide" to initialize the IP address. After completing the setting, logon to GUI again. |

The procedure to setup network environment is as follows:

- 1 Click the [Setup Network Environment] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Network Environment] screen appears.



- **2** Specify the following items, and click the [Set] button.
 - Select Network Port Select the setting target port from "MNT" or "RMT".
 - Interface
 - Speed and Duplex
 - Select the communication speed and mode. The default setting is [Auto Negotiation].

Select from the following:

- Auto Negotiation
- 1Gbps
- 100Mbps Half
- 100Mbps Full
- 10Mbps Half
- 10Mbps Full
- Master CM IP Address (required)
 - Set the IP address (0 to 255) for the Master CM.
- Slave CM IP Address

Set the IP address (0 to 255) for the Slave CM. Specify this value when duplicating the LAN path.



- Subnet Mask (required) Set the Subnet Mask (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.
- Default Gateway Set the Gateway address (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.
- Primary DNS

Set the IP address for the Primary DNS server (0 to 255) for the ETERNUS DX60/ DX80 Disk storage system.

- Secondary DNS Set the IP address for the Secondary DNS server (0 to 255) for the ETERNUS DX60/DX80 Disk storage system.
- Allowed IP List

The value entered in this field is enabled when the Gateway has been set.

Set the destination network address (IP address and Subnet Mask).

Up to 16 addresses can be set. Make sure to set the IP address and Subnet Mask in pairs.



Caution 🖉

| Note the followi | ing wh | en speci | fying the | IP address | and Subn | et Mask. |
|---------------------------------|--------|----------|-----------|------------|------------|-----------|
| Specify the | IP ad | dress us | sing IPv4 | notation | (character | string in |

- Spe
 - d.d.d.d format based on the 256 radix system).
 RMT port is used when it is required to use the dedicated network for Remote Support. IP addresses for the RMT port and MNT port must be in different subnets.
 - "Slave CM IP Address" is specified when connecting to the Slave CM. IP addresses for the Slave CM and Master CM must be in the same subnet.
 - Specify the IP address of "Default Gateway" when allowing access from outside of the subnetwork. The IP address must be in the same subnetwork as the port.
 - For "Allowed IP List", specify the IP address or network address that allows access to the ETERNUS DX60/DX80. These settings are not required for access from the network address (same subnetwork) which the ETERNUS DX60/DX80 belongs to.

For the two CMs in the ETERNUSDX60/DX80, the CM that has the priority to manage the device is called the Master CM, and the other is called the Slave CM. If a CM or LAN failure occurs, ETERNUS DX60/DX80 changes the Master CM automatically. The IP address for prior Master CM is taken over to the new Master CM. Specifying an IP address for the Slave CM enables forcible changing of the Master CM. When an error occurs and access to the Master CM is disabled, users can access the Slave CM and change the Master CM.

| G MNT G MNT / C RMT Interface Speed and Duplex Auto Negotiation • Master CMIP Address 0 0 Stateet Mask 255 255 Primary DNS 0 0 Secondary DNS 0 0 Vilowed IP List Subnet Mask 1 No. IP Address 0 0 Y1 0 0 0 0 Y2 0 0 0 0 Y3 0 0 0 0 Y5 0 0 0 0 Y6 0 0 0 0 Y6 0 0 0 0 | oot ** | lotwork Dort | | | | | | | | | | |
|---|-----------------------------|---|--------------------------------------|--------------------------|--|----------|--------------------------|---------------------------------|--|------|--|--|
| NN C RMI Interface Speed and Duplex Auto Negotiation • Master CM IP Address 0 0 0 Stave CM IP Address 0 0 0 0 Stave CM IP Address 0 0 0 0 Stave CM IP Address 0 0 0 0 Primary DNS 0 0 0 0 Secondary DNS 0 0 0 0 Vilowed IP List Subnet Mask 1 0 0 0 0 #1 0 0 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 0 0 | ectiv | Vetwork Port | | | | | | | | | | |
| Netrace Speed and Duplex Auto Negotiation Master CM IP Address 192 168 1 1 Slave CM IP Address 0 0 0 0 Subnet Mask 255 255 0 Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 Secondary DNS 0 0 0 0 Viowed IP List Subnet Mask 10 0 0 0 0 0 41 0 0 0 0 0 0 0 0 0 44 0 0 0 0 0 0 0 0 0 45 0 0 0 0 0 0 0 0 0 46 0 0 0 0 0 0 0 0 0 0 50 0 0 0 | • MN | | | | | | | | | | | |
| Speed and Duplex Auto Negotiation • Master CMIP Address 192 168 1 1 Slave CMIP Address 0 0 0 0 Subnet Mask 255 255 0 0 Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 Subnet Mask 255 0 0 0 Primary DNS 0 0 0 0 Subnet Mask 250 0 0 0 Viored IP List Subnet Mask 20 0 0 0 0 10 0 0 0 0 0 0 0 0 12 0 0 0 0 0 0 0 0 0 13 0 0 0 0 0 0 0 0 0 14 0 0 0 0 0 0 | nterfa | ace | | | | | | | | | | |
| Master CM IP Address 192 168 1 1 Slave CM IP Address 0 0 0 0 Subnet Mask 255 255 0 Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 Secondary DNS 0 0 0 0 No. IP Address Subnet Mask 1 0 0 0 H 0 0 0 0 0 0 0 H 0 0 0 0 0 0 0 0 H2 0 0 0 0 0 0 0 0 H2 0 0 0 0 0 0 0 0 H3 0 0 0 0 0 0 0 0 H4 0 0 0 0 0 0 0 0 H6 0 0 0 0 0 0 0 0< | Spe | eed and Duplex | Auto N | Vegotiation | 1 - | | | | | | | |
| Sizve CMIP Address 0 0 0 0 Subnet Mask 255 255 0 Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 Secondary DNS 0 0 0 0 | Ma | ster CM IP Addro | ss 192 | . 168 | [1 | . 1 | | | | | | |
| Subnet Mask 255 255 0 Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 0 Second ry DNS 0 0 0 0 0 0 No. IP Address Subnet Mask 1 0 0 0 0 0 0 #1 0 0 0 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 0 0 | Sla | ve CM IP Addres | s 0 | . 0 | . 0 | . 0 | | | | | | |
| Default Gateway 0 0 0 0 Primary DNS 0 0 0 0 0 Secondary DNS 0 0 0 0 0 Iburded IP List Subnet Mask #1 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 0 | Sub | bnet Mask | 255 | . 255 | 255 | . 0 | | | | | | |
| Primary DNS 0 <th< td=""><td>Def</td><td>fault Gateway</td><td>0</td><td>. 0</td><td>. 0</td><td>. 0</td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | Def | fault Gateway | 0 | . 0 | . 0 | . 0 | | | | | | |
| Secondary DNS 0 0 0 0 Ilowed IP List Subnet Mask 1 0 0 0 0 0 #1 0 0 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 | Prir | mary DNS | 0 | . 0 | . 0 | . 0 | | | | | | |
| Subnet Mask M0 IP Address Subnet Mask #1 0 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 | Sec | condary DNS | 0 | 0 | 0 | 0 | | | | | | |
| Blowed IP List Subnet Mask #1 0 0 0 > 0 0 > 0 0 0 0 #2 0 0 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 | | | P | • [* | | · [* | | | | | | |
| No. IP Address Subnet Mask #1 0 0 0 0 0 0 0 0 #2 0 0 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 0 | | | μ | . | | . [* | | | | | | |
| #1 0 0 0 - 0 0 0 0 #2 0 0 0 - 0 0 0 0 #3 0 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 | llow | ed IP List | μ | . [| | | | | | | | |
| #2 0 0 0 0 0 0 0 #3 0 0 0 0 0 0 0 #4 0 0 0 0 0 0 0 #5 0 0 0 0 0 0 0 #6 0 0 0 0 0 0 0 | llow No. | ed IP List IP Address | P | | Sub | net Mask | | | | | | |
| #3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | llowe No. #1 | ed IP List IP Address | . 0 | . 0 | Subi | net Mask | . 0 | . 0 | | | | |
| #4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | No. #1 #2 | ed IP List IP Address 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 | 0 . 0 . 0 | . 0 . 0 | | net Mask | . 0 . 0 | . o . o | | | | |
| #5 0 0 0 0 0 0 0 0 0 0 0 | No. #1 #2 #3 | ed IP List IP Address 0 0 0 0 0 0 | . 0 . 0 . 0 | . 0 . 0 | Subi - 0 - 0 | net Mask | . 0 . 0 . 0 | . 0 . 0 | | | | |
| #6 0 .0 .0 .0 .0 .0 | No. #1 #2 #3 #4 | ed IP List IP Address 0 0 0 0 0 0 0 0 0 0 0 0 | . 0 . 0 . 0 . 0 | . 0 . 0 . 0 | Subi - 0 - 0 - 0 - 0 | net Mask | . 0 . 0 . 0 | . 0 . 0 . 0 . 0 | | | | |
| | No. #1 #2 #3 #4 | ed IP List IP Address 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | - 0 - 0 - 0 - 0 - 0 | . 0 . 0 . 0 . 0 | - 0 - 0 - 0 - 0 - 0 - 0 | net Mask | . 0 . 0 . 0 . 0 | . 0 . 0 . 0 . 0 | | | | |

 \rightarrow A confirmation screen appears.



3 Click the [OK] button.



 \rightarrow The network environment is set. GUI will logoff automatically.

End of procedure

6.2.2 Setup SNMP Agent

Simple Network Management Protocol (SNMP) is a standard protocol used by the network management of TCP/IP. This standard protocol is used to monitor the equipment connected with the network, via the network.

SNMP is comprised of a monitoring part (SNMP Manager) and a monitored part (SNMP Agent). Information to be transferred with SNMP is defined in the Management Information Base (MIB), a database installed in the SNMP Agent. The equipment that configures the network is managed by transferring parameters between the SNMP Manager and SNMP Agent.

SNMP uses the following five commands to request, respond to, and provide the management information between SNMP Manager and SNMP Agent.

Caution (

When an ETERNUS DX60/DX80 uses the SNMP Agent environment, it is necessary to install software in the SNMP Manager.

The procedure to set an SNMP Agent is as follows:

Procedure

- 1 Click the [Setup SNMP Agent] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup SNMP Agent] screen appears.
- **2** Specify the following items.

Click the link on the left of the screen to display the setting fields for each item.

Caution (

- When the entry, numbers, or characters of setting items are wrong, an error screen appears.
- Capital letters and lower case letters distinguish entered letters
- Allowed input symbols are shown as below. [!], [#], [\$], [%], [&], [_, [+], [-], [*], [/], [=]
- One blank in the "Community Name" field represents two characters.



Basic Interface

Specify the following items:

- SNMP Function
 - Select whether to "Enable" or "Disable" the SNMP function.
- LAN Port used for SNMP When "Enable" is selected for "SNMP Function", select "MNT" or "RMT".
- Authentication Failure When "Enable" is selected for "SNMP Function", select "Send SNMP Trap" or "Do not send SNMP Trap" for when authentication fails.
- Abnormal parts during maintenance When reflecting an error status during maintenance, set "Notification". When not reflecting, set "Not notification".

| | Abnormal parts during maintenance | © Notification C Not notification | |
|-------------------------------------|---|---|--|
| <u>MIB View Setting</u> <u>Trap</u> | SNMP Function LAN Port used for SNMP Authentication Failure | Enable C Disable MNT C RMT Soud SNUR Trap | |
| Community Name | Set Basic Interface | | |

Community Name

Community is a range of available networks for SNMP. The setting value is used as the password for SNMP Manager to access the SNMP Agent. The SNMP Agent accepts the request from the SNMP Manager when the SNMP Manager reports the same Community as the SNMP Agent's Community.

The "Read Only" access privileges is added for the specified Community. Community with other access privileges cannot be specified.

If no Community is specified, "public" is used as default.

The following procedure describes how to set a new Community.

Specify the following items, and click the [Add New Community] button.

- Community Name
 - Enter the name for the Community that the target Agent belongs to within 50 alphanumeric characters and symbols (including blanks). This setting cannot be omitted.
- IP Address

Enter the IP address for the SNMP Manager. When "0.0.0.0" is specified, all hosts are accepted.

- MIB View Setting

Enter the MIB View name accessed by this Community (may be omitted, which will allow access to all Objects).

| Setup SNMP Agent SNMP Agent for the storage syste | em is configured here. | |
|--|---|-----|
| Skiller Agentiforme storage syste > Basic Interface > Community Name > MIB View Setting > Trap | Set Community Name Community Name Community Name IP Address MIB View Setting Access Rights C community Delete a Community Add New Community | |
| | Community Name Community2 IP Address 192.168.100.126 MIB View Setting Add New Community | |
| | | |
| | | Set |

The new Community is added in the "Set Community Name" field.

MIB View Setting

MIB View is used for defining the accessible area in the Management Information Base (MIB) database, with a tree type structure. Use this function to release only the part of the information in the MIB.

The following procedure describes how to set new MIB View.

Specify the following items, and click the [Add New MIB View] button.

- View Name

Enter the MIB Object ID within 60 numerals (including [.]). This setting cannot be omitted.

- Subtree

Enter the Object ID for the subtree within 60 numerals (including [.]). This setting can be omitted. A maximum of 15 Sub Trees can be specified at the same time.

| Setup SNMP Agent | | | |
|--|---|------------------------------------|---|
| SNMP Agent for the storage system | is configured her | B. | |
| Basic Interface Communit-Name Mite View Setting Trap | Set MIB View N View N © 1.2 Delete a | me Subtree 1.2.6.1.1 MB View | * |
| | Add new hild t | | |
| | View Name | view1 | |
| | Subtree1 | sub1 | |
| | Subtree2 | | |
| | Subtree3 | | |
| | Subtree4 | | |
| | Subtree5 | | |
| | Subtree6 | | |
| | Subtree7 | | |
| | Subtree8 | | |
| | Subtree9 | | |
| | Subtree 10 | | |
| | Subtree11 | | |
| | Subtree 12 | | |
| | Subtree 13 | | |
| | Subtree14 | | |
| | Subtree 15 | | |
| | | | |
| | Add Nev | LINE AIGM | |
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| | | Se | t |
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The new MIB View is added in the "Set MIB View" field.

Trap

Trap is used to report the error contents to the SNMP Manager immediately when a device error occurs.

The following procedure describes how to set new destination of SNMP Trap.

Specify the following items, and click the [Add New Destination] button.

- IP Address
 - Enter the IP address for the transfer destination of the Trap. This setting cannot be omitted.
- Community Name

Enter the Community name to which to transfer the trap, in no more than 50 alphanumeric characters and symbols (including blanks). This setting cannot be omitted.

| Setup SNMP Agent | |
|---|-----|
| SNMP Agent for the storage system is configured here. | |
| SNMP Agent for the storage system is configured here: > Basic Interface > Community Name > ITap Community Name Itap Delete a Destination Add New Destination IP Address IP 2.168.1.21 | |
| Community Name Sample2 Add New Destination | |
| | Set |

The new destination of SNMP Trap is added in the "Set Destination of SNMP Traps" field.

3 Click the [Set] button.

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The SNMP Agent is set.

End of procedure



6.2.3 Download MIB File

The [Download MIB File] function exports the MIB definition file registered in the ETERNUS DX60/DX80.

Management Information Base (MIB) is the information for Manager to manage Agent with Simple Network Management Protocol (SNMP). This information is a database with a tree type structure.

The MIB definition file is used for the ETERNUS DX60/DX80 SNMP environment settings, and for allowing other applications that use SNMP (SNMP Manager) to handle the ETERNUS DX60/DX80 (SNMP Agent).



The procedure to download MIB definition file is as follows:

Procedure

- 1 Click the [Download MIB File] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Download MIB File] screen appears.
- **2** Specify the following item, and click the [Download] button.
 - Option

Check the "The ServerView control code is added to the comment line of the MIB definition file" checkbox when downloading MIB file used for device monitoring by ServerView.



 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



- → The MIB definition file is downloaded. A screen to save the downloaded MIB definition file appears.
- **4** Save the downloaded file.
 - \rightarrow The MIB definition file is saved.

End of procedure

6.2.4 Perform SNMP Trap Test

The [Perform SNMP Trap Test] function transmits the test trap from the SNMP Agent to the SNMP Manager.

The SNMP trap is the event information reported by the ETERNUS DX60/DX80 (SNMP Agent) that contains the storage system status information.

Perform SNMP Agent and SNMP Manager settings before executing this test.



The procedure to perform SNMP trap test is as follows:

- 1 Click the [Perform SNMP Trap Test] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Perform SNMP Trap Test] screen appears.



2 Click the [Send] button.

| Perform SNMP Trap Test | |
|--|------|
| This function sends simulated SNMP Trap to test SNMP environment. | |
| Information | |
| Click (Send) button to send a test SNMP trap. The content of this trap is defined for testing purpose only. | |
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| | |
| | Send |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The SNMP trap test is performed.

End of procedure



Confirm that the trap can be normally received in the SNMP Manager after the SNMP Trap test.

6.2.5 Setup E-Mail Notification

The [Setup E-Mail Notification] function configures the E-mail Notification settings for the various events detected by the storage system.

If an error occurs in the ETERNUS DX60/DX80, the E-Mail of error information is sent to the specified address.

Refer to "6.2.7 Setup Event Notification" (page 160) for detailed contents of the event.



The procedure to set the E-mail notification is as follows:

Procedure

- 1 Click the [Setup E-Mail Notification] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup E-Mail Notification] screen appears.
- **2** Specify the following items.

Click the link on the left of the screen to display the setting fields for each item.

- Notification E-Mail
 - Notification E-Mail Select whether to "Enable" or "Disable" the E-Mail send function.
 - Destination E-Mail Address
 Specify the E-Mail destination address. Up to five addresses can be registered.
 Comment
 - Input the message (comment) to be added to the E-Mail (if needed). Up to 255 alphanumeric characters, symbols, and blanks within 10 lines can be used.

| Setup E-Mail Notification | | | | |
|--|-------------------------------------|---------------------------|-----|------------------|
| E-Mail address of destination for variou | us event notification are defined h | ere. | | |
| Notification E-Mail Mail Server Settings | Notification E-Mail | | | |
| Retry Setting | Notification E-Mail | | | |
| | Destination E-Mail Address 1 | fujitsusample@fujitsu.com | | |
| | Destination E-Mail Address 2 | |] | |
| | Destination E-Mail Address 3 | | | |
| | Destination E-Mail Address 4 | |] | |
| | Destination E-Mail Address 5 | | | |
| | Comment | A | | |
| | | V | | |
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| | | | Set | Send Test E-Mail |
| | | | | |



Click the [Send Test E-Mail] button to confirm that an E-mail can be sent to the specified address. When sending a test E-mail, select "Enable" for the "Notification E-Mail" setting.

- Mail Server Settings
 - LAN Port used for SMTP Connection Select the LAN port connecting to the SMTP server from "MNT" or "RMT".
 - Sender E-Mail Address Input the mail sender E-Mail address.
 - SMTP Server
 - Specify the IP address or domain name of the SMTP server to be used.
 - SMTP Port No.

Input the port number used by the SMTP server.

- SMTP requires authentication

Select the user authorization method to connect to the SMTP server from "None" or "AUTH SMTP".

- User Name

If "AUTH SMTP" is selected for "SMTP requires authentication", input the sender user name.

- Password

If "AUTH SMTP" is selected for "SMTP requires authentication", input the sender password.

- Authentication Method

If "AUTH SMTP" is selected for "SMTP requires authentication", select the authentication method from "Automatic", "CRAM-MD5", "PLAIN", or "LOGIN".

| Man Server Setting Retry Setting | LAN Port used for SMTP Connection Sender E-Mail Address SMTP Server SMTP Port No. | © MNT © RMT fujitsusample@fujitsu.com fujit-sample.fujitsu.com 25 | | |
|---|--|--|-----|------------------|
| | SMTP requires authentication User Name Password | C None © AUTH SMTP User01 | | |
| | Authentication Method | Automatic O CRAM-MD5 O PLAIN O LOGIN | | |
| | | | | |
| | | | | |
| | | | Set | Send Test E-Mail |



- Retry Setting
 - Maximum Retries
 - Input the maximum number of retry ("0" or "1").
 - Retry Interval (Sec.) Specify the interval between retry in units of seconds.

| Setup E-Mail Notification | | |
|--|-----|------------------|
| E-Mail address of destination for various event notification are defined here. | | |
| Notification E-Mail Retry Setting Mail Searce Setting | | |
| Knail Gevel Setting Maximum Retries 0 | | |
| Retry Interval (sec.) 1 | | |
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| | Set | Send Test E-Mail |

3 Click the [Set] button. \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The specified send E-mail setting is registered.

End of procedure

6.2.6 Display SMTP Log

The [Display SMTP Log] function displays the SMTP log between the ETERNUS DX60/DX80 and the server. If the E-Mail communication is not working normally, this function may identify the cause of problem.

SMTP log contains request from the ETERNUS DX60/DX80 to the server and response from the server to the ETERNUS DX60/DX80. Note that this function displays the SMTP log for the latest event.

Caution Perform <u>"6.2.5 Setup E-Mail Notification" (page 156)</u> in advance.

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The procedure to display SMTP log is as follows:

Procedure

- 1 Click the [Display SMTP Log] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Display SMTP Log] screen appears.
- 2 Check the displayed "Event Type" and "Communication Log".

| ommunication Log | | |
|---|---|--------|
| Event Type E-MAIL | | |
| Communication Log | | |
| 0000 DNS :ERR 3100000 0000:E-MAIL end -1 | | |
| | | |
| | | |
| | | |
| | R | efresh |
| | | |

End of procedure

6.2.7 Setup Event Notification

The [Setup Event Notification] function selects whether to report events detected in the ETER-NUS DX60/DX80.

There are three methods for event notification: E-Mail, SNMP Trap, and Host Sense. For E-Mail notification, performing <u>"6.2.5 Setup E-Mail Notification" (page 156)</u> is required. For SNMP Trap notification, performing <u>"6.2.2 Setup SNMP Agent" (page 150)</u> is required. A notification setting can be selected for each type of event.



The procedure to setup event notification is as follows:

Procedure

- 1 Click the [Setup Event Notification] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Event Notification] screen appears.

2 Select whether or not to report for each event type.

The events are classified into three levels: "Error Severity Level", "Warning Level", and "Informational Level".

Click the link on the left of the screen to display the setting fields for each level.

Setting based on Severity

Select whether to notify of an event in units of level. When enabling the notification, select the method from "E-Mail", "SNMP Trap", or "Host Sense Key Code Qualifier" (multiple selections can be made).

When setting the notification method for each event, move on to the setting fields for each level.

| Setup Event Notification | | | | | |
|---------------------------------------|---|----------|-----------|-------------------------------|-----|
| Management of notification for this | storage system internal events. | | | | |
| Setting based on Severity | Setting based on Severity | | | | |
| Error Seventy Level Warning Level | | ⊡E-Mail | SNMP Trap | Host Sense Key Code Qualifier | |
| Informational Level | CAll Error Events | • | 2 | V | |
| | All Warning Events | V | 1 | | |
| | All Informational Events | | | - | |
| | Individual Settings within Severity Level | No | Yes | No | |
| | System Defaults REMCS Defaul | ts | | | |
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Error Severity Level

Select whether to notify of the error event for each event type.

When enabling the notification, select the method from "E-Mail", "SNMP Trap", or "Host Sense Key Code Qualifier" (multiple selections can be made).

| Setup Event Notification | | | | |
|---|---------|--------------|--------------------------------|-----|
| Management of notification for this storage system internal events. | | | | |
| Setting based on Severity Error Severity Level | | | | |
| Warning Level | ⊡E-Mail | SNMP Trap | BHost Sense Key Code Qualifier | |
| Informational Level Obsk was broken | ~ | V | 2 | |
| Sproken Disk (when HS<0) | | | | |
| SModule was broken | | \checkmark | V | |
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Warning Level

Select whether to notify of a warning event for each event type. When enabling the notification, select the method from "E-Mail", "SNMP Trap", or "Host Sense Key Code Qualifier" (multiple selections can be made).

| Setup Event Notification | | | | | |
|--|-------------------------------------|--------------------|-------------|--------------------------------|-----|
| Management of notification for this | storage system internal events. | | | | |
| Setting based on Severity Error Severity Level | Warning Level | | | | |
| Warning Level | | ⊠E-Mail | 🗏 SNMP Trap | BHost Sense Key Code Qualifier | |
| Informational Level | Disk reported a Warning | ~ | V | | |
| | ⚠️Warning Disk (when HS<0) | | | | |
| | 4 Module reported a Warning | ~ | • | | |
| | ARAID Degradation Event | V | • | | |
| | ARAID Degradation Event (when HS<0) | | | | |
| | ARAID Recovery Event | - | - | v | |
| | ARECOVERY FROM ERROR | - | | - | |
| | | ⁶ Enaul | | | |
| | | | | | Set |



Informational Level

Select whether to notify of an information event for each event type.

When notification is enabled, select the method from "E-Mail" or "SNMP Trap" (both settings can be selected).

| rity Level | | | |
|---|---------|-----------|--------------------------------|
| evel | ⊡E-Mail | SNMP Trap | BHost Sense Key Code Qualifier |
| Power on Completed | | | - |
| Controller Firmware updated | | | - |
| Created RAID Group | | | - |
| Deleted RAID Group | | | - |
| RAID Group Name Changed | | | - |
| Assigned Hot Spare | | | - |
| Released Hot Spare | | | - |
| Created Volume | | | - |
| Deleted Volume | | | - |
| Volume Name Changed | | | - |
| EFC Port Parameters Changed | | | - |
| FC Host Information Changed | | | - |
| Host Name Defined | | | - |
| LUN Mapping Changed | | | - |
| Host Response Changed | | | - |
| Reset Group Changed | | | - |
| Error condition defined by SDP policy | | | - |
| Warning condition defined by SDP policy | | | - |
| Informational message defined by SDP policy | | | - |



Threshold of SDP policy level can be specified with <u>"5.4.4 Modify</u> Copy Parameters" (page 132) function.

3 Click the [Set] button.

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The specified event notification setting is enabled.

End of procedure



Renew SSL Certificate 6.2.8

The [Renew SSL Certificate] function creates new SSL certificate used to encrypt the communication.

The data transmitted in the network may be intercepted from a third party. This function creates the SSL certificate again, and prevents the impersonation caused by SSL certificate theft. The procedure to create SSL certificate is as follows:

Procedure

- 1 Click the [Renew SSL Certificate] under the [Network Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Renew SSL Certificate] screen appears.
- 2 Click the [Create] button.



- \rightarrow A confirmation screen appears.
- 3 Click the [OK] button.



→ The SSL certificate is created.

End of procedure



6.3 Remote Support

The [Remote Support] setting menu registers user information related to the ETERNUS DX60/ DX80, and settings for Remote support function to REMCS (REMote Customer Support system) center and the ETERNUS DX60/DX80.

REMCS, a unique remote maintenance system by Fujitsu, provides the following maintenance functions.

Failure Notice

This function reports various failures that occur in the ETERNUS DX60/DX80 to the REMCS center. The maintenance engineer is notified of a failure immediately.

 Information Transfer
 This function sends information such as logs and configuration information to be used when checking a failure. It reduces time required to collect information for the REMCS center.

6.3.1 Display Support Information

The [Display Support Information] function checks the Remote Support function settings and operation status.

The procedure to check the display support information is as follows:

- 1 Click the [Display Support Information] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Display Support Information] screen appears.



2 Check the displayed "Support Information" and "Event Information".

| Display Support Information | | |
|---|---|----------|
| The current setting and status of Remote Support function is displayed. | | |
| Support Information | | |
| Customer Information Setup | Already Set | |
| Communication Environment Setup | Already Set | |
| Support Status | Operation in Progress | |
| Controller Firmware Version | V10L20-0000 | |
| Automatic Firmware Upgrade | OFF | |
| Automatic Firmware update (with activation on next power cycle) | OFF | |
| Automatic Log Transmission | ON | |
| Periodic Log Transmission | ON(Every Day 05:00) | |
| | | |
| Event Information | | |
| | | |
| Date | Event | |
| 2009-03-26 14:09:30 | End of Maintenance | <u> </u> |
| 2008-03-20 13:47:28 2008-03:26 13:47:28 | Start of Maintenance Power ON | |
| 2009-03-26 13:00:47 | Power ON | |
| 2009-03-26 12:58:04 | Power ON | |
| 2009-03-26 12:55:21 | Power ON | |
| 2009-03-26 12:52:38 | Power ON | |
| 2009-03-26 12:49:56 | Power ON | |
| 2009-03-26 12:47:13 | Power ON | |
| 2009-03-26 12:44:30 | Power ON | - |
| | | |
| | | |
| | | |
| | | |
| | | Refresh |
| | | |
| Click the IR | efresh] button to obtain the latest informati | ion |

End of procedure

6.3.2 Display Communication Log

🚺 Note

This function displays the communication log when the Remote Support function is operated between the ETERNUS DX60/DX80 and the server. When the Remote Support function cannot be operated properly, for example, cannot be connected to the REMCS center, use this log to identify the cause of the problem.

The communication log includes requests from the device to the server, and responses from the server to the device. Only the communication log of the last executed event is displayed.



Setting the server connection in advance is necessary.

The procedure to display the communication log is as follows:

- 1 Click the [Display Communication Log] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Display Communication Log] screen appears.



2 Check the displayed "Event Type" and the "Communication Log".

| play Communication Log |
|--|
| Immunication Log |
| Event Type COMMUNICATION (D=0103) |
| Communication Log |
| 001 DNS:-0K 0000000 0011 SMTP:start 00101 SMTP:220 mmc21s.mmh.cs.fujitsu.co.jp.ESMTP Sendmail 8.9.3/3.7W-01/18/01; Thu, 26 Mar 2009 14:12:32 +0900 (JST) 0011 SMTP:220 FXPN 00101 SMTP:220-EXPN 00101 SMTP:220-SETIMME 00101 SMTP:250-SETE 0011 SMTP:250-SETEN 0011 SMTP:250-HELP |
| Refresh |
| |
| N o t e |

End of procedure

6.3.3 Setup Remote Support

The [Setup Remote Support] function registers the customer information and communication environment information required to be given to Remote Support from the REMCS center.



The procedure to setup Remote Support is as follows:

- 1 Click the [Setup Remote Support] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Remote Support] screen appears.



2 Specify the following items.



Customer Information

Customer information saved in the ETERNUS DX60/DX80 can be deleted after transmitting the information to the REMCS center. Select the "Delete any Customer Identity information from the storage system after the information is sent to the "REMCS Center"." checkbox to delete the information.

- Detailed Settings
 - Company Name (required) Input the company name that owns ETERNUS DX60/DX80. Up to 60 alphanumeric characters can be used.
 - Department/Division Input the department or division that owns ETERNUS DX60/DX80. Up to 40 alphanumeric characters can be used.
 - Address (required) Input the address of the company that owns ETERNUS DX60/DX80. Up to 60 alphanumeric characters can be used.
 - Building Name Input the building name where the company that owns ETERNUS DX60/DX80 is located.

Up to 40 alphanumeric characters can be used.

 Administrator Name (required) Input the system administrator's name that manages the ETERNUS DX60/ DX80.

Up to 40 alphanumeric characters and symbols can be used.

 Administrator E-Mail Address (required) Input the E-mail address of the system administrator who manages the ETERNUS DX60/DX80.

Up to 40 alphanumeric characters (including symbols) can be used.

- Postal Code (Zip Code) Input the post code for the company that owns ETERNUS DX60/DX80. Up to 10 alphanumeric characters (including symbols) can be used.
- Phone Number (required) Input the phone number for the company that owns ETERNUS DX60/DX80. Up to 20 alphanumeric characters (including symbols) can be used.
- FAX Number Input the FAX number for the company that owns ETERNUS DX60/DX80. Up to 20 alphanumeric characters (including symbols) can be used.
- Storage System Unique Name Input the nickname for the ETERNUS DX60/DX80. Up to 32 alphanumeric characters (including symbols) can be used.
- Country of Installation (ISO3166 A2) Example: JP, US, DE, etc. (required) Input the country code for the country where the ETERNUS DX60/DX80 is located.

Capital letters or 99 can be entered.



- Installation Location
 - Address
 - Input the address where the ETERNUS DX60/DX80 locates. Up to 60 alphanumeric characters can be used.
 - Building Name Input the building name where the ETERNUS DX60/DX80 is located. Up to 40 alphanumeric characters can be used.
- Information filled by Field Engineers
 - Installation Date Input the date when the ETERNUS DX60/DX80 is installed. Numerals can be used.
 - Field Engineer E-Mail Address Input the mail address for the field engineer who installed the ETERNUS DX60/ DX80.

Up to 60 alphanumeric characters and symbols can be used.

- Customer Code Input the customer code.
 Up to 8 numerals (including symbols) can be used.
- Communication Environment Information
 - Connection
 - Connection Type

Select the connection method when using the REMCS operation.

- Internet Connection
- Internet Connection (Mail only)
- P-P Connection
- P-P Connection (Mail only)
- P-P Connection (VPN Connection)
- P-P Connection (VPN Connection Mail only)
- LAN Port used for Remote Support

Select the device LAN port used for REMCS operation from "MNT" or "RMT".

- Service
 - Scheduled Connection Time (required) Input the time for scheduled REMCS connection. Numerals can be used.
 - Scheduled Connection Period (required)
 - Select the term for scheduled REMCS connection.
 - Every Day
 - Every Day (excluding Sunday)
 - Every Day (excluding Saturday and Sunday)
 - Once a Week



Specify the Day of the Week

When "Once a Week" is selected for "Scheduled Connection Period", select the day of the week for scheduled REMCS connection.

- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Proxy Server
 - Proxy Server

Input the IP address or domain name for the proxy server used for REMCS operation.

Up to 63 alphanumeric characters and symbols can be used.

- Port No.
 - Input the port number for the proxy server.

Numerals between 0 and 65535 can be used.

User Name

Input the user name when using the proxy server.

Up to 31 ASCII codes (alphanumeric characters and symbols) can be used.

Password

Input the password for when using the proxy server.

Up to 31 ASCII codes (alphanumeric characters and symbols) can be used.

- Storage System E-Mail Configuration
 - SMTP Server (required)

Input the IP address or domain name for the SMTP server used for REMCS operation.

Up to 63 alphanumeric characters and symbols can be used.

 Port No. (required) Input the port number for the SMTP server.

Numerals between 0 and 65535 can be used.

 Sender Mail Address (required) Input an address for mails sent by the ETERNUS DX60/DX80 for REMCS operations.

Up to 63 alphanumeric characters and symbols can be used.

- SMTP Authentication Information
 - Authentication Type

Select the SMTP authentication method.

- No SMTP Authentication
- POP Before SMTP Authentication
- AUTH SMTP Authentication
- Authentication Method

When the "Authentication Type" is "AUTH SMTP Authentication", specify the Authentication Method.

- Automatic
- CRAM-MD5
- PLAIN
- LOGIN

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POP Server

When the "Authentication Type" is "POP Before SMTP Authentication", specify the domain name or IP address for the POP server used for SMTP Authentication.

Up to 63 alphanumeric characters and symbols can be used.

Port No.

Input the port number for the POP server.

Numerals between 0 and 65535 can be used.

User Name

Input the user name when using the POP server.

Up to 31 alphanumeric characters and symbols can be used.

Password

Input the password when using the POP server.

Up to 31 alphanumeric characters and symbols can be used.

- REMCS Center
 - REMCS Center (required)

Select the REMCS center where the ETERNUS DX60/DX80 is connected.

- Fujitsu America
- Australia
- Brazil
- Hong-Kong
- China
- Indonesia
- Korea
- Malaysia
- Philippine
- Singapore
- Taiwan
- Thailand
- Vietnam
- Individual support in Hawaii
- OSC
- Inputting directly
- HTTP Server

If "Inputting directly" is selected for "REMCS Center" field, input the IP address or domain name for the destination HTTP server.

Up to 63 alphanumeric characters and symbols can be used.

Port No.

Input the port number for the HTTP server specified above. Numerals between 0 and 65535 can be used.

Receiver Mail Address

When "Inputting directly" is selected, input the E-mail address for the REMCS center specified above as a report destination of the REMCS operation. Up to 63 alphanumeric characters and symbols can be used.

- Detailed Configuration Information
 - Mail Message Fragmentation Setting
 - Select whether to "Enable Message Fragmentation" or "Disable Message Fragmentation" into the specified size.

If splitting the mail, specify the units in which to split the mail, between 64 and 6400 (KB).

- Specify Storage System Name for HELO/EHLO Announcement when Sending Mail Select whether to "Specify" or "Do not specify" the storage system name for HELO/ EHLP announcement when sending mail. If "Specify" is selected, input the storage system name. Up to 32 alphanumeric characters and symbols can be used.
- Time Information

This item is not required for setting.

If changing the setting values, select the "Change following Timing Parameter items" checkbox.

- SMTP Response Timeout (sec.) Input the timeout limit when using SMTP connection. Numerals between 1 and 3600 can be used. The default setting is "60".
- SMTP Retry Count Input the retry number of SMTP.
 Numerals between 1 and 60 can be used. The default setting is "5".
- SMTP Retry Interval (sec.) Input the intervals for retrying SMTP.
 Numerals between 1 and 3600 can be used. The default setting is "30".
- HTTP Timeout (sec.) Input the timeout limit when using HTTP connection. Numerals between 1 and 3600 can be used. The default setting is "30".
- HTTP Retry Count Input the retry number of HTTP.
 Numerals between 1 and 60 can be used. The default setting is "5".
- HTTP Retry Interval (sec.)
 Input the intervals for retrying HTTP.
 Numerals between 1 and 3600 can be used. The default setting is "5".
- Queue Time before Sending Mails (msec.) (only when POP Before SMTP authentication is enabled)
 Input the waiting time for sending mail.
 Numerals between 1 and 3600 can be used. The default setting is "1000".

- [Setup Remote Support] screen (1/5)

| | Childs conligated along with the castomer miormation being ransmitted to the ricemoto center. | |
|---|--|--|
| Tote Support communication environme | | |
| ormation File | | |
| Customer Information File | Browse | |
| Communication Environment Informat | Browse | |
| Import | | |
| ustomer Information | | |
| Message | | |
| A DESCRIPTION OF THE PROPERTY | THE REPORT OF TH | |
| Delete any Customer Identity inform | tatal regulated for production investigation is automaticany reported to register Center. | |
| Delete any Customer Identity inform Tetailed Settings Company Name * | tata regulated bit problem in messignation is automaticany reported to right a Remos Center. | |
| Note that the information is encry: Delete any Customer Identity inform Detailed Settings Company Name * DenartmentDivision | tata regulated bin problem investigation is automaticany reported to runsur Remos Center. | |
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| Note that the information is encry: Delete any Customer Identity Inform Detailed Settings Company Name * Department/Division Address * Paivting Name | table regulated to product in investigation is automaticany reported to right Active Scenter. | |
| Note that the information is encry Delete any Customer identity inform Setalied Settings Company Name * Department/Division Address * Building Name Administrator Name * | tatal regulated by problem intrestrugation is automaticany reported to right a REMCS Center. | |
| Note that the information is encry: Delete any Customer identity inform betailed Settings Company Name * Department/Division Address * Building Name Administrator Name * | ada regulated bip problem investigation is automaticany reported to right Acames Center. | |
| Note that the information is encry: Delete any Customer Identity inform Detailed Settings Company Name * DepartmentDivision Address * Building Name Administrator E-Mail Address * | add regulated to problem investigation is automaticany reported to right reactions of entry in the storage system after the information is sent to the 'REMCS Center'. | |
| Note that the information is encry Detailed Settings Company Name * Department/Division Address * Building Name Administrator Name * Administrator E-Mail Address * Postal Code(Zip Code) | add regulated to product in investigation is automaticany reported to right reactions. | |
| Note that the information is encry Delete any Customer identity inform Detailed Settings Company Name * Department/Division Address * Building Name Administrator Name * Administrator F-Mail Address * Postal Code(Zip Code) Phone Number * | add regulated by problem intresugation is automaticany reported to right Acames Center. | |

- [Setup Remote Support] screen (2/5)

| ietup kemote support | | |
|---|----|----|
| Remote Support communication environment is configured along with the customer information being transmitted to the REMCS center. | | |
| FAX Number | | - |
| Storage System Unique Name | | |
| Country of Installation (ISO3166 A2) * | | |
| Example: JP, US, DE, etc. | | |
| | | |
| Installation Location | | |
| Address | | |
| Building Name | | |
| | | |
| Information filled by Field Engineers | | _ |
| | | |
| Installation Date Year 2001 - Month: 01 - | | |
| rield Engineer E-Mail Address | | |
| Customer Code | | |
| | | |
| | | |
| Communication Environment Information | | |
| Connection | | |
| Connection Type Internet Connection | | |
| LAN Port used for Remote Support MINT - | | |
| | | |
| Service | | |
| | | |
| | Se | et |

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- [Setup Remote Support] screen (3/5)

| Remote Support | | |
|--|---|-----|
| ole Support communication environment is configured along with the customer information being transmitted to the REMCS center. | | |
| ervice | | |
| | | |
| Scheduled Connection Time* 10 T : 10 T | | |
| Scheduled Connection Period * Every Day | | |
| Specify the Day of the Week Sunday 🛫 | | |
| | | |
| roxy Server | | |
| Drayu Carvar | | |
| | | |
| Port No. | | |
| User Name | | |
| Password | | |
| | | |
| | | |
| torage System E-Mail Configuration | - | |
| SMTP Server * | | |
| Port No. * 25 | | |
| Sondor Mail Address * | | |
| Selinei wan vinniszz | | |
| | _ | |
| MTP Authentication Information | 4 | |
| Authentication Type No SMTP Authentication | | |
| Authentication Method Automatic | | |
| | | |
| | | |
| | | |
| | | Out |

- [Setup Remote Support] screen (4/5)

| etup Remote Support | | | | |
|------------------------------|---|--|-----|-----|
| emote Support communicat | ion environment is configured along with the customer infor | rmation being transmitted to the REMCS center. | | |
| SMTP Authentication Info | urmation | | | - |
| Authentication Type | No SMTP Authentication | | | |
| Authentication Method | Automatic | | | |
| DOD Sopior | , Patomate | | | |
| POP Server | | | | |
| Port No. | | | | |
| User Name | | | | |
| Password | | | | |
| | | | | |
| DEMCS Center | | | | |
| REMUS Center | | | 4 | |
| REMCS Center * | | | | |
| HTTP Server | | | | |
| Port No. | 0 | | | |
| Receiver Mail Address | /i | | | |
| | , | | | |
| | | | - I | |
| | | | | |
| Detailed Configuration Infor | mation | | | |
| | | C Enable Message Fragmentation C Disable Message Fragmentation | | ļ. |
| Mail Message Fragmenta | ation Setting | C Endle message ragmentation () broase message ragmentation | | |
| | | 64 KB (64 - 6400) | | |
| | | C Specify | | |
| Specify Storage System | lame for HELO/EHLO Announcement when Sending Mail | | | |
| | | | | |
| | | | | |
| | | | | Set |

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- [Setup Remote Support] screen (5/5)

| stated Configuration Information Mail Message Fragmentation Setting Pail Message Fragmentation Setting Specify Storage System Name for HELO/EHLO Announcement when Sending Mail C Specify © Do not specify Specify Storage System Name for HELO/EHLO Announcement when Sending Mail Pail Following Timing parameters should not be changed for normal usage. Please enable checkbob below in case the Timing parameters are changed. C Change following Timing Parameter flems SMTP Response Timeout (sec.) P0 1 - 3600) MTTP Retry Count P0 1 - 3600) MTTP Retry Interval (sec.) P0 1 - 3600) MTTP Retry Count P1 1 - 3600) Queue Time before Sending Mails (msec.) P1 1 - 3600) P1 - 3600) Queue Time before SMTP authentication is enabled P1 1 - 3600) P1 - 3600) Queue Time before SMTP authentication is enabled P1 - 3600) Coloring on the Set pluton, the configuration information is sent to the REMCS center. P1 * decing are mandatory field. P1 - 3600 Coloring on the Set pluton, the configuration information is sent to the REMCS center. | | | | _ |
|--|--|--|--|---|
| Mail Message Fragmentation C Disable Message Fragmentation 64 RB (64 - 6400) Specify Storage System Name for HELOTENLO Announcement when Sending Mail © Specify © Do not specify Ime Information Specify © Do not specify Message Image: Specify @ Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify Image: Specify @ Do not specify Do not specify | etailed Configuration Information | | | |
| Main Message Fragmentation Setting 94 KB (64 - 6400) Specify Storage System Name for HELO/EHLO Announcement when Sending Mail | | | © Enable Message Fragmentation C Disable Message Fragmentation | |
| Specify Storage System Name for HELO/EHLO Announcement when Sending Mail C Specify C Do not specify The Information Internet Information Message Internet Information parameters should not be changed for normal usage. Please enable checkbox below in case the Timing parameters are changed. Change following Timing Parameter items SMTP Response Timeout (sec.) Do (1 - 3600) SMTP Retry Count Do (1 - 3600) HTTP Timeout (sec.) Do (1 - 3600) HTTP Retry Count Do (1 - 3600) HTTP Retry Interval (sec.) Do (1 - 3600) Oue Time before Sanding Mails (msec.) Do (1 - 3600) (nay when POP Before SMTP authentication is enabled Dood fore Meande Support is currently offline. The configuration is charged here, the REMCS connection will be enabled for a short time to update the configuration information. A signates mandatory field. By clicking on the [Set] button, the configuration information is sent to the REMCS center. The REMCS center will write the information and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness.< | Mail Message Fragmentation Setung | | 64 KB (64 - 6400) | |
| Specify storage system name for HELDERLO Announcement when sending Mail Ime Information Message Image following Timing parameters should not be changed for normal usage. Please enable checkbox below in case the Timing parameters are changed. Change following Timing Parameter items SMTP Response Timeout (sec.) 80 Image following Timing Parameter items SMTP Retry Count 5 IT TP Timeout (sec.) 80 IT P Retry Interval (sec.) 10 IT P Retry Interval (sec.) 5 IT P Retry Interval (sec.) 5 IT P Retry Interval (sec.) 1000 IT P Retry Interval (sec.) 1000 It P Retry Interval (sec.) 5 It P Retry Interval (sec.) 1000 It P Retry Interval (sec.) 1000 It P Retry Interval (sec.) 1000 It P Retry Interval (sec.) 5 It P Retry Interval (sec.) 1000 It P Retry Interval (sec.) 1000 < | Consider Channess Constant Martin for UELO/EULO Announcement where Constant Ma | | ○ Specify | |
| Ime Information Message I The following Timing parameters should not be changed for normal usage. Please enable checkbox below in case the Timing parameters are changed. Change following Timing Parameter items SMTP Response Timeout (sec.) 00 (1 - 3600) SMTP Retry Count 5 (1 - 60) HTTP Timeout (sec.) 30 (1 - 3600) HTTP Retry Interval (sec.) 30 (1 - 3600) HTTP Retry Interval (sec.) 5 (1 - 60) HTTP Retry Interval (sec.) 5 (1 - 3600) Queue Time before Sending Malia (msec.) (only when POP Before SMTP authentication is enabled) 1000 (1 - 3600) Interval (sec.) 5 (1 - 3600) 1000 (1 - 3600) Cove 1000 (1 - 3600) 1000 (1 - 3600) Interval (sec.) 5 (1 - 3600) 1000 (1 - 3600) Cove Time before Sending Malia (msec.) (only when POP Before SMTP authentication is enabled) 1000 (1 - 3600) Interval (sec.) 5 (1 - 3600) 1000 1 - 3600) Interval (sec.) 6 (1 - 3600) 1 - 3600 1 - 3600 1 - 3600 1 - 3600 | Specify storage system name for HELO/EHLO Annou | icement when sending mail | | |
| Implementation Implem | Time Information | | | |
| | Maccago | | | 1 |
| Change following Timing Parameter items SMTP Response Timeout (sec.) 00 (1 - 3600) SMTP Retry Count 5 (1 - 3600) HTTP Timeout (sec.) 30 (1 - 3600) HTTP Retry Interval (sec.) 30 (1 - 3600) HTTP Retry Interval (sec.) 30 (1 - 3600) HTTP Retry Interval (sec.) 5 (1 - 60) (only when POP Before Sending Mails (msec.) (000 (1 - 3600) Queue Time before Sending Mails (msec.) (1000 (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) Outcome Time before Sending Mails (msec.) (1 - 3600) (1 - 3600) It is configuration is changed here, the REMCS connection will be enabled for a short time to update the configuration information. (1 - 3600) A Pricision on the Cstep Judic, the configuration information is sent to the REMCS center. (1 - 860CS) | The following Timing parameters should not be ch Please enable checkbox below in case the Timing | nanged for normal usage. 9 parameters are changed. | | |
| SMTP Response Timeout (sec.) 60 (1 - 300) SMTP Retry Count 5 (1 - 60) SMTP Retry Interval (sec.) 30 (1 - 3600) HTTP Timeout (sec.) 30 (1 - 60) HTTP Retry Count 5 (1 - 60) HTTP Retry Count 5 (1 - 60) HTTP Retry Interval (sec.) 5 (1 - 3600) Oueue Time before Sending Mails (msec.) 1000 (1 - 3600) Oueue Time before Sending Mails (msec.) 1000 (1 - 3600) Interval Sec. 1000 (1 - 3600) Outuation in Comparison (mail to a senabled) 1000 (1 - 3600) Interval Sec. 1000 (1 - 3600) Outuation in Comparison (mail to a senabled) 1000 (1 - 3600) Interval Sec. Interval Sec. Interval Sec. Interval Sec. Interval Sec. Interval Sec. Interval Sec. Interval Sec. Interval Sec. Intherediffication is centor to mail on informatio | Change following Timing Parameter items | | | |
| SMTP Retry Count F (1 - 60) SMTP Retry Interval (sec.) 30 (1 - 3600) HTTP Petry Count 5 (1 - 60) HTTP Retry Count 5 (1 - 60) HTTP Retry Interval (sec.) 5 (1 - 3600) Oueue Time before Sending Mails (msc.) (only when POP Before SMTP authentication is enabled) 1000 (1 - 3600) Hote Interval (sec.) 5 (1 - 3600) Hote Interval (sec.) 1000 (1 - 3600) Hote Interval (sec.) 1000 (1 - 3600) Hote Interval (sec.) 1000 (1 - 3600) Hote Sender Support is currently offline. If the configuration is changed here, the REMCS connection will be enabled for a short time to update the configuration information. A designates mandatory field. A gricking on the SeqUeution in the configuration information is sent to the REMCS center. The REMCS center will verify the information and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. Depending on the network situation, it may take some time for the round trip transmission. | SMTP Response Timeout (sec.) | 60 | (1 - 3600) | |
| SMTP Retry Interval (sec.) 30 (1:3600) HTTP Timeout (sec.) 30 (1:3600) HTTP Retry Interval (sec.) 5 (1:60) HTTP Retry Interval (sec.) 5 (1:3600) Oucue Time before Sending Mails (msec.) 10:3600) (1:3600) (only when POP Before SMTP authentication is enabled) 1000 (1:3600) Interval (sec.) 5 (1:3600) A Remole Support is currently offline. If the configuration is change here, the REMCS connection will be enabled for a short time to update the configuration information. A designates mandatory field. A Sequicing on the Set putter, the configuration information is sent to the REMCS center. The REMCS center will verify the information and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. | SMTP Retry Count | 5 | (1 - 60) | |
| HTTP Timeout (sec.) 30 (1 - 3600) HTTP Retry Count 5 (1 - 60) HTTP Retry Interval (sec.) 5 (1 - 3600) Couce Time before Sending Mails (msec.) 5 (1 - 3600) Couce Time before Sending Mails (msec.) 1000 (1 - 3600) Couce Time before Sending Mails (msec.) 1000 (1 - 3600) Interval (sec.) Interval (sec.) A Remole Support is currently offline. If the configuration is changed here, the REMCS connection will be enabled for a short time to update the configuration information. A * designates mandatory field. A A by cicking on the Set puttor, the configuration information is sent to the REMCS center. The REMCS center will writh the information and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. | SMTP Retry Interval (sec.) | 30 | (1-3600) | |
| HTTP Retry Interval (sec.) 5 (1 - 60) HTTP Retry Interval (sec.) 5 (1 - 3800) Queue Time before Sending Malis (msec.) (1 - 3600) (1 - 3600) (only when POP Before SIMTP authentication is enabled) (1 - 3600) (1 - 3600) Interval (1 - 3600) (1 - 3600) (1 - 3600) Outer Interval (sec.) (1 - 3600) (1 - 3600) A Remole Support is currently offline. If the configuration is changed here, the REMCS connection will be enabled for a short time to update the configuration information. • designates mandatory field. A Veicking on the Set Duttor, the configuration information is sent to the REMCS center. The REMCS center will verify the information and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. | HTTP Timeout (sec.) | 30 | (1 - 3600) | |
| HTTP Retry Interval (sec.) □ □ (1 - 3600) Queue Time before Sending Mails (msec.) □ (1 - 3600) (only when POP Before SMTP authentication is enabled) □ (1 - 3600) Interval (sec.) □ □ Interval (sec.) | HTTP Retry Count | 5 | (1 - 60) | |
| Gueue Time before Sending Mails (msc.) (only when POP Before SMTP authentication is enabled) 1000 (1 - 3600) Interpretation of the sending Mails (msc.) (and when POP Before SMTP authentication is enabled) 1000 (1 - 3600) Interpretation of the sending Mails (msc.) (and sending and the sending Mails (msc.) (and sending and the sending | HTTP Retry Interval (sec.) | 5 | (1 - 3600) | |
| tote A Remote Support is currently offline. If the configuration is changed here, the REMCS connection will be enabled for a short time to update the configuration information. A * designates mandatory field. A by clicking on the [Set] button, the configuration information is sent to the REMCS center. The REMCS center will verify the information and the result of verification is sent back to the *Administrator E-mail address*. Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. | Queue Time before Sending Mails (msec.) (only when POP Before SMTP authentication is enable | ed) 1000 | (1 - 3600) | |
| A Remote Support is currently offline. If the configuration is charged here, the REMCS connection will be enabled for a short time to update the configuration information. If the configuration is charged here, the REMCS connection will be enabled for a short time to update the configuration information. If the configuration is charged here, the REMCS connection will be enabled for a short time to update the configuration information. If clicking on the [Self] buttor, the configuration information is sent to the REMCS center. The REMCS center will verific action and the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the contents of the E-mail for correctness. Depending on the network situation, it may take some time for the round trip transmission. | lote | | | |
| | Remote Support is currently offline. If the configuration is changed here, the REMCS con d* designates mandatory field. By clicking on the [Set] button, the configuration inforn The REMCS center will verify the information and the E-mail for correctness. Depending on the network situation, it may take sorr | nection will be enabled for a mation is sent to the REMCS result of verification is sent b he time for the round trip trans | short time to update the configuration information. : center. aack to the "Administrator E-mail address". Please make sure to check the contents of the smission. | |
| | | | | |

3 Click the [Set] button.

 \rightarrow A confirmation screen appears.

| Caution 🖉 | In the following conditions, an error screen appears. Click the [Set] button without setting the required item (items with "*") Click the [Set] button with invalid values When the selected setting information file is not correct When file format of the selected setting information file is not correct |
|-------------------|---|
| Click the IOKI hu | |

4 Click the [OK] button.

| Microsoft Internet Explorer | × |
|-----------------------------|---|
| Are you sure? | |
| OK Cancel | |

 \rightarrow The specified Remote Support setting is registered.

End of procedure

Caution

After completing the setting, the REMCS center sends the setting result to the specified "Administrator E-Mail Address". Make sure to confirm the settings.

6.3.4 Update Customer Information

The [Update Customer Information] function changes the customer information specified in "6.3.3 Setup Remote Support" (page 167).

- Customer information saved in the ETERNUS DX60/DX80 can be deleted after transmitting the information to the REMCS center. Check the "Delete any Customer Identity information from the storage system after the information is sent to the "REMCS Center"." and then delete personal information saved in device" checkbox to delete the information.
 - The Remote Support setting information file (customer information file) created by using REMCS Environment Setup Assist Tool (REMCS ESAT) can be imported to the device, to simplify the input operation required to be set for each device.

The procedure to change the customer information is as follows:

Procedure

🚺 Note

1 Click the [Update Customer Information] under the [Remote Support] menu on the [Global Settings] tab.

 \rightarrow The [Update Customer Information] screen appears.

2 Set the customer information again.

When importing customer information to the ETERNUS DX60/DX80 all at once, click the [Browse...] button to specify the location where the settings file has been stored, and click the [Import] button.

- [Update Customer Information] screen (1/2)

| formation File | | |
|---|---|--|
| Customer Information File | Browse Import | |
| istomer Information | | |
| Message | | |
| This function sends customer al improvement of Fujitsu products Under maintenance contract, an Note that the information is encr | nd hardware configuration information to Fujitisu REMCS Center'. The information is used for customer hardware support, and to send information regarding new products. This information will new to the disclosed to any third parties. y data required for problem investigation is automatically reported to Fujitsu 'REMCS Center'. ypted before being sent. | |
| Delete any Customer Identity infor | mation from the storage system after the information is sent to the 'REMCS Center'. | |
| Detailed Settings | | |
| | | |
| Company Name * | | |
| Company Name * Department/Division | | |
| Company Name * Department:Division Address * | | |
| Company Name * Department/Division Address * Building Name | | |
| Company Name * Department Division Address * Building Name Administrator Name * | | |
| Company Name * Department Division Address * Building Name Administrator Name * Administrator E-Mail Address * | | |
| Company Name * Department Division Address * Building Name Administrator Name * Administrator E-Mail Address * Postal Code(Zip Code) | | |
| Company Name * Department Division Address * Building Name Administrator Name * Administrator F.Mail Address * Postal Code(Zip Code) Phone Number * | | |
| Conpany Name * Department Division Address * Building Name Administrator Name * Administrator F. Mail Address * Postal Code(Zip Code) Phone Number * FAX Number | | |
| Conpany Name * Department Division Address * Building Name Administrator Name * Administrator E-Mail Address * Postal Code(Zip Code) Phone Number * FAX Number Storage System Unique Name | | |

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- [Update Customer Information] screen (2/2)

| istomer information registered in the REMCS Center is updated. | |
|--|--|
| Manager Name * | |
| Mail Address * | |
| Post Code | |
| Phone Number 1 | |
| FAX Number | |
| Storage System Unique Name | |
| Country of Installation (ISO3166 A2) * Example: JP, US, DE, etc. | |
| Address Building Name | |
| ormation filled by Field Engineers Installation Date Year 2001 • . Month: 01 • | |
| Field Engineer E-Mail Address | |
| Customer Code | |
| | |
| | |
| * Indicates mandatory fields. | |
| | |

3 Click the [Set] button.

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The customer information is changed.

End of procedure

6.3.5 Update Communication Environment Information

The [Update Communication Environment Information] function changes the communication environment information specified in the <u>"6.3.3 Setup Remote Support" (page 167)</u>.

Caution The Remote Support setting information file (communication environment information file) created by using REMCS Environment Setup Assist Tool (REMCS ESAT) can be imported to the device, to simplify the input operation required to be set for each device.

The procedure to update communication environment information is as follows:

Procedure

- 1 Click the [Update Communication Environment Information] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Update Communication Environment Information] screen appears.
- **2** Set the communication environment information again.



When importing communication environment information to the ETERNUS DX60/DX80 all at once, click the [Browse...] button to specify the location where the settings file has been stored, and click the [Import] button.

- [Update Communication Environment Information] screen (1/3)

| ormation File | | |
|---|--|--|
| Communication Environmen | t Information File Browse Import | |
| mmunication Environment Ir | Iformation | |
| Connection | | |
| Connection Type | Internet Connection | |
| LAN Port used for Remote | Support MINT - | |
| Service | | |
| Scheduled Connection Tin | ne ' 00 💌 : 00 💌 | |
| | | |
| Scheduled Connection Pe | riod * Every Day | |
| Scheduled Connection Pe Specify the Day of the We | ioid * Every Day sk Sunday | |
| Scheduled Connection Pe Specify the Day of the We 7roxy Server | sk Sunday | |
| Scheduled Connection Pe Specify the Day of the We Proxy Server | sunday V Sunday V | |
| Scheduled Connection Pe Specify the Day of the We Proxy Server Proxy Server Port No. | itio 1 * Every Day 💌 | |
| Scheduled Connection Pe Specify the Day of the We Proxy Server Proxy Server Port No. User Name | k Sunday Cay | |
| Scheduled Connection Pe Specify the Day of the We Proxy Server Port No. User Name Password | k Sunday C | |
| Scheduled Connection Pe Specify the Day of the We Proxy Server Port No. User Name Password | ida * Every Day 💌 | |
| Scheduled Connection Pe Specify the Day of the We- Proxy Server Port No. User Name Password Storage System E-Mail Confi | sk Sunday V sunday V guration | |
| Scheduled Connection Pe Specify the Day of the We- Proxy Server Port No. User Name Password Storage System E-Mail Confi | guration | |

- [Update Communication Environment Information] screen (2/3)

| date Communication Env | ronment Information | |
|------------------------------|--|-----|
| ne communication environme | nt for Remote Support function is updated. | |
| Storage System E-Mail Cor | figuration | |
| SMTP Server * | | |
| Port No. * | | |
| Sender Mail Address * | | |
| | | |
| SMTP Authentication Inform | nation | |
| Authentication Type | No SMTP Authentication | |
| Authentication Method | Automatic 💌 | |
| POP Server | | |
| Port No. | 0 | |
| User Name | | |
| Password | | |
| RFMCS Center | | |
| REMCS Center * | Direct Input Setting | |
| HTTP Server | Directinger County | |
| Port No. | | |
| Receiver Mail Address | | |
| | | |
| | | |
| etailed Configuration Inform | ation | |
| | | Set |

- [Update Communication Environment Information] screen (3/3)

| etailed Configuration Information | | |
|---|--|----|
| | C Enable Message Fragmentation C Disable Message Fragmentation | |
| Mail Message Fragmentation Setting | C Elidule Message Fragmentation - C Disable message Fragmentation | |
| | 64 KB (64 - 6400) | |
| Specify Storage System Name for HELO/EHLO Ar | C Specify O Do not specify | |
| specity storage system name for the sector su | intouricement when serving man | |
| ime Information | | |
| Message | | |
| The following Timing parameters should not Please enable checkbox below in case the Ti | : be changed for normal usage. Iming parameters are changed. | |
| Change following Timing Parameter items | | |
| SMTP Response Timeout (sec.) | 60 (1 - 3600) | |
| SMTP Retry Count | 5 (1 - 60) | |
| SMTP Retry Interval (sec.) | 30 (1 - 3600) | |
| HTTP Timeout (sec.) | 30 (1 - 3600) | |
| HTTP Retry Count | 5 (1-60) | |
| HTTP Retry Interval (sec.) | 5 (1 - 3600) | |
| Queue Time before Sending Mails (msec.) | 1000 (1-3600) | |
| (only when POP Before SMTP authentication is en | nabled) | |
| | | |
| lote | | |
| A Remote Support is currently offline. | S connection will be enabled for a chert time to undate the configuration information | |
| A * designates mandatory field. | s connection will be enabled for a short time to update the comparation monitorion. | |
| By clicking on the [Set] button, the configuration in The REMCS center will verify the information and of the E-mail for correctness. | information is sent to the RENCS center. Id the result of verification is sent back to the "Administrator E-mail address". Please make sure to check the conten | ts |
| Depending on the network situation, it may take | a some time for the round trip transmission. | |
| | | |
| | | |

3 Click the [Set] button.

 \rightarrow A confirmation screen appears.

4 Click the [OK] button.



 \rightarrow The communication environment information is changed.

End of procedure

6.3.6 Setup Log Sending Parameters

The [Setup Log Sending Parameters] function transfers the internal log to the REMCS center. Select "Send Log Automatically" or "Send Log Manually".

- Send Log Automatically ETERNUS DX60/DX80 sends the log automatically.
- Send Log Manually Send log manually.

| Caution 🖉 | This function is not available in the following conditions: When <u>"6.3.3 Setup Remote Support" (page 167)</u> is not finished When a problem is detected in the Remote Support settings When the "Receiver Mail Address" (REMCS center) is not specified for the Remote Support |
|-----------|--|
| | When the Remote support function is "Stopping" (refer to <u>"6.3.7 Stop/</u> <u>Restart Remote Support" (page 182)</u>) |

The procedure to send log is as follows:

Send Log Automatically

- 1 Click the [Setup Log Sending Parameters] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Log Sending Parameters] screen appears.
- **2** Click the [Send Log Automatically] link on the left of the screen.


- **3** Specify the following items, and click the [Set] button.
 - Send Method
 - To send logs automatically in the case of a failure, check the "Send" checkbox.
 - Send Period
 - To send logs on regular basis.

Check the "Enable send period" checkbox, and specify time, period, and day of the week.



- \rightarrow A confirmation screen appears.
- **4** Click the [OK] button.



 \rightarrow The send log (Send Log Automatically) is performed.

End of procedure

Send Log Manually

Procedure

- 1 Click the [Setup Log Sending Parameters] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Log Sending Parameters] screen appears.
- **2** Click the [Send Log Manually] link on the left of the screen.



- **3** Specify the following items, and click the [Run] button.
 - Incident Number Specify the incident number of the manually sent log.
 - Expander Log Collection To obtain the Expander log, check the "Collect" checkbox.
 - Time Specified To specify the time to send log, check the "Specify" checkbox, and specify the start and end time.



- \rightarrow A confirmation screen appears.
- 4 Click the [OK] button.



 \rightarrow The send log (Send Log Manually) operation is performed.

End of procedure

6.3.7 Stop/Restart Remote Support

The [Stop/Restart Remote Support] function stops or restarts the Remote Support. This function is used for long time suspension such as relocating the system. When suspending the Remote Support function, the device support status is changed from "Operating" to "Stopping". When restarting the Remote Support function, the device support status is changed from "Stopping" to "Operating". When in the "Stopping", all Remote Support functions, such as automatic notification of device errors to the REMCS center, are stopped.





The procedure to stop or restart the Remote Support is as follows:

Procedure

- 1 Click the [Stop/Restart Remote Support] under the [Remote Support] menu on the [Global Settings] tab.
 - \rightarrow The [Stop/Restart Remote Support] screen appears.
- 2 Click the [Stop] or [Restart] button.



- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The stopping/restarting Remote Support is performed.

6.4 System Settings

6.4.1 Modify Date and Time

The [Modify Date and Time] function is used to set the time/date and time zone (device location) of the internal clock.

The clock is used for checking the internal log and Eco-mode, etc. of the ETERNUS DX60/DX80. This function is used when moving the ETERNUS DX60/DX80 to a new installation site, and/or changing the device date/time. The time zone setting is used for Remote Support function. It is possible to setup the NTP server to automatically set the time. If an NTP function cannot be used, resetting the time once a month is recommended.



- When using Eco mode, make sure to set the time/date correctly. If the time/date of the ETERNUS DX60/DX80 is wrong, processes used for stopping and starting the disk motor cannot be performed per the Eco mode schedule.
- When using the NTP server, the time modification method is step mode (modify immediately).

The procedure to modify date and time is as follows:

Procedure

- 1 Click the [Modify Date and Time] under the [System Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Modify Date and Time] screen appears.
- **2** Specify the following items, and click the [Set] button.
 - Date/Time Information
 - Current Time
 - Current date and time setting is displayed.
 - Date
 - To change the "Current Time", input the new date and time.
 - Time Zone

Set the time difference (GMT).

- Time Zone
 - Select the Time Zone from the list box. If the appropriate Time Zone does not exist, select "Direct Input", and specify the time difference using "+" or "-", hour, and minute.



- Daylight Saving Time
 - Set

Select whether to set the Daylight Saving Time "ON" or "OFF" with the radio button.

- Range

If "Set" is "ON", set the Daylight Saving Time period. Select "by day of the week" or "by Date" with the radio button, and input the required parameters.

- NTP Service
 - NTP server

Select "NTP enabled" or "NTP disabled" with the radio button. When NTP is enabled, input the IP address or domain name for the NTP server in the text box. ETERNUS DX60/DX80 is synchronized with the NTP server in a step mode fashion.

- LAN Port used for NTP
- Select the LAN port to be used for NTP connection from "MNT" or "RMT".
- Access Status

Access state to the NTP server is displayed.

| | tion |
|--------------------------|---|
| Current Time 2 Date Y | 009-05-18 14:26:54 aar 2009 Month 5 - Dav 18 Hour 14 Minute 26 : Second 44 |
| me Zone | IT+09:00) Tokyo, Osaka, Kyoto, Fukuoka, Sapporo 💌 |
| aylight Saving Ti | ne and a second s |
| Range | Start January - 1st - Sunday Ø 00 :00 Ket End January - 1st - Sunday Ø 00 :00 Bate Start January - 01 Ø 00 :00 Bate End January - 01 Ø 00 :00 |
| TP Service | |
| NTP server | C NTP enabled @ NTP disabled |
| | OF NTP MINT - |
| LAN Port used | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The date and time setting is set.



6.4.2 Modify Storage System Name

The [Modify Storage System Name] function is used to set the name, administrator, and installation site of the ETERNUS DX60/DX80 Disk storage system.

Information registered in this screen is used for the following functions and screens:

- Network management using SNMP
- Storage system name displayed in logon screen and operation screens
- Friendly Name (storage system name)^(*1) for Virtual Disk Service (VDS)
- *1: VDS is a storage management function of the Windows Server®.

The procedure to register the storage system name is as follows:

Procedure

- 1 Click the [Modify Storage System Name] under the [System Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Modify Storage System Name] screen appears.
- 2 Specify the following items, and click the [Set] button.
 - Name
 - Input the storage system name.

Up to 16 alphanumeric characters and symbols (including blanks) can be used.

- Installation Location
 - Input the device installation location.

Up to 50 alphanumeric characters and symbols (including blanks) can be used.

Administrator

Input the system administrator information (contact name and address).

Up to 50 alphanumeric characters and symbols (including blanks) can be used.

- Description
 - Input the system description.

Up to 50 alphanumeric characters and symbols (including blanks) can be used.

| the name of this St | orage System | | |
|----------------------|---------------|--|--|
| | | (1. 16 aborators/alphanumaria aborator blana sign)) | |
| ame | ETERNO3_01 | (1 - 16 characters(alphanument character bland sign)) | |
| istallation Location | Server Center | (1 - 50 characters(alphanumeric character blank sign)) | |
| dministrator | Fujitsu Laro | (1 - 50 characters(alphanumeric character blank sign)) | |
| escription | Test | (1 - 50 characters(alphanumeric character blank sign)) | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

 \rightarrow A confirmation screen appears.

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3 Click the [OK] button.



 \rightarrow The specified storage system name is registered.

End of procedure

6.4.3 Setup Encryption Mode

The [Setup Encryption Mode] function enables or disables encryption mode. When encryption mode is enabled, an encryption buffer is secured in the cache memory of the controller module.

| Caution 🖉 | When the "Setup Encryption Mode" is not displayed in the menu, the encryption function is not available. |
|-----------|---|
| | Encryption related functions are only available after enabling encryption mode. |
| | When disabling the encryption mode, reboot the ETERNUS DX60/ DX80. |
| | The encryption buffer capacity for each controller module (CM0/CM1) is 76MB for ETERNUS DX60, and 230MB for ETERNUS DX80. |
| | Once encrypted, volumes cannot be changed to non-encrypted volumes. |
| | When disabling the encryption mode, delete all the encrypted volumes and volumes being encrypted in advance. |
| | Encryption function cannot be used under the following conditions: |
| | Encrypted volumes exist |
| | - Volumes being encrypted exist |
| | - The cache memory capacity for all the controller modules in the ETERNUS DX60/DX80 is not the same |
| | Required cache memory capacity cannot be secured for enabling the encryption mode |

The procedure to setup encryption mode is as follows:

Procedure

- 1 Click the [Setup Encryption Mode] under the [System Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Encryption Mode] screen appears.

2 Select whether to "Enable" or "Disable" encryption mode, and click the [Set] button.

| etup Encryption Mode | | |
|---|-----|---|
| Encryption feature is enabled for this storage system. Once the feature is enabled, encrypted volumes can be created. | | |
| Notice | | |
| 1. The storage system must be power cycled in order to disable Encryption mode. | | 1 |
| | | |
| Setup Encryption Mode | | |
| Encryption Mode G Enable C Disable | |] |
| | | 1 |
| | | 1 |
| | | 1 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | 1 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Set | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The encryption mode is set.



6.4.4 Change Box ID

The [Change Box ID] function changes the Box ID that identifies an ETERNUS DX60/DX80 in the user system.

Box ID is used as information to identify the ETERNUS DX60/DX80 from applications connected to the ETERNUS DX60/DX80. The initial Box ID is a device ID that is created by combining device information (series name, model, serial number, etc.).

If upgrading or replacing the ETERNUS DX60/DX80, the existing Box ID will change with the ETERNUS DX60/DX80 change. Therefore, there is a risk that the backup data saved in the previous ETERNUS DX60/DX80 cannot be used, so it is necessary to reconfigure the user system after the ETERNUS DX60/DX80 is upgraded or replaced. This function changes the device BOX ID to the same ID as that of the previous ETERNUS DX60/DX80 in order to avoid any problems and also use the same backup data in the new device.



- A Box ID is a unique name in the user system. Make the Box ID different from that of other ETERNUS Disk storage systems in the user system. If the Box ID is not changed, the Device ID is used as a Box ID.
- You cannot change the Box ID during Advanced Copy or RAID migration.

The procedure to change Box ID is as follows:



- 1 Click the [Change Box ID] under the [System Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Change Box ID] screen appears.
- **2** Input the Box ID and click the [Set] button.

Set the Box ID with 40 characters.

Alphabetic characters (upper case), numerals, blanks, and hash key characters (#) can be used.



- In the following conditions, a Box ID cannot be set.
 - When a Box ID is not entered
 - When the input value of a Box ID is less than 40 characters
 - When the entered value of a Box ID is not alphabetic characters (upper case), numerals, blanks, or hash key characters (#)



| ange Box ID | | |
|--------------|--|---|
| formation | uniqué idéntifiér for the storage system used for Advanced Copy function can de mounieu. | T |
| 🗐 Box ID's m | ust be exactly 40 characters long and only capital letters, numbers, spaces and # symbols may be used. | |
| et Box ID | | á |
| Box ID | 00ETERNUSDXL##ET08F21A####JN000000000## | |
| | | - |
| | | |
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 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The specified Box ID is registered.

End of procedure

6.4.5 Setup Power Management

The [Setup Power Management] function connects the external input device and controls (shuts down) the ETERNUS DX60/DX80 power.

| DX60/DX80 is required. Refer to "ETERNUS DX60/DX80 Disk storage system User Guide" for details. If this function is enabled by mistake, the ETERNUS DX60/DX80 may shut down unexpectedly. |
|--|
|--|



The procedure to setup power management is as follows:

Procedure

- 1 Click the [Setup Power Management] under the [System Settings] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Power Management] screen appears.
- **2** Specify the following items, and click the [Set] button.
 - Enable

Select the controller module to enable power management by an external input device (both checkbox can be selected at the same time).

- CM#0
- CM#1



When the ETERNUS DX60/DX80 has only one CM, CM#1 cannot be selected.

Delay until Shutdown (min.)

Set the delay time before starting shutdown after receiving a battery low signal between 0 and 15 (minutes).

- Set management unit interface
 Select the device connecting via RS232C interface.
 The "Manual" setting is for particular use, thus should not be used during normal operation.
 - Power Synchronized Unit
 - PMAN
 - Manual
- Power Failure Signal

Select the signal logic for power failure signal when the power failure occurs (Positive: positive logic, Negative: negative logic).

Low Battery Signal

Select the signal logic for a low battery signal when a low battery charge occurs (Positive: positive logic, Negative: negative logic).

UPS Shutdown Signal

When enabling the UPS shutdown signal, check the "Enable" checkbox. Also, select the signal logic for UPS shutdown signal (Positive: positive logic, Negative: negative logic).



| | Ingured here. | |
|----------------------------|---|--|
| tdown by External Power N | nagement Unit | |
| able | CM#0 CM#1 | |
| elay until Shutdown (min.) | 0 🗸 | |
| et management unit interfa | C Power Synchronized Unit O PMAN O Manual | |
| ower Failure Signal | @ Positive | |
| ow Battery Signal | @ Positive | |
| DC Chutdown Cignol | Enable | |
| P 5 Shutuown Signal | Positive Negative | |
| | | |
| | | |
| | | |
| | | |
| | | |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The power management setting is set.



Host I/F Management 6.5

Host I/F Management provides the following host connection related functions.

- Set Port Parameters
- Setup Host
- Setup Host Response
- Modify Reset Group

ETERNUS DX60/DX80 can relate the Logical Unit Number (LUN) of the host to volumes in the device, and set or limit the volume that is recognized from the host.

Host Affinity relates the LUN and volume to each interface port connected in the host.

When using Host Affinity function

The [Host I/F Management] is used when connecting multiple servers via a switch. The server recognizes the affinity group specified for each Host Bus Adapter (HBA). By restricting the volumes can be recognized from each server, security improvement is expected.

The following shows a basic concept for affinity group.



Apply Affinity Group #00 for the access from HBA#A (=Server A) and HBA#B (=Server B)

Apply Affinity Group #01 for the access from HBA#C(=Server C)



When Host Affinity function is not used

When the host affinity function is not used, the server recognizes the volume related to LUN in each ETERNUS DX60/DX80 port.

This method is suitable for connecting the server and ETERNUS DX60/DX80 directly. The following shows a basic concept when the same volume is LUN mapped to each port.



The following shows a basic concept when different volumes are LUN mapped to each port.



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6.5.1 Set Port Parameters

The [Set Port Parameters] function sets the connecting information for ports to connect to the server.

There are three types of Host I/F; FC, iSCSI, and SAS. Procedures to set port parameters varies depending on the Host I/F types.

Caution When the Host Affinity function is enabled, use the [Setup Host] function to set the host response for each host. When the Host Affinity function is disabled, use the [Set Port Parameters] function to set the host response for each port.



For details, refer to "ETERNUS Disk storage systems Server Connection Guide" for each operating system.

Set FC Port Parameters

The [Set FC Port Parameters] function sets the connection information between the FC port of the ETERNUS DX60/DX80 and host (FC port parameters). The procedure to set FC port parameters is as follows:

Procedure

- 1 Click the [Set FC Port Parameters] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Set FC Port Parameters] screen appears.
- **2** Specify the following items, and click the [Set] button.
 - Port
 - Select the target port.
 - Connection

Select the connection method for the target port from the "Fabric" or "FC-AL". The default setting is "FC-AL". When "FC-AL" is selected, it is necessary to assign a Loop-ID to the port.

- Set Loop ID When the "Connection" is "FC-AL", select "Manual" or "Auto" to specify the Loop ID.
- Loop ID

When the "Set Loop ID" is "Auto", select "Ascending" or "Descending".

When the "Set Loop ID" is "Manual", specify the Loop ID (last 2 digits of 0x00 to 0x7D).



- Transfer Rate
 - Select the transfer speed from the following:
 - For 4Gbps models
 - Auto Negotiation
 - 1Gbps
 - 2Gbps
 - 4Gbps
 - For 8Gbps models
 - Auto Negotiation
 - 2Gbps
 - 4Gbps
 - 8Gbps
- Frame Size

Select the frame size of the target port according to the destination server or switch (2,048Byte, 1,024Byte, or 512Byte).

Host Affinity

Select whether to "Enable" or "Disable" the host affinity function for the target port. Select "Enable" when restricting access per server (when connecting via switches). When the switch is not connected (directly connected to the ETERNUS DX60/DX80), select "Disable".

Host Response

When the "Host Affinity" is "Disabled", select the host response to allocate to the target port.

- Default

The initial pattern is displayed. Sense information is not converted.

 Host Response (Number:Name) Identification number of the host response registered in the ETERNUS DX60/DX80 is displayed.

When the host response name is registered, it is also displayed.

Reset Scope

Select the reset scope from "I_T_L" or "T_L". The default setting is "I_T_L". Reset scope is the range where the command reset request from the server is performed, when the port is connected to multiple servers.

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN) Reset (cancel) the command request from all servers that are connected to the port (regardless of whether the LUN is recognized).
- Release Reservation if Chip is Reset Select whether to "Enable" or "Disable" the function to release the volume's reserved status when the target port (chip) is in Reset status.



| port parameters are changed. | |
|----------------------------------|--------------------------------------|
| ort Settings | |
| Port | CM#0 Port#0 💌 |
| Connection | Fabric O FC-AL |
| Set Loop ID | C Manual C Auto |
| Loop ID | Ascending 🔽 |
| Fransfer Rate | Auto Negotiation 💌 |
| Frame Size | 2048bytes - |
| Host Affinity | Enable C Disable |
| Host Response | 0:Default |
| Reset Scope | OLTL OTL |
| Poloaco Reconvation if Chin is P | anat C Fachia C Disable |
| Release Reservation in Chip is R | esen C'Enable (* Lisadoe |
| neeuse neservauori ir unių is n | esen C'Enaple ^(e) Lisable |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The FC port parameters are set.

End of procedure

Set iSCSI Port Parameters

The [Set iSCSI Port Parameters] function sets the connection information between the iSCSI port of the ETERNUS DX60/DX80 and host (iSCSI port parameters).

| Caution | Each port must have a unique IP address. The same IP address cannot be set again in the ETERNUS DX60/DX80. |
|---------|---|
| | An iSCSI name is a unique name in the ETERNUS DX60/DX80. The same iSCSI name cannot be specified for multiple iSCSI ports. However, the same iSCSI name has been specified for all ports by default (only the default value can be same). When these name must be recognized separately, change the iSCSI names. For multipath connection, iSCSI names must be changed. |



The procedure to set iSCSI port parameters is as follows:

Procedure

- 1 Click the [Set iSCSI Port Parameters] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Set iSCSI Port Parameters] screen appears.
- **2** Specify the following items, and click the [Set] button.
 - Port Select the target port.
 - IP Address Specify the IP address for the target port (required).



Click the [Test Connection (ping)] button to display the [Send ping Command] screen. Specify the IP address of the connection destination device whose connection status is to be checked and number of execution, and click the [Send] button. Sending the "ping" command enables you to check whether the IP address is allocated correctly, and connection path to the destination device is normal.

Subnet Mask

Set the subnet mask for the target port (required).

- Default Gateway Set the default gateway for the target port.
- iSNS Server

Select wether to use the iSNS server in the target port.

When "Enable" is selected, specify the IP address for the iSNS server.



Internet Storage Name Service (iSNS) is almost equivalent to Domain Name System (DNS) for the Internet. iSNS server is used to convert the iSCSI name to the IP address on the iSCSI network.

iSCSI Name

Set the iSCSI name for the target port. Up to 233 alphanumeric characters and symbols ([!], [-], [_], [_]) can be used. Click the [Default] button to set the default iSCSI name.



An iSCSI name is a unique name in the ETERNUS DX60/DX80. The same iSCSI name cannot be set to multiple iSCSI port except the device iSCSI name.

Alias Name

Set the alias name for the target port. Up to 31 alphanumeric characters and symbols (including blanks) can be used.

While the iSCSI name is a formal nomenclature that specifies the target iSCSI port, an alias name is used as nickname.



Host Affinity

Select whether to "Enable" or "Disable" the Host Affinity function for the target port. Select "Enable" when restricting access per server (when connecting via switches). When the switch is not connected (directly connected to the ETERNUS DX60/DX80), select "Disable".

Host Response

When the "Host Affinity" is "Disabled", select the host response to allocate to the target port.

- Default
 - The initial pattern is displayed. Sense information is not converted.
- Host Response (Number: Name)

Identification number of the host response registered in the ETERNUS DX60/DX80 is displayed.

When the host response name is registered, it is also displayed.

Reset Scope

Select the reset scope from "I_T_L" or "T_L". The default setting is "I_T_L". Reset scope is the range where the command reset request from the server is

- performed, when the port is connected to multiple servers.
 - I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
 - T_L (T: Target, L: LUN) Reset (cancel) the command request from all servers that are connected to the port (regardless of whether the LUN is recognized).
- Release Reservation if Chip is Reset Select whether to "Enable" or "Disable" the function to release the volume's reserved status when the target port (chip) is in Reset status.
- CHAP

Select "ON" when enabling CHAP authentication (Bidirectional CHAP) for the target port. To disable, select "OFF".

For CHAP Authentication, an encrypted password based on a random key that the ETERNUS DX60/DX80 receives from the host is sent, and connection possibility is judged on the server side.

CHAP User Name

When "ON" is selected for "CHAP", specify the user name that accesses the target port. Up to 255 characters of alphanumeric characters and symbols (including blanks) can be used.

This setting is required when CHAP authentication is used.

Make sure to set the user name and password in pairs.

Change CHAP Password

When changing the CHAP password, select the checkbox. This checkbox can only be selected when "ON" is selected for "CHAP" and the password has already been set.

Password

Specify the password for the currently specifying "Chap User Name".

New Password

When "ON" is elected for "CHAP", specify the password that accesses the target port. Between 12 and 100 alphanumeric characters and symbols (including blanks) can be used.

Make sure to set the user name and password in pairs.



Confirm New Password

Input the same character strings as the value entered in the "New Password" field for confirmation.

Header Digest

Select "OFF" when not adding Header Digest of the target port. When adding, select "CRC32C". Header Digest is a check code to be added to the header part of the iSCSI port detailed information.

Specify "CRC32C" when the host requests to add the check code. "CRC32C" is algorithmic to create a check code.

Data Digest

Select "OFF" when not adding Data Digest of the target port. When adding, select "CRC32C". Data Digest is a check code to be added to the data area of the iSCSI port detailed information.

Specify "CRC32C" when the host requests to add the check code. "CRC32C" is algorithmic to create a check code.

[Set iSCSI Port Parameters] screen (1/2)

| Select Port | | | | | | | | |
|---|--|--|-------------------------------------|--------------------------|----|------|------|--|
| Port CM#0 | PORT#0 | | | | | | | |
| Type (SCS) | | | | | | | | |
| 1,000 | | | | | | | | |
| CP/IP Settings | i | | | | | | | |
| IP Address * | 192 168 | . 64 | Test Conne | ection (ping) | | | | |
| Subnet Mask | * 255 255 | 55 0 | | | - | | | |
| Default Gates | way 192 168 | 99 | | | | | | |
| Derount Goter | @ Enable C Disab | | | | | | | |
| | C Lindule C Dibdu | | | | | | | |
| ISNS Server | 192 189 2 | 00 | | | | | | |
| ISNS Server | 192 . 168 . 2 | . 88 | | | | | | |
| ISNS Server | 192 . 168 . 2 | . 88 | | | | | | |
| SCSI Settings | 192 . 168 . 2 | . 88 | | | | | | |
| SCSI Settings | 192 . 168 . 2 | 88 | 0000000 | Default | | | | |
| ISN'S Server | iqn.2000-09.com.fujitsu (Default-ISCSI Name.iqu | storage-system.dd: | 00000000 u:storage-system | Default | 0) | | | |
| ISN'S Server | 192 . 168 . F iqn.2000-09.com.fujitsu (Default-ISCSI Nameliqu | storage-system.dxl 2000-09.com.fujits | 0000000 ustorage-system | Default m.dxl:0000000 | 0) | | | |
| ISN'S Server | 192 . 168 | storage-system.dxl 12000-09.com.fujits | 0000000 u:storage-system | Default m.dxl:0000000 | 0) | | | |
| ISNS Server SCSI Settings ISCSI Name Alias Name | 192 . 168 | storage-system.ddl 12000-09.com.fujits | 0000000 ustorage-system | Default m.dxl:0000000 | 0) | | | |
| ISNS Server SCSI Settings ISCSI Name Alias Name General Setting Host Affinity | 192 . [168 . [2 Ign 2000-09.com fujitsu (Default-ISCS) Name ign Is | storage-system.dki 12000-09.com.fujits | 20000000 Istorage-system | Default m.dxl:0000000 | 0) | | | |
| ISNS Server SCSI Settings ISCSI Name Alias Name General Setting Host Affinity Host Respon | 192 . [168] [on 2000-09 com fujitsu (Default-ISCSI Name ign Is Se | Storage-system.dxl 2000-09.com.fujits C.Enable @ Dis: 0.Default = | 20000000 Istorage-system able | Default | 2) | | | |
| ISNS Server SCSI Settings ISCSI Name Alias Name eneral Setting Host Affinity Host Respon Reset Scope | 192 . [168 . [Ign 2000-09.com fujitsu (Default-ISCSI Name ign Is Se | storage-system dd. 2000-09 com tujits C Enable @ Dis. Defauit @ C LT_L C T_L | 0000000 uistorage-system able | Default m.dxl:0000000 | 2) | | | |

• [Set iSCSI Port Parameters] screen (2/2)

| 0.01.0 - 11/ | | |
|------------------------|--|---|
| CSI Settings | | |
| iSCSI Name (Default- | ≻09.com.fujitsu:storage-system.dd:00000000 Default ISCSI Name ign.2000-09.com.fujitsu:storage-system.dd:00000000) | |
| Alias Name | | |
| eneral Settings | | í |
| Host Affinity | C Enable @ Disable | |
| Host Response | 0 Default 💌 | |
| Reset Scope | ®LT_L OT_L | |
| Release Reservation if | Chip is Reset © Enable C Disable | |
| ecurity | | |
| CHAP | C ON @ OFF | |
| CHAP User Name | user01 | |
| Change Password | n | |
| Password | | |
| New Password | | |
| Confirm new Password | 3 | |
| Header Digest | © OFF C CRC32C | |
| Data Digest | © OFF C CRC32C | |
| Data Digest | | |

 \rightarrow A confirmation screen appears.



3 Click the [OK] button.



 \rightarrow The iSCSI port parameters are set.

End of procedure

Set SAS Port Parameters

The [Set SAS Port Parameters] function sets the connection information between the SAS port of the ETERNUS DX60/DX80 and host (SAS port parameters). The procedure to set SAS port parameters is as follows:

Procedure

1 Click the [Set SAS Port Parameters] under the [Host I/F Management] menu on the [Global Settings] tab.

 \rightarrow The [Set SAS Port Parameters] screen appears.

- **2** Specify the following items, and click the [Set] button.
 - Port
 - Select the target port.
 - Host Affinity

Select whether to "Enable" or "Disable" the Host Affinity function for the target port. Select "Enable" when restricting access per server (when connecting via switches). When the switch is not connected (directly connected to the ETERNUS DX60/DX80), select "Disable".

Host Response

When the "Host Affinity" is "Disabled", select the host response to allocate to the target port.

- Default

The initial pattern is displayed. Sense information is not converted.

- Host Response (Number: Name)

Identification number of the host response registered in the ETERNUS DX60/DX80 is displayed.

When the host response name is registered, it is also displayed.

Reset Scope

Select the reset scope from "I_T_L" or "T_L". The default setting is "I_T_L". Reset scope is the range where the command reset request from the server is performed, when the port is connected to multiple servers.

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN)

Reset (cancel) the command request from all servers that are connected to the port (regardless of whether the LUN is recognized).



- · Release Reservation if Chip is Reset
- Select whether to "Enable" or "Disable" the function to release the volume's reserved status when the target port (chip) is in Reset status.

| Set SAS Port Parameters | |
|--------------------------------------|--------------------|
| Port Settings | |
| Port | CM#0 Pont#0 • |
| Host Affinity | C Enable 💿 Disable |
| Host Response | 0.Default 💌 |
| Reset Scope | © LT_L OT_L |
| Release Reservation if Chip is Reset | C Enable |
| | |
| | Set |

- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The SAS port parameters are set.

End of procedure

6.5.2 Setup Host

The [Setup Host] function registers the HBA information to the ETERNUS DX60/DX80. By registering HBA information, access to the volumes in the ETERNUS DX60/DX80 is restricted, and connections from servers with unregistered hosts are not allowed (when the Host Affinity function is enabled).

There are three types of Host I/F; FC, iSCSI, and SAS. The required setting varies depending on the Host I/F type.



| Caution 🖉 | This setting is not needed when the Host Affinity function is not used. When deleting the currently running host, the access from the target host must be stopped. To set a new host, it is not necessary to stop host access. |
|-----------|---|
| | When deleting host information, the settings for the affinity group and LUN mapping that are associated with the host must be disabled in advance. |
| | When using the Host Affinity functions, make sure to "Enable" the Host Affinity setting of the port using the [Set Port Parameters] function. |
| | |
| N o t e | For details, refer to "ETERNUS Disk storage systems Server Connection Guide" for each operating system. |

Setup FC Host

The [Setup FC Host] function registers the FC information of the HBAs installed in the FC host to be connected to the ETERNUS DX60/DX80.

Caution Up to 16 FC hosts (HBAs) per port can be connected for ETERNUS DX60. For ETERNUS DX80, up to 32 FC hosts per port can be connected.

The procedures to set the FC Host (register) are as follows:

Procedure

1 Click the [Setup FC Host] under the [Host I/F Management] menu on the [Global Settings] tab.

 \rightarrow The [Setup FC Host] screen appears.

2 Click the [Add] button.

| tice | | | | | |
|-------------|---------------------------|--|---|----------|---|
| 1. If any i | nformation regarding acti | e hosts is being modified or deleted please stop | any access from the corresponding host server | 5. | |
| egistered | FC Host List | | | | |
| | Name | WWN | Host Response | Status | |
| | 0:server1 | 00000000C9457CA8 | 0:Default | Active | - |
| F - | 1:server2 | 00000000C9457CA7 | 0:Default | Inactive | + |
| Add | Edit: De | lete Delete All | | | |
| | | | | | |
| | | | | | |
| | | | | | |

 \rightarrow The "Add New FC Host" field is displayed.



- **3** Specify the following items, and click the [OK] button.
 - FC Port

The list of FC port existing in the ETERNUS DX60/DX80 is displayed.



When the fibre channel switch is connected to the ETERNUS DX60/DX80, settings between the fibre channel switch and server (FC host) must be completed in advance.

• WWN

Select the WWN, or directly input a WWN (required). 16 capital letters and numerals can be used.

Name

Specify the FC Host Name (required). Up to 16 alphanumeric characters and symbols (including blanks) can be used.

Host Response

Specify the host response for the target host (required).

| If lany information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. egistered FC Host List Oserver1 00000000059457CA8 0:Default Active Add Edit Delete All Comparison of the contracter of the contracter blank sign)) Mare Server2 (1-16 characters(alphanumeric character blank sign)) Mare Server3 (1-16 characters(alphanumeric character blank sign)) Mare Server3 (1-16 characters(alphanumeric character blank sign)) Mare Server3 (1-16 characters(alphanumeric character blank sign)) | ofice | n used to enable acces | s for HC Interfaces is defined here. | | | |
|--|-----------------|--------------------------|--|---|--------|----|
| egistered FC Host List Name WWN Host Response Status 0.server1 0000000059457CA3 0.Default Active Image: Control of Co | 1 If any inf | ormation regarding activ | e hosts is being modified or deleted please stop | any access from the corresponding host server | s. | |
| Keystered FC Host List Name WWN Host Response Staus 0 server1 0000000029457CA8 0.Default Active Inactive | | | | | | |
| Name WWN Host Kesponse Status 0:server1 0000000002457CA8 0:Default Active | legistered FC | Host List | | | 1200 | |
| USeren U00000000457CA3 UDefault Active 1:server2 000000000457CA7 0.Default Inactive Add Edit Defete Defete All | _ | Name | WWN | Host Response | Status | |
| Add Edit Delete Delete Delete Add Edit Delete Delete Delete MNW FC Host FC Port CIM#0 Por#0 • 00000000026457CA6 • Re-Discover WWN WWN • 00000000026457CA6 (16 characters) Name * server2 (1 - 16 characters(alphanumeric character blank sign)) Lott Response * 0 Default • OK Cancel | - | U:server1 | 000000000000457CA8 | 0:Default | Active | - |
| Add Edit Delete Delete All kdd New FC Host | | | | 0.Delaun | macave | * |
| Add New FC Host FC Port CIM#0 Port#0 P | Add | Edit De | lete Delete All | | | |
| Hest Response * 0 Default OK) Cancel | WWN * Name * | 00000000C945 server2 | 7CA6 (16 characters) (1 - 16 characters (alphanumeric character | r blank sign)) | | |
| | OK Can | onse * 0:Default 💌 | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | Se |

 \rightarrow The target FC host is added in the "Registered FC Host List".





When changing or deleting the FC host settings, select the target FC host in the "Registered FC Host List" field, and click the [Edit] or [Delete] button.

When deleting all the registered FC hosts, click the [Delete All] button.



4 Click the [Set] button.

| ip FC Hos | t | | | | |
|---------------|---------------------------|--|---|----------|---|
| st Informatio | on used to enable access | s for FC interfaces is defined here. | | | |
| otice | | | | | |
| 1 If any in | formation regarding activ | e hosts is being modified or deleted please stop | any access from the corresponding host server | S. | |
| egistered F | C Host List | | | | |
| | Name | WWN | Host Response | Status | |
| | 0:server1 | 0000000C9457CA8 | 0:Default | Active | - |
| | 1:server2 | 0000000C9457CA7 | 0:Default | Inactive | |
| | 2:server3 | 0000000C9457CA6 | 0:Default | Inactive | - |
| Add | Edit Del | ete Delete All | | | |
| | | | | | |
| | | | | | |
| | | | | | |

 \rightarrow A confirmation screen appears.

5 Click the [OK] button.



 \rightarrow The FC host is set (registered).



Setup iSCSI Host

The [Setup SAS Host] function registers the SAS information of the Host Bus Adapters (HBAs) installed in the SAS host to be connected to the ETERNUS DX60/DX80.

For iSCSI connection, configure the server as an iSCSI initiator (the host that sends commands), and the ETERNUS DX60/DX80 as an iSCSI target (the device that executes the commands). Authentication is performed using the iSCSI name in each session between an initiator and target. CHAP Authentication, which matches the user name and password, can be performed in this phase.

| Caution | Up to 16 iSCSI hosts (HBAs) per port can be connected for ETERNUS |
|---------|---|
| | DX60. For ETERNUS DX80, up to 32 iSCSI hosts per port can be |
| | connected. |

The procedures to set the iSCSI Host (register) are as follows:

Procedure

- 1 Click the [Setup iSCSI Host] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Setup iSCSI Host] screen appears.
- **2** Click the [Add] button.

| sist information used to enable access for ISCSI interfaces is defined here. otice ▲ If any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. egistered ISCSI Host List Unne ISCSI Name IP Address Host Response Alias Name CHAP User ID Sta Add Edit Delete ATI | |
|---|----|
| otice | |
| A It any information regarding active hosts is being modified or deleted please stop any access from the corresponding host servers. gistered ISCSI Host List Itage ISCSI Name IP Address Host Response Alias Name CHAP User ID St Add Cent Delete All | |
| egistered ISCSI Host List IsCSI Hame IP Address Host Response Alias Name CHAP User ID St Add Edit Delete All | |
| Liane IP Address Host Response Alias Name CHAP User ID St Add Edit Delete Delete All | |
| Ad Edit Defer All | |
| Ad Uniter Deteroin | 11 |
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- \rightarrow The "Add New iSCSI Host" field is displayed.
- **3** Specify the following items, and click the [OK] button.
 - iSCSI Port The list of iSCSI port existing in the ETERNUS DX60/DX80 is displayed.
 iSCSI Name
 - Select the iSCSI Name, or directly input the iSCSI Name (required). Between 4 and 223 alphanumeric characters and symbols can be used.





 \rightarrow The target iSCSI host is added in the "Registered iSCSI Host List".

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When changing or deleting the iSCSI host settings, select the target iSCSI host in the "Registered iSCSI Host List" field, and click the [Edit] or [Delete] button.

When deleting all the registered iSCSI hosts, click the [Delete All] button.

| ine. | | | | | | | |
|---------|--|---|--|--|---|---|---|
| | ISCSI Name | IP Address | Host Response | Alias Name | CHAP User ID | Status | |
| server1 | ign.2009-10.sample.com.iscei.123412341234123412341234-10 | 192.168.1.48 | 0.Default | Tanks Control | and contract | Inactive | 10 |
| server2 | Ign 2009.10 sample com iscsi.123412341234123412341234-11 | 192.168.1.44 | 0.Default | | | Inactive | - |
| | Edit Delete Delete Al | | | | | | - |
| | | | | | | | |
| | | | | | | | |
| | server2 | entern og 4200-00.3 miljøren (m. 1241-241-1241-241-241-241-241-241-241-24 | entern og utor 0.3 angere kom 1997 1994 1294 1294 1294 1294 1294 1294 1294 | entern of 2000-00380000000000000000000000000000000 | enerri (g. 2006) Dosande con 1361, 1241,2241,2341,2341,2341,2341,2341,2341, | entern frag 2000 10.3 migra 2011 (2011 2012 2012 2012 2012 2012 201 | enery of y 2009 (Davade zon Englis 241241241241241241) 192168.144 ODefault Inactive Edit Devide All |

4 Click the [Set] button.

| Info | rmation user | d to enable access for iSCSI interfaces is defined here. | | | | | | |
|------|-----------------|--|-------------------|----------------------|------------|--------------|----------|------|
| ce | | | | | | | | |
| If | any information | ion regarding active hosts is being modified or deleted please stop an | y access from the | e corresponding host | servers. | | | |
| | | | | | | | | _ |
| ste | realisesing | ost List | - North North | | 100 | | | |
| | Name | iSCSI Name | IP Address | Host Response | Alias Name | CHAP User ID | Status | int. |
| 1 | 0:server1 | iqn.2009-10.sample.com.iscsi.1234123412341234123412341234-10 | 192.168.1.48 | 0:Default | | | Inactive | 1 |
| | Add | Edit Delete Delete All | | | | | | |
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| _ | | | | | | | | |

- \rightarrow A confirmation screen appears.
- **5** Click the [OK] button.



 \rightarrow The iSCSI host is set (registered).



Setup SAS Host

The [Setup SAS Host] function registers the SAS information of the Host Bus Adapters (HBAs) installed in the SAS host to be connected to the ETERNUS DX60/DX80.

Caution Up to one SAS host (HBAs) per port can be connected.

The procedures to set the SAS Host (register) are as follows:

Procedure

- 1 Click the [Setup SAS Host] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Setup SAS Host] screen appears.

2 Click the [Add] button.

| p avea moac | | | | |
|-----------------------------------|---|--|----------|---|
| it information used to enable acc | ess for SAS interfaces is defined here. | | | |
| tice | | | | |
| 1 If any information regarding a | tive hosts is being modified or deleted please stop | any access from the corresponding host servers | í. | |
| | | | | |
| egistered SAS Host List | | | | |
| Name | SAS Address | Host Response | Status | |
| 0:server1 | 500605B0000604F4 | 0:Default | Inactive | 1 |
| Add Edit C | Belete Delete All | | | _ |
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- \rightarrow The "Add New SAS Host" field is displayed.
- **3** Specify the following items, and click the [OK] button.
 - SAS Port
 - The list of SAS port existing in the ETERNUS DX60/DX80 is displayed.
 - SAS Address

Select the SAS address, or directly input a SAS address (required). 16 capital letters and numerals can be used.

Name

Specify the SAS Host Name (required). Up to 16 alphanumeric characters and symbols (including blanks) can be used.

 Host Response Specify the host response for the target host (required). Refer to "ETERNUS Disk storage systems Server Connection Guide (SAS)" for details.



| 1 any info | rmation regarding activ | re hosts is being modified or deleted please stop | any access from the corresponding host server | 6 | |
|---|---|--|---|----------|---|
| tegistered SA | S Host List | | | | |
| | Name | SAS Address | Host Response | Status | |
| m | 0:server1 | 5006050000604F4 | 0:Default | Inactive | 1 |
| #dd | Edit. De | lete Delete All | | | |
| Add New SAS | Host | | | | |
| | | 1 | | | |
| SAS Port | CM#0 Port#0 · | | | | |
| SAS Port | CM#0 Port#0 * | Discover | | | |
| SAS Port | CM#0 Port#0 * | 4F3 (16 characters) | | | |
| SAS Port SAS Addres Name* | CM#0 Port#0 • s* 5006058000060 server2 | 4F3 (16 characters) (1 - 16 characters(alphanumeric character | rblank sign)) | | |
| SAS Port SAS Addres Name* Unit Respo | C M#0 Port#0 • s* 5006059000060 server2 mse* 0:Default • | 4F3 (16 characters) (1- 16 characters(alphanumeric character | r blank sign)) | | |
| SAS Port SAS Addres Name* Heat Respo OK | CM#0 Pont#0 ¥ \$* 5006059000060 server2 mse* 0:Default ¥ el | Discover (1 - 16 characters) (1 - 16 characters(alphanumeric character | r blank sign)) | | |
| SAS Port SAS Addres Name* Unot Respo | Ctte0 Port#0 • 5005058000060 server2 mse* 0.Default • el | Discover Discover (1 - 16 characters(alphanumeric character | r blank sign)) | | |
| SAS Port SAS Addres Name* Jest Respo | Chief0 Ponte0 v is* 5006058000060 server2 mse* 0.Default v el | Discover Discover (1 - 16 characters(alphanumeric characters) | rblank sign)) | | |
| SAS Port SAS Addres Name* Heat Respo OK | Chief0 Ponte0 v is* 5006058000060 server2 mse* 0.Default v el | | rblank sign)) | | |
| SAS Port SAS Addres Name* Meet Respo OK | Chief0 Ponte0 v s* 5006056000060 server2 nse* 0.Default v el | Image: Second of the | r blank sign)) | | |
| SAS Port SAS Addres Name* Vect Respo | CAMEO PorteO \$* SOOBOSBOOOBEO server2 mse* 0.Default el | 4F3 (1 - 16 characters) (1 - 16 characters(alphanumeric character | r blank sign)) | | |
| SAS Port SAS Addres Name* Het Respo OK | CAREO PorteO - s* 5006056000000 server2 mse* 0 Defsuit - el | 4F3 (1 - 16 characters) (1 - 16 characters(alphanumeric character | r blank sign)) | | |

 \rightarrow The target SAS host is added in the "Registered SAS Host List".



When changing or deleting the SAS host settings, select the target SAS host in the "Registered SAS Host List" field, and click the [Edit] or [Delete] button.

When deleting all the registered SAS hosts, click the [Delete All] button.

| | Name | SAS Address | | and the second | |
|------|------------|------------------|---------------|----------------|----|
| | Repart | 500805000060454 | Rest Response | Status | |
| 2 | 1:server2 | 500605B0000604F3 | 0:Default | Inactive | 12 |
| hite | Edit Delet | n Dekta Al | | | - |
| 100 | | | | | |
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4 Click the [Set] button.

| setup SAS no | st | | | | |
|-----------------|--------------------------|--|--|----------|-----|
| Host Informatio | in used to enable acces | s for SAS interfaces is defined here. | | | |
| Notice | | | | | |
| A If any inf | ormation regarding activ | a bacto io boing madified or delated places step | any accord from the corresponding bact convers | | |
| | unnation regarding activ | e nosis is being nounied of deleted please stop | any access normine conesponding nost servers | | |
| | | | | | |
| Registered S. | AS Host List | | | | |
| | Name | SAS Address | Host Response | Status | |
| | 0:server1 | 500605B0000604F4 | 0:Default | Inactive | ~ |
| | 1:server2 | 500605B0000604F3 | 0:Default | Inactive | - |
| 0 did | | Into Delete All | | | |
| AUG | Eur De | Derete All | | | |
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| | | | | | Set |

- \rightarrow A confirmation screen appears.
- **5** Click the [OK] button.



 \rightarrow The SAS host is set (registered).

6.5.3 Setup Host Response

The [Setup Host Response] function adds, changes, and/or deletes the Host Response settings, which is the information added to the response to the server.

By specifying the correct host response, it prevents the following conditions:

- Server cannot recognize the ETERNUS DX60/DX80 when connecting
- Server cannot take appropriate measures against an ETERNUS DX60/DX80 error

For more details about setting the Host Response for each OS type, refer to "ETERNUS Disk storage systems Server Connection Guide".

| Caution 🖉 | If the Host Response is not changed, the default pattern provided by the ETERNUS DX60/DX80 is assigned. If a host response item is in use by a port or host, release it from the port or host (by associating them with the default host response) before editing or deleting the host response. Up to 256 Host Responses can be set. |
|-----------|---|
| | |
| Note | The target to be assigned to the Host Response varies depending on whether the Host Affinity function is used or not used. |
| | When the Host Affinity function is used. |
| | Set the Host Response per server HBA (Refer to <u>"6.5.2 Setup Host"</u> (page 202)). |
| | When the Host Affinity function is not used. Set the Host Response per port (Refer to <u>"6.5.1 Set Port Parameters"</u> (page 195)). |

The procedure to add the host response is as follows:

Procedure

- 1 Click the [Setup Host Response] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Setup Host Response] screen appears.

2 Click the [Add] button.

| | | Response" here which can be assigned to in- | dividual hosts or ports. | |
|------------------|-----------------------------------|--|----------------------------------|---|
| ice | | | | |
| When this Hos | Response delete it used in the ho | st and the port under operation, please releas | se the Host Response beforehand. | |
| | | | | |
| st Response List | | | | |
| | No. | Name | Status | |
| | 0 | Default | Active | |
| Add | Edit Delete Delete Al | 11 | | _ |
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 \rightarrow The "Edit Host Response" field is displayed.



- **3** Specify the following items, and click the [OK] button.
 - Response No.

Host response identification number is displayed.

Response Name

Enter the host response name (may be omitted). Up to 16 alphanumeric characters and symbols (including blanks) can be used.

Byte-0 of Inquiry Response

Set the value for Byte-0 of the Inquiry command from "No Conversion (Default)" or "Custom".

After the link between the ETERNUS DX60/DX80 and the host is established, the host sends an "Inquiry command" to check the status of the volumes for a certain period of time.

Specify the Byte-0 of the Inquiry data to response this Inquiry command. Byte-0 in the Inquiry data indicates the volume status.

- No Conversion (Default)

Responses with the value specified in the ETERNUS DX60/DX80.

- Custom

When the Byte-0 is "0x20 (configuration is available, unformatted)", converts the Byte-0 value to "0x7f (configuration is not available)" and responses.

Inquiry VPD ID Type

Set the Vital Product Data (VPD) information type to respond to the host.

VPD information includes the device information (Vender ID, Product ID for each model, volume number, etc.) for the volume. Type1 and Type3 indicate the data format.

- Type1 + Type3 (Default)
- Type1
- Type3
- Inquiry Standard Data Version

Specify the Standard Data Version (version number of the SCSI standard) of the Inquiry command.

- Version 5 (Default)
- Version 4
- Version 3
- Command Timeout Interval

Select the setting method for the command timeout interval from the following items.

- Default (25sec.)
- Customize

When "Customize" is selected, input a value between 10 and 255 seconds (numeric).

Load Balance Response

This field sets the response status when an overload-derived timeout is detected. The server retry reaction is determined by this setting.

While the default response should be compatible with all systems, the setting may be changed as required by any problems that occur. Contact your maintenance engineer to change the setting.

- [Disable] Unit Attention (Default)
- [Disable] Busy
- [Disable] Queue Full

Reservation Conflict Response for Test Unit Ready

Select whether to notify or not notify the Reservation Conflict to the "Test Unit Ready" command when volumes from the other host are reserved.

- Normal (Default)
- Conflict
- Change Volume Mapping

Select whether to "No Report (Default)" or "Report" to the host when a volume that can be accessed from the host is added or deleted.

Volume Capacity Expansion

Select whether to "No Report (Default)" or "Report" to the host when the capacity of a volume is changed.

 Vendor Unique Sense Code Select whether to "No Report (Default)" or "Report" the vendor unique sense code to the host.

Vendor Unique Sense indicates the unique sense code for each vendor that is not coincident with host I/O.

Host Specific Mode

Set the operation for specific host.

- Normal (Default)
- AIX Mode
 - Select this to prevent the command initialization and performance degradation.
- HP-UX Mode

Select this to recognize volumes with more than 8LU(s).

- Asymmetric / Symmetric Logical Unit Access
 - Select the access type from the host to Logical Unit.
 - ACTIVE-ACTIVE / PREFERRED_PATH (Default)
 - ACTIVE / ACTIVE
- Sense Data Conversion
 - Select the sense code conversion pattern.
 - No Conversion (Default)
 - Linux Recommended (When not using GRMPD)
 - Select this pattern to prevent malfunction of Linux hosts for which GR Multipath Driver has not been installed.
 - Windows Recommended (When not using GR/ETERNUS MPD or Device Driver) Select this pattern to prevent malfunction of Windows® hosts for which GR/ ETERNUS Multipath Driver, or Device Driver have not been installed.
 - Customize
 - This setting is displayed only when the special sense conversion pattern is specified.

Settings can be checked in the "SK/ASC/ASCQ".

- SK/ASC/ASCQ
 - This field is displayed when "Customize" is selected for the "Sense Data Conversion".
 - SK: Sense Key
 - ASC: Additional Sense Code
 - ASCQ: Additional Sense Code Qualifier

- [Setup Host Response] screen (1/2)

| ace | | | | |
|---|--|--|--|---|
| 4 When this Host F | Response delete it used in the host | and the port under operation, please release the | Host Response beforehand. | |
| ost Response List | | | | |
| | No. | Name | Status | |
| V | 0 | Default | Inactive | 1 |
| | 1 | HR1 | Inactive | |
| E | 2 | HR2 | Inactive | |
| Π. | 3 | HR3 | Inactive | 7 |
| Jit Host Response | | | | |
| dit Host Response | | | | |
| dit Host Response Response No. | 0 | afaadi | | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re | 0 D | efault | | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type | o D Isponse d | efault S No Conversion (Default) C Custom € Tweet + Type3 (Default) C Type1 C Type3 | r. | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type Inquiry Standard D | isponse d t ta Version d | efault S No Conversion (Default) C Custom Type1 + Type3 (Default) C Type1 C Type3 Version 5 (Default) C Version 4 C Version | 3 | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type Inquiry Standard Di Command Timeout | o p p p ta Version interval | Iefault © No Conversion (Default) C Custom © Typet + Type3 (Default) C Type1 C Type3 © Version 5 (Default) C Version 4 C Version © Default (25sec.) C Customize 25 | 3sec. (10 - 255) | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type Inquiry Standard D Command Timeout Load Balance Resp | onse o | Iefault 2 No Conversion (Default) C Custom 3 Type1 + Type3 (Default) C Type1 C Type3 3 Version 5 (Default) C Version 4 C Version 5 Default (25sec) C Customize 2 5 (Disable]Unit Attention (Default) C (Disable]B | 3 | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type Inquiry Standard D. Command Timeout Load Balance Resp Reservation Conflie | Isponse 0 Ista Version 0 Interval 0 Interval 0 Interval 1 Interval 1 Interval 0 Interval 0 Int | efault © No Conversion (Default) C Custom © Type1 + Type3 (Default) C Type1 C Type3 © Version 5 (Default) C Version 4 C Version © Default (25sec.) C Customize © Disable[JM Kentonic (Default) C [Disable]B © Normal (Default) C Conflict | 3 sec. (10 - 255) lusy C [Disable]Queue Full | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Re Inquiry VPD ID Type Inquiry Standard D Command Timeout Load Balance Resp Reservation Conflic Change Volume Ma | Isponse 0 tata Version 0 Interval 0 ionse 0 pping 0 | iefault © No Conversion (Default) C Custom © Type1 + Type3 (Default) C Type1 C Type3 © Version 5 (Default) C Version 4 C Version © Default (25sec) C Customize © [Disable]Unit Attention (Default) C (Disable)B © Normal (Default) C Confid © Norma (Default) C Creport | 3 sec. (10 - 255) lusy C [Disable]Queue Full | |
| dit Host Response Response No. Response Name Byte-0 of Inquiry Rt Inquiry VPD ID Type Inquiry Standard D Command Timeout Load Balance Resp Reservation Conflic Change Volume Ma Volume Capacity E | onse of test Unit Ready of consent of test Unit Ready of test | Iefault © No Conversion (Default) C Type1 C Type3 © Version 5 (Default) C Type1 C Type3 © Version 5 (Default) C Version 4 C Version © Default (25sec) C Customize © Disable Junit Attention (Default) C (Disable)B © Norman (Default) C Conflict © No Report (Default) C Report © No Report (Default) C Report | 3sec. (10 - 255) Jusy C [Disable]Queue Full | |

- [Setup Host Response] screen (2/2)

| Vendor Unique Sense Code © No Host Specific Mode © No Asymmetric / Symmetric Logical Unit Access © AC Sense Data Conversion C Li C Wi C Wi C Wi C Wi C Wi SK ASC ASCO | o Report (Default) (Irmal (Default) C A ITIVE-ACTIVE / PREF O Conversion (Default) Iux Recommended (Indows Recommend Istomize | C Report NX Mode C HI FERRED_PATH t) When not using ed(When not us | P-UX Mode (Default) C ACTIVE / A 1 GRMPD) sing GR/ETERNUS MPD o | CTIVE ar Device Driver) | |
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| Host Specific Mode C NG Asymmetric / Symmetric Logical Unit Access C A Sense Data Conversion C Lir C Wi C C C From SK ASC ASCO | ormal (Default) C A TTIVE-ACTIVE / PREF) Conversion (Defaul) 100 Recommended (Indows Recommend Istomize | AIX Mode C H FERRED_PATH (t) When not using (ed(When not using | IP-UX Mode (Default) C ACTIVE / A I GRMPD) sing GR/ETERNUS MPD o | CTIVE ar Device Driver) | |
| Asymmetric / Symmetric Logical Unit Access © AC Sense Data Conversion C Li From SK ASC ASCO | CTIVE-ACTIVE / PREF Conversion (Defaul 1ux Recommended (ndows Recommend Istomize | FERRED_PATH It) When not using Ied(When not us | (Default) C ACTIVE / A I GRMPD) sing GR/ETERNUS MPD o | CTIVE or Device Driver) | |
| Sense Data Conversion C Li Li C Wi C Wi C C C C irom SK ASC ASCO | o Conversion (Defaul 1ux Recommended (ndows Recommend 1stomize | tt) When not using led(When not us |) GRMPD) sing GR/ETERNUS MPD (| or Device Driver) | |
| From SK ASC ASCQ | | Te | | | |
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4 Click the [Set] button.

 \rightarrow A confirmation screen appears.

5 Click the [OK] button.



 \rightarrow The new host response is added.
6.5.4 Modify Reset Group

The [Modify Reset Group] sets the reset group to switch the path for some servers.

A reset group is a setting that groups multiple ports that will be reset. If a host is unable to access the volumes in a port, this function releases the volumes reserved by the inaccessible port to the ports in the specified reset group, without affecting other ports. The reset group setting sets this range for each port.

When a 2-port configuration server (including duplication) using the same volume cannot be accessed, it is possible to access the ETERNUS DX60/DX80 from the opposite port (standby side). The port for the paths that access the same volume must be grouped in the same reset group. Even if the server is different, ports accessing the same volume must be set in the same reset group.



The procedure to set the reset group is as follows:

Procedure

- 1 Click the [Modify Reset Group] under the [Host I/F Management] menu on the [Global Settings] tab.
 - \rightarrow The [Modify Reset Group] screen appears.

| set Group defin | es the extent of a | a Reset signal is | ssued from the s | erver. Reset Groups are modified here. | |
|-----------------|--------------------|-------------------|------------------|--|--|
| t Reset Group | | | | | |
| lease select t | he ports belongi | ng to the same I | Reset Group. | | |
| | CM#0 Port#0 | CM#0 Port#1 | CM#1 Port#0 | CIM#1 Port#1 | |
| Reset Group | • | C | C | C | |
| Reset Group | С | • | C | c | |
| Reset Group | C | C | C | C | |
| Reset Group | С | С | 0 | c | |
| | | | | | |
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2 Select the port that belongs to the same reset group, and click the [Set] button.

| t Reset Group Please select the Reset Group Reset Group Reset Group | e ports belongin CM#0 Port#0 © | ng to the same F CM#0 Port#1 | Reset Group. | | | |
|---|--------------------------------------|---------------------------------|--------------|-------------|--|--|
| Please select the C Reset Group Reset Group Reset Group | e ports belongin CM#0 Port#0 ④ | ng to the same F CM#0 Port#1 | Reset Group. | | | |
| Reset Group Reset Group Reset Group | CM#0 Port#0 | CM#0 Port#1 | CM#1 Port#0 | | | |
| Reset Group Reset Group | e | | | CM#1 Port#1 | | |
| Reset Group | | 0 | С | C | | |
| Reset Group | C | C | c | c | | |
| | 0 | C | C | œ | | |
| Reset Group | 0 | c | 0 | 0 | | |
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- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The reset group is set.

ETERNUS

Chapter 7 Maintenance

This chapter describes maintenance related operations.

7.1 Hot Expansion

This function can expand the components without stopping device operation.

The device needs expansion of components to the original configuration in order to enhance performance, increase the number of available volumes, or increase the number of connected hosts.

Disks and drive enclosures can be expanded in hot mode.

Disks can be expanded in hot mode by physical installation in the ETERNUS DX60/DX80. This operation does not require GUI operation.

The maximum number of disks and drive enclosures

The following explains the maximum number of disks and drive enclosures that can be installed in each model.

| Model | Disk | Drive enclosure |
|--------------|----------|-----------------|
| ETERNUS DX60 | 24 | 1 |
| ETERNUS DX80 | 120 (*1) | 9 |

*1: Up to nine SSDs can be installed in the ETERNUS DX60/DX80.

| Caution | The expanded disks can be used after registering in the RAID group or as hot spare disks. When the maximum number of parts set for each model has already been installed, the parts cannot be expanded. When adding two or more disks, install disks one by one after an interval (of approximately 30 seconds). Confirm that the status LED of the expanded disk glows green, then add the next disks. Be sure to use authorized expansion parts. If parts other than the expansion parts are used, operation is not guaranteed. When encryption is in progress, disk expansion is not available. Perform the disk expansion operation after completing the encryption process. Only one drive enclosure can be added at once. To add multiple drive enclosures, repeat the procedure for all the drive enclosures to be added. |
|---------|---|
| | be added. |
| • Note | Refer to <u>"4.1 Storage System Status" (page 33)</u> for component status display. |

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7.1.1 Add Drive Enclosure

The [Add Drive Enclosure] function can expand the drive enclosure while the ETERNUS DX60/ DX80 is operating.

If expansion fails due to an error or problem, the expansion can be restarted from the interrupted point by starting this function again and recovering the failed expansion parts. However, when disk operation is not normal, maintenance is required.

The procedure to add a drive enclosure in hot mode is as follows:

Procedure

- 1 Click the [Add Drive Enclosure] under the [Hardware Maintenance] menu on the [Maintenance] tab.
 - \rightarrow The [Add Drive Enclosure] screen appears.
- 2 Click the [Next >] button.



 $\rightarrow\,$ The procedure to add DE is displayed.



3 Install the drive enclosure in the rack according to the displayed procedure, and click the [Next >] button.



 \rightarrow The expanded components identification process starts.

| Drive Eliciosure | | | | | |
|-------------------------------|-----------------------|---------------|------------------|-------|-------|
| s function expands the system | with additional Drive | Enclosure(s). | | | |
| Start | Target Drive Enc | loeuro | | | |
| Place DE on the rack | raiget brive Life | loadie | | | |
| Check Auto Power Switch | Target Drive E | nclosure Dr | ive Enclosure #1 | | |
| nish | | | | | |
| | Statue Check | | | | |
| | Status crieck | | | | |
| | Parts | Progress | Status | | |
| | DE#1 EXP#0 | | Maintenance | | |
| | DE#1 EXP#1 | | Maintenance | | |
| | DE#1 PSU#0 | | Maintenance | | |
| | DE#1 PSU#1 | | Maintenance | | |
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| | | | | Next> | Cance |



4 Confirm the "Auto Power" switch for the target drive enclosure is "OFF", and click the [Next >] button.

| re Enclosure(s). | |
|--|---|
| nclosure | |
| Enclosure Drive Enclosure #1 | |
| uence | |
| check the "Auto Power" switch of the DE. | |
| | |
| | |
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| | |
| | |
| | |
| Next> | Cancel |
| | e Enclosure Drive Enclosure #1 sence heck the "Auto Power" switch of the DE. |

 \rightarrow The [Add Drive Enclosure] procedure is completed.

| his function expands the system | with additional Drive Endosure(s). |
|-----------------------------------|---|
| Start Place DE on the rack | Target Drive Enclosure |
| Check Auto Power Switch Finish | Target Drive Enclosure #0 |
| 9 | Information |
| | Expansion of Drive Enclosure have been normally completed. If other Drive Enclosure is continuously added, execute it after completing to built-in the disk and becoming normal state. |
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ETERNUS

Chapter 8 Display and Download Information (Diagnosis)

This chapter describes how to display and download ETERNUS DX60/DX80 related information.

8.1 Display Event Log

The [Display Event Log] function records and displays the event history of the ETERNUS DX60/ DX800 as an event log.

The event log is one of the internal logs stored in the ETERNUS DX60/DX80. The event log contains a history of events that are related to setup information changes, such as module failures and volume creation.

Up to 800 (400 per a CM) event logs can be displayed. Once the recorded event log is no longer necessary, it can also be deleted.



Even after deleting internal logs using the <u>"8.2 Export/Delete Log" (page</u> <u>225)</u> function, the event log remains in the ETERNUS DX60/DX80.

The procedure to display the event log is as follows:

Procedure

1 Click the [Display Event Log] menu on the [Diagnosis] tab.

 \rightarrow The [Display Event Log] screen appears.



2 Click the [Log Display] button.

| Display Event Log | |
|--|--|
| Displays the event log associated with the storage system. | |
| Event Log Log Display | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

 \rightarrow The event log is displayed.

| entLog | 9 | | | | |
|--------|---------------------|------|------------|--|----------|
| Level | Date | Type | Event Code | Event Message | |
| 0 | 2009-07-24 14:11:49 | М | E3FF1104 | WT<->WB | <u> </u> |
| 0 | 2009-07-24 14:11:48 | М | E3031002 | WT<->WB | |
| 1 | 2009-07-24 14:11:48 | 1 | 00000002 | Controller firmware updated (V10L20-721f) | |
| 4 | 2009-07-24 14:11:46 | W | 0E931000 | Controller Module#0(ISCSI 1.2GHz) NAND Controller Warning <yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy< td=""><td></td></yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy<> | |
| 0 | 2009-07-24 14:10:24 | M | E3031102 | WT<->WB | |
| 0 | 2009-07-24 14:10:19 | M | E3FF1004 | WT<->WB | |
| 0 | 2009-07-24 14:09:28 | M | E3031104 | WT<>WB | |
| 4 | 2009-07-24 14:09:25 | W | 0E931100 | Controller Module#1(iSCSI 1.2GHz) NAND Controller Warning <yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy< td=""><td></td></yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy<> | |
| 0 | 2009-07-24 14:08:03 | м | E3031004 | WT<->WB | |
| 1 | 2009-07-24 13:58:40 | 1 | 00000001 | Power on completed (V10L20-608f) | |
| 1 | 2009-07-14 09:15:32 | 1 | 00000001 | Power on completed (V10L20-608f) | |
| i | 2009-07-09 14:06:23 | 1 | 00000001 | Power on completed (V10L20-608f) | |
| 1 | 2009-07-06 15:34:35 | 1 | 00000021 | 1 RAID group(s) deleted | |
| 1 | 2009-07-06 15:33:11 | 1 | 00000026 | 10 volume(s) deleted | |
| i | 2009-07-06 15:27:50 | 1 | 00000034 | iSCSI host registered | |
| 1 | 2009-07-06 15:27:34 | 1 | 00000035 | 1 host name(s) changed | |
| i | 2009-07-06 15:21:08 | 1 | 00000039 | Host affinity group registered (No.0) | |
| i | 2009-07-06 15:19:52 | 1 | 00000034 | iSCSI host registered | |
| 1 | 2009-07-06 15:17:47 | 1 | 00000025 | 10 volume(s) created | |
| i | 2009-07-06 15:16:51 | 1 | 00000020 | 1 RAID group(s) created | |
| i | 2009-07-06 15:13:15 | 1 | 00000021 | 1 RAID group(s) deleted | |
| 1 | 2009-07-06 15:12:41 | 1 | 00000026 | 3 volume(s) deleted | - |
| 1 | 2000 07 06 15-11-22 | 1.5 | 00000026 | 1 volume(e) deleted | - |
| | | | | | |
| | | | | Delete | Refresh |
| | | | | | |
| | | | | | |
| | | | • Clic | k the [Delete] button to delete the event loa | |



8.2 Export/Delete Log

The [Export/Delete Log] function exports and saves the ETERNUS DX60/DX80 maintenance information (log) according to user-specified time. An exported log can be stored on a floppy disk or hard disk, or sent by mail. Also users can select a log segment size in accordance with save destination.

• The maintenance information to be exported

Logs include an internal log and setup information.

- Internal log Detected errors, warnings, and traces.
- Setup information The setup information exported from the device.

Caution

• If logs saved in the ETERNUS DX60/DX80 are no longer needed, click

The internal log and setup information cannot be exported separately.

the [Delete] button to delete the logs. When using this function, all log data is deleted. Make sure to backup any necessary data before proceeding.

• Event logs cannot be deleted with this function. Use <u>"8.1 Display Event</u> Log" (page 223) to delete event logs.

The procedure to export log information is as follows:

Procedure

- 1 Click the [Export/Delete Log] menu on the [Diagnosis] tab.
 - \rightarrow The [Export/Delete Log] screen appears.
- **2** Set the following items and click the [Export] button.
 - Specify Time Range Select whether to specify the time range with "Yes" or "No", or select the "Last 24 hours" radio button.
 - Start Time

When a time range is to be specified, specify the date and time to start exporting logs.

- End Time
- When a time range is to be specified, specify the date and time to end exporting logs.
- Include Expander log
 Select whether to export the Expander log with the "Yes" or "No" radio button.
- Log File Size

Select the log segment size when saving the exported log.

- Default (4.27MB)
- Floppy Disk (1.44MB)
- Mail (640KB)



• Delete of Customer Information Select whether to delete the customer information with the "Yes" or "No" radio button.



- In the following conditions, an error screen appears.
- When the input date and/or time are not valid (For example: February 31st)
- When the end time is earlier than the start time

| pont/Defete Log xport and save the Internal Log fo | r support. The log contains detailed information, errors and other events recorded by the storage system. |
|---|---|
| Export Option | |
| Specify Time Range | O Yes O No O Last 24 hours |
| Start Time | Year, - Month: - Day, Hour, Minute: Second: |
| End Time | Year: - Month: - Day: Hour: Minute: Second: |
| Include Expander log | € Yes O No |
| Log File Size | © Default (4.27MB) ○ Floppy Disk (1.44MB) ○ Mail (640KB) |
| Delete of Customer Informatio | n C Yes © No |
| | |
| | |
| | |
| | Export Delete |

- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow The log is exported.

After exporting log completes, a dialog box to download the log file appears.



4 Click the [Download] button to save the exported log.

| Export/Delete Log Export and save the Internal Log for suppo | or. The log contains detailed information, errors and other events recorded by the storage system. |
|---|---|
| Notice Multi-part log, plea may result in an invalid log file. Please save "Panic Dump" as well | se start the download of next part immediately after the previous part is complete by [Download] button. A long interval between the saves after log save is complete, if applicable. |
| Export Log Log File(\$406720/\$40672 1 Down | |
| | |
| | Finish Cancel |
| Caution 🖉 | After exporting the log completes, save the log file immediately. |
| Save the log file. | |
| Caution | Take care so that the segments are not overwritten. When exporting segmented log files, make sure to export the segment within five minutes. If five minutes passes before exporting the next segment, exporting the log fails. After saving one segment is finished, save the next segment immediately. |
| → If the log file segmented files | is segmented, download and save the next segment (save all the s). |
| Note | After saving all log files, the [Download] button described in the <u>Step</u> <u>4</u> becomes deactivated. |
| Click the [Finish] \rightarrow Exporting log is | button. completed. |
| Caution 🖉 | After exporting the log completes, make sure to perform <u>"8.3 Export</u> Panic Dump" (page 228). |



8.3 Export Panic Dump

"Panic Dump" is the action of outputting (dump) memory information when an error (panic) occurs, and also the name of the output information itself. This function exports and saves the memory information of the controller that is stored in the panic dump data, in a segment size specified by the user. An exported panic dump can be stored on a floppy disk or hard disk, or sent by mail.

Panic dump data is used to analyze the cause of a firmware abnormality or hardware error.



The procedure to export panic dump is as follows:

Procedure

- 1 Click the [Export Panic Dump] menu on the [Diagnosis] tab.
 - \rightarrow The [Export Panic Dump] screen appears.
- **2** Set the following items, and click the [Export] button.
 - Panic Dumps
 - Select panic dump to be exported from the list displayed in the screen.
 - Option
 - Dump File Segment Size
 - Select the dump file segment size to save the obtained panic dump.
 - Default (4.27MB)
 - Floppy Disk (1.44MB)
 - Mail (640KB)



| port P | anic Dum | ip | | | | | | |
|--------|-------------|-------------------------|-------------------|----------------------|-------------------------|------|--|--|
| ports | Panic Dum | p which contains the de | tailed state of t | he controller memory | from a controller panic | vent | | |
| anic i | Jumps | | | | | | | |
| | Module | Date | Panic Code | Data Size (bytes) | Panic Message | | | |
| 7 | CM#0 | 2009-04-16 17:05:36 | 0x00063f00 | 65256448 | Sysmgmt:ErrStat | | | |
| | CM#0 | 2009-04-17 10:10:40 | 0x00063f00 | 69018624 | Sysmgmt:ErrStat | | | |
| | CM#1 | 2009-04-16 16:49:11 | 0x00063f00 | 63372800 | Sysmgmt:ErrStat | | | |
| | CM#1 | 2009-04-17 09:54:09 | 0x00063f00 | 70079488 | Sysmgmt:ErrStat | | | |
| Ontion | | | | | | | | |
| puon | | | | | | | | |
| Dum | p File Segr | ment Size @ Default (4 | 27MB) C Flo | ppy Disk (1.44MB) (| Mail (640KB) | | | |
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 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow The selected panic dump is exported.

After the panic dump export is finished, a screen to execute saving the panic dump is displayed.

4 Click the [Download] button to save the exported panic dump.



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5

| Save the panic d | ump. |
|-----------------------------------|---|
| Caution 🔎 | Take care so that the segments are not overwritten. When exporting segmented panic dump files, make sure to export the segment within five minutes. If five minutes passes before exporting the next segment, exporting the panic dump fails. After saving one segment is finished, save the next segment immediately. |
| → When the panic the segmented | dump file is segmented, download and save the next segment (save all files). |
| N o t e | After saving all the panic dump files, the [Download] button described in the <u>Step 4</u> becomes deactivated. |
| | |

End of procedure

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8.4 Start/Stop Performance Monitoring

GUI contains a function that acquires performance information and displays the result. The [Start/Stop Performance Monitoring] function is used to start/stop acquiring the ETERNUS DX60/DX80 performance information.

Acquired information can be checked using the <u>"8.5 Display Performance Information" (page</u> 233) function.



The procedure to start/stop acquiring performance information is as follows:

Start Performance Monitoring

Procedure

- Click the [Start/Stop Performance Monitoring] menu on the [Diagnosis] tab.
 → The [Start/Stop Performance Monitoring] screen appears.
- **2** Specify the following item, and click the [Start] button.
 - Monitoring State Current status of performance information acquisition operation is displayed.
 - Interval (sec.) Input the interval to acquire the performance information between 30 and 300 (sec.) in units of 30 seconds.

| n/Stop Performance Monitoring | |
|---|-------|
| e Performance Monitoring is enabled or disabled. | |
| lessage | |
| Ry clicking the [Start] button, the performance monitoring is Started | |
| | |
| | |
| erformance Monitoring | |
| Monitoring State Stopped | |
| Interval (sec.) 30 💌 | |
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| | |
| | |
| | Start |

 \rightarrow A confirmation screen appears.

3 Click the [OK] button.



 \rightarrow Acquisition of performance information is started.

End of procedure

Stop Performance Monitoring

Procedure

- Click the [Start/Stop Performance Monitoring] menu on the [Diagnosis] tab.
 → The [Start/Stop Performance Monitoring] screen appears.
- **2** Click the [Stop] button.

| Start/Stop Perform | ance Monitoring | |
|--------------------|---|------|
| The Performance Mo | unitoring is enabled or disabled. | |
| | | |
| Message | | |
| By clicking the | [Stop] button, the performance monitoring is Stopped. | |
| Performance Moni | toring | |
| Monitoring State | Active | |
| Interval (sec.) | 30 | |
| | | |
| | | Stop |

- \rightarrow A confirmation screen appears.
- **3** Click the [OK] button.



 \rightarrow Acquisition of performance information is stopped.



8.5 Display Performance Information

The [Display Performance Information] function displays performance information related to the Host I/O, Advanced Copy, disks, CM, and host port, which is obtained by the Master CM in advance. By collecting the CM (CPU) usage rate in the device and busy ratio of the disk, operating conditions and work load in the device can be checked.

The performance information acquisition operation must be started by using the <u>"8.4 Start/Stop Performance Monitoring" (page 231)</u> function or other monitoring software (such as ETERNUS SF Storage Cruiser) in advance.

The procedure to display the performance information is as follows:

Procedure

- 1 Click the [Display Performance Information] menu on the [Diagnosis] tab.
 - \rightarrow The [Display Performance Information] menu appears.

Click the tree view on the left of the screen to display information for each component.



End of procedure

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8.6 Display Error Information

The [Display Error Information] function displays the total number of errors for disks and ports. An increasing number of error occurrences in the information is used to indicate early replacement of warning status components, and for analysis information when performance degradation occurs.

Also, deleting unnecessary disk error information can be deleted. The procedure to display error information is as follows:

Procedure

- 1 Click the [Display Error Information] menu on the [Diagnosis] tab.
 - \rightarrow The [Display Error Information] screen appears.
 - Click the link on the left of the screen, and display the [Disk Error Statistics] screen and [Port Error Statistics] screen.
 - Disk Error Statistics

| Disk Error St | atistics | | | | | | | | | |
|---------------|------------------|----------------|----------------|--------------------------|----------|-------------------|----------------|---------------|---------------------|---|
| Disk | Port | Media Error | Drive Error | Drive Recovered Error | I S E | .M.A.R.T. vent | I/O Timeout | Link Error | Check Code Error | |
| CE- Disk#0 | Port#0 Port#1 | | 0 | 0 | 0 0 | 0 | 0 | 0 | | 0 |
| CE- Disk#1 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 | 0 | | 0 |
| CE- Disk#4 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 | 0 | | 0 |
| CE- Disk#5 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 | 0 | | 0 |
| CE- Disk#6 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 0 | 0 0 | | 0 |
| CE- Disk#7 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 | 0 0 | | 0 |
| CE- Disk#8 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 0 | 0 0 | | 0 |
| CE- Disk#9 | Port#0 Port#1 | | 0 0 | 0 | 0 0 | 0 0 | 0 | 0 0 | | 0 |
| | | | | | | | | | | |

- To clear the error information for all the disks, click the [Clear All Statistics] button.
- The [Clear Statistics] targeting checkboxes are only provided for disks with error information.



- Port Error Statistics

| Expander | Port Port#0 | Phy Phy#0 Phy#1 | Status Link Up | Invalid Dword 0 | Disparity Error | Loss of Dword Synchronization | Phy Reset Problem |
|----------|----------------|--|--|---|---|---|--|
| | Port#0 | Phy#0 Phy#1 | Link Up | 0 | 0 | 0 | |
| | Port#0 | Phy#1 | A first states | | | 0 | 0 |
| | F UI IIIII | | LINK UP | 0 | 0 | 0 | 0 |
| | | Phy#2 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#3 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#0 | Link Down | 0 | 0 | 0 | 0 |
| BE EXP#0 | Port#1 | Phy#1 | Link Down | 0 | 0 | 0 | 0 |
| | 1 010/1 | Phy#2 | Link Down | 0 | 0 | 0 | 0 |
| | | Phy#3 | Link Down | 0 | 0 | 0 | 0 |
| | | Phy#0 | Link Up | 0 | 0 | 0 | 0 |
| | Port#2 | Phy#1 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#2 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#3 | Link Up | 0 | 0 | 0 | C |
| | | Phy#0 | Link Up | 0 | 0 | 0 | 0 |
| | Port#0 | Phy#1 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#2 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#3 | Link Up | 0 | 0 | 0 | C |
| | | Phy#0 | Link Down | 0 | 0 | 0 | 0 |
| BE EXP#1 | Port#1 | Phy#1 | Link Down | 0 | 0 | 0 | 0 |
| | | Phy#2 | Link Down | 0 | 0 | 0 | 0 |
| | | Phy#3 | Link Down | 0 | 0 | 0 | 0 |
| | | Phy#0 | Link Up | 0 | 0 | 0 | 0 |
| | Port#2 | Phy#1 | Link Up | 0 | 0 | 0 | 0 |
| | | Phy#2 | Link Up | 0 | 0 | 0 | 0 |
| | | | | | | | |
| | BE EXP#0 | BE EXP#0 Port#1 Port#2 Port#0 BE EXP#1 Port#1 Port#0 Port#2 Port#2 | BE EXP#0 Pot#1 Phy#0 Phy#2 Phy#3 Phy#3 Pot#1 Phy#1 Phy#3 Pot#2 Phy#3 Phy#3 Pot#2 Phy#3 Phy#3 Pot#2 Phy#3 Phy#3 Pot#2 Phy#3 Phy#3 Pot#4 Pot#4 Phy#3 Phy#3 Phy#4 Phy#3 Phy#4 Pot#4 Phy#3 Phy#3 Phy#4 Phy#3 Phy#4 Phy#4 Phy#4 Pot#4 Phy#4 Phy#4 | BE EXP#0 Phr#0 Link Down Phr#1 Link Down Phr#2 Link Down Phr#3 Link Down Phr#3 Link Up Port#1 Phr#0 Link Up Phr#3 Link Up Port#2 Phr#0 Link Up Phr#3 Link Up Port#0 Phr#1 Link Up Phr#3 Link Up Port#0 Phr#1 Link Up Phr#3 Link Up Port#0 Phr#1 Link Up Phr#4 Link Up Phr#4 Link Up Phr#4 Link Up Phr#4 Link Up BE EXP#1 Port#1 Phr#4 Link Up Phr#4 Link Down Phr#4 Phr#4 Link Down Phr#4 Link Down Phr#4 Link Down Phr#4 Link Down Phr#3 Link Down Phr#4 Link Down Phr#4 Link Down Phr#4 Link Down Phr#4 Link Down Phr#4 Link Down Phr#4 Link Up Phr#4 Link Up | Physit Link Down 0 BE EXP#0 Port#1 Link Down 0 Physit Link Up 0 Port#2 Physit Link Up 0 Physit Link Up 0 0 Physit Link Down 0 0 | BE EXP#0 Pht#0 Link Down 0 0 Pht#1 Link Down 0 0 Pht#2 Link Down 0 0 Pht#2 Link Down 0 0 Pht#2 Link Up 0 0 Pht#3 Link Up 0 0 Pht#3 Link Up 0 0 Pht#3 Link Up 0 0 Pht#4 Link Up 0 0 Pht#3 Link Up 0 0 Pht#4 Link Up 0 0 Pht#5 Link Up 0 0 Pht#4 Link Up 0 0 Pht#5 Link Up 0 0 BE EXP#1 Pht#6 Link Down 0 Pht#5 Link Down 0 0 Pht#5 Link Down 0 0 Pht#4 Link Down 0 0 Pht#4 Link Down 0 0 <td>BE EXP#0 Pnt#0 Link Down 0</td> | BE EXP#0 Pnt#0 Link Down 0 |

End of procedure

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Appendix A Install Site Certificate

This chapter describes how to install the web-site certificate. This chapter provides an example of when using Internet Explorer and Firefox.

A.1 For Internet Explorer

This section describes the procedure to install security certificate. The procedure to install security certificate for Internet Explorer 7 is as follows:

Procedure

Enter the URL to the address bar in the web browser. Specify "https://IP address of the ETERNUS DX60/DX80" (Default IP address is "192.168.1.1").

 \rightarrow A confirmation screen for security certificate appears.

2 Click the "Continue to this website (not recommended)" link.

| 00 | • (e) https://192.168.1.1/ | 💌 🐓 🗙 Live Search | P - |
|----------|--|-------------------|-----------------|
| Ele Edit | Yew Favorites Iools Help | | |
| â 🕸 - | Certificate Error: Navigation Blocked | 💁 • 🗟 · 🖶 • 🕑 e | age 🔹 🌀 Tools 🔹 |
| - | These is a such as with this we have a such a such as the | | - |
| 8 | There is a problem with this website's security certificate. | | |
| | The security certificate presented by this website was not issued by a trusted certific authority. | cate | |
| | Security certificate problems may indicate an attempt to fool you or intercept any da send to the server. | ita you | |
| | We recommend that you close this webpage and do not continue to this web | osite. | |
| | Click here to close this webpage. | | |
| | Secontinue to this website (not recommended) | | |
| | More information | | |
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| me | | Internet | 100% • |

 \rightarrow The logon screen for GUI is displayed.

3 Click the "Certificate Error".

| ETERNUS DX80 - Windows Internet Explorer | | | _ 🗆 🗙 |
|--|-------------|--|--------------------------|
| • Phttps://192.168.1.1/ • | | Certificate Error 👉 🗙 Uve Search | P - |
| Ele Edit Vew Favorites Icols Help | | | |
| 🙀 🏟 👴 ETERNUS DX80 | | 💁 • 🗟 - 👼 • 🕑 Bage • | () Tools * ³⁰ |
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| | TEDNIIC | DVQA | |
| L L | IERNUS | DAOU | |
| | | | |
| Storage System Name | ETERNUS_01 | | |
| Serial Number | 000000000 | | |
| Username | root | | |
| Password | •••• | | |
| Language | English - | The state of the s | |
| | Loopo Clear | | |
| | cogon citar | | |
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| | | | |
| | | | |
| | | Copyright © 2008-2009 FUJITSU LIMITED. All Rights I | Reserved. |
| , Done | | € Internet | 100% • // |

- \rightarrow A warning message appears.
- 4 Click the "View Certificates" link.

| 🖉 ETERNUS DX80 - Windows Internet Explorer | | | <u>_ </u> |
|--|---|------------------------|--|
| O + Image: 1/192.168.1.1/ | Certificate Error | 🛨 🗙 Live Search | P - |
| Får Edt Wew Favorites Tools Help | Variable Verificate Verweerlife terms Verweerlife terms | <u>6</u> 1 • 51 × 6€ • | Prage - () Tools - "" |

 $\rightarrow\,$ The site certificate information appears.



5 Click the [Install Certificate] button.

| General Details Certification Path | <u>?</u> × |
|--|------------|
| Certificate Information | _ |
| This CA Root certificate is not trusted. To enable trust install this certificate in the Trusted Root Certification Authorities store. | ' |
| | |
| Issued to: 192.168.1.1 | _ |
| Issued by: 192.168.1.1 | |
| Valid from 1/1/1970 to 2/6/2106 | |
| Install Certificate | ement |
| | ОК |

- \rightarrow The "Certificate Import Wizard" appears.
- 6 Click the [Next >] button.



7 Select "Place all certificates in the following store".

| ertificate Import Wizard | |
|---|--------|
| Certificate Store | |
| Certificate stores are system areas where certificates are kept. | |
| | |
| Windows can automatically select a certificate store, or you can specify a location | n for |
| O Automatic in a state based on the type of certificate | |
| Place all certificates in the following store | |
| Certificate store: | |
| Browse | |
| | |
| | |
| | |
| | |
| | |
| | |
| < Back Next > | Cancel |
| | |

 \rightarrow The "Select Certificate Store" screen appears.





If "Automatically select the certificate store based on the type of certificate" is selected in the "Certificate Import Wizard", an error may occur in the security certificate according to the customer environment.

8 Select the "Trusted Root Certification Authorities", and click the [OK] button.



9 Click the [Finish] button.



 \rightarrow The "Security Warning" dialog box appears.

10 Click the [Yes] button.



If this occurs, restart the web browser.

 \rightarrow The completion screen appears.



11 Click the [OK] button.



 \rightarrow The security certificate is installed. Restart the web browser.



A.2 For Firefox

This section provides the procedure to install the security certificate. The example when installing security certificate for Firefox 3.0.8 is as follows:

Procedure

Enter the URL to the address bar in the web browser. Specify "https://IP address of the ETERNUS DX60/DX80" (Default IP address is "192.168.1.1").

 \rightarrow A confirmation screen for security certificate appears.

2 Click the "Or you can add an exception..." link.





3 Click the [Add Exception...] button.



 \rightarrow The [Add Exception] screen appears.

4 Click the [Get Certificate] button.



 \rightarrow The status of certificate is displayed.



5 Click the [Confirm Security Exception] button.



 \rightarrow The security certificate is installed. Restart the web browser.



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