P3AM-4832-07ENZ0

ETERNUS DX80 S2/DX90 S2
Disk storage system

User's Guide -Installation-

FUJITSU

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Preface

Fujitsu would like to thank you for purchasing our ETERNUS DX80 S2/DX90 S2 Disk storage system.
The ETERNUS DX80 S2/DX90 S2 Disk storage system is designed to be connected to a Fujitsu (PRIMEQUEST or PRIMERGY) or other server.
This manual describes all the procedures that are required to start operation of the ETERNUS DX80 S2/DX90 S2 Disk storage system (referred to as "ETERNUS DX Disk storage system" in the remainder of this manual).
This manual is intended for use of ETERNUS DX Disk storage system in regions other than Japan.
Please carefully review the information outlined in this manual.

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June 2013

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About this Manual

Organization

This manual is composed of the following five chapters:

- Chapter 1 Preparation

  This chapter describes the necessary preparation for installation of the ETERNUS DX80 S2/DX90 S2 Disk storage system.

- Chapter 2 Components

  This chapter describes the components of the ETERNUS DX80 S2/DX90 S2 Disk storage system.

- Chapter 3 Rack Installation

  This chapter explains how to install the ETERNUS DX80 S2/DX90 S2 Disk storage system in a rack.

- Chapter 4 Connecting Cables

  This chapter explains how to connect various cables to the ETERNUS DX80 S2/DX90 S2 Disk storage system.

- Chapter 5 Setup

  This chapter explains how to set up the ETERNUS DX80 S2/DX90 S2 Disk storage system.

Warning Notations

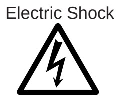
Warning signs are shown throughout this manual in order to prevent injury to the user and/or material damage. These signs are composed of a symbol and a message describing the recommended level of caution. The following explains the symbols, their levels of caution, and their meanings as used in this manual.

⚠ WARNING This symbol indicates the possibility of serious or fatal injury if the ETERNUS DX Disk storage system is not used properly.

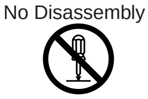
⚠ WARNING This symbol indicates the possibility of minor or moderate personal injury, as well as damage to the ETERNUS DX Disk storage system and/or to other users and their property, if the ETERNUS DX Disk storage system is not used properly.

IMPORTANT This symbol indicates IMPORTANT information for the user to note when using the ETERNUS DX Disk storage system.

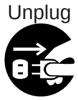
The following symbols are used to indicate the type of warnings or cautions being described.



△ The triangle emphasizes the urgency of the WARNING and CAUTION contents. Inside the triangle and above it are details concerning the symbol (e.g. Electrical Shock).



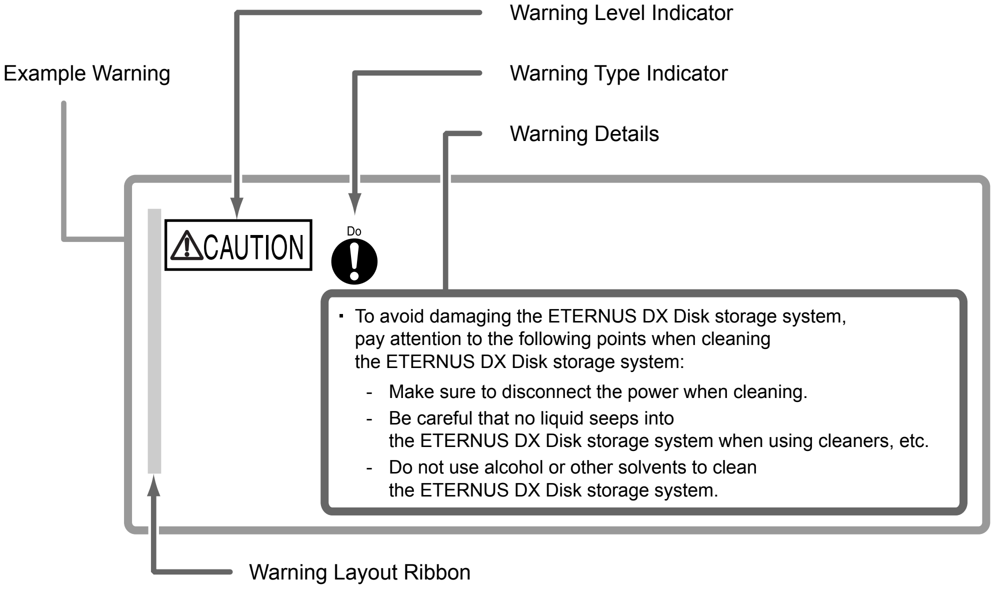
⊘ The barred "Do Not..." circle warns against certain actions. The action which must be avoided is both illustrated inside the barred circle and written above it (e.g. No Disassembly).



● The black "Must Do..." circle indicates actions that must be taken. The required action is both illustrated inside the black disk and written above it (e.g. Unplug).

How Warnings are Presented in this Manual

A message is written beside the symbol indicating the caution level. This message is marked with a vertical ribbon in the left margin, to distinguish this warning from ordinary descriptions.
An example is shown here.



- To avoid damaging the ETERNUS DX Disk storage system, pay attention to the following points when cleaning the ETERNUS DX Disk storage system:
  - Make sure to disconnect the power when cleaning.
  - Be careful that no liquid seeps into the ETERNUS DX Disk storage system when using cleaners, etc.
  - Do not use alcohol or other solvents to clean the ETERNUS DX Disk storage system.

Additional Information

Symbols Used in This Manual

The following symbol is used throughout this manual:

Note	Functions and know how which can be useful when setting up or operating the ETERNUS DX Disk storage system.

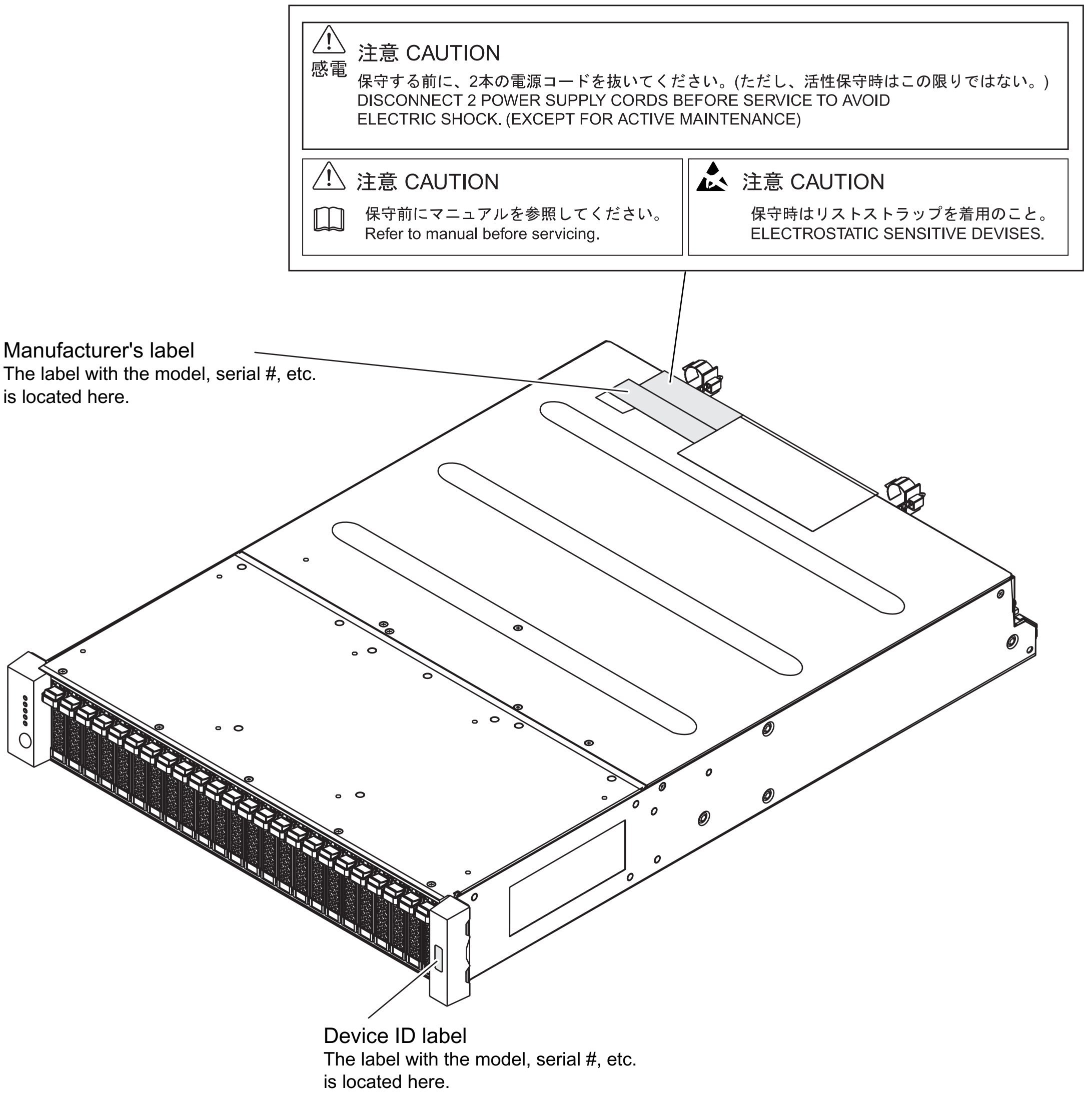
Abbreviations Used in This Manual

- "ETERNUS DX Disk storage system" refers to the DX80 S2/DX90 S2 Disk storage system.
- "CA" refers to a host interface module that is used in an ETERNUS DX Disk storage system to connect to a server.
- "Host Bus Adapter (HBA)" refers to the interface module that is normally used by the server to connect to ETERNUS DX Disk storage systems.
  An "FC card", "LAN card", "Network Interface Card (NIC)", "Converged Network Adapter (CNA)", or "SAS card" may be used instead, depending on the server and interface.
- Trademark symbols such as ™ and ® are omitted in this document.

Warning Labels and Manufacturer's Labels

Warning labels, manufacturer's labels, and a device ID label are found in various places of the ETERNUS DX Disk storage system, as shown in the example below.
Do not remove these labels.

ETERNUS DX80 S2/DX90 S2 (controller enclosure)



感電

注意 CAUTION

保守する前に、2本の電源コードを抜いてください。(ただし、活性保守時はこの限りではない。)
DISCONNECT 2 POWER SUPPLY CORDS BEFORE SERVICE TO AVOID ELECTRIC SHOCK. (EXCEPT FOR ACTIVE MAINTENANCE)

注意 CAUTION

保守前にマニュアルを参照してください。
Refer to manual before servicing.

注意 CAUTION

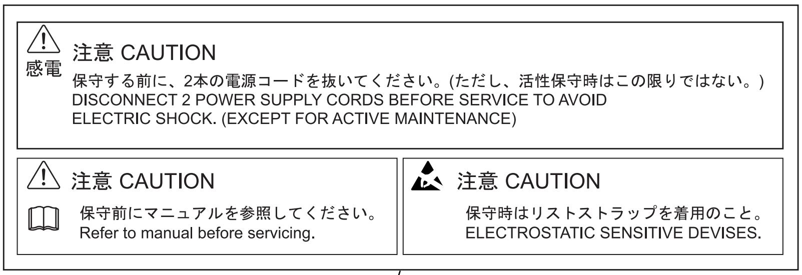
保守時はリストストラップを着用のこと。
ELECTROSTATIC SENSITIVE DEVISES.

Manufacturer's label
The label with the model, serial #, etc. is located here.

Device ID label
The label with the model, serial #, etc. is located here.

Drive enclosures

- Drive enclosure for DX80 S2/DX90 S2 (2.5inch)



感電

注意 CAUTION

保守する前に、2本の電源コードを抜いてください。(ただし、活性保守時はこの限りではない。)
DISCONNECT 2 POWER SUPPLY CORDS BEFORE SERVICE TO AVOID
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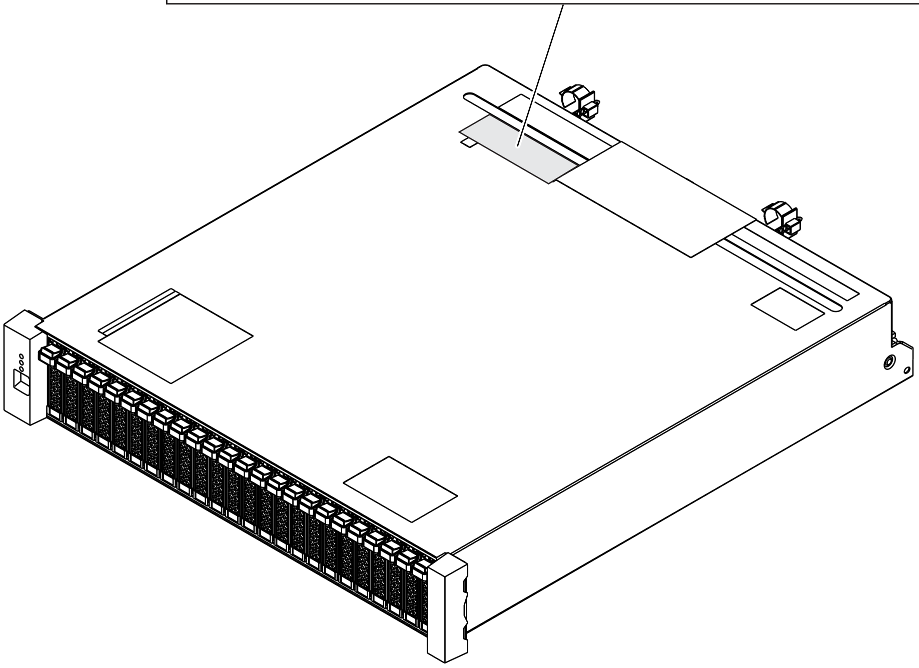
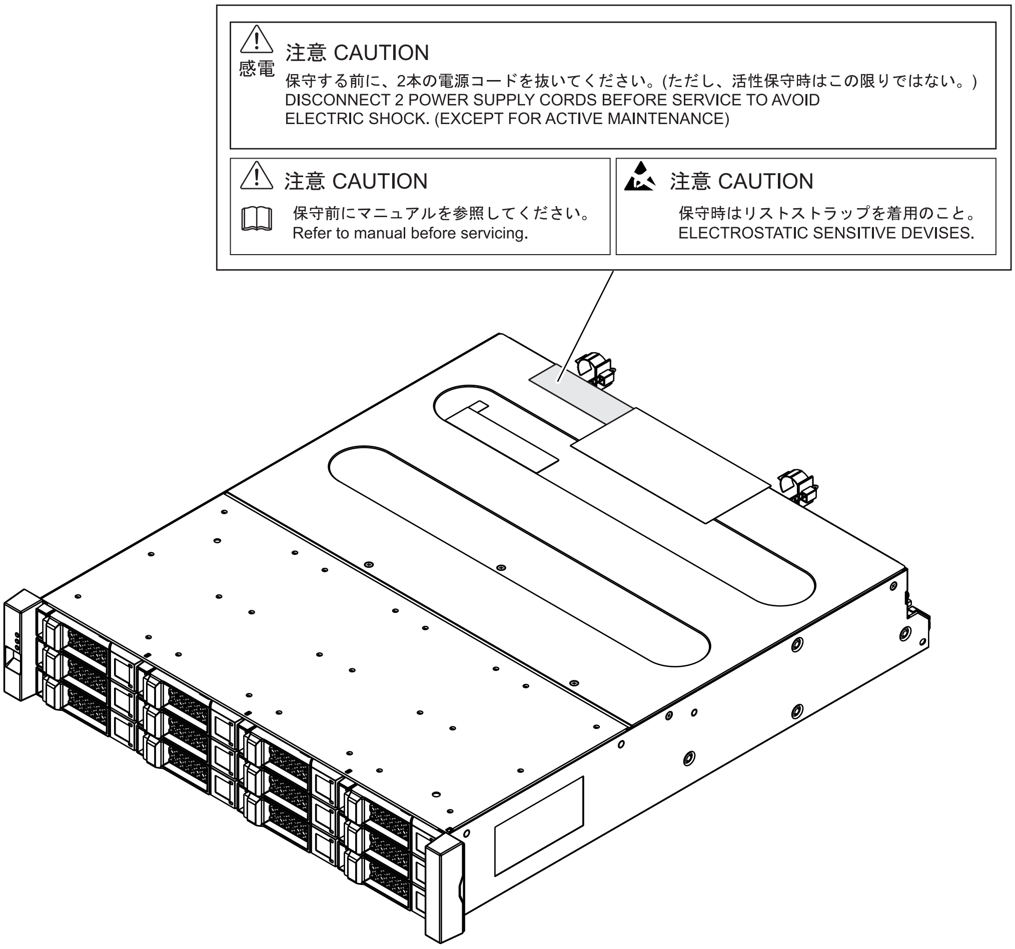
Refer to manual before servicing.

注意 CAUTION

保守時はリストストラップを着用のこと。
ELECTROSTATIC SENSITIVE DEVISES.



- Drive enclosure for DX80 S2/DX90 S2 (3.5inch)



感電

注意 CAUTION

保守する前に、2本の電源コードを抜いてください。(ただし、活性保守時はこの限りではない。)
DISCONNECT 2 POWER SUPPLY CORDS BEFORE SERVICE TO AVOID
ELECTRIC SHOCK. (EXCEPT FOR ACTIVE MAINTENANCE)

注意 CAUTION

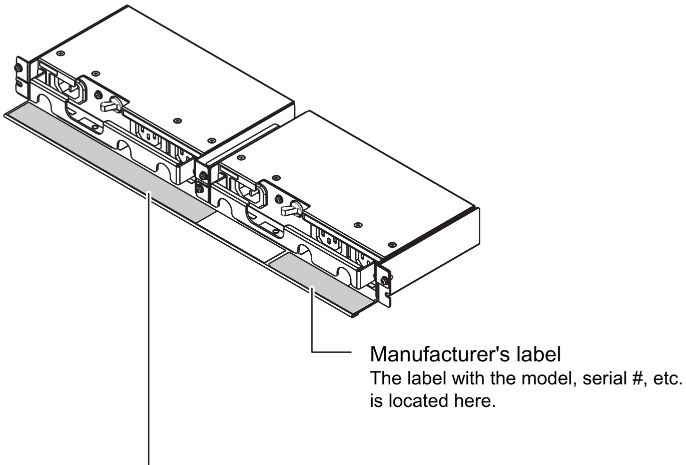
保守前にマニュアルを参照してください。
Refer to manual before servicing.

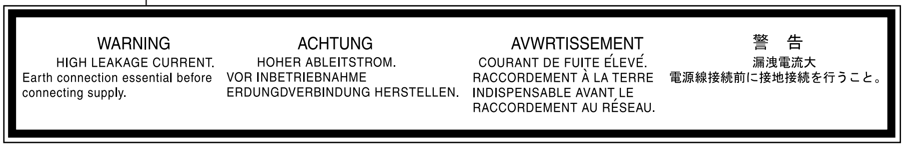
注意 CAUTION

保守時はリストストラップを着用のこと。
ELECTROSTATIC SENSITIVE DEVISES.

Power distribution units (for regions other than EMEA&I)

- Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 1U, Max 2 enclosures connection)


Manufacturer's label
The label with the model, serial #, etc. is located here.



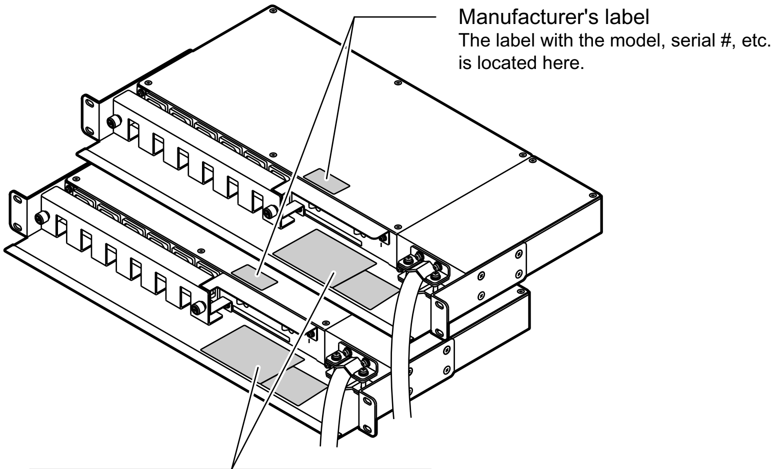
WARNING
HIGH LEAKAGE CURRENT.
Earth connection essential before connecting supply.

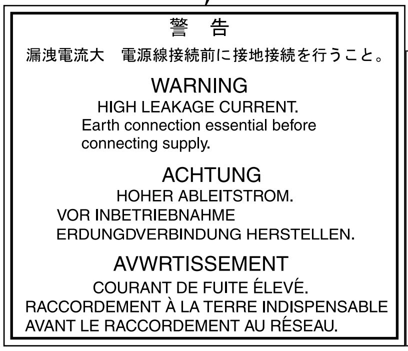
ACHTUNG
HOHER ABLEITSTROM.
VOR INBETRIEBNAHME ERDUNGDVERBINDUNG HERSTELLEN.

AVWRTISSEMENT
COURANT DE FUITE ÉLEVÉ.
RACCORDEMENT À LA TERRE INDISPENSABLE AVANT LE RACCORDEMENT AU RÉSEAU.

警　告
漏洩電流大
電源線接続前に接地接続を行うこと。

- Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection)


Manufacturer's label
The label with the model, serial #, etc. is located here.

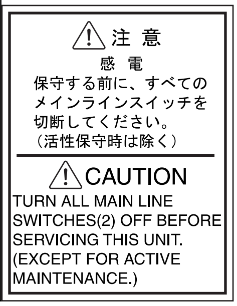


警　告
漏洩電流大　電源線接続前に接地接続を行うこと。

WARNING
HIGH LEAKAGE CURRENT.
Earth connection essential before connecting supply.

ACHTUNG
HOHER ABLEITSTROM.
VOR INBETRIEBNAHME
ERDUNGDVERBINDUNG HERSTELLEN.

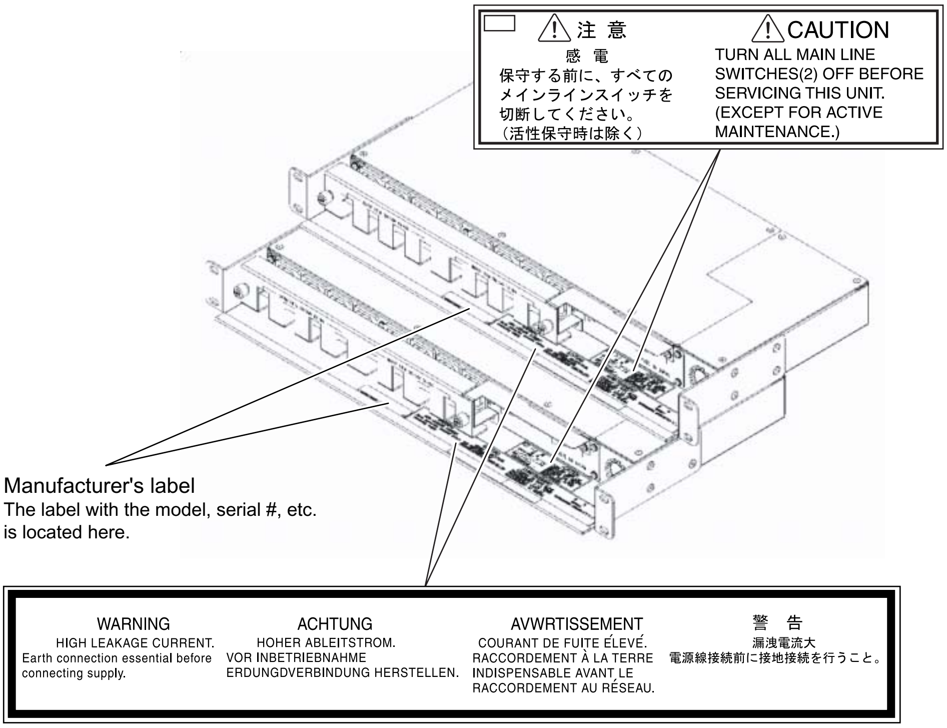
AVWRTISSEMENT
COURANT DE FUITE ÉLEVÉ.
RACCORDEMENT À LA TERRE INDISPENSABLE
AVANT LE RACCORDEMENT AU RÉSEAU.



⚠注 意
感　電
保守する前に、すべての
メインラインスイッチを
切断してください。
（活性保守時は除く）

⚠CAUTION
TURN ALL MAIN LINE
SWITCHES(2) OFF BEFORE
SERVICING THIS UNIT.
(EXCEPT FOR ACTIVE
MAINTENANCE.)

- Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection)



⚠注 意

感 電

保守する前に、すべての
メインラインスイッチを
切断してください。
（活性保守時は除く）

⚠CAUTION

TURN ALL MAIN LINE
SWITCHES(2) OFF BEFORE
SERVICING THIS UNIT.
(EXCEPT FOR ACTIVE
MAINTENANCE.)

Manufacturer's label

The label with the model, serial #, etc.
is located here.

WARNING

HIGH LEAKAGE CURRENT.
Earth connection essential before
connecting supply.

ACHTUNG

HOHER ABLEITSTROM.
VOR INBETRIEBNAHME
ERDUNGDVERBINDUNG HERSTELLEN.

AVWRTISSEMENT

COURANT DE FUITE ÉLEVÉ.
RACCORDEMENT À LA TERRE
INDISPENSABLE AVANT LE
RACCORDEMENT AU RÉSEAU.

警　告

漏洩電流大
電源線接続前に接地接続を行うこと。

Table of Contents

Chapter 1 Preparation 16

1.1 Connection Preparation 16
  1.1.1 SAN Connection 16
  1.1.2 Connection to LAN for Operation Management 17
1.2 Setup Preparation 25

Chapter 2 Components 27

2.1 Controller Enclosure 27
  2.1.1 Front 27
  2.1.2 Rear 28
  2.1.3 Components (Front) 29
  2.1.4 Components (Rear) 32
2.2 Drive Enclosures 38
  2.2.1 Front 38
  2.2.2 Rear 39
  2.2.3 Components (Front) 39
  2.2.4 Components (Rear) 42
2.3 Power Distribution Units (For Regions other than EMEA&I) 44
  2.3.1 Power Distribution Units (1U) 44
  2.3.2 Power Distribution Units (2U) 45

Chapter 3 Rack Installation 47

3.1 Installing Power Distribution Unit (For Regions other than EMEA&I) 48
  3.1.1 Installing Power Distribution Unit (1U) 48
  3.1.2 Installing Power Distribution Unit (2U) 50
3.2 Installing Controller Enclosure 52
3.3 Installing Drive Enclosure 58

Chapter 4 Connecting Cables 65

4.1 LAN Cable Connection (For Operation Management) 65

4.2 Host Interface Connection 67

4.2.1 FC Cable Connection (For FC, iSCSI 10Gbit/s, and FCoE) 67

4.2.2 Copper Twinax Cable Connection (For iSCSI 10Gbit/s and FCoE) 69

4.2.3 LAN Cable Connection (For iSCSI 1Gbit/s) 70

4.2.4 MiniSAS Cable Connection (For SAS) 72

4.3 Drive Enclosure Connection 73

4.4 Power Synchronized Unit Connection 78

4.5 Power Cord Connection 78

4.5.1 When no Power Distribution Units are Installed 78

4.5.2 When 1U Power Distribution Unit is Installed (For Regions other than EMEA&I) 81

4.5.3 When 2U Power Distribution Unit is Installed (For Regions other than EMEA&I) 83

Chapter 5 Setup 89

5.1 Basic Setup 89

5.1.1 ETERNUS DX Disk Storage System and PC Terminal Connection 89

5.1.2 Powering On 90

5.1.3 ETERNUS Web GUI Startup 91

5.1.4 Initial Setup 92

5.1.5 RAID Configuration Settings 99

5.1.6 Host Affinity Settings 106

5.2 ETERNUS DX Disk Storage System Monitoring Setup 118

5.2.1 Event Notification Setup 118

5.2.2 E-mail Setup 120

5.2.3 Syslog Setup 122

5.2.4 SNMP Trap Setup 124

5.2.5 Remote Support Setup 132

5.2.6 Audit Log Setup 138

5.3 Power Control Setup 140

5.3.1 Setup of the Auto Power Function and/or the Power Resume Function 140

5.3.2 Connection Setup for the ETERNUS DX Disk Storage System and Power Synchronized Units 142

5.4 Server Connection Setup 142

5.5 System Status Check 143

5.6 Powering Off after Completion of the Setup Procedure 145

List of Figures

Figure 1.1 LAN control (switching of the Master CM) 17
Figure 1.2 LAN control (when the IP address of the Slave CM is set) 18
Figure 1.3 Connection example without a dedicated remote support port 19
Figure 1.4 Connection example with a dedicated remote support port 20
Figure 1.5 Connection example when the IP address of the Slave CM is set (and a dedicated remote support port is not used) 21
Figure 1.6 Connection example when the IP address of the Slave CM is set (and a dedicated remote support port is used) 22
Figure 1.7 Attaching Network Settings label 25
Figure 2.1 Front view of a 2.5" type controller enclosure 27
Figure 2.2 Front view of a 3.5" type controller enclosure 27
Figure 2.3 Rear view of a controller enclosure (single-controller type) 28
Figure 2.4 Rear view of a controller enclosure (dual-controller type) 28
Figure 2.5 Operation panel (2.5" type controller enclosure) 29
Figure 2.6 Operation panel (3.5" type controller enclosure) 29
Figure 2.7 2.5" drive 31
Figure 2.8 Drive slot numbers (2.5" type controller enclosure) 31
Figure 2.9 3.5" drive 31
Figure 2.10 Drive slot numbers (3.5" type controller enclosure) 31
Figure 2.11 Controller 32
Figure 2.12 Host interface (FC, iSCSI 10Gbit/s, FCoE (for FC cable connection)) 34
Figure 2.13 Host interface (iSCSI 10Gbit/s, FCoE (for Copper Twinax cable connection)) 35
Figure 2.14 Host interface (iSCSI 1Gbit/s) 35
Figure 2.15 Host interface (SAS) 36
Figure 2.16 Power supply unit 37
Figure 2.17 Front view of a 2.5" type drive enclosure 38
Figure 2.18 Front view of a 3.5" type drive enclosure 38
Figure 2.19 Rear view of a drive enclosure (single-IOM type) 39
Figure 2.20 Rear view of a drive enclosure (dual-IOM type) 39
Figure 2.21 LEDs on the front side of the drive enclosure 40
Figure 2.22 2.5" drive 40
Figure 2.23 Drive slot numbers (2.5" type drive enclosure) 41
Figure 2.24 3.5" drive 41
Figure 2.25 Drive slot numbers (3.5" type drive enclosure) 41
Figure 2.26 I/O module 42
Figure 2.27 Power supply unit 43
Figure 2.28 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 1U Max 2 enclosures connection) 44
Figure 2.29 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection) 45
Figure 2.30 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection) 46
Figure 5.1 PC terminal connection for initial setup 89
Figure 5.2 Overview of the AIS Connect function 133
Figure 5.3 Security features 134

List of Tables

Table 1.1 Appropriate switch for each host interface type 16
Table 1.2 LAN port availability 23
Table 2.1 Status and meanings of each LED (operation panel (controller enclosure)) 30
Table 2.2 Status and meanings of each LED (drive) 32
Table 2.3 Status and meanings of each LED (controller) 33
Table 2.4 Status and meanings of each LED (power supply unit) 37
Table 2.5 Status and meanings of each LED (in front of drive enclosure) 40
Table 2.6 Status and meanings of each LED (drive) 41
Table 2.7 Status and meanings of each LED (I/O module) 42
Table 2.8 Status and meanings of each LED (power supply unit) 43
Table 3.1 Device installation order 47
Table 5.1 ETERNUS DX Disk storage system operation according to the settings of the Auto Power function and the Power Resume function 140

Chapter 1

Preparation

This chapter describes the necessary preparation for installation of the ETERNUS DX Disk storage system.

1.1 Connection Preparation

This section describes the necessary information, and the devices and cables that should be prepared before you connect the ETERNUS DX Disk storage system to a Storage Area Network (SAN) and a LAN network for operation management.

1.1.1 SAN Connection

A SAN is a dedicated network for connecting a server (host) to an ETERNUS DX Disk storage system. FC, iSCSI, FCoE, and SAS interfaces can be used for the host interface. The connection destination may be the server or the switch depending on which connection configuration is used. For the possible combinations of servers, Host Bus Adapters (HBAs), and switches, refer to "Server Support Matrix" by accessing the URL that is described in "READ ME" on the Documentation CD provided with the ETERNUS DX Disk storage system.
The host interface cables that are used for connecting the ETERNUS DX Disk storage system to a SAN must be obtained separately. When a switch is used to connect the ETERNUS DX Disk storage system to the server, the appropriate switch for the type of host interface that is to be connected must also be prepared separately.

Table 1.1 Appropriate switch for each host interface type

Host interface	Switch to be prepared
FC	FC switch
iSCSI	LAN switch
FCoE	FCoE switch
SAS	SAS switch

1.1.2 Connection to LAN for Operation Management

The ETERNUS DX Disk storage system must be connected to the LAN for operation management during system maintenance and operation management.

Note

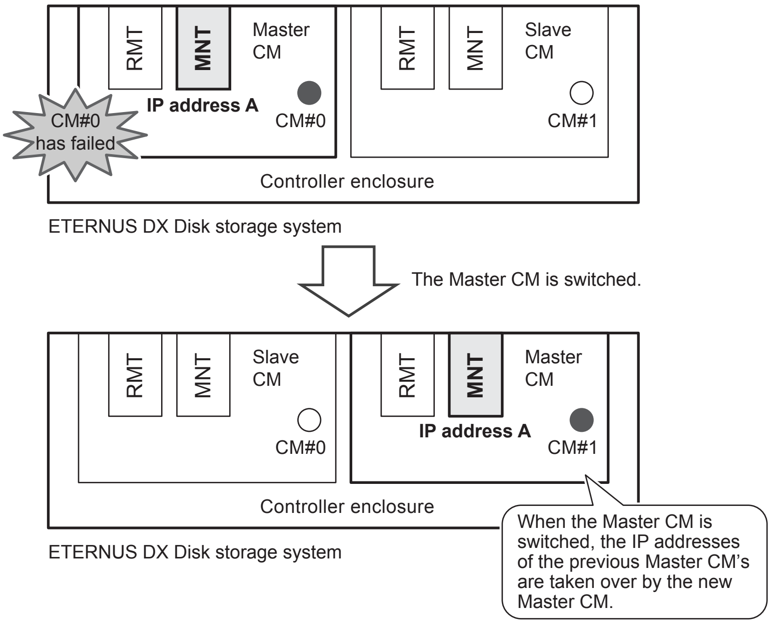
- Make sure to connect each controller to the LAN for operation management.
- The LAN ports of the ETERNUS DX Disk storage system support IPv4 and IPv6.
  Note that an IPv6 network is used for an ETERNUS DX Disk storage system with firmware version V10L30 or later.

The network environment setup is performed during installation of the ETERNUS DX Disk storage system. IP addresses must be prepared before the setup. Network devices that are used to connect the ETERNUS DX Disk storage system to the LAN for operation management must also be prepared.
This section explains how the controller of the ETERNUS DX Disk storage system controls the LAN, the necessary preparation for connection to the LAN for operation management, and notes on LAN connections.

1.1.2.1 LAN Control Controller (Master CM/Slave CM)

For a dual-controller type, the controller (CM) that is given the authority to manage the LAN is called the Master CM and the other CM is called the Slave CM.
When an error occurs in the Master CM or LAN, the Master CM is switched automatically.
IP addresses of the LAN ports are not assigned to each CM. These IP addresses are assigned to the role of master or slave. If the Master CM is switched, the same IP addresses are reused. Therefore, even if the Master CM is switched and the physical port is changed, access can be maintained via the same IP addresses.

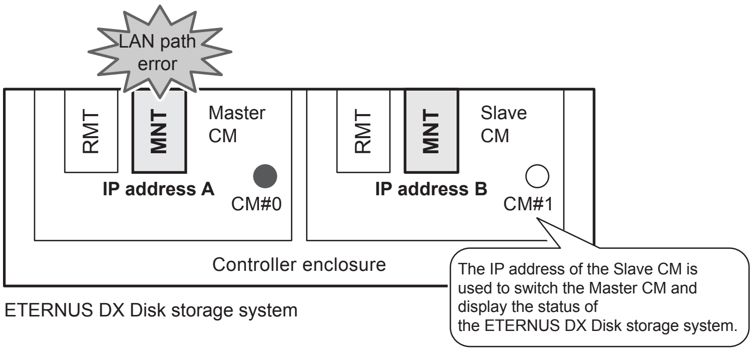
Figure 1.1 LAN control (switching of the Master CM)


RMT
MNT
Master CM
IP address A
CM#0
CM#0 has failed
RMT
MNT
Slave CM
CM#1
Controller enclosure
ETERNUS DX Disk storage system
The Master CM is switched.
RMT
MNT
Slave CM
CM#0
RMT
MNT
Master CM
IP address A
CM#1
Controller enclosure
ETERNUS DX Disk storage system
When the Master CM is switched, the IP addresses of the previous Master CM's are taken over by the new Master CM.

Note

- Each CM has an LED that lights up green to identify when it is the Master CM.
- Setting the IP address of the Slave CM ensures that ETERNUS Web GUI or ETERNUS CLI can be used from the Slave CM if an error occurs on the LAN path for the Master CM. The Master CM and the Slave CM perform different functions. The Slave CM can only switch the Master CM and display the status of the ETERNUS DX Disk storage system.
  The IP address of the Slave CM does not need to be set for normal operation.

Figure 1.2 LAN control (when the IP address of the Slave CM is set)


LAN path error
RMT
MNT
Master CM
IP address A
CM#0
RMT
MNT
Slave CM
IP address B
CM#1
Controller enclosure
ETERNUS DX Disk storage system
The IP address of the Slave CM is used to switch the Master CM and display the status of the ETERNUS DX Disk storage system.

1.1.2.2 Preparation for Connection to the LAN for Operation Management

The IP addresses and the network devices that must be prepared before an ETERNUS DX Disk storage system is connected to the LAN for operation management are explained for the following examples of connection configurations.

Check the network environment and prepare the necessary items.

- IP addresses for the ETERNUS DX Disk storage system
  MNT ports are used for connecting a LAN for operation management.
  The remote support uses MNT ports for a network connection by default. In this situation, the network connection for the remote support is transferred via the company LAN. When the network connection for the remote support needs to be separated from the company LAN, use the RMT ports to connect to the remote support center via a different network.

IMPORTANT

- Do not use the RMT port for an operation management LAN. Use the RMT port only for maintenance work or remote support.
- When an RMT port is used, make sure the IP address of the RMT port is in a different subnet from the IP address of the MNT port. When network settings are not performed for the RMT port, the RMT port is disabled.
  Make sure to connect each controller to the network for remote support.
- When specifying the IP address of the Slave CM, specify an IP address that is in the same subnet but is different from the IP address of the Master CM.
- Either or both an IPv4 address and an IPv6 address can be specified for the MNT port and the RMT port.

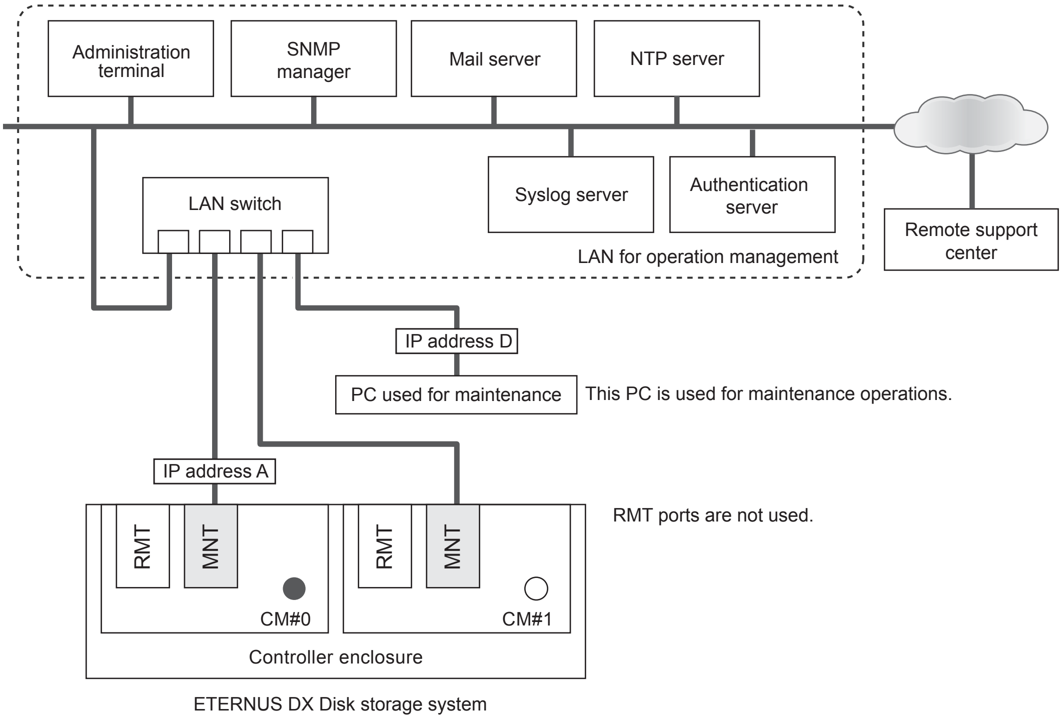
- Network devices and cables
  Network devices, such as LAN switches, must be prepared to connect an ETERNUS DX Disk storage system to the LAN. When the LAN for remote support is separate from the LAN for operation management, routers and LAN cables must be prepared to connect to the other network.

Connection example without a dedicated remote support port

MNT ports are used for the network connection of the remote support. RMT ports are not used.

- For the ETERNUS DX Disk storage system, one IP address for the MNT port is required.
  To connect the ETERNUS DX Disk storage system to both an IPv4 network and an IPv6 network, an IPv4 address and an IPv6 address are required for the MNT port.
- An IP address is required for a PC that is used for maintenance operations performed by a maintenance engineer.
- Network devices such as LAN switches are required for operation management.
- Two enhanced Cat-5 twisted-pair type LAN cables are required to connect the ETERNUS DX Disk storage system to the LAN for operation management.

Figure 1.3 Connection example without a dedicated remote support port

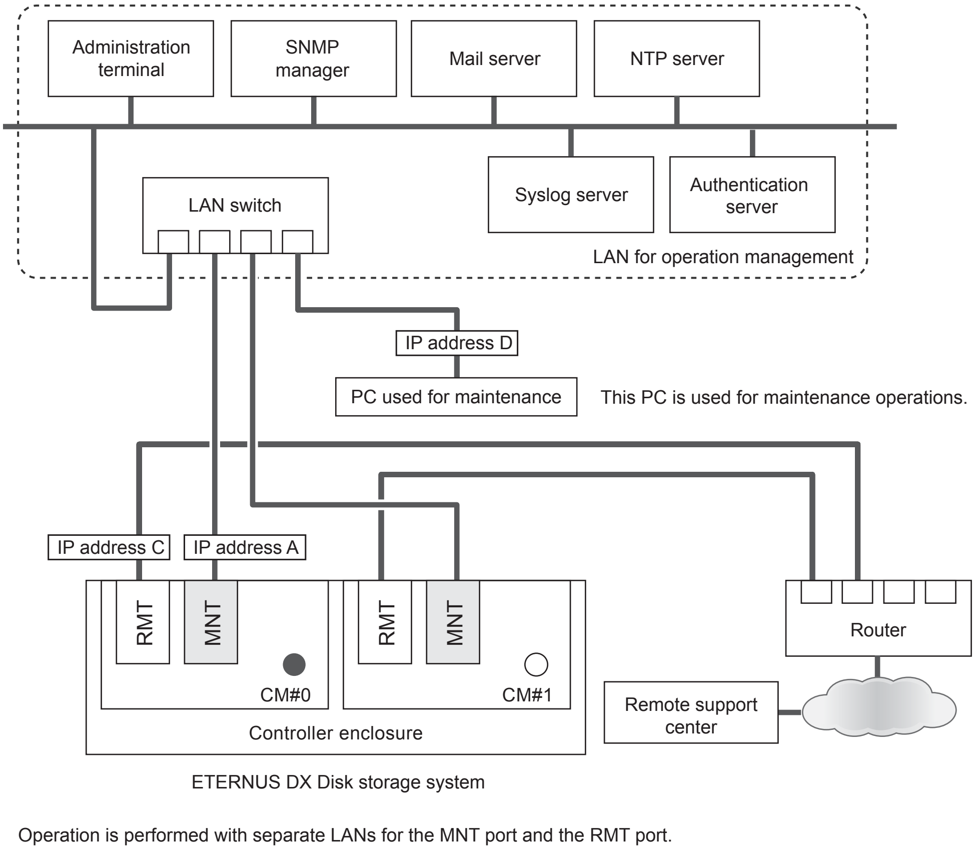

Administration terminal
SNMP manager
Mail server
NTP server
Syslog server
Authentication server
LAN switch
LAN for operation management
Remote support center
IP address D
PC used for maintenance
This PC is used for maintenance operations.
IP address A
RMT
MNT
CM#0
RMT
MNT
CM#1
RMT ports are not used.
Controller enclosure
ETERNUS DX Disk storage system

Connection example with a dedicated remote support port

Use RMT ports when the network connection for remote support needs to be separated from the company LAN.

- For the ETERNUS DX Disk storage system, two IP addresses are required (one IP address for the MNT port and one IP address for the RMT port).
  To connect the ETERNUS DX Disk storage system to both an IPv4 network and an IPv6 network, an IPv4 address and an IPv6 address are required for each port.
- An IP address is required for a PC that is used for maintenance operations performed by a maintenance engineer.
- Network devices such as LAN switches are required for operation management.
- Network devices such as routers are required to connect to the remote support center.
- Four enhanced Cat-5 twisted-pair type LAN cables are required (two for connection to the remote support center and two for connection to the LAN for operation management).

Figure 1.4 Connection example with a dedicated remote support port

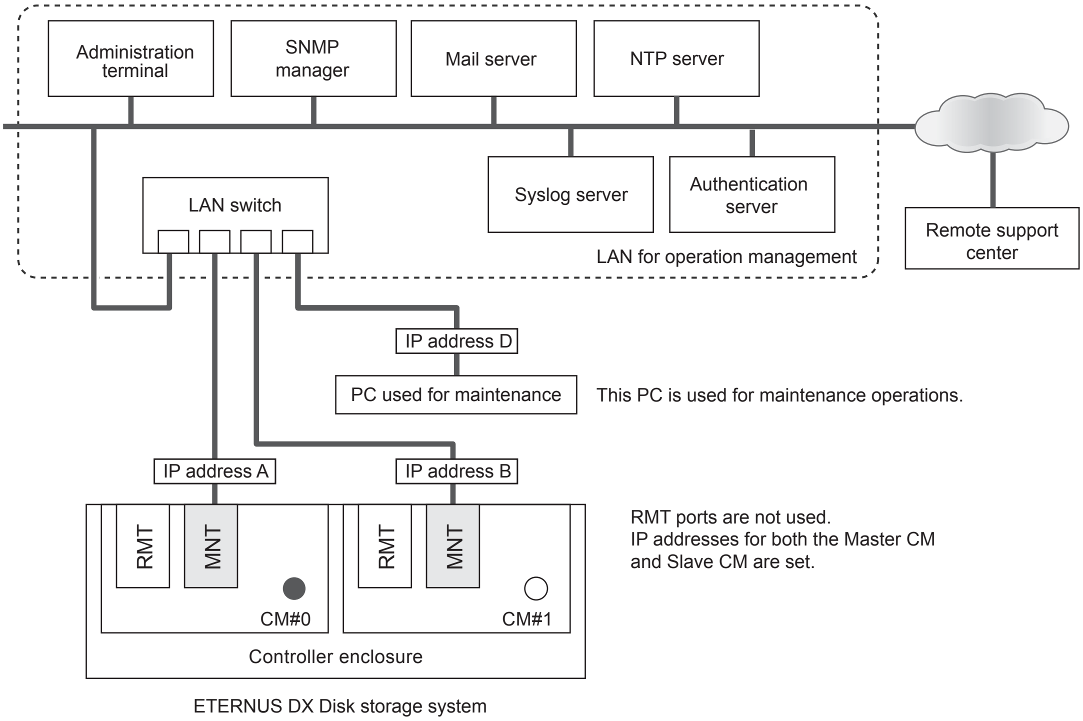

Administration terminal
SNMP manager
Mail server
NTP server
LAN switch
Syslog server
Authentication server
LAN for operation management
IP address D
PC used for maintenance
This PC is used for maintenance operations.
IP address C
IP address A
RMT
MNT
CM#0
RMT
MNT
CM#1
Controller enclosure
Router
Remote support center
ETERNUS DX Disk storage system
Operation is performed with separate LANs for the MNT port and the RMT port.

Note

The following section provides connection examples and explains the necessary preparation for when the IP address of the Slave CM is set.

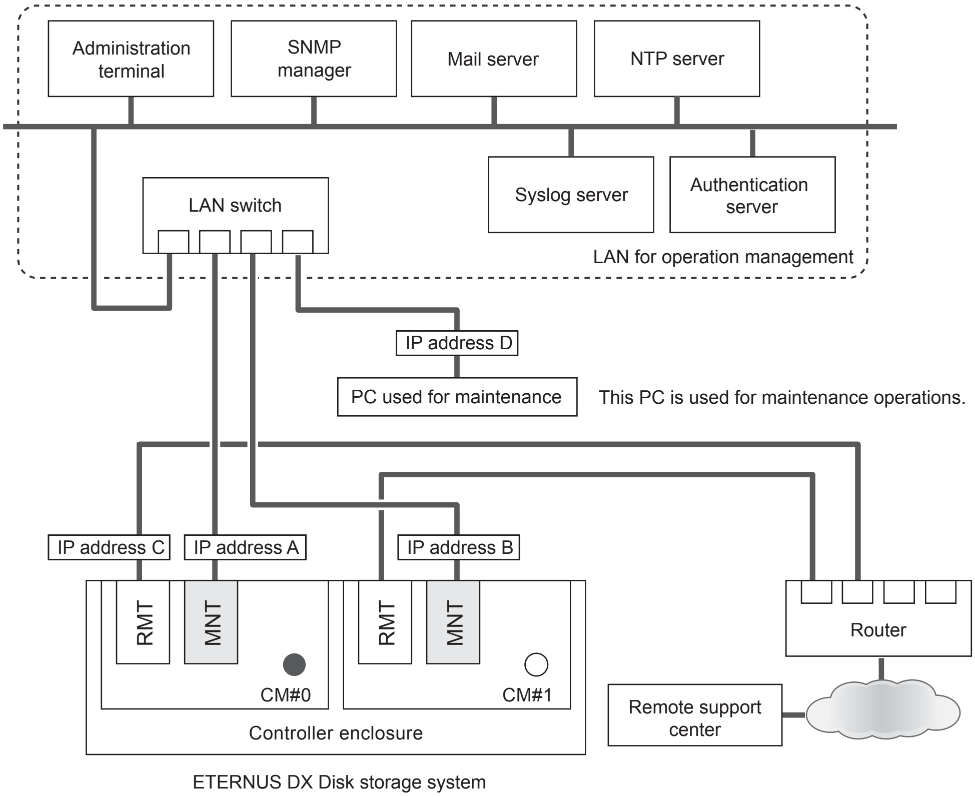
- Connection example without a dedicated remote support port
  - For the ETERNUS DX Disk storage system, two IP addresses for the MNT port are required.
    To connect the ETERNUS DX Disk storage system to both an IPv4 network and an IPv6 network, an IPv4 address and an IPv6 address are required for each port.
  - An IP address is required for a PC that is used for maintenance operations performed by a maintenance engineer.
  - Network devices such as LAN switches are required for operation management.
  - Two enhanced Cat-5 twisted-pair type LAN cables are required to connect the ETERNUS DX Disk storage system to the LAN for operation management.

Figure 1.5 Connection example when the IP address of the Slave CM is set (and a dedicated remote support port is not used)


Administration terminal
SNMP manager
Mail server
NTP server
Syslog server
Authentication server
LAN switch
LAN for operation management
Remote support center
IP address D
PC used for maintenance
This PC is used for maintenance operations.
IP address A
IP address B
RMT
MNT
CM#0
RMT
MNT
CM#1
Controller enclosure
ETERNUS DX Disk storage system
RMT ports are not used.
IP addresses for both the Master CM and Slave CM are set.

- Connection example with a dedicated remote support port
  - For the ETERNUS DX Disk storage system, three IP addresses are required (two IP addresses for the MNT ports and one IP address for the RMT port).
    To connect the ETERNUS DX Disk storage system to both an IPv4 network and an IPv6 network, an IPv4 address and an IPv6 address are required for each port.
  - An IP address is required for a PC that is used for maintenance operations performed by a maintenance engineer.
  - Network devices such as LAN switches are required for operation management.
  - Network devices such as routers are required for the remote support.
  - Four enhanced Cat-5 twisted-pair type LAN cables are required (two for connection to the remote support center and two for connection to the LAN for operation management).

Figure 1.6 Connection example when the IP address of the Slave CM is set (and a dedicated remote support port is used)


Administration terminal
SNMP manager
Mail server
NTP server
Syslog server
Authentication server
LAN switch
LAN for operation management
IP address D
PC used for maintenance
This PC is used for maintenance operations.
IP address C
IP address A
IP address B
RMT
MNT
CM#0
RMT
MNT
CM#1
Controller enclosure
Router
Remote support center
ETERNUS DX Disk storage system

Operation is performed with separate LANs for the MNT port and the RMT port.
The IP addresses of both the Master CM and Slave CM are set.

1.1.2.3 Notes on LAN Connection

Network communication protocols

The usable LAN ports and functions are different depending on the usage and protocol.
The following table shows how the LAN ports may be used (by usage and protocol).

Table 1.2 LAN port availability

Usage		Protocol	tcp / udp	Port number	Direction	Master CM		Slave CM		Remarks
						MNT	RMT	MNT	RMT	
ETERNUS Web GUI		http / https	tcp	80 / 443	from	Yes	Yes	*1	*1	Accessed from a Web browser
ETERNUS CLI		telnet / ssh	tcp	23 / 22	from	Yes	Yes	*1	*1	–
		ftp (client)	tcp	21	to	Yes	Yes	*1	*1	–
SNMP	agent	snmp	udp	161	from	Yes	Yes	Yes	Yes	–
	trap	snmp trap	udp	Must be set	to	Yes (*2)	Yes (*2)	No	No	–
SMI-S		http / https	tcp	5988 / 5989	from	Yes	No	No	No	Used for SMI-S client communication
E-mail		smtp (client)	tcp	25 (*3)	to	Yes (*2)	Yes (*2)	No	No	Used for failure notification, etc.
NTP		NTP	udp	123	to	Yes (*2)	Yes (*2)	No	No	–
REMCS (remote support)		smtp	tcp	Must be set	to	Yes (*2)	Yes (*2)	No	No	Used for failure notification, etc.
		http (client)	tcp	Must be set	to	Yes (*2)	Yes (*2)	No	No	Used for firmware download, etc.
AIS Connect (remote support)		https (client)	tcp	443	to	Yes (*2)	Yes (*2)	No	No	–
syslog (event notification and audit log sending)		syslog	udp	Must be set	to	Yes (*2)	Yes (*2)	No	No	–
RADIUS		Radius	udp	Must be set	to	Yes (*2)	Yes (*2)	No	No	–
ping		ICMP	–	–	from	Yes (*2)	Yes (*2)	No	No	–
KMIP (key management)		SSL	tcp	5696 (*3)	to	Yes (*2)	Yes (*2)	No	No	–

Yes: Available / No: Not available

*1: Only the following functions are available:
  - Checking the ETERNUS DX Disk storage system status
  - Switching the Master CM

*2: May use either the MNT port or RMT port.

*3: Modifiable

For details on the port numbers for the Storage Foundation Software ETERNUS SF, refer to the manual of each Storage Foundation Software ETERNUS SF.

■ Communication modes

The default LAN operation mode is "Auto Negotiation" which allows the ETERNUS DX Disk storage system to automatically recognize 1000Base-T/100Base-TX/10Base-T and Full/Half-Duplex connections. However, some devices may require that a fixed communication mode be set.

■ Notes on using LAN switches

When the LAN switch that is to be used has the Spanning Tree Protocol (STP) function enabled, connection to the ETERNUS DX Disk storage system may fail. Use the following settings to disable the STP function:

- When the STP function is not necessary for the network configuration:
  Disable the STP function of the LAN switch.
- When the STP function is necessary for the network configuration:
  Disable the STP function of the LAN switch port only for the ETERNUS DX Disk storage system connection or perform the Port-Fast setting.

1.2 Setup Preparation

Perform the following preparation to set up the ETERNUS DX Disk storage system.

- Completing and attaching the Network Settings label
- Preparation and settings for the PC terminal

Completing and attaching the Network Settings label

Complete the network setting information in the provided Network Settings label and attach it on the controller enclosure.

❏ Completing the Network Settings label

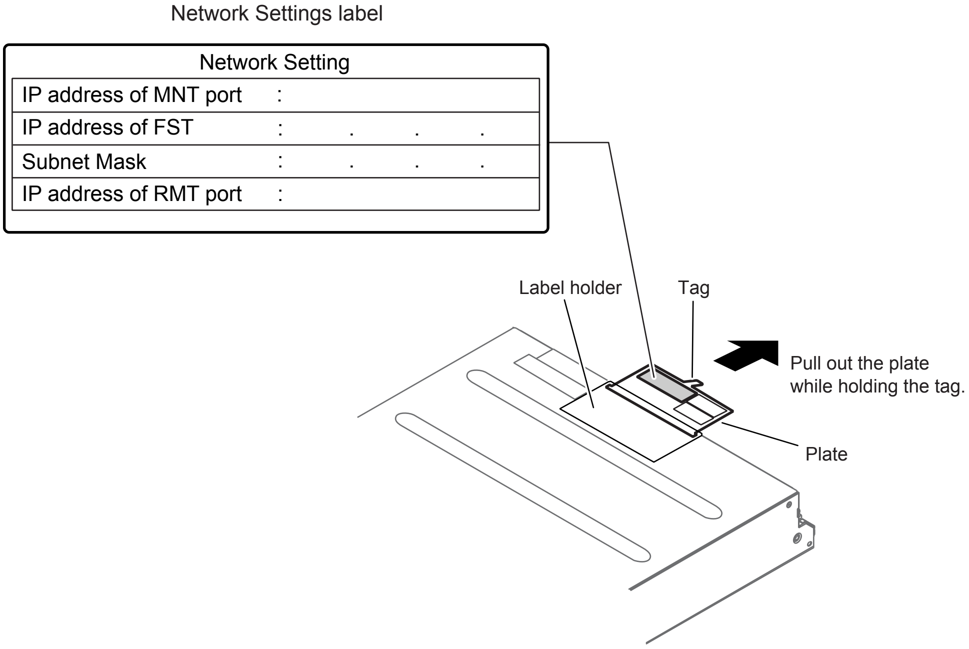
Complete the following items in the Network Settings label.

- IP address of MNT port
  The IP address for a MNT port of the ETERNUS DX Disk storage system
- IP address of FST
  The IP address for a PC that is used for maintenance operations performed by a maintenance engineer
- Subnet Mask
  Subnet mask of network connected
- IP address of RMT port
  The IP address for a RMT port of the ETERNUS DX Disk storage system

❏ Attaching Network Settings label

Attach the completed Network Settings label on the label plate in the label holder on the rear upper side of the controller enclosure.

Figure 1.7 Attaching Network Settings label



Network Settings label

Network Setting	
IP address of MNT port	:
IP address of FST	: . . .
Subnet Mask	: . . .
IP address of RMT port	:

Preparation and settings for the PC terminal

The initial settings are performed by using a Web browser on the PC terminal.
Prepare and set up the PC terminal before the initial settings.

❑ Preparing the PC terminal

Prepare the PC terminal that contains the following environment:

- Web browser
  Usable Web browsers are as follows. Using Web browsers other than the following is possible, but proper operation is not guaranteed.
  - Microsoft Internet Explorer 7.0, 8.0, 9.0, 10.0 (desktop version)
  - Mozilla Firefox 3.6.x, ESR 10.0.x, ESR 17.0.x

Note

- Microsoft Internet Explorer 9.0 and Mozilla Firefox ESR 10.0.x can be used for an ETERNUS DX Disk storage system with controller firmware version V10L30 or later.
- Microsoft Internet Explorer 10.0 (desktop version) can be used for an ETERNUS DX Disk storage system with controller firmware version V10L40 or later.
- Mozilla Firefox ESR 17.0.x can be used for an ETERNUS DX Disk storage system with controller firmware version V10L45 or later.

❑ Setting up the PC terminal

Set up the PC terminal with the following procedure:

Procedure

1 Set the IP address and subnet mask of the PC terminal.
Set the following values.

IP address: 192.168.1.2
Subnet mask: 255.255.255.0

2 Check the settings of the Web browser.
Refer to "ETERNUS Web GUI User's Guide" for details on the settings that are required.

End of procedure

Chapter 2

Components

This chapter describes the components of the ETERNUS DX Disk storage system.

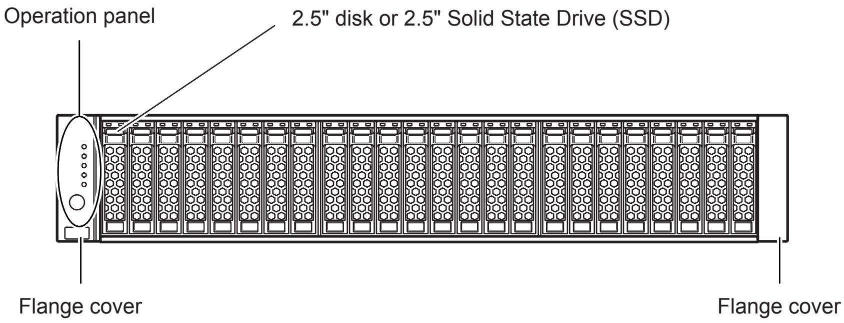
2.1 Controller Enclosure

An operation panel and drives are installed in the front of the controller enclosure. Controllers and power supply units are installed in the rear.

2.1.1 Front

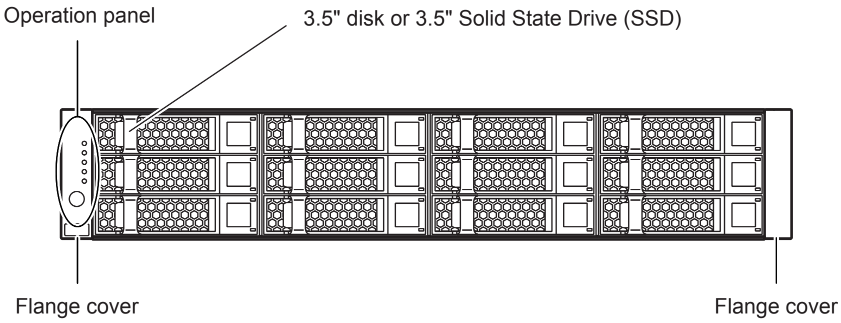
■ 2.5" type

Figure 2.1 Front view of a 2.5" type controller enclosure


Operation panel
2.5" disk or 2.5" Solid State Drive (SSD)
Flange cover
Flange cover

■ 3.5" type

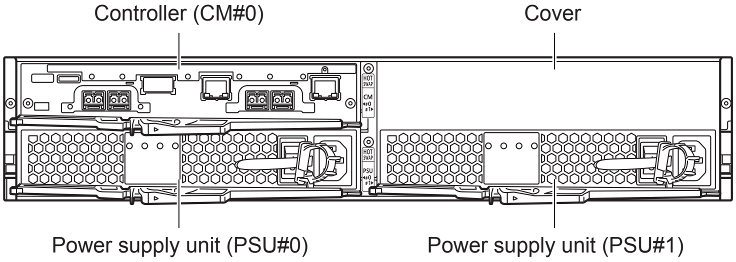
Figure 2.2 Front view of a 3.5" type controller enclosure


Operation panel
3.5" disk or 3.5" Solid State Drive (SSD)
Flange cover
Flange cover

2.1.2 Rear

■ Single-controller type

Figure 2.3 Rear view of a controller enclosure (single-controller type)

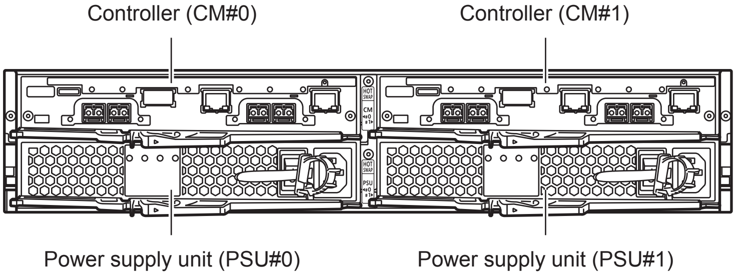

Controller (CM#0)
Cover
Power supply unit (PSU#0)
Power supply unit (PSU#1)

● Part explanation

- Cover
  Remove this when installing an additional controller (optional).

■ Dual-controller type

Figure 2.4 Rear view of a controller enclosure (dual-controller type)


Controller (CM#0)
Controller (CM#1)
Power supply unit (PSU#0)
Power supply unit (PSU#1)

2.1.3 Components (Front)

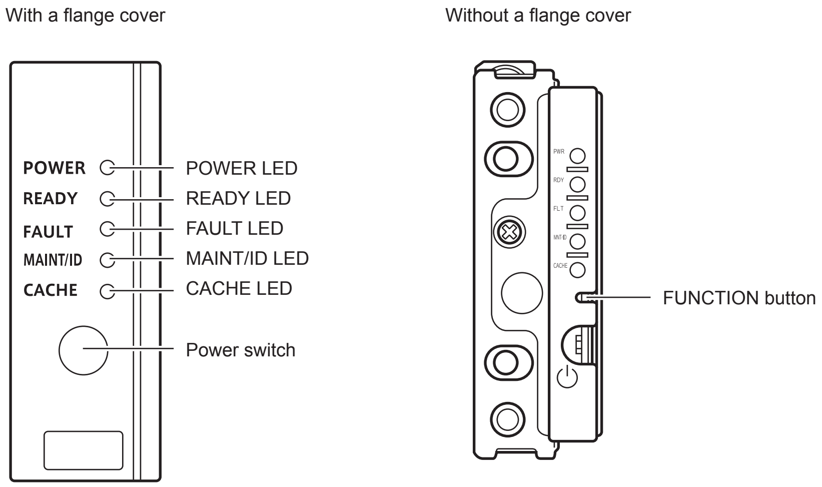
This section describes the operation panel and the drives in the front of the controller enclosure.

Operation panel

An operation panel has LEDs, a Power switch, and a FUNCTION button.

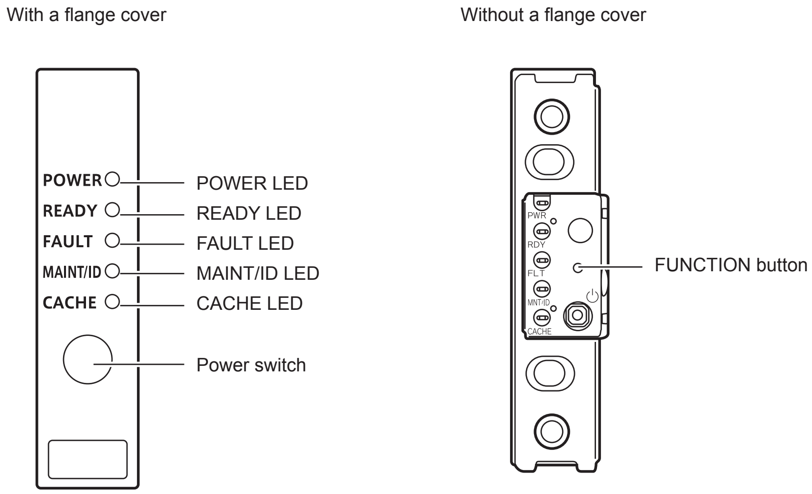
- 2.5" type

Figure 2.5 Operation panel (2.5" type controller enclosure)


With a flange cover
Without a flange cover
POWER
READY
FAULT
MAINT/ID
CACHE
POWER LED
READY LED
FAULT LED
MAINT/ID LED
CACHE LED
Power switch
PWR
RDY
FLT
MINT/ID
CACHE
FUNCTION button

- 3.5" type

Figure 2.6 Operation panel (3.5" type controller enclosure)


With a flange cover
Without a flange cover
POWER
READY
FAULT
MAINT/ID
CACHE
POWER LED
READY LED
FAULT LED
MAINT/ID LED
CACHE LED
Power switch
PWR
RDY
FLT
MNT/ID
CACHE
FUNCTION button

Part explanation

- Power switch
  This switch is used to turn on or off the ETERNUS DX Disk storage system.

- FUNCTION button
  Hold down the button for three seconds during maintenance to stop the maintenance operation. Hold down the button for three seconds while a maintenance operation is not performed to start the maintenance operation.
  For a dual-controller type, press the button twice within three seconds during maintenance to switch the Master CM to the other controller.
  Press the button three times within three seconds during maintenance to restore the factory default settings of the LAN ports.

- LEDs
  The states of LEDs are listed below.

Table 2.1 Status and meanings of each LED (operation panel (controller enclosure))

LED name	LED status	ETERNUS DX Disk storage system status
POWER	🟢 (green)	DC power is supplied to the controller enclosure.
READY	🟢 (green)	The ETERNUS DX Disk storage system is available for use.
FAULT	🟠 (amber)	The ETERNUS DX Disk storage system is in error status.
	🟠 (blinks amber)	A part of the ETERNUS DX Disk storage system requires preventive maintenance.
MAINT/ID	🟢 (green)	Maintenance for the ETERNUS DX Disk storage system is in progress.
	🟢 (blinks green)	• As ordered via ETERNUS Web GUI or ETERNUS CLI, the installation location of the controller enclosure is identified. • Maintenance or a status check via ETERNUS Web GUI or ETERNUS CLI is necessary.
CACHE	🟢 (green)	There is data in the ETERNUS DX Disk storage system cache memory.

Drives

2.5" drives

Figure 2.7 2.5" drive

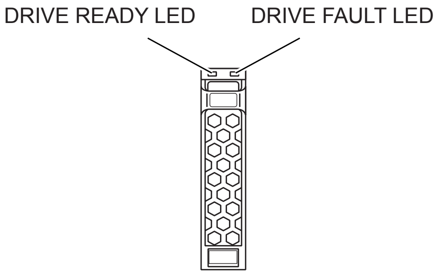
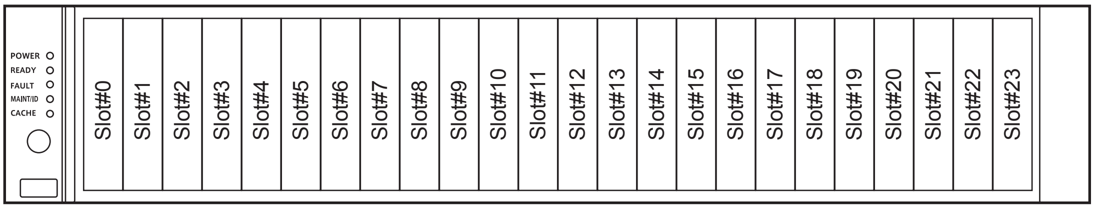

DRIVE READY LED
DRIVE FAULT LED

Figure 2.8 shows the slot number of each drive.

Figure 2.8 Drive slot numbers (2.5" type controller enclosure)


POWER
READY
FAULT
MAINT/ID
CACHE
Slot#0
Slot#1
Slot#2
Slot#3
Slot#4
Slot#5
Slot#6
Slot#7
Slot#8
Slot#9
Slot#10
Slot#11
Slot#12
Slot#13
Slot#14
Slot#15
Slot#16
Slot#17
Slot#18
Slot#19
Slot#20
Slot#21
Slot#22
Slot#23

3.5" drives

Figure 2.9 3.5" drive

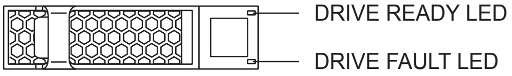
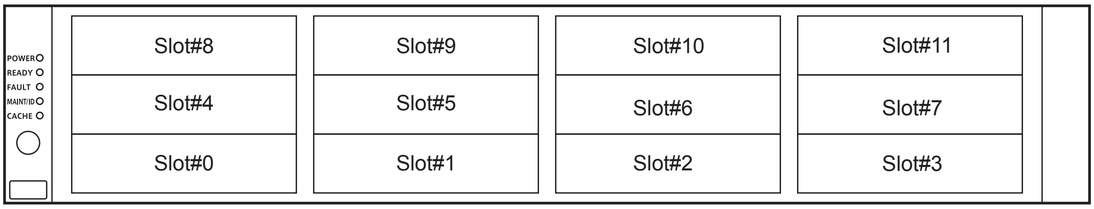

DRIVE READY LED
DRIVE FAULT LED

Figure 2.10 shows the slot number of each drive.

Figure 2.10 Drive slot numbers (3.5" type controller enclosure)


POWER
READY
FAULT
MAINT/ID
CACHE
Slot#8
Slot#9
Slot#10
Slot#11
Slot#4
Slot#5
Slot#6
Slot#7
Slot#0
Slot#1
Slot#2
Slot#3

● Part explanation

- LEDs
  The states of LEDs are listed below.

Table 2.2 Status and meanings of each LED (drive)

LED name	LED status	Drive status
DRIVE READY	● (green)	The drive is in normal status.
	● (blinks green)	
DRIVE FAULT	● (amber)	• The drive is in error status. • In response to commands from ETERNUS CLI, the location of the drive is identified.

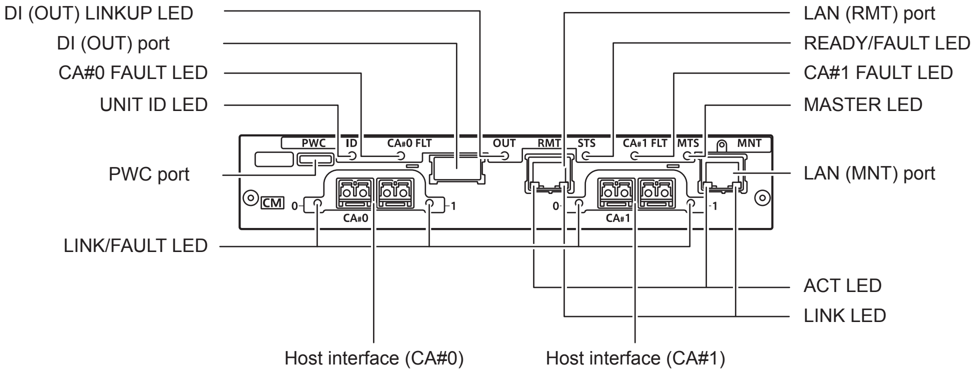
2.1.4 Components (Rear)

This section describes the controllers and the power supply units in the rear of the controller enclosure.

2.1.4.1 Controllers

The controller contains a CPU, cache memory, System Capacitor Unit (SCU), host interfaces, drive interface (DI) ports, and LAN ports. The controller controls all operations in the ETERNUS DX Disk storage system.

Figure 2.11 Controller


DI (OUT) LINKUP LED
DI (OUT) port
CA#0 FAULT LED
UNIT ID LED
PWC port
LINK/FAULT LED
LAN (RMT) port
READY/FAULT LED
CA#1 FAULT LED
MASTER LED
LAN (MNT) port
ACT LED
LINK LED
Host interface (CA#0)
Host interface (CA#1)
PWC
ID
CA#0 FLT
OUT
RMT
STS
CA#1 FLT
MTS
MNT
CM
0
1
CA#0
0
1
CA#1

Part explanation

- LAN (RMT) port, LAN (MNT) port
  These ports are RJ-45 connectors for LAN cables.
- Host interface (CA#0), host interface (CA#1)
  Install host interfaces. For details, refer to "Host interfaces" (page 34).
- DI (OUT) port
  This port is used to connect a controller enclosure to a drive enclosure with a QSFP cable.
- PWC port
  This port is used to connect a power synchronization unit with an RS232C cable.
- LEDs
  The states of LEDs are listed below.

Table 2.3 Status and meanings of each LED (controller)

LED name	LED status	Controller status
READY/FAULT	🟢 (green)	The controller is in normal status.
	🟠 (amber)	• The controller is performing the initial setup after the power is turned on. • The controller is in error status.
	🟠 (blinks amber)	
MASTER	🟢 (green)	The controller is set as a Master CM.
UNIT ID	🟢 (blinks green)	• As ordered via ETERNUS Web GUI or ETERNUS CLI, the installation location of the controller is identified. • System Capacitor Unit (SCU) is charging.
CA FAULT	🟠 (amber)	The host interface is in error status.
LINK/FAULT	🟢 (green)	The link between the host interface port and the destination port has been established.
	🟠 (amber)	The host interface port is in error status.
DI (OUT) LINKUP	🟢 (green)	The link between the DI (OUT) port and the destination port has been established.
ACT	🟢 (green)	The controller is sending or receiving data via the LAN port (for operation management).
LINK	🟢 (green)	The link between the LAN port (for operation management) and the destination has been established.

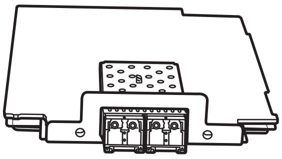
Host interfaces

A host interface is a board that has interface ports to connect a controller to the server.
There are six types of host interfaces: FC 16Gbit/s, FC 8Gbit/s, iSCSI 10Gbit/s, FCoE, iSCSI 1Gbit/s, and SAS.

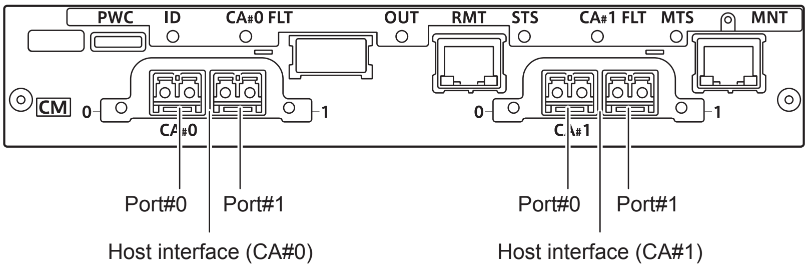
FC, iSCSI 10Gbit/s, FCoE (for FC cable connection)

Figure 2.12 Host interface (FC, iSCSI 10Gbit/s, FCoE (for FC cable connection))

FC, iSCSI 10Gbit/s, FCoE



Installed host interfaces in the controller

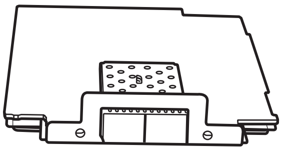

PWC
ID
CA#0 FLT
OUT
RMT
STS
CA#1 FLT
MTS
MNT
CM
0
1
CA#0
0
1
CA#1
Port#0
Port#1
Host interface (CA#0)
Port#0
Port#1
Host interface (CA#1)

- Part explanation
  - Host interface ports (FC, iSCSI 10Gbit/s, FCoE (for FC cable connection)) (from left to right: Port#0 and Port#1 in CA#0, Port#0 and Port#1 in CA#1)
    These are the Dual LC connectors to connect FC cables.

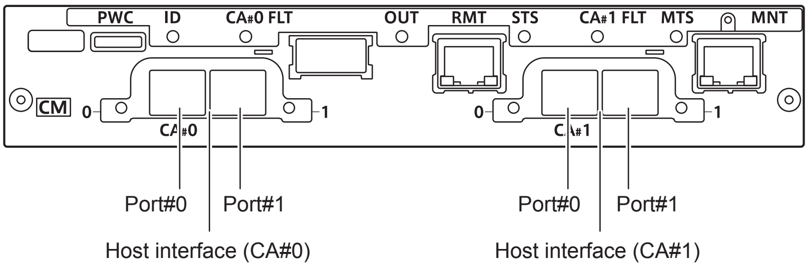
iSCSI 10Gbit/s, FCoE (for Copper Twinax cable connection)

Figure 2.13 Host interface (iSCSI 10Gbit/s, FCoE (for Copper Twinax cable connection))

iSCSI 10Gbit/s, FCoE



Installed host interfaces in the controller

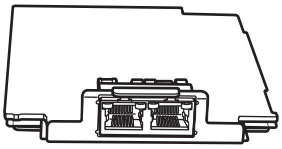

PWC
ID
CA#0 FLT
OUT
RMT
STS
CA#1 FLT
MTS
MNT
CM
0
1
CA#0
0
1
CA#1
Port#0
Port#1
Host interface (CA#0)
Port#0
Port#1
Host interface (CA#1)

- Part explanation
  - Host interface ports (iSCSI 10Gbit/s, FCoE (for Copper Twinax cable connection)) (from left to right: Port#0 and Port#1 in CA#0, Port#0 and Port#1 in CA#1)
    These are the connectors to connect Copper Twinax cables.

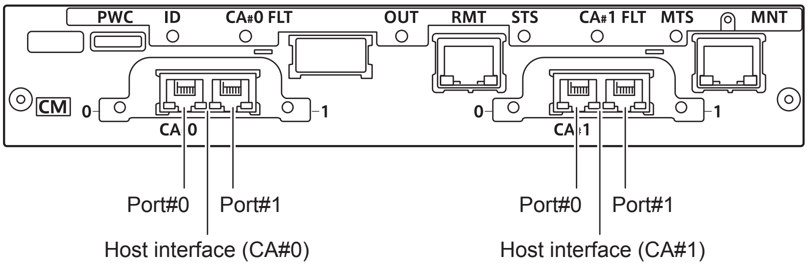
iSCSI 1Gbit/s

Figure 2.14 Host interface (iSCSI 1Gbit/s)

iSCSI 1Gbit/s



Installed host interfaces in the controller

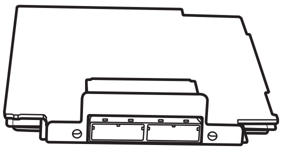

PWC
ID
CA#0 FLT
OUT
RMT
STS
CA#1 FLT
MTS
MNT
CM
0
1
CA#0
0
1
CA#1
Port#0
Port#1
Host interface (CA#0)
Port#0
Port#1
Host interface (CA#1)

- Part explanation
  - Host interface ports (iSCSI) (from left to right: Port#0 and Port#1 in CA#0, Port#0 and Port#1 in CA#1)
    These are the RJ-45 connectors to connect LAN cables.

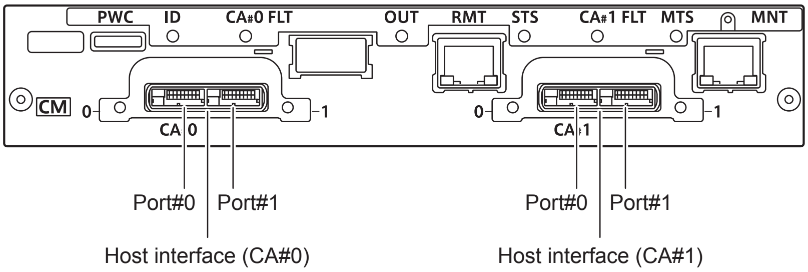
SAS

Figure 2.15 Host interface (SAS)

SAS



Installed host interfaces in the controller


PWC
ID
CA#0 FLT
OUT
RMT
STS
CA#1 FLT
MTS
MNT
CM
0
1
CA#0
0
1
CA#1
Port#0
Port#1
Port#0
Port#1
Host interface (CA#0)
Host interface (CA#1)

- Part explanation
  - Host interface ports (SAS) (from left to right: Port#0 and Port#1 in CA#0, Port#0 and Port#1 in CA#1)
    These are the SFF-8088 connectors to connect miniSAS cables.

System Capacitor Unit (SCU)

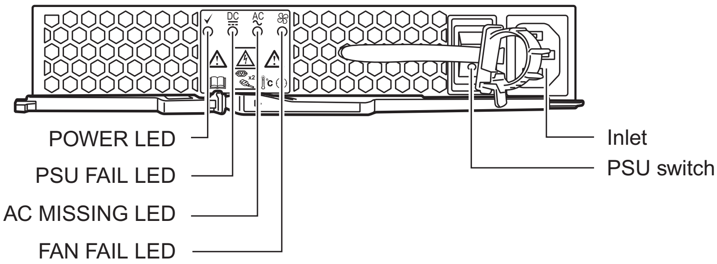
A SCU is installed in a controller as a backup power source in case of power outage.

The SCU is charged from an external power source while the ETERNUS DX Disk storage system is running normally. If a power outage is detected, data in the cache memory is saved to a non-volatile memory in the controller using the SCU. The saved data is retained in the non-volatile memory indefinitely.

2.1.4.2 Power Supply Units

The power supply unit transforms input AC power from a power socket to DC power and supplies power to each component.
Power supply units and fan units are installed in the rear.

Figure 2.16 Power supply unit



● Part explanation

- Inlet
  This inlet is used to connect a power cord.
- PSU switch
  This switch is used to turn on and off the AC power supply.
- LEDs
  The states of LEDs are listed below.

Table 2.4 Status and meanings of each LED (power supply unit)

LED name				Power supply unit status
POWER	PSU FAIL	AC MISSING	FAN FAIL	
● (blinks green)	● (off)	● (off)	● (off)	AC power is supplied to the power supply unit but the ETERNUS DX Disk storage system (DC power) is not turned on.
● (green)	● (off)	● (off)	● (off)	The power of the ETERNUS DX Disk storage system (DC power) is turned on and the power supply unit is operating normally.
● (off)	● (off)	● (off)	● (off)	AC power is not supplied to power supply units
● (off)	● (amber)	● (amber)	○ (off or amber)	AC power is not supplied to this power supply unit, but AC power is supplied to the other power supply unit.
● (off)	● (amber)	● (amber)	● (amber)	The power supply unit or the fan in the power supply unit is in error status.

2.2 Drive Enclosures

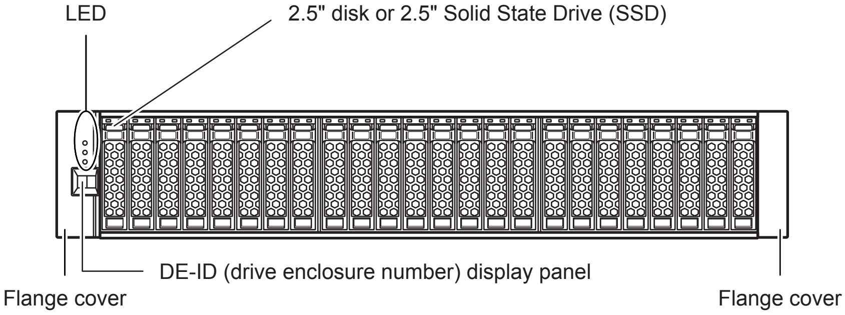
LEDs, a DE-ID (drive enclosure number) display panel, and drives are installed on the front side of the drive enclosure. I/O modules and power supply units are installed in the rear.

There are two types of drive enclosures: 2.5" type and 3.5" type.

2.2.1 Front

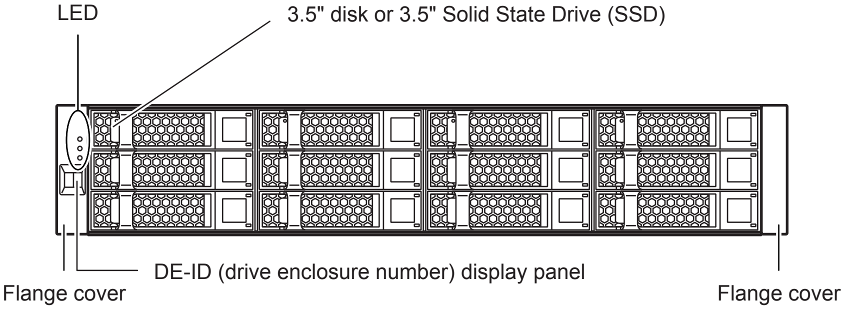
2.5" type

Figure 2.17 Front view of a 2.5" type drive enclosure


LED
2.5" disk or 2.5" Solid State Drive (SSD)
DE-ID (drive enclosure number) display panel
Flange cover
Flange cover

3.5" type

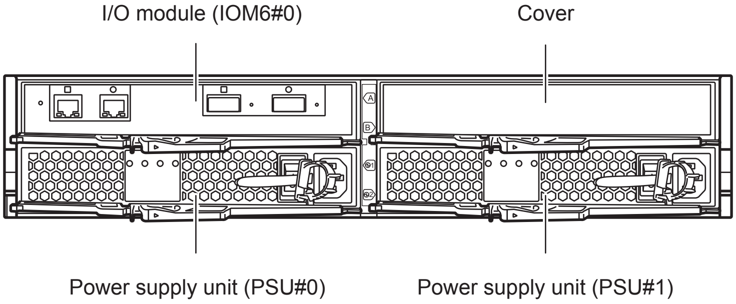
Figure 2.18 Front view of a 3.5" type drive enclosure


LED
3.5" disk or 3.5" Solid State Drive (SSD)
DE-ID (drive enclosure number) display panel
Flange cover
Flange cover

2.2.2 Rear

Single-IOM type

Figure 2.19 Rear view of a drive enclosure (single-IOM type)

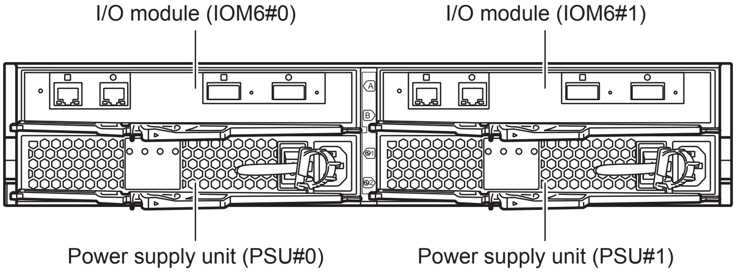

I/O module (IOM6#0)
Cover
Power supply unit (PSU#0)
Power supply unit (PSU#1)

Part explanation

- Cover
  Remove this when installing an additional I/O module (optional).

Dual-IOM type

Figure 2.20 Rear view of a drive enclosure (dual-IOM type)


I/O module (IOM6#0)
I/O module (IOM6#1)
Power supply unit (PSU#0)
Power supply unit (PSU#1)

2.2.3 Components (Front)

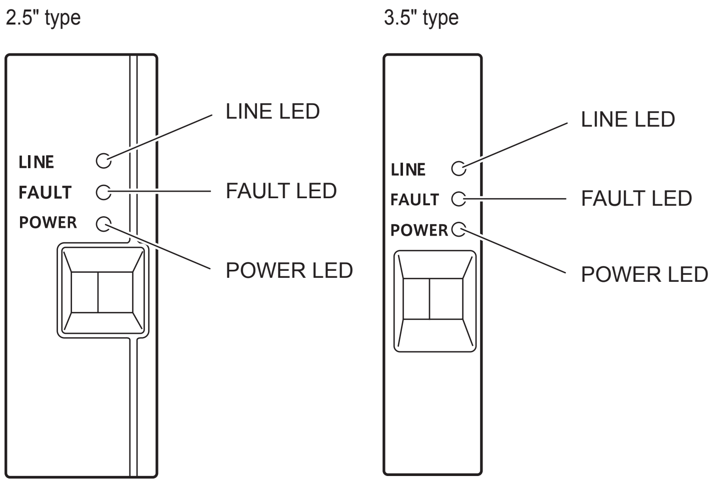
This section describes LEDs, a DE-ID (drive enclosure number) display panel, and drives of the front of the drive enclosure.

DE-ID (drive enclosure number) display panel

The DE-ID (drive enclosure number) of the drive enclosure is displayed.

LEDs

Figure 2.21 LEDs on the front side of the drive enclosure


2.5" type
LINE
FAULT
POWER
LINE LED
FAULT LED
POWER LED
3.5" type
LINE
FAULT
POWER
LINE LED
FAULT LED
POWER LED

The states of LEDs are listed below.

Table 2.5 Status and meanings of each LED (in front of drive enclosure)

LED name	LED status	Drive enclosure status
LINE	🟢 (green)	AC power is supplied to the drive enclosure.
FAULT	🟠 (amber)	The drive enclosure is in error status.
POWER	🟢 (green)	The drive enclosure is operating normally.

Drives

2.5" drives

Figure 2.22 2.5" drive

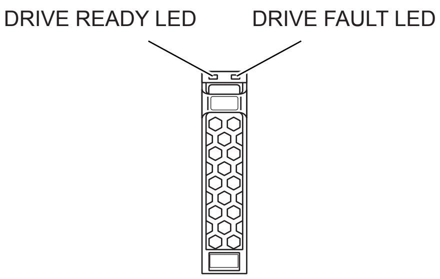
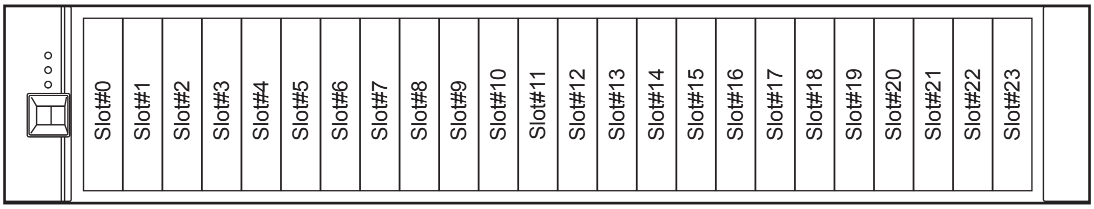

DRIVE READY LED
DRIVE FAULT LED

Figure 2.23 shows the slot number of each drive.

Figure 2.23 Drive slot numbers (2.5" type drive enclosure)


Slot#0
Slot#1
Slot#2
Slot#3
Slot#4
Slot#5
Slot#6
Slot#7
Slot#8
Slot#9
Slot#10
Slot#11
Slot#12
Slot#13
Slot#14
Slot#15
Slot#16
Slot#17
Slot#18
Slot#19
Slot#20
Slot#21
Slot#22
Slot#23

- 3.5" drives

Figure 2.24 3.5" drive

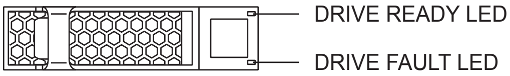
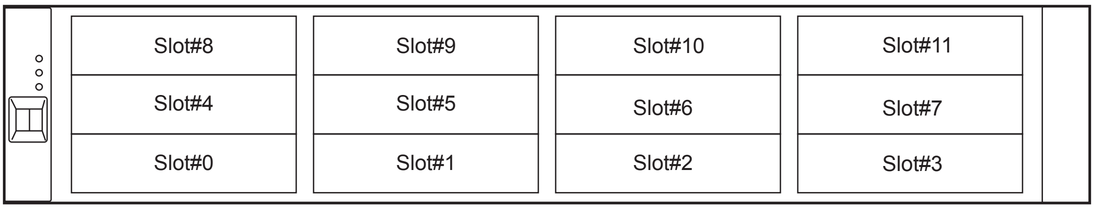

DRIVE READY LED
DRIVE FAULT LED

Figure 2.25 shows the slot number of each drive.

Figure 2.25 Drive slot numbers (3.5" type drive enclosure)


Slot#8
Slot#9
Slot#10
Slot#11
Slot#4
Slot#5
Slot#6
Slot#7
Slot#0
Slot#1
Slot#2
Slot#3

- Part explanation

- LEDs
  The states of LEDs are listed below.

Table 2.6 Status and meanings of each LED (drive)

LED name	LED status	Drive status
DRIVE READY	● (green)	The drive is in normal status.
	● (blinks green)	
DRIVE FAULT	● (amber)	• The drive is in error status. • In response to commands from ETERNUS CLI, the location of the drive is identified.

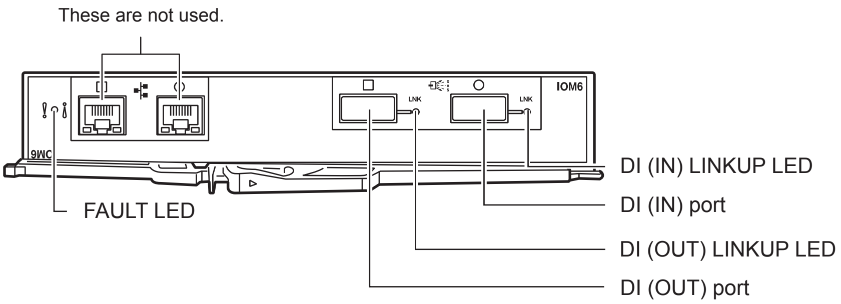
2.2.4 Components (Rear)

This section describes the I/O modules and the power supply units in the rear of the drive enclosure.

I/O module

The I/O module is a component that controls how the controller and the drives interact.

Figure 2.26 I/O module



Part explanation

- DI (OUT) port, DI (IN) port
  These ports are connectors for QSFP cables.
- LEDs
  The states of LEDs are listed below.

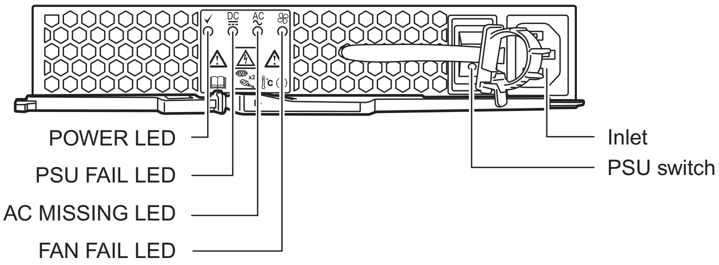
Table 2.7 Status and meanings of each LED (I/O module)

LED name	LED status	I/O module status
FAULT	● (amber)	The I/O module is in error status.
DI (OUT) LINKUP	● (green)	The link between the DI (OUT) port and the destination port has been established.
DI (IN) LINKUP	● (green)	The link between the DI (IN) port and the source port has been established.

Power supply units

The power supply unit transforms input AC power from a power socket to DC power and supplies power to each component.
Power supply units and fan units are installed in the rear.

Figure 2.27 Power supply unit



Part explanation

- Inlet
  This inlet is used to connect a power cord.
- PSU switch
  This switch is used to turn on and off the AC power supply.
- LEDs
  The states of LEDs are listed below.

Table 2.8 Status and meanings of each LED (power supply unit)

LED name				Power supply unit status
POWER	PSU FAIL	AC MISSING	FAN FAIL	
🟢 (green)	● (off)	● (off)	● (off)	AC power is supplied to the drive enclosure.
● (off)	● (off)	● (off)	● (off)	AC power is not supplied to the drive enclosure.
● (off)	🟠 (amber)	🟠 (amber)	○ (off or amber)	AC power is not supplied to this power supply unit, but AC power is supplied to the other power supply unit.
● (off)	🟠 (amber)	🟠 (amber)	🟠 (amber)	The power supply unit or the fan in the power supply unit is in error status.

2.3 Power Distribution Units (For Regions other than EMEA&I)

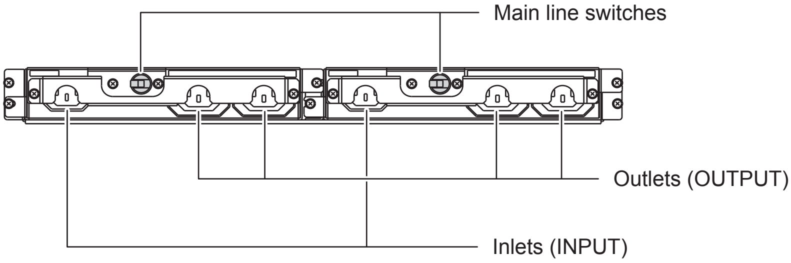
There are two sizes for power distribution units: 1U and 2U.

2.3.1 Power Distribution Units (1U)

The 1U power distribution unit has four outlets and two inlets.

Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 1U Max 2 enclosures connection)

Figure 2.28 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 1U Max 2 enclosures connection)



Part explanation

- Outlet (OUTPUT)
  This is a socket (IEC60320-C13) for outgoing power supply. This socket is used to connect a power cord (AC output cable).
- Inlet (INPUT)
  This is a socket (IEC60320-C14) for incoming power supply. This socket is used to connect a power cord (AC input cable).
- Main line switch
  This turns on and off the power distribution unit.

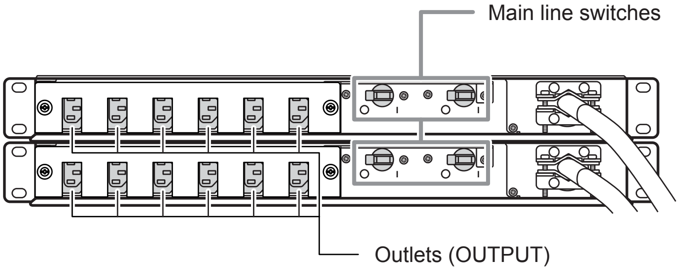
2.3.2 Power Distribution Units (2U)

There are 2U power distribution units that can connect up to six enclosures and 2U power distribution units that can connect up to eight enclosures.

■ Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection)

There are 12 outlets.

Figure 2.29 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection)



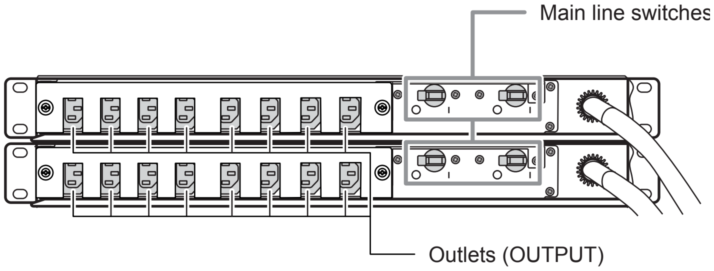
● Part explanation

- Outlet (OUTPUT)
  This is a socket (IEC60320-C13) for outgoing power supply. This socket is used to connect a power cord (AC output cable).
- Main line switch
  This turns on and off the power distribution unit.

Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection)

There are 16 outlets.

Figure 2.30 Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection)



Part explanation

- Main line switch
  This turns on and off the power distribution unit.

- Outlet (OUTPUT)
  This is a socket (IEC60320-C13) for outgoing power supply. This socket is used to connect a power cord (AC output cable).

Chapter 3

Rack Installation

This chapter describes the procedure for installing the ETERNUS DX Disk storage system in a rack.

Make sure to check the manual that contains the safety precautions before installing the ETERNUS DX Disk storage system in a rack. Also refer to the manual provided with racks.

⚠ CAUTION

Do

- Make sure to wear a wrist strap or discharge static electricity by touching the metal frame of the ETERNUS DX Disk storage system before starting each operation, as failure to discharge static electricity may cause device failure.
- If components are installed in a way other as described in this section, damage and/or device failure or electrical shock may occur
- Do not install the ETERNUS DX Disk storage system with cables, such as power cords, connected.
- The ETERNUS DX Disk storage system contains delicate components, and should be handled gently. Do not drop or knock the ETERNUS DX Disk storage system against the rack when installing it. Also, do not knock the other devices installed in the rack.
- The center of gravity must be taken into consideration to prevent a rack from toppling over. Enclosures should generally be installed from bottom to top to lower the center of gravity and to ensure the safe use of racks.

Note

- If the storage system is installed at the bottom of a rack, a space for the surplus of cables may not be available in some racks, preventing the storage system from being pulled out when maintenance work is required. In this case, secure a space of 1U or more at the bottom when installing the storage system.
- To install an enclosure, power distribution units, power synchronized units, and UPS units in a single rack, mount the devices in the following order (from bottom to top).
  Drive enclosures must also be installed in order of DE-ID (DE_No. label).

Table 3.1 Device installation order

Order	Device
1	UPS
2	Power distribution unit, Power synchronized unit
3	Controller enclosure
4	Drive enclosure

3.1 Installing Power Distribution Unit (For Regions other than EMEA&I)

This section describes how to install the power distribution unit in a rack.

⚠ CAUTION

Do Not

- Do not connect any devices other than the ETERNUS DX Disk storage system to the power distribution unit.

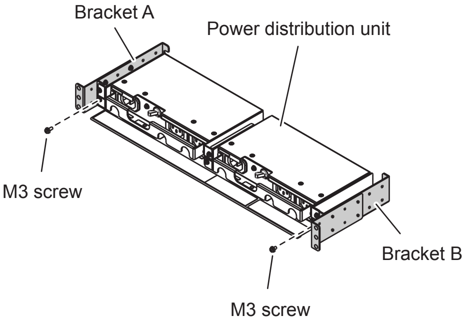
3.1.1 Installing Power Distribution Unit (1U)

This section describes how to install the 1U power distribution unit in a rack.

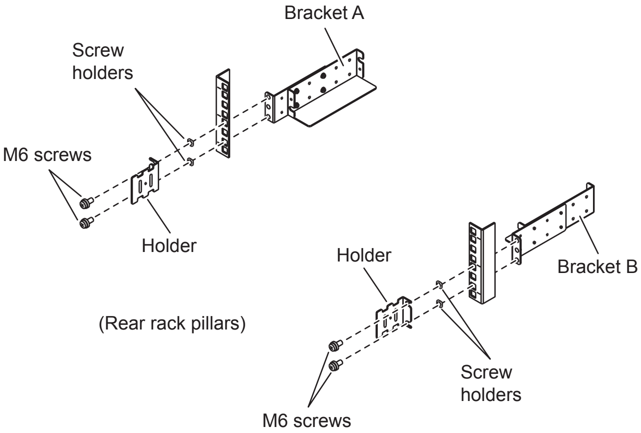
Procedure

1 Remove the two brackets temporarily attached to the power distribution unit.

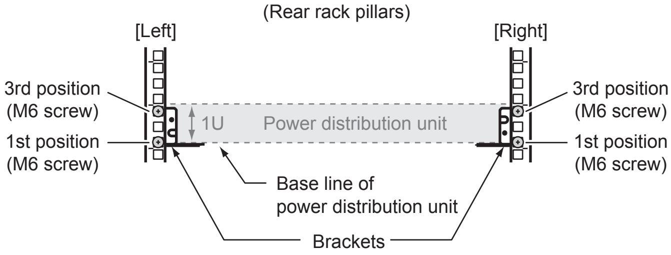
Remove the two M3 screws from the front of the power distribution unit to free the brackets.


Bracket A
Power distribution unit
M3 screw
Bracket B
M3 screw

2 Attach the brackets and holders to the rack.

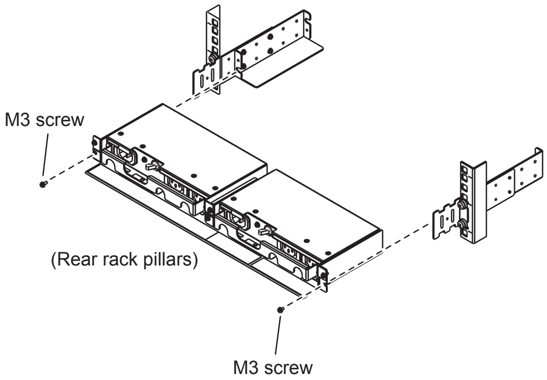

Bracket A
Screw holders
M6 screws
Holder
(Rear rack pillars)
Holder
Bracket B
Screw holders
M6 screws

The four M6 screw positions for the brackets are determined relative to the power distribution unit base line.
The M6 screws should be inserted in the 1st and 3rd holes above the base line.


(Rear rack pillars)
[Left]
[Right]
3rd position
(M6 screw)
1st position
(M6 screw)
1U
Power distribution unit
3rd position
(M6 screw)
1st position
(M6 screw)
Base line of
power distribution unit
Brackets

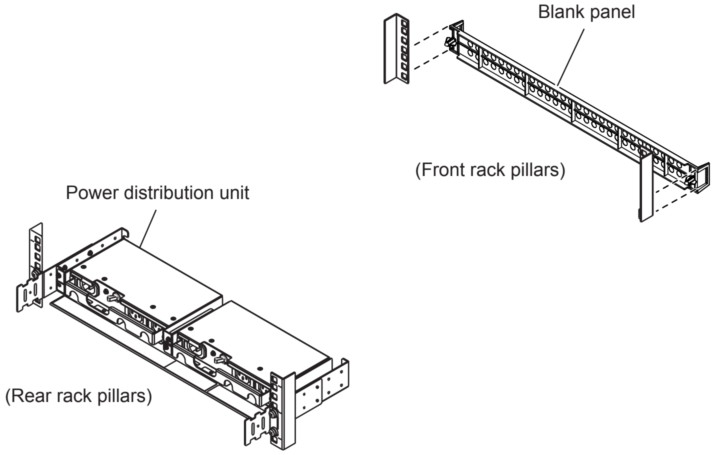
3 Install the power distribution unit in the rack.

Fasten the power distribution unit to the bracket with the two M3 screws removed in Step 1.


M3 screw
(Rear rack pillars)
M3 screw

4 Attach the blank panel to the front side of the rack.

The blank panel should be attached at the same height as the power distribution unit.


Blank panel
(Front rack pillars)
Power distribution unit
(Rear rack pillars)

End of procedure

3.1.2 Installing Power Distribution Unit (2U)

This section describes how to install the Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection) or Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection) in a rack.

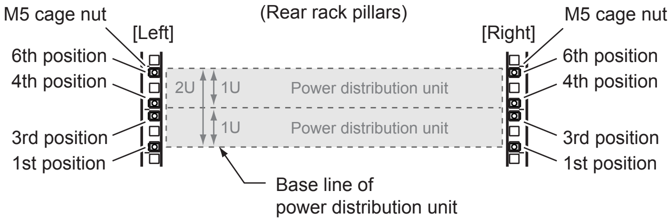
Note

This section explains the installation procedure for Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection). This procedure can also be applied for Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection).

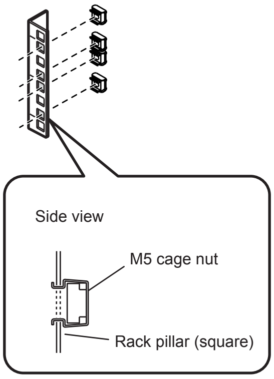
Procedure

1 Attach the M5 cage nuts to the rear rack pillar.

- Attachment positions
  On either side, insert eight M5 cage nuts in the 1st, 3rd, 4th, and 6th holes above the power distribution unit base line.

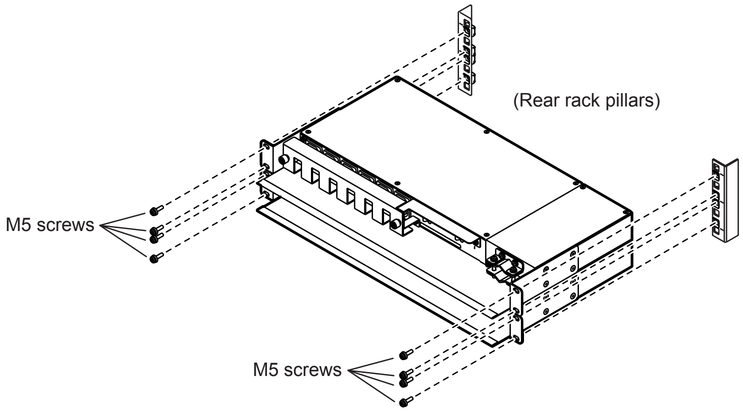

M5 cage nut
(Rear rack pillars)
M5 cage nut
[Left]
[Right]
6th position
4th position
3rd position
1st position
2U
1U
1U
Power distribution unit
Power distribution unit
6th position
4th position
3rd position
1st position
Base line of
power distribution unit

- Attachment procedure
  Clip the M5 cage nut tabs into the desired hole from the inside.


Side view
M5 cage nut
Rack pillar (square)

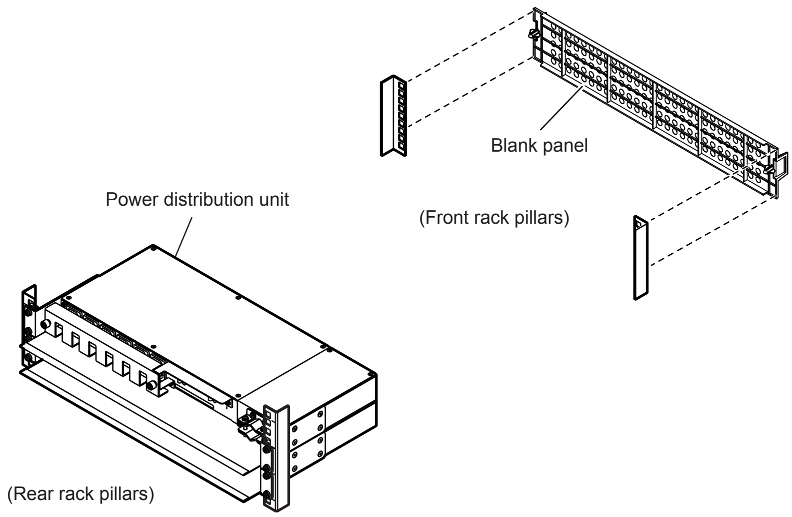
2 Install the power distribution unit in the rack.

Fasten it to the prepared holes in the pillars with eight M5 screws.


(Rear rack pillars)
M5 screws
M5 screws

3 Attach the blank panel to the rack front.

The blank panel should be attached at the same height as the power distribution unit.


Blank panel
Power distribution unit
(Front rack pillars)
(Rear rack pillars)

End of procedure

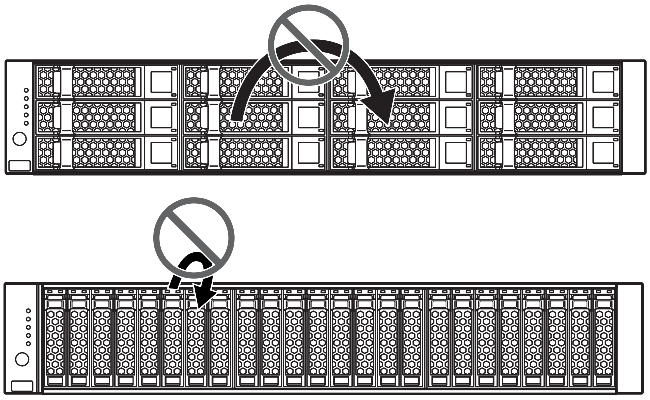
3.2 Installing Controller Enclosure

This section describes how to install the controller enclosure in a rack.

⚠ CAUTION

Do Not

- Do not uninstall the drives that are installed by default or move them to any other slot.
  Contact your sales representative or maintenance engineer if drives that are installed by default need to be uninstalled or moved to another slot.

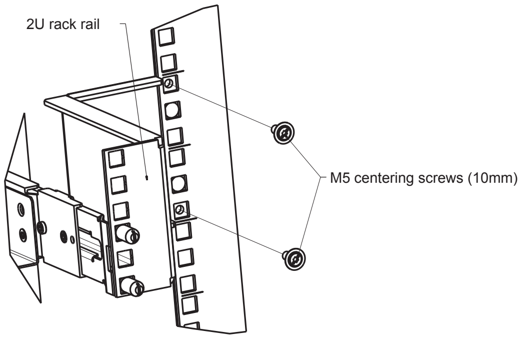


Procedure

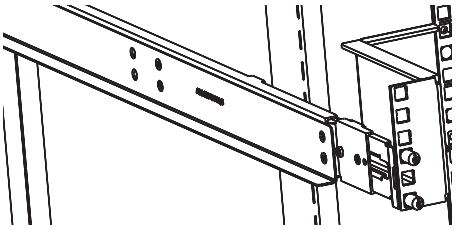
1 Attach the rack rails to the rack.

■ For the EMEA&I region

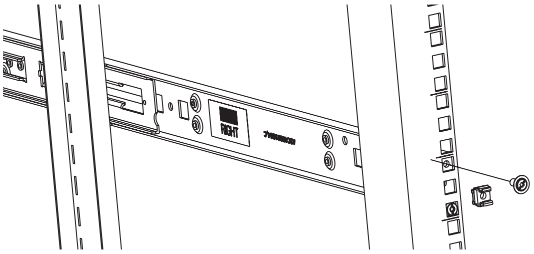
(1) Attach the 2U rack rail to the left rear rack pillar.
The M5 centering screws should be inserted in the 1st and 6th holes above the base line of the controller enclosure.



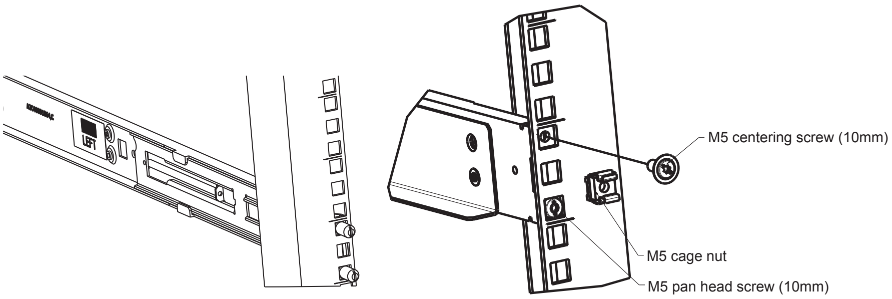
(2) Insert the pins of the left slide rail in the 1st and 3rd holes from the bottom of the 2U Bracket.



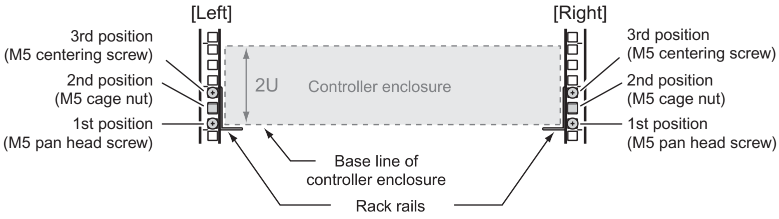
(3) Secure the left slide rail to the front pillar using the M5 centering screw and M5 pan head screw.



(4) For the right slide rail, insert the pins in the holes of the rear pillar, and secure the other side of the slide rail to the front pillar in the same way as the left slide rail.

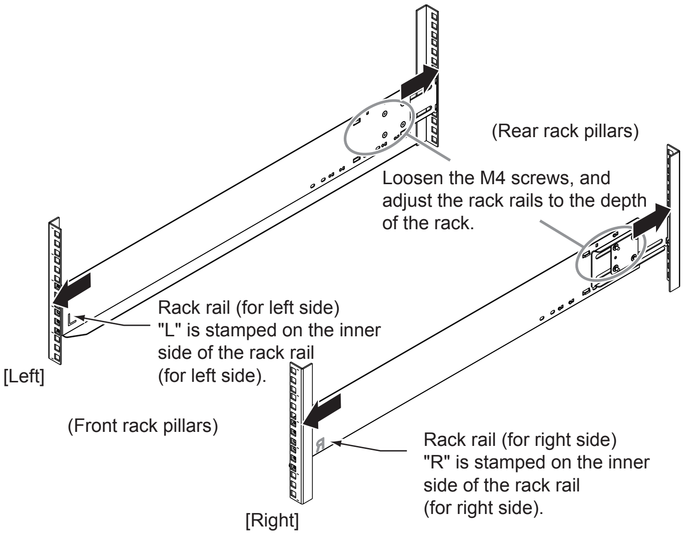

LEFT
M5 centering screw (10mm)
M5 cage nut
M5 pan head screw (10mm)

(5) Push the M5 cage nuts into the 2nd holes of the front rack pillars above the base line of the controller enclosure.
The M5 centering screw and M5 pan head screw positions for the slide rails and 2U Bracket are determined relatively to the base line of the controller enclosure.
Tighten the screws referring to the following figure.


[Left]
[Right]
3rd position
(M5 centering screw)
2nd position
(M5 cage nut)
1st position
(M5 pan head screw)
2U
Controller enclosure
3rd position
(M5 centering screw)
2nd position
(M5 cage nut)
1st position
(M5 pan head screw)
Base line of
controller enclosure
Rack rails

■ For regions other than EMEA&I

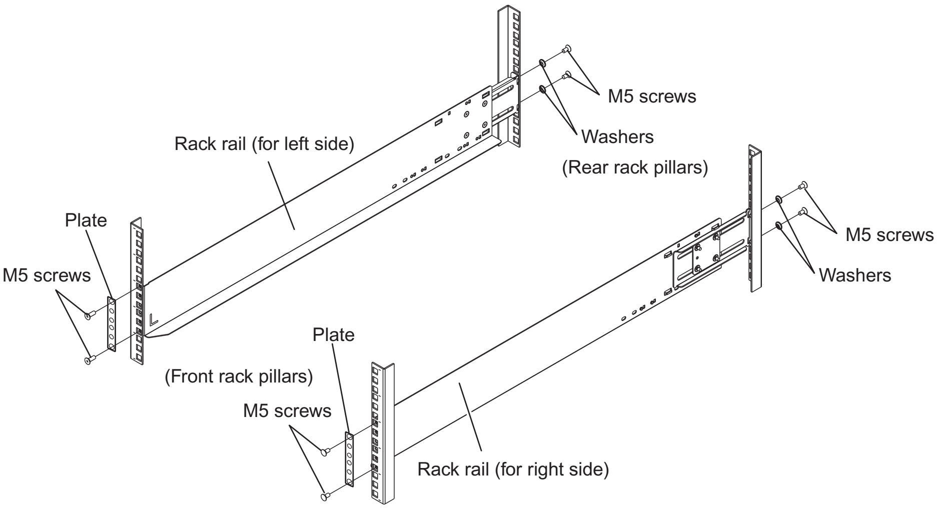
(1) Adjust the sizes of the rack rail (for left side) and the rack rail (for right side) to fit the rack.
Loosen the M4 screws to adjust the length of the rack rails to match the distance between the front and rear rack pillars. Leave the M4 screws slightly unscrewed, as the rack rails must be attached to the rack before they can be completely tightened.


(Rear rack pillars)
Loosen the M4 screws, and adjust the rack rails to the depth of the rack.
Rack rail (for left side) "L" is stamped on the inner side of the rack rail (for left side).
[Left]
(Front rack pillars)
Rack rail (for right side) "R" is stamped on the inner side of the rack rail (for right side).
[Right]

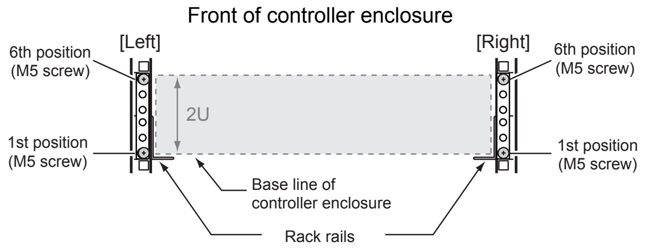
(2) Attach the rack rails to the rack.
Use the two plates to fasten the rack rails to the front rack pillars. Use the four washers to fasten the rack rails to the rear rack pillars.

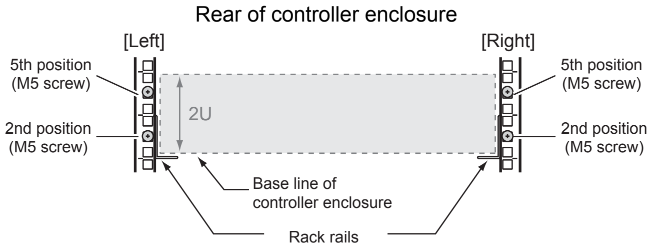
Note

Make sure to attach the rack rails to rack pillars so that they fit exactly together without any space between them.


M5 screws
Washers
Rack rail (for left side)
(Rear rack pillars)
Plate
M5 screws
Washers
M5 screws
Plate
(Front rack pillars)
M5 screws
Rack rail (for right side)

The M5 screw positions for the rack rails are determined by the controller enclosure base line. Insert the M5 screws in the 1st and 6th holes on the front rack pillars above the base line and in the 2nd and 5th holes on the rear rack pillars above the base line to fasten the rack rails.


Front of controller enclosure
[Left]
[Right]
6th position (M5 screw)
6th position (M5 screw)
2U
1st position (M5 screw)
1st position (M5 screw)
Base line of controller enclosure
Rack rails


Rear of controller enclosure
[Left]
[Right]
5th position (M5 screw)
5th position (M5 screw)
2U
2nd position (M5 screw)
2nd position (M5 screw)
Base line of controller enclosure
Rack rails

(3) Tighten the M4 screws of the rack rails that were slightly unscrewed in Step (1).

2 Install the controller enclosure in the rack.

⚠ CAUTION

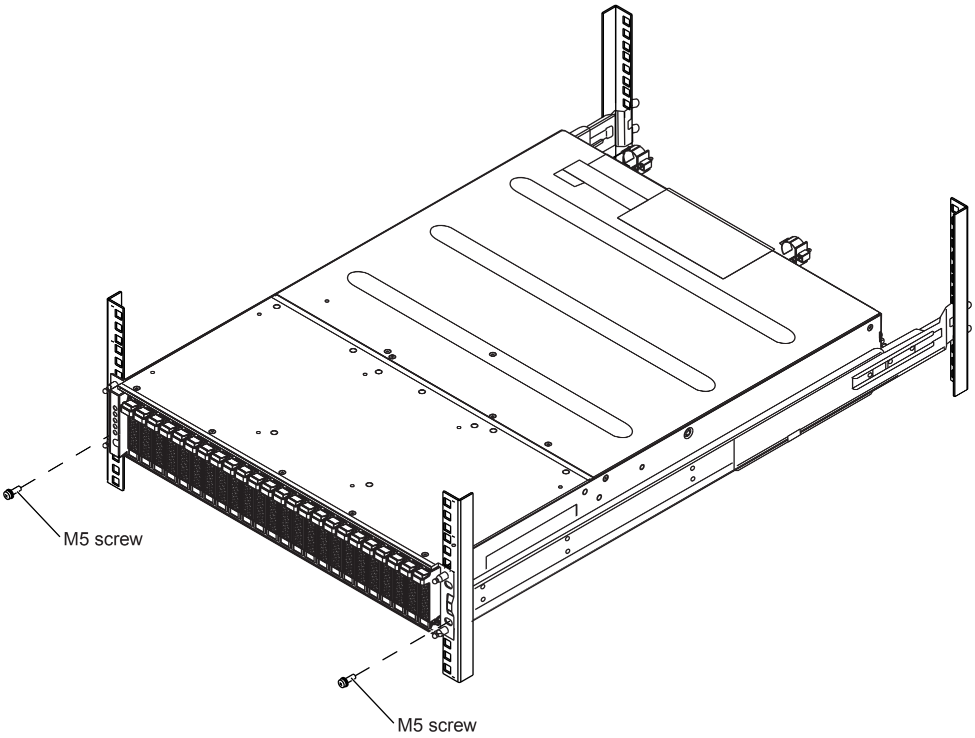
Do

- When installing or removing the controller enclosure to or from the rack, make sure that the sides and the bottom of the controller enclosure are held by two or more people. Failure to do so may cause injury.

3 Fasten the controller enclosure in the rack.

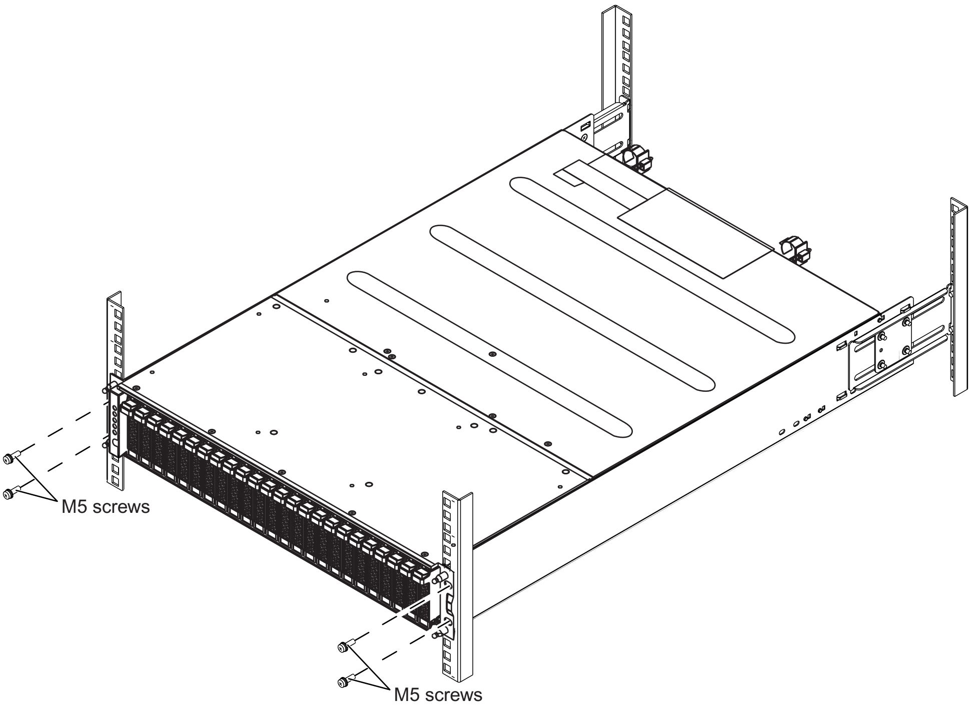
- For the EMEA&I region

  Use two M5 screws to fasten it in the rack.

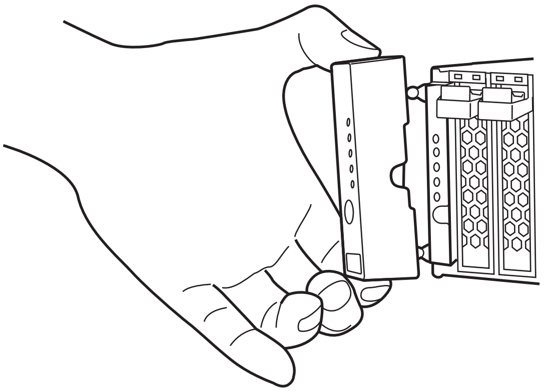


- For regions other than EMEA&I

  Use four M5 screws to fasten it in the rack.

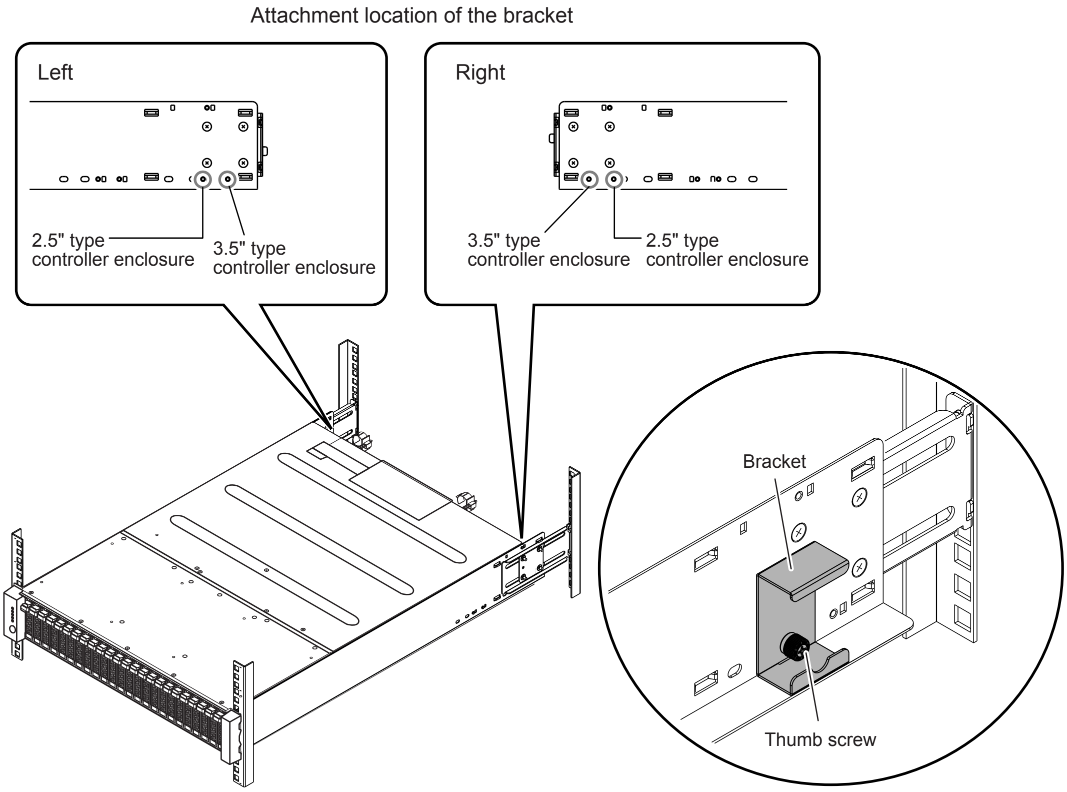


4 Attach the flange cover that is provided with the ETERNUS DX Disk storage system.



5 For regions other than EMEA&I, attach the brackets to the rack rails (for the left and right sides).

Use the thumb screws to attach the brackets at the specified locations on the rear side.


Attachment location of the bracket
Left
2.5" type controller enclosure
3.5" type controller enclosure
Right
3.5" type controller enclosure
2.5" type controller enclosure
Bracket
Thumb screw

End of procedure

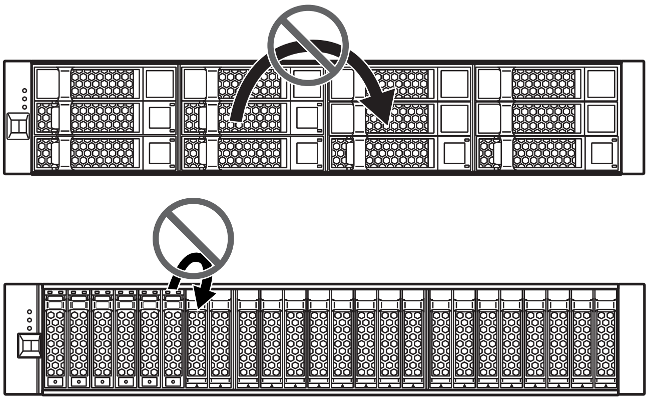
3.3 Installing Drive Enclosure

This section describes how to install a drive enclosure in a rack.

CAUTION

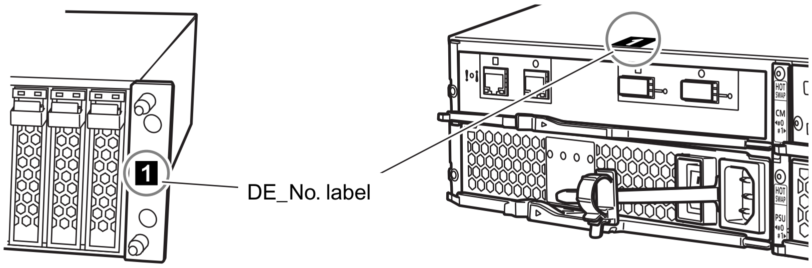
Do Not

- Do not uninstall the drives that are installed by default or move them to any other slot.
  Contact your sales representative or maintenance engineer if drives that are installed by default need to be uninstalled or moved to another slot.



IMPORTANT

Drive enclosures must be installed above the controller enclosure. When installing multiple drive enclosures, install them in the order of the "DE_No. label" numbers that are attached to the drive enclosures.
The DE_No. labels are attached on the following locations.

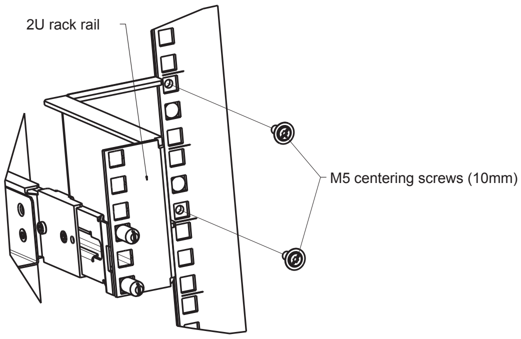

Right front side of the drive enclosure
Upper rear side of the drive enclosure

Procedure

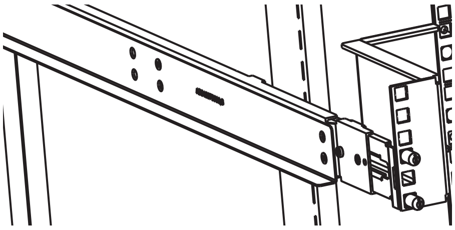
1 Attach the rack rails to the rack.

■ For the EMEA&I region

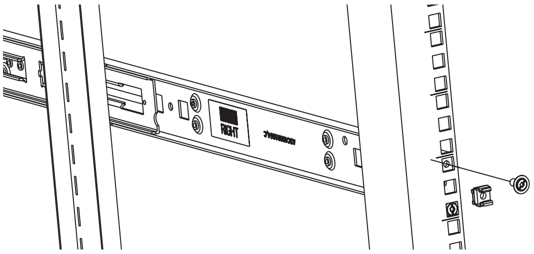
(1) Attach the 2U rack rail to the left rear rack pillar.
The M5 centering screws should be inserted in the 1st and 6th holes above the base line of the drive enclosure.


2U rack rail
M5 centering screws (10mm)

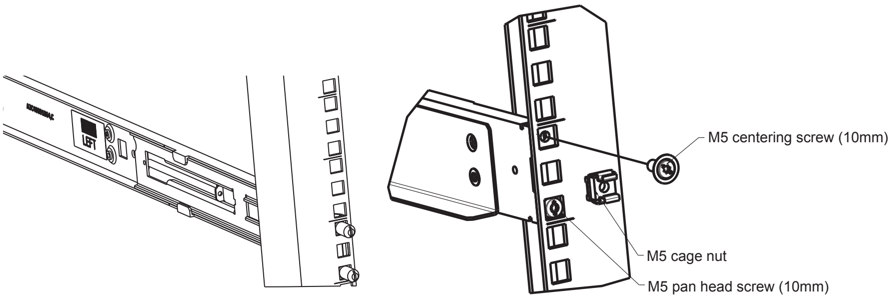
(2) Insert the pins of the left slide rail in the 1st and 3rd holes from the bottom of the 2U Bracket.



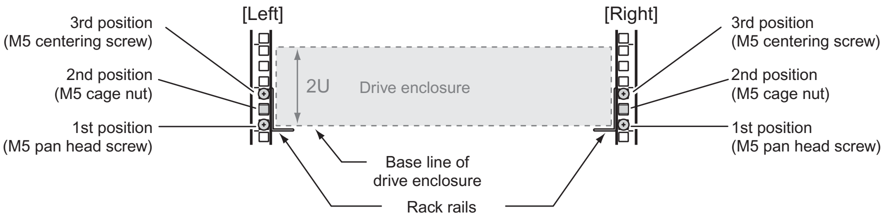
(3) Secure the left slide rail to the front pillar using the M5 centering screw and M5 pan head screw.



(4) For the right slide rail, insert the pins in the holes of the rear pillar, and secure the other side of the slide rail to the front pillar in the same way as the left slide rail.

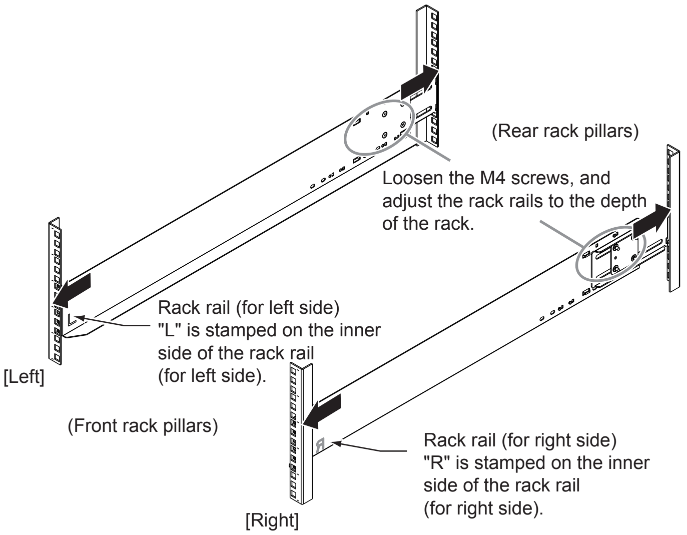

LEFT
M5 centering screw (10mm)
M5 cage nut
M5 pan head screw (10mm)

(5) Push the M5 cage nuts into the 2nd holes of the front rack pillars above the base line of the drive enclosure.
The M5 centering screw and M5 pan head screw positions for the slide rails and 2U Bracket are determined relatively to the base line of the drive enclosure.
Tighten the screws referring to the following figure.


[Left]
[Right]
3rd position
(M5 centering screw)
2nd position
(M5 cage nut)
1st position
(M5 pan head screw)
2U
Drive enclosure
3rd position
(M5 centering screw)
2nd position
(M5 cage nut)
1st position
(M5 pan head screw)
Base line of
drive enclosure
Rack rails

■ For regions other than EMEA&I

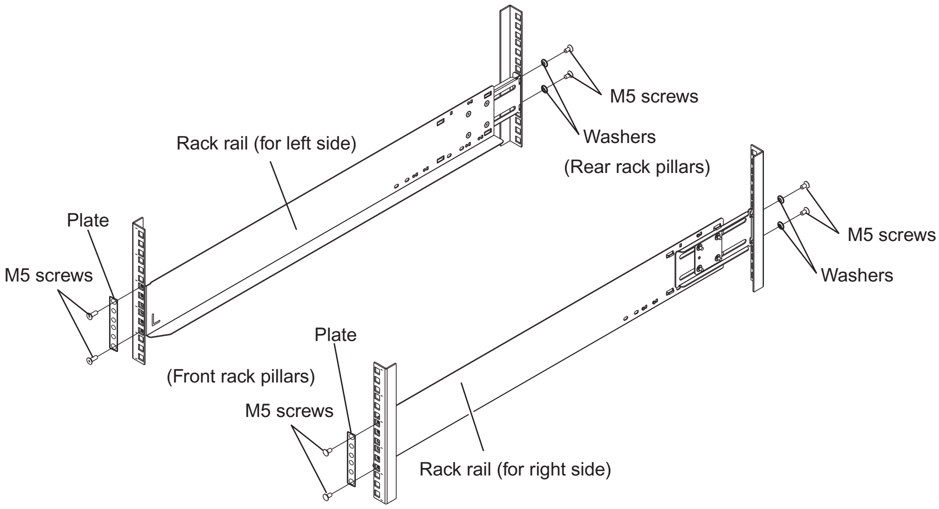
(1) Adjust the sizes of the rack rail (for left side) and rack rail (for right side) to fit the rack.
Loosen the M4 screws to adjust the length of the rack rails to match the distance between the front and rear rack pillars. Leave the M4 screws slightly unscrewed, as the rack rails must be attached to the rack before they can be completely tightened.


(Rear rack pillars)
Loosen the M4 screws, and
adjust the rack rails to the depth
of the rack.
Rack rail (for left side)
"L" is stamped on the inner
side of the rack rail
(for left side).
[Left]
(Front rack pillars)
Rack rail (for right side)
"R" is stamped on the inner
side of the rack rail
(for right side).
[Right]

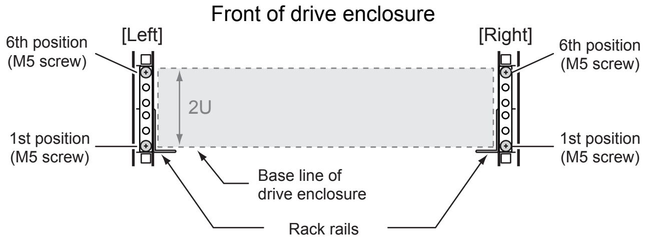
(2) Attach the rack rails to the rack.
Use the two plates to fasten the rack rails to the front rack pillars. Use the four washers to fasten the rack rails to the rear rack pillars.

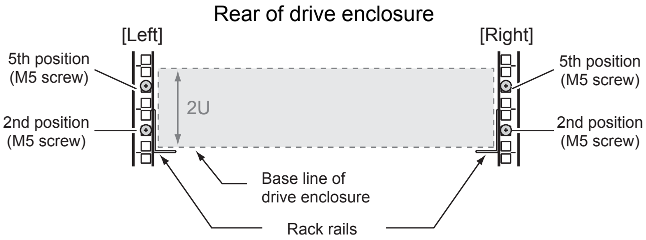
Note

Make sure to attach the rack rails to rack pillars so that they fit exactly together without any space between them.


M5 screws
Washers
(Rear rack pillars)
Rack rail (for left side)
Plate
M5 screws
M5 screws
Washers
Plate
(Front rack pillars)
M5 screws
Rack rail (for right side)

The M5 screw positions for the rack rails are determined by the drive enclosure base line.
Insert the M5 screws in the 1st and 6th holes on the front rack pillars above the base line and in the 2nd and 5th holes on the rear rack pillars above the base line to fasten the rack rails.


Front of drive enclosure
[Left]
[Right]
6th position (M5 screw)
6th position (M5 screw)
2U
1st position (M5 screw)
1st position (M5 screw)
Base line of drive enclosure
Rack rails


Rear of drive enclosure
[Left]
[Right]
5th position (M5 screw)
5th position (M5 screw)
2U
2nd position (M5 screw)
2nd position (M5 screw)
Base line of drive enclosure
Rack rails

(3) Tighten the M4 screws of the rack rails that were slightly unscrewed in Step (1).

2 Install the drive enclosure in the rack.

⚠ CAUTION

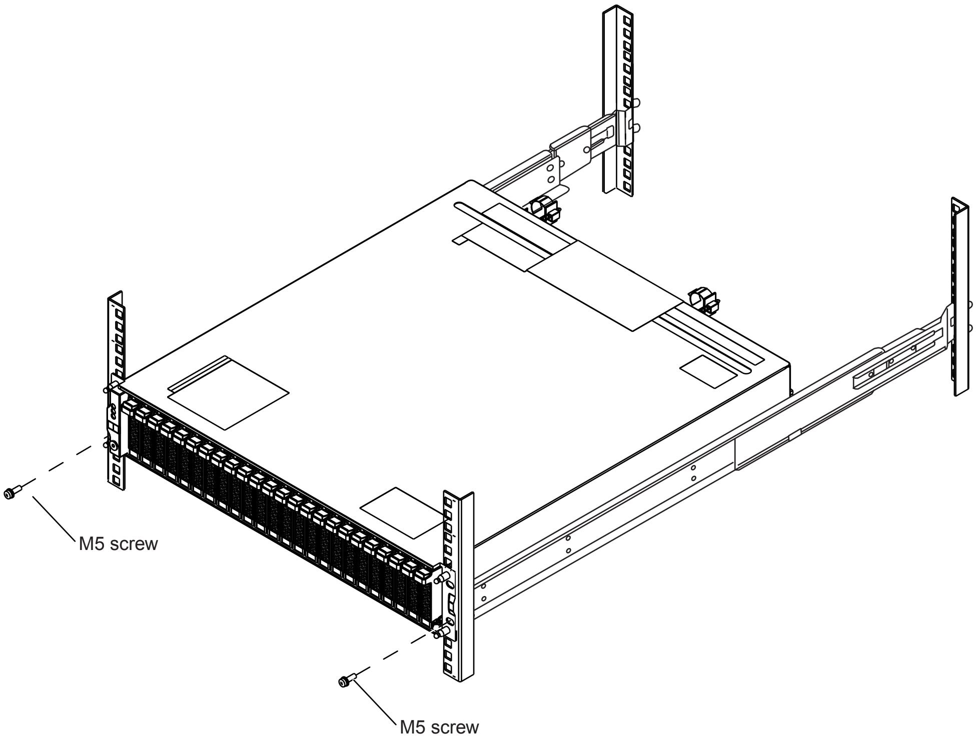
Do

- When installing or removing the drive enclosure to or from the rack, make sure that the sides and the bottom of the drive enclosure are held by two or more people. Failure to do so may cause injury.

3 Fasten the drive enclosure in the rack.

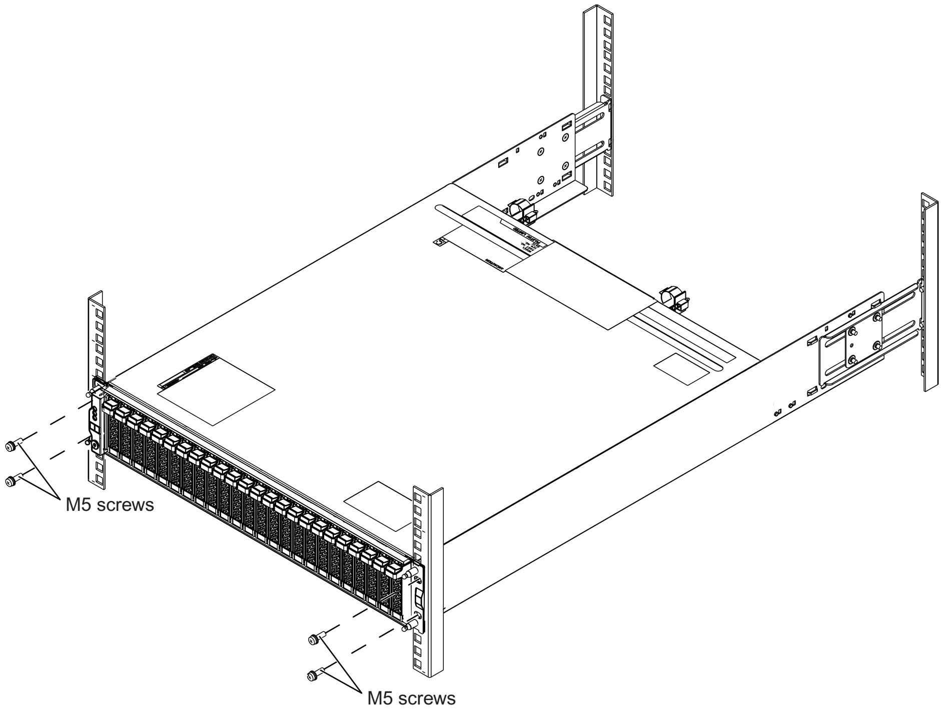
■ For the EMEA&I region

Use two M5 screws to fasten it in the rack.

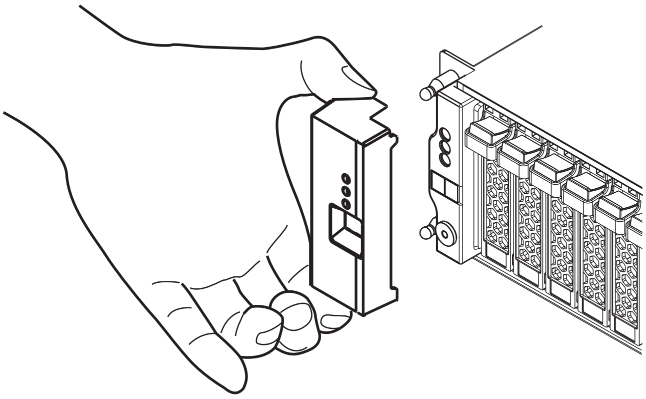


- For regions other than EMEA&I

Use four M5 screws at the front of the drive enclosure to fasten it in the rack.

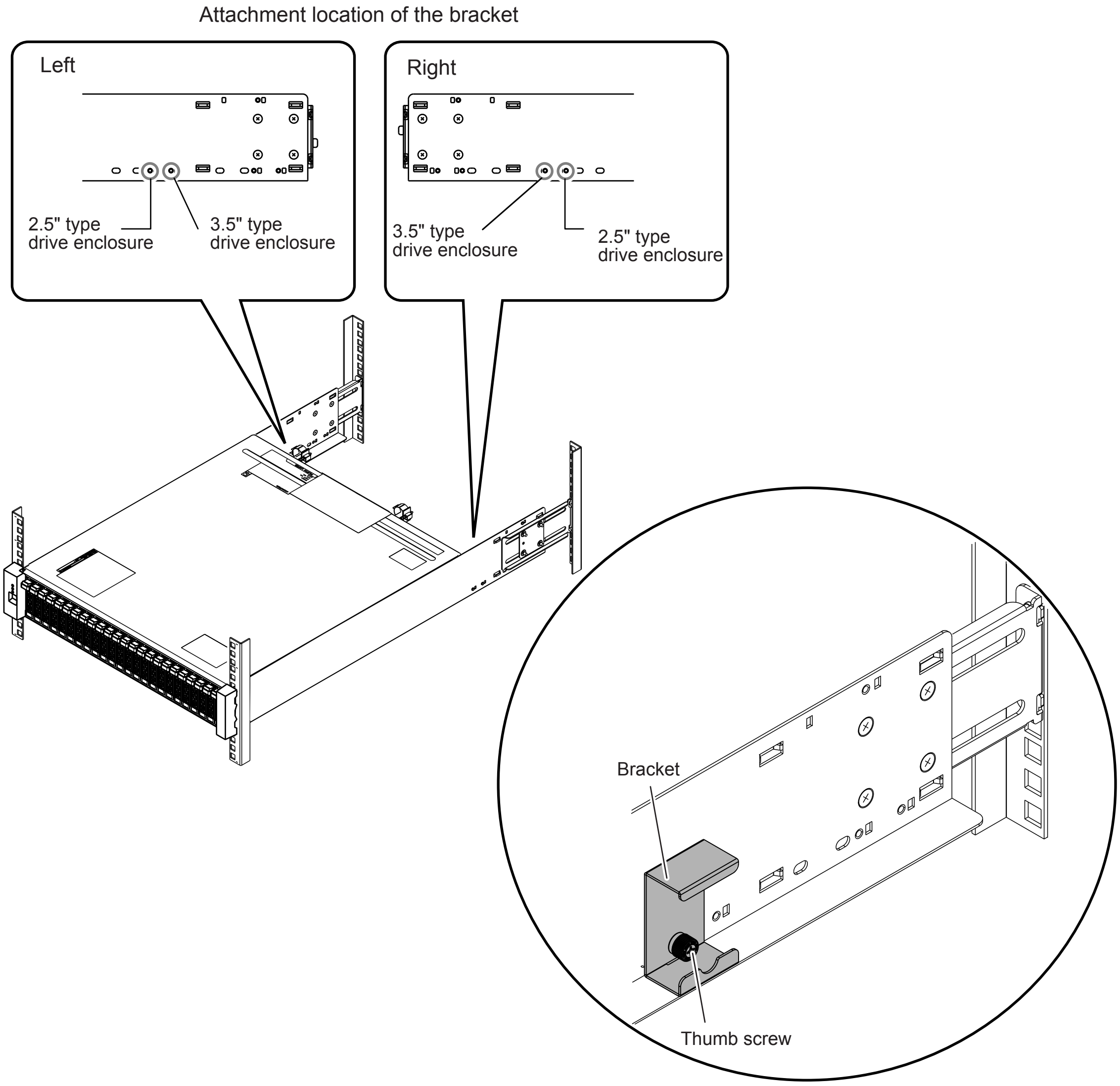


4 Attach the flange cover that is provided with the ETERNUS DX Disk storage system.



5 For regions other than EMEA&I, attach the brackets to the rack rails (for the left and right sides).

Use the thumb screws to attach the brackets at the specified locations on the rear side.


Attachment location of the bracket
Left
2.5" type drive enclosure
3.5" type drive enclosure
Right
3.5" type drive enclosure
2.5" type drive enclosure
Bracket
Thumb screw

End of procedure

Chapter 4

Connecting Cables

This chapter explains how to connect various cables to the ETERNUS DX Disk storage system.

⚠ CAUTION

Do

- Make sure to wear a wrist strap or discharge static electricity by touching the metal frame of the ETERNUS DX Disk storage system before starting each operation, as failure to discharge static electricity may cause device failure.

4.1 LAN Cable Connection (For Operation Management)

This ETERNUS DX Disk storage system must be connected to a LAN to perform actions via ETERNUS Web GUI or ETERNUS CLI such as settings, maintenance operations, monitoring the device status, and using remote support.
LAN cables (enhanced Cat-5 type) must be obtained separately.

The following procedure explains how to connect the LAN cable.

IMPORTANT

- To help with LAN cable management and prevent incorrect connections, attach labels to the LAN cables and make a note of connection origins and destinations.
- When connecting LAN cables, check the connector orientation and then firmly push it all the way in. When disconnecting LAN cables, depress the tab, then pull out the connector.

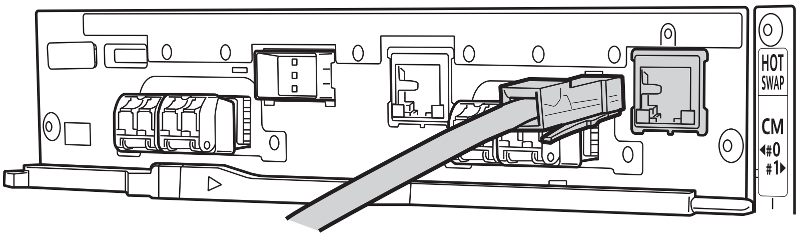
Note

This section describes dual-controller type as an example. Note that there is only Controller 0 (CM#0) for a single-controller type.

Procedure

1 Connect the LAN cable to the ETERNUS DX Disk storage system.

Connect the LAN cable connectors to the MNT ports of the Controller 0 (CM#0) and Controller 1 (CM#1) for the ETERNUS DX Disk storage system.



CAUTION

Do

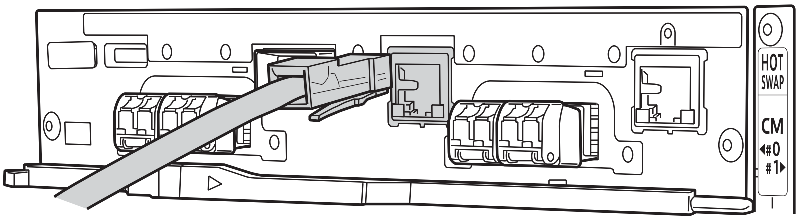
- When connecting the LAN cables, position them so that they will not obstruct replacement of the power supply unit or controllers by the maintenance engineer.

2 Connect the LAN cables to the networking equipment.

Connect the other end of the LAN cable to the networking equipment, such as LAN switch or router. For networking equipment connection details, refer to the documentation for the networking equipment being connected to.

3 If the RMT ports are to be used, connect the LAN cables to RMT ports.

3-1 Connect the connector of the LAN cable to the RMT port of the Controller 0 (CM#0) and Controller 1 (CM#1).



3-2 Connect the other end of the LAN cable to the networking equipment, such as LAN switch or router. For networking equipment connection details, refer to the documentation for the networking equipment being connected to.

End of procedure

4.2 Host Interface Connection

Connect the ETERNUS DX Disk storage system to the connection destination using host interface cables. The connection procedure varies depending on the type of host interface that is used for the ETERNUS DX Disk storage system.

4.2.1 FC Cable Connection (For FC, iSCSI 10Gbit/s, and FCoE)

Connect the ETERNUS DX Disk storage system to the connection destination using FC cables.
FC cables must be obtained separately.

IMPORTANT

- When using iSCSI connections via LAN switches for connecting to the server, using different LAN switches to divide the networks is recommended for connecting the server and the ETERNUS DX Disk storage system and for operation management in order to maintain system performance.
- The iSCSI interface operates in 10GBASE-SR mode.

The following procedure explains how to connect the FC cable.

IMPORTANT

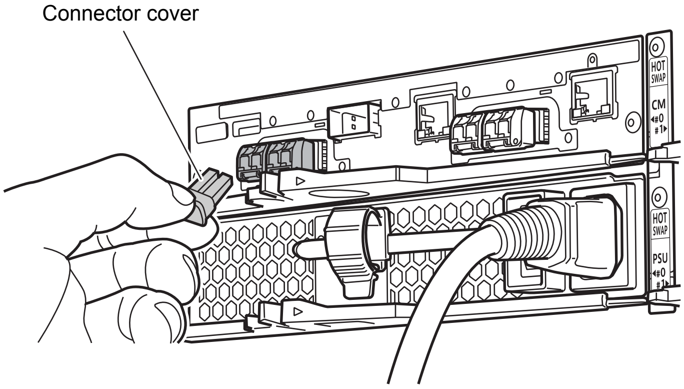
- To help with FC cable management and prevent incorrect connections, attach labels to the FC cables and make a note of connection origins and destinations.
- When connecting the FC cable, check the direction of the connector tab and insert it all the way in firmly. When disconnecting the FC cable, pull out the connector while holding its tab.

Note

This section describes dual-controller type as an example. Note that there is only Controller 0 (CM#0) for a single-controller type.

Procedure

1 Remove the connector covers that are attached to the host interface ports (FC, iSCSI 10Gbit/s, or FCoE) of Controller 0 (CM#0) and Controller 1 (CM#1).



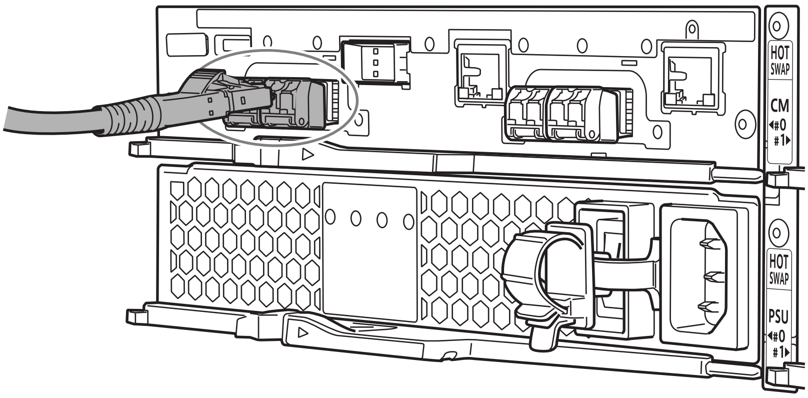
IMPORTANT

Keep the removed connector covers in a safe place where they will not be lost.

2 Connect the FC cable to the ETERNUS DX Disk storage system.

2-1 Remove the covers from the FC cable connectors.

2-2 Insert the FC cable connectors in the host interface ports (FC, iSCSI 10Gbit/s, or FCoE) of Controller 0 (CM#0) and Controller 1 (CM#1).



⚠ CAUTION

Do

- When connecting the FC cables, position them so that they will not obstruct replacement of the power supply unit or controllers by the maintenance engineer.

3 Connect the connector at the other end of the FC cable to the connection destination.

3-1 Remove the covers from the FC cable connectors.

3-2 Insert the FC cable connector to the connection destination.

End of procedure

4.2.2 Copper Twinax Cable Connection (For iSCSI 10Gbit/s and FCoE)

Connect the ETERNUS DX Disk storage system to the connection destination using Copper Twinax cables. Obtain the same number of Copper Twinax cables as the number of host interface ports. These cables must be purchased separately.

IMPORTANT

When using iSCSI connections via LAN switches for connecting to the server, using different LAN switches to divide the networks is recommended for connecting the server and the ETERNUS DX Disk storage system and for operation management LAN in order to maintain system performance.

The following procedure explains how to connect the Copper Twinax cable.

IMPORTANT

- To help with Copper Twinax cable management and prevent incorrect connections, attach labels to the Copper Twinax cables and make a note of connection origins and destinations.
- When connecting the Copper Twinax cable, check the direction of the connector and insert it all the way in firmly.

Note

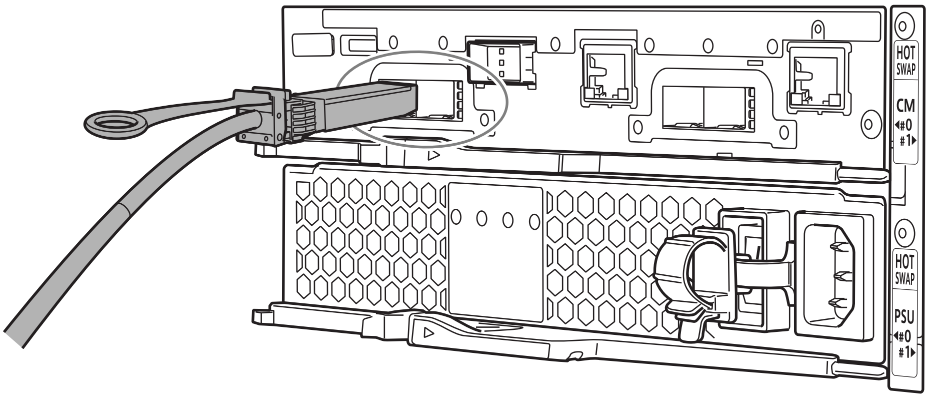
This section describes dual-controller type as an example. Note that there is only Controller 0 (CM#0) for a single-controller type.

Procedure

1 Connect the Copper Twinax cable to the ETERNUS DX Disk storage system.

1-1 If the Copper Twinax cable connectors have covers, remove the covers.

1-2 Insert the Copper Twinax cable connectors in the host interface ports (iSCSI 10Gbit/s or FCoE) of Controller 0 (CM#0) and Controller 1 (CM#1).



⚠ **CAUTION**

Do

- When connecting the Copper Twinax cables, position them so that they will not obstruct replacement of the power supply unit or controllers by the maintenance engineer.

2 Connect the connector at the other end of the Copper Twinax cable to the connection destination.

2-1 If the Copper Twinax cable connectors have covers, remove the covers.

2-2 Insert the Copper Twinax cable connector to the connection destination.

End of procedure

4.2.3 LAN Cable Connection (For iSCSI 1Gbit/s)

Connect the ETERNUS DX Disk storage system to the connection destination with LAN cables (enhanced Cat-5 type).
LAN cables must be obtained separately.

IMPORTANT

- When using iSCSI connections via LAN switches for connecting to the server, using different LAN switches to divide the networks is recommended for connecting the server and the ETERNUS DX Disk storage system and for operation management in order to maintain system performance.
- The iSCSI interface operates in 1000Base-T full-duplex mode.

The following procedure explains how to connect the LAN cable.

IMPORTANT

- To help with LAN cable management and prevent incorrect connections, attach labels to the LAN cables and make a note of connection origins and destinations.
- When connecting LAN cables, check the connector orientation and then firmly push it all the way in. When disconnecting LAN cables, depress the tab, then pull out the connector.

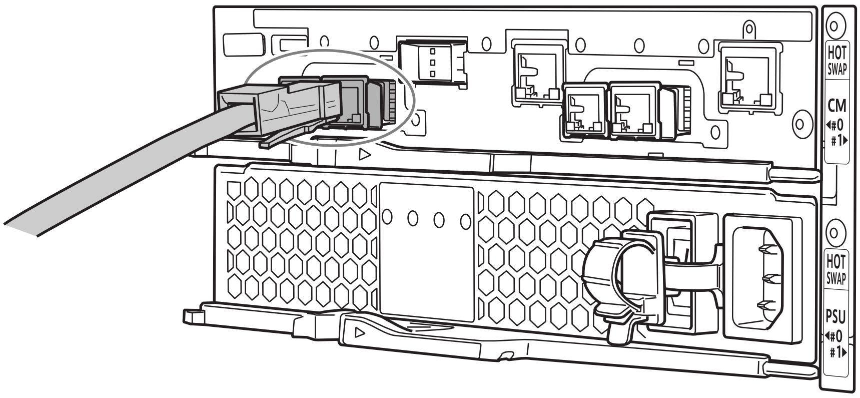
Note

This section describes dual-controller type as an example. Note that there is only Controller 0 (CM#0) for a single-controller type.

Procedure

1 Connect the LAN cable to the ETERNUS DX Disk storage system.

Insert the LAN cable connectors in the host interface ports (iSCSI) of Controller 0 (CM#0) and Controller 1 (CM#1).



⚠ CAUTION

Do

- When connecting the LAN cables, position them so that they will not obstruct replacement of the power supply unit or controllers by the maintenance engineer.

2 Connect the LAN cable to the connection destination.

Connect the connector at the other end of the LAN cable to the connection destination.

End of procedure

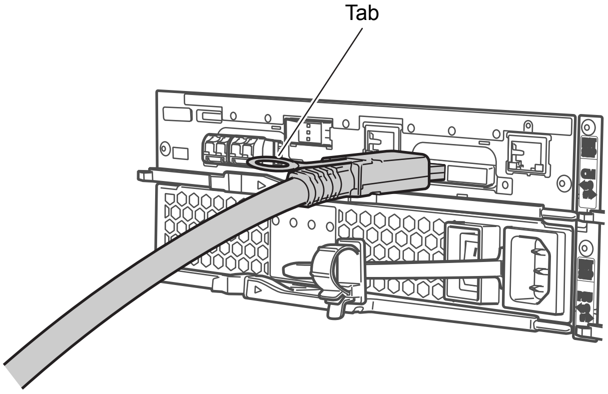
4.2.4 MiniSAS Cable Connection (For SAS)

Connect the ETERNUS DX Disk storage system to the connection destination using miniSAS cables.
MiniSAS cables must be obtained separately.

The following procedure explains how to connect the miniSAS cable.

IMPORTANT

- To help with miniSAS cable management and prevent incorrect connections, attach labels to the miniSAS cables and make a note of connection origins and destinations.
- When connecting miniSAS cables, check the connector orientation and then firmly push it all the way in. When disconnecting miniSAS cables, use the pull-tab to extract the connector.



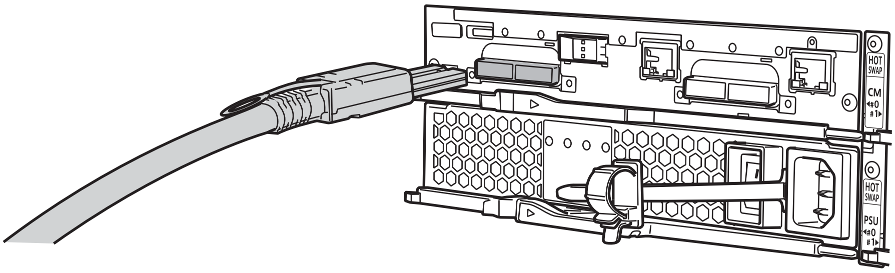
Note

This section describes dual-controller type as an example. Note that there is only Controller 0 (CM#0) for a single-controller type.

Procedure

1. Connect the miniSAS cable to the ETERNUS DX Disk storage system.

   Insert the miniSAS cable connectors in the host interface ports of Controller 0 (CM#0) and Controller 1 (CM#1).



⚠ CAUTION

Do

- When connecting the miniSAS cables, position them so that they will not obstruct replacement of the power supply unit or controllers by the maintenance engineer.

2 Connect the miniSAS cables to the connection destination.

Connect the connector at the other end of the miniSAS cable to the connection destination.

End of procedure

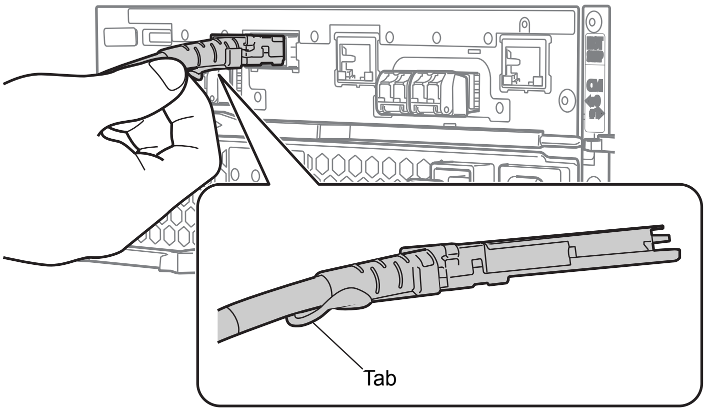
4.3 Drive Enclosure Connection

When a Drive Enclosure is installed, connect the Drive Enclosure to the Controller Enclosure with a QSFP cable. When multiple drive enclosures are installed, connect the drive enclosures with QSFP cables.
Two QSFP cables (75cm) are supplied with each drive enclosure dual-IOM type, and one QSFP cable (75cm) with each drive enclosure single-IOM type.

The following procedure explains how to connect the QSFP cable.

IMPORTANT

- To help with QSFP cable management and prevent incorrect connections, make sure to attach the destination labels that are supplied with the ETERNUS DX Disk storage system to the connectors of the QSFP cables.
- When connecting QSFP cables, check the connector orientation and then firmly push it all the way in. When disconnecting QSFP cables, use the pull-tab to extract the connector.

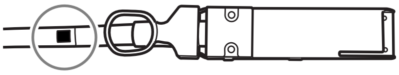


Procedure

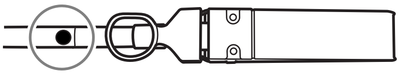
1 Attach the destination labels to the connectors of the QSFP cables.

1-1 Before attaching the destination labels, check the connection destination of the QSFP cables.

- The connector on which the "■" symbol is printed is connected to the DI (OUT) port on the controller enclosure or the drive enclosure.

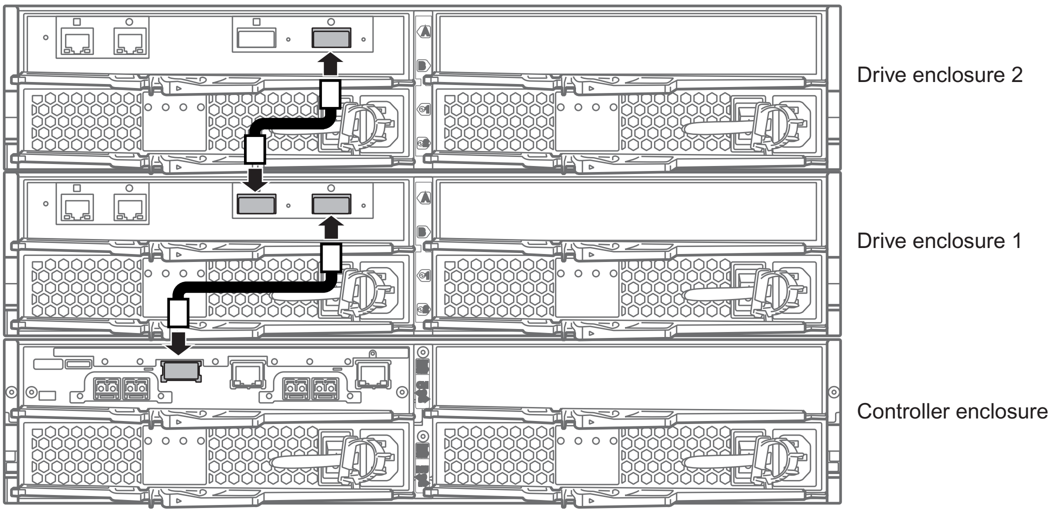


- The connector on which the "●" symbol is printed is connected to the DI (IN) port on the drive enclosure.

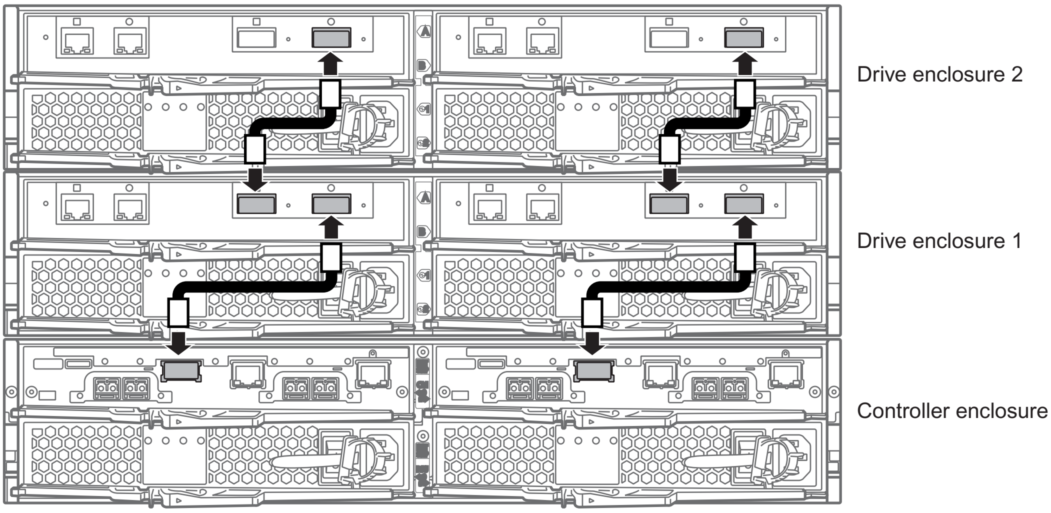


The following figures show a QSFP cable connection between the controller enclosure and drive enclosure 1 and between drive enclosure 1 and drive enclosure 2.

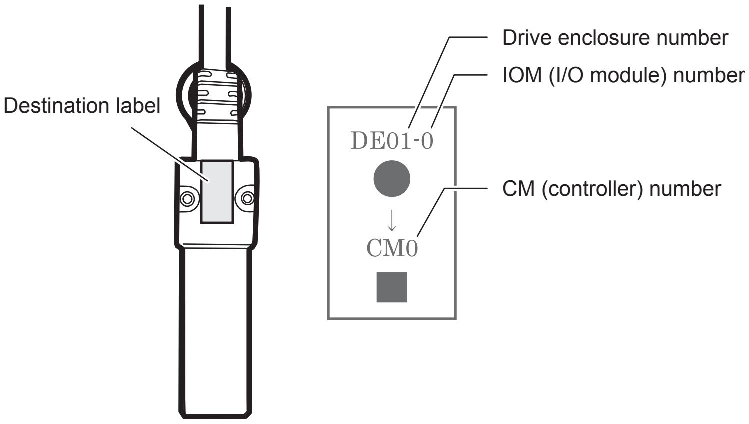
- For a single-controller type



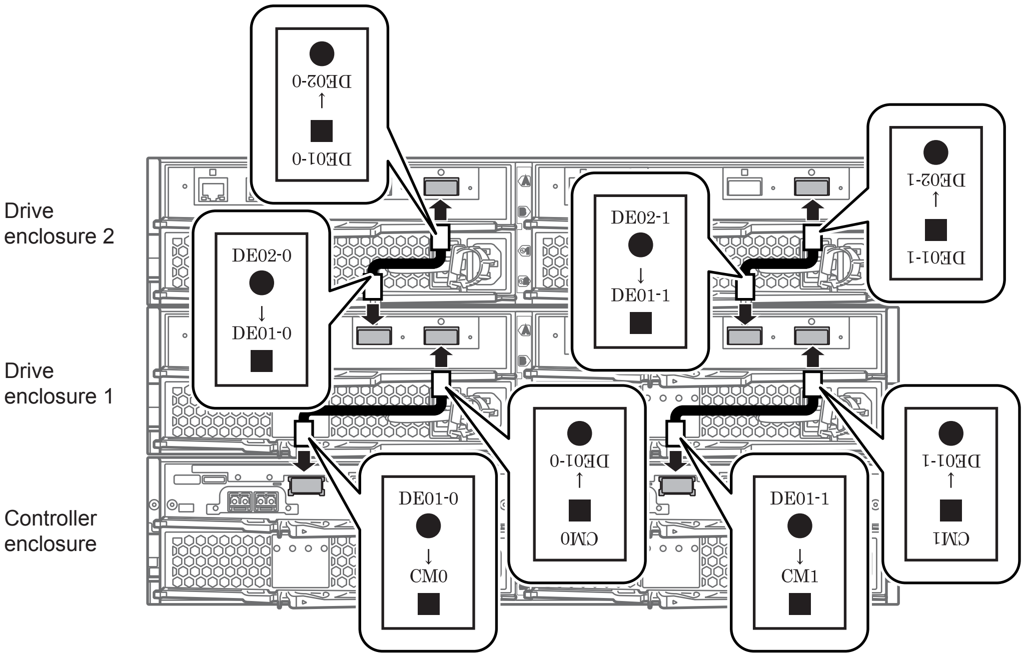
- For a dual-controller type


Drive enclosure 2
Drive enclosure 1
Controller enclosure

1-2 Attach the destination labels to the connectors of the QSFP cables.
"Controller number" or "Drive enclosure number - IOM number" is printed on the destination labels in the "Connection origin DI port → Connection destination DI port" format. The "■" or "●" symbol is also printed on the destination labels.
Carefully check the connection origin and connection destination. Attach the destination labels as shown below:


Destination label
Drive enclosure number
IOM (I/O module) number
DE01-0
↓
CM0
CM (controller) number

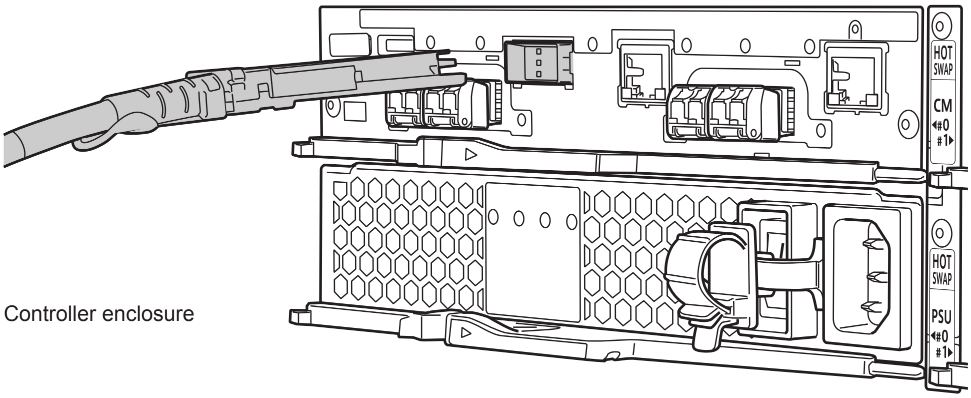
The following figure shows an example of destination label attachments on the QSFP cables that connect the controller enclosure to drive enclosure 1 and that connect drive enclosure 1 to drive enclosure 2.


DE01-0 → DE02-0
Drive enclosure 2
DE02-0 ● ↓ DE01-0 ■
DE02-1 ● ↓ DE01-1 ■
DE01-1 → DE02-1
Drive enclosure 1
CM0 → DE01-0
CM1 → DE01-1
Controller enclosure
DE01-0 ● ↓ CM0 ■
DE01-1 ● ↓ CM1 ■

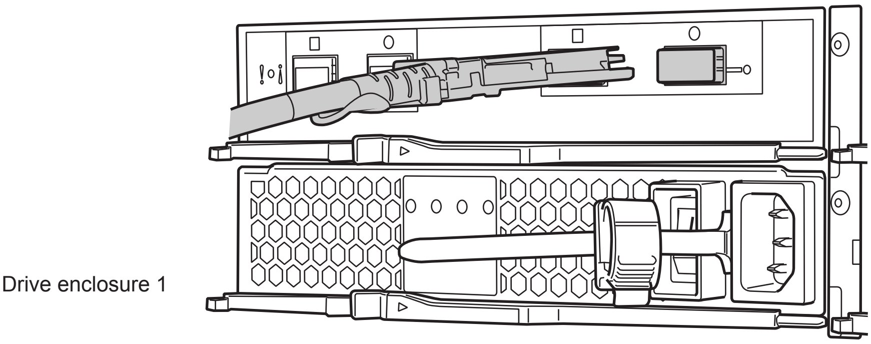
2 Connect the controller enclosure to the drive enclosure with the QSFP cable.

2-1 Connect the DI (OUT) port of Controller 0 (CM#0) in the controller enclosure to the DI (IN) port of I/O module 0 (IOM6#0) in drive enclosure 1 with the QSFP cable.

(1) Connect the plug to be connected to DI (OUT) port, to the DI (OUT) port of the Controller 0 (CM#0).


HOT SWAP
CM #0 #1
HOT SWAP
PSU #0 #1
Controller enclosure

(2) Connect the plug to be connected to DI (IN) port, to the DI (IN) port of the I/O module 0 (IOM6#0).

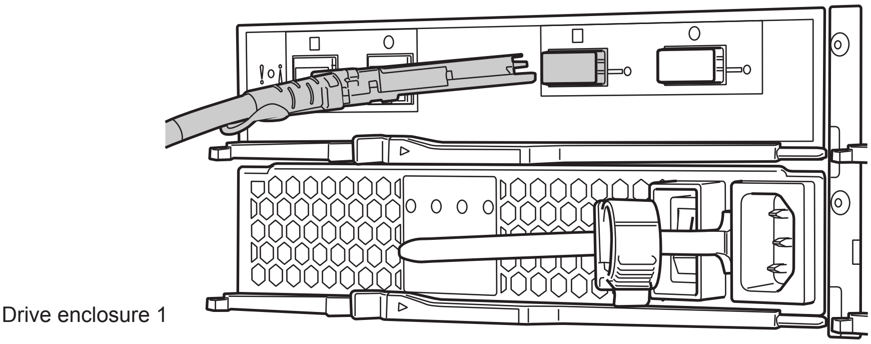


2-2 For a dual-controller type, connect the DI (OUT) port of Controller 1 (CM#1) in the controller enclosure to the DI (IN) port of I/O module 1 (IOM6#1) in drive enclosure 1 with the QSFP cable. Connect the QSFP cable in the same way as Step 2-1.

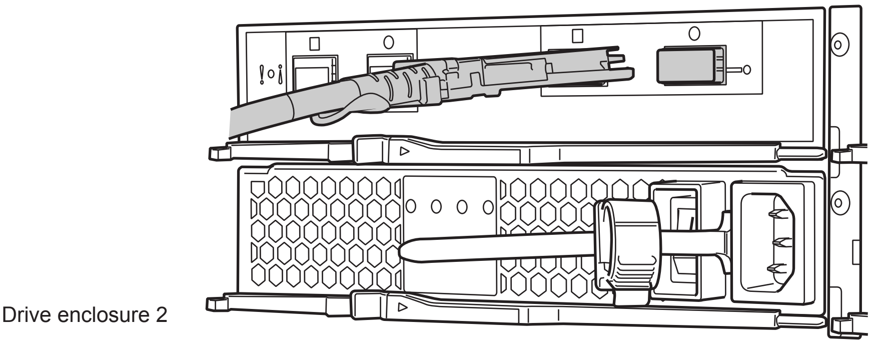
3 When two or more drive enclosures are installed, connect the drive enclosures with the QSFP cable.

3-1 Connect the DI (OUT) port of I/O module 0 (IOM6#0) in drive enclosure 1 to the DI (IN) port of I/O module 0 (IOM6#0) in drive enclosure 2 with the QSFP cable.

(1) Connect the plug to be connected to the DI (OUT) port to the DI (OUT) port of I/O module 0 (IOM6#0) in drive enclosure 1.



(2) Connect the plug to be connected to the DI (IN) port to the DI (IN) port of the I/O module 0 (IOM6#0) in drive enclosure 2.



3-2 For a dual-controller type, connect the DI (OUT) port of I/O module 1 (IOM6#1) in drive enclosure 1 to the DI (IN) port of I/O module 1 (IOM6#1) in drive enclosure 2 with the QSFP cable.
Connect the QSFP cable in the same way as Step 3-1.

IMPORTANT

Do not connect anything to the DI (OUT) port on the end edge.

End of procedure

4.4 Power Synchronized Unit Connection

When using a power synchronized unit for power control, connect the power synchronized unit to the ETERNUS DX Disk storage system.
Refer to "User's Guide -Power Synchronized Unit-" that is provided with the power synchronized unit for details about power synchronized units, the procedure for connecting power synchronized units to the ETERNUS DX Disk storage system, and required settings.

4.5 Power Cord Connection

Connect the power cords to the ETERNUS DX Disk storage system.

4.5.1 When no Power Distribution Units are Installed

The following procedure explains how to connect the power cords when power distribution unit for DX80 S2/DX90 S2 is not installed.
Two power cords (4m) are provided for each enclosure.

IMPORTANT

To help with power cord management and prevent incorrect connections, attach labels to the power cords and make a note of connection origins and destinations.

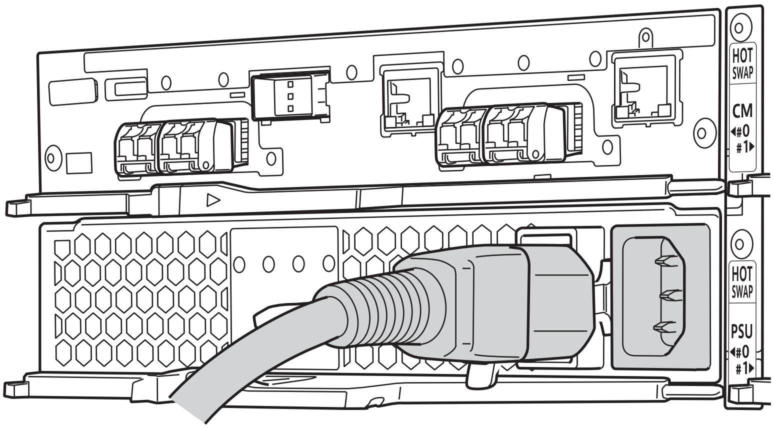
Procedure

1 Connect the power cord to the ETERNUS DX Disk storage system.

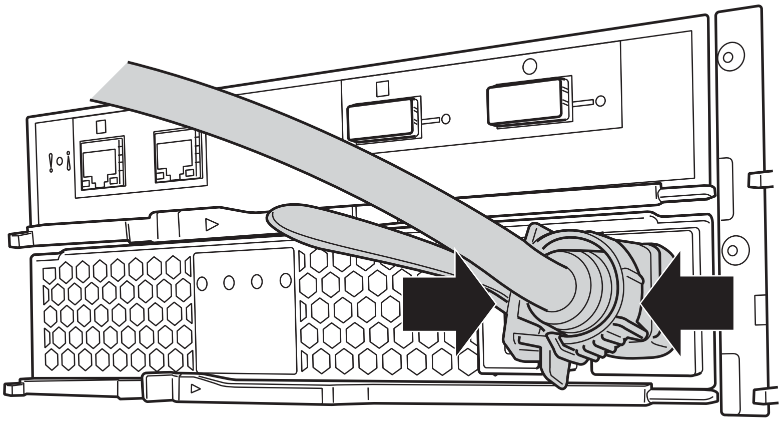
IMPORTANT

Each enclosure has two power supply units (PSU#0 and PSU#1). The power cords must be connected to the inlets of both power supply units.

1-1 Connect the power cord plugs to the power inlets of the power supply units.



1-2 Fasten the plug of the power cord with the release tie.
Wrap the release tie around the power cord and fasten the release tie from either side. Make sure that the release tie is not loose.



2 Connect the power cords to the socket.

Connect the plug at the other end of each power cord to the socket.

IMPORTANT

Power supply failure can be prevented by connecting the power cords on the PSU#0 side and the PSU#1 side to different power sources.

⚠ **CAUTION**

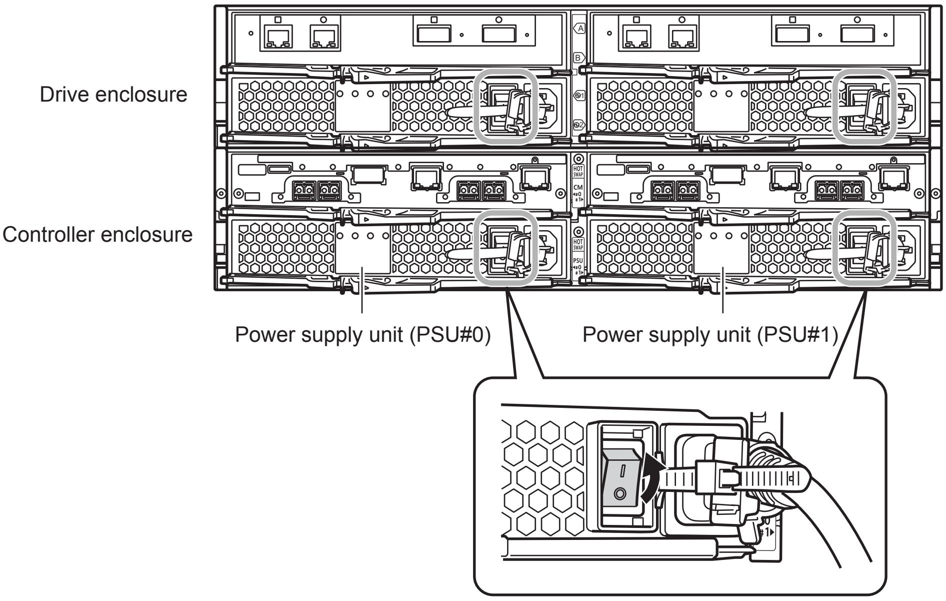
Do Not

- Do not use the server service outlet to connect a power cord for the ETERNUS DX Disk storage system.

3 Turn the PSU switch of the power supply unit to the ON position (marked "|").

IMPORTANT

Make sure all of the PSU switches are in the ON position.



AC power is supplied to an enclosure.

- For the controller enclosure, the POWER LED on the power supply unit blinks green.
- For the drive enclosure, the POWER LED on the power supply unit and the LINE LED on the front emit green lights and the fan revolves at high speed for 30 seconds.

End of procedure

4.5.2 When 1U Power Distribution Unit is Installed (For Regions other than EMEA&I)

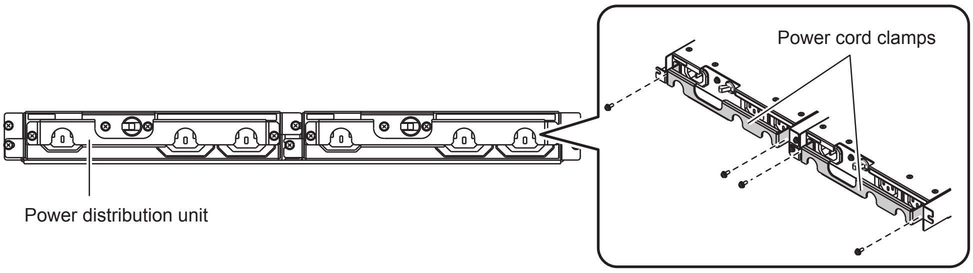
The following procedure explains how to connect the power cord when a 1U power distribution unit is installed.

IMPORTANT

To help with power cord management and prevent incorrect connections, attach labels to the power cords and make a note of connection origins and destinations.

Procedure

1 Remove the power cord clamp from the power distribution unit.


Power cord clamps
Power distribution unit

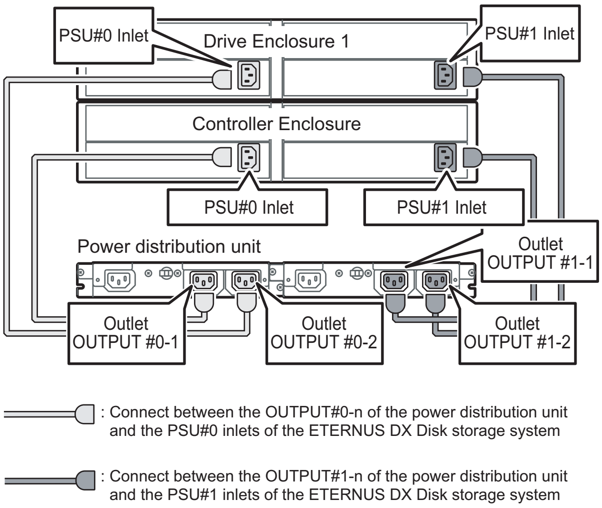
2 Connect the power distribution unit outlets and power supply unit inlets with the power cords (AC output cables, 3m) provided with the power distribution unit.

The procedures to connect the power supply unit is same as the the Step 1 in "4.5.1 When no Power Distribution Units are Installed" (page 78).

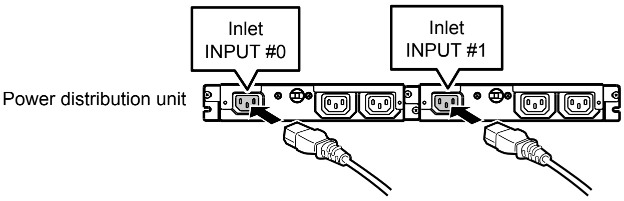
IMPORTANT

Each enclosure has two power supply units (PSU#0 and PSU#1). The power cords must be connected to the inlets of both power supply units.

The following figure shows an example of AC output cable connection:


PSU#0 Inlet
Drive Enclosure 1
PSU#1 Inlet
Controller Enclosure
PSU#0 Inlet
PSU#1 Inlet
Power distribution unit
Outlet OUTPUT #1-1
Outlet OUTPUT #0-1
Outlet OUTPUT #0-2
Outlet OUTPUT #1-2
: Connect between the OUTPUT#0-n of the power distribution unit and the PSU#0 inlets of the ETERNUS DX Disk storage system
: Connect between the OUTPUT#1-n of the power distribution unit and the PSU#1 inlets of the ETERNUS DX Disk storage system

3 Connect the power cords (AC input cables) (4m) supplied with the power distribution unit to the inlet of the power distribution unit.


Inlet
INPUT #0
Inlet
INPUT #1
Power distribution unit

4 Use the power cord clamps to prevent the power plugs from coming unplugged.

Attach the power cord clamps removed in Step 1.

5 Connect the plug at the other end of each of the power cords (AC input cables) (4m) connected in Step 3 to the socket.

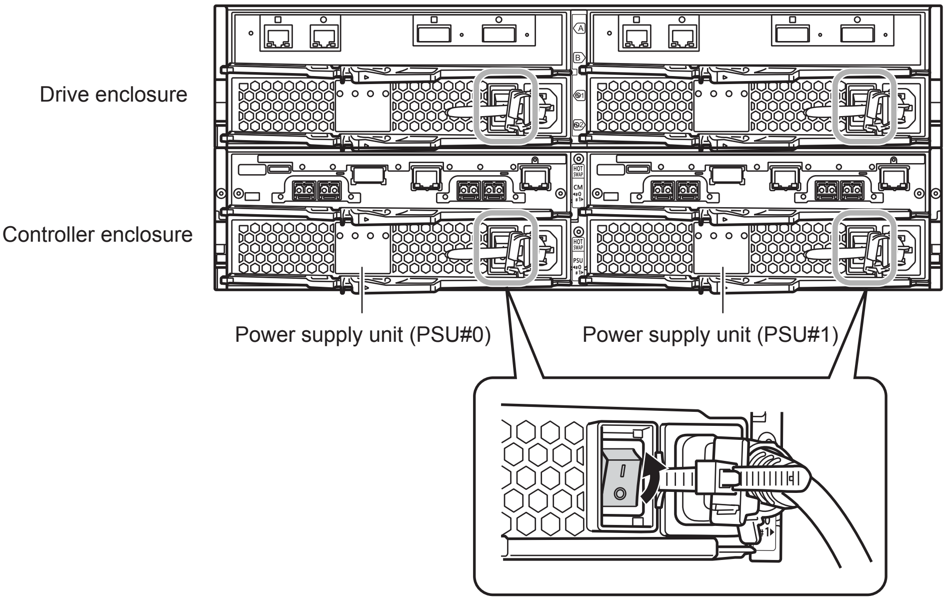
IMPORTANT

Power supply failure can be prevented by connecting the power cords (AC input cables) on the power distribution unit A side and the power distribution unit B side to different power sources.

6 Turn the PSU switch of the power supply unit to the ON position (marked "|").

IMPORTANT

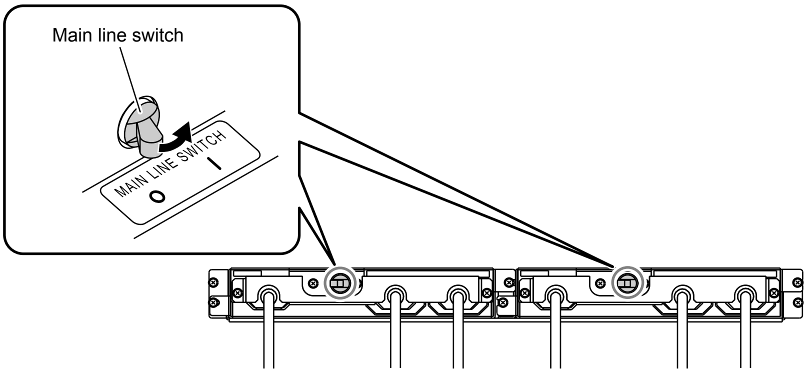
Make sure all of the PSU switches are in the ON position.


Drive enclosure
Controller enclosure
Power supply unit (PSU#0)
Power supply unit (PSU#1)

7 Turn the main line switch of the power distribution unit to the ON position (marked "|").

IMPORTANT

Make sure all of the main line switches are in the ON position.



AC power is supplied to an enclosure.

- For the controller enclosure, the POWER LED on the power supply unit blinks green.
- For the drive enclosure, the POWER LED on the power supply unit and the LINE LED on the front emit green lights and the fan revolves at high speed for 30 seconds.

End of procedure

4.5.3 When 2U Power Distribution Unit is Installed (For Regions other than EMEA&I)

The following section explains how to connect a power cord when a Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection) is installed.

Note

This section explains the connection procedure for power distribution units (AC200-240V, 2U, Max 6 enclosures connection). This procedure can also be applied for Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection).

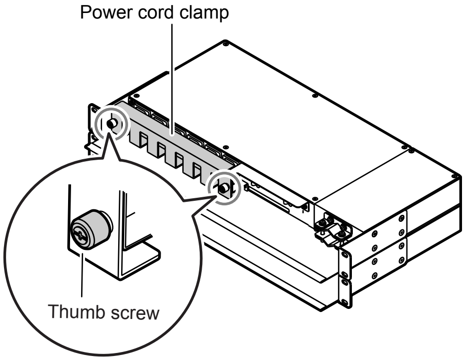
IMPORTANT

To help with power cord management and prevent incorrect connections, attach labels to the power cords and make a note of connection origins and destinations.

Procedure

1 Remove the power cord clamp from the power distribution unit.

Loosen the two thumb screws on both sides of the power cord clamp to remove it.



2 Connect the power distribution unit outlets and power supply unit inlets with the power cords (AC output cables, 4m) provided with the power distribution unit.

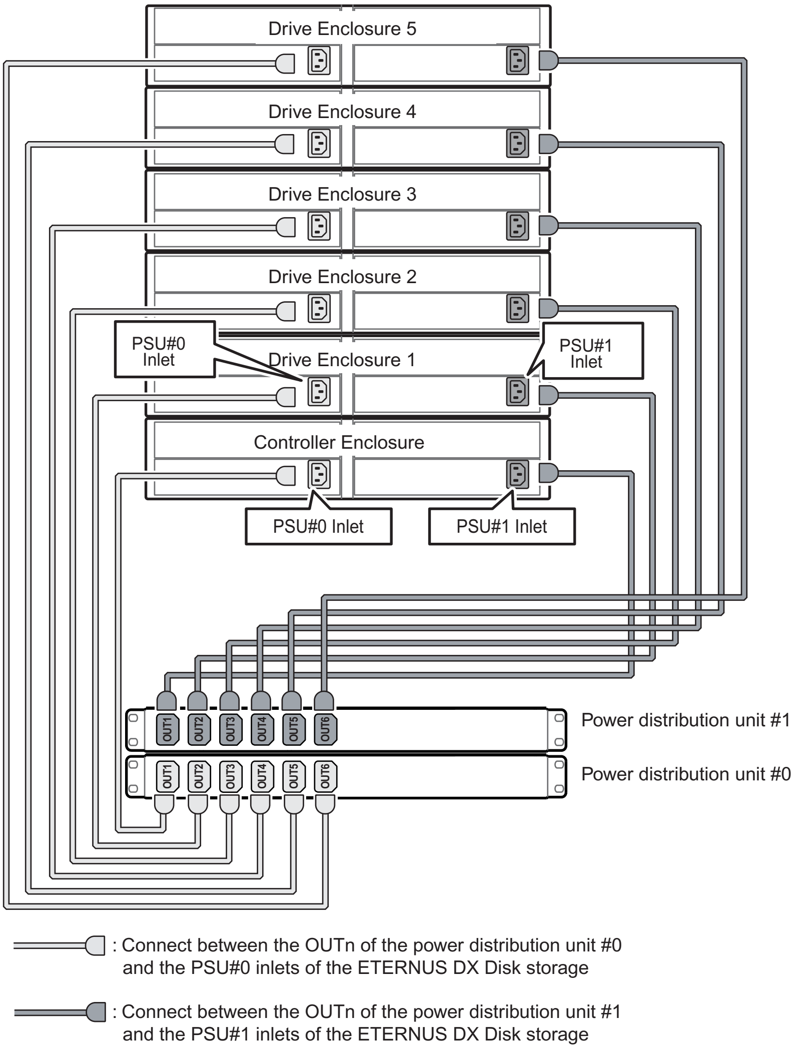
The procedures to connect the power supply unit is the same as the Step 1 in "4.5.1 When no Power Distribution Units are Installed" (page 78).

IMPORTANT

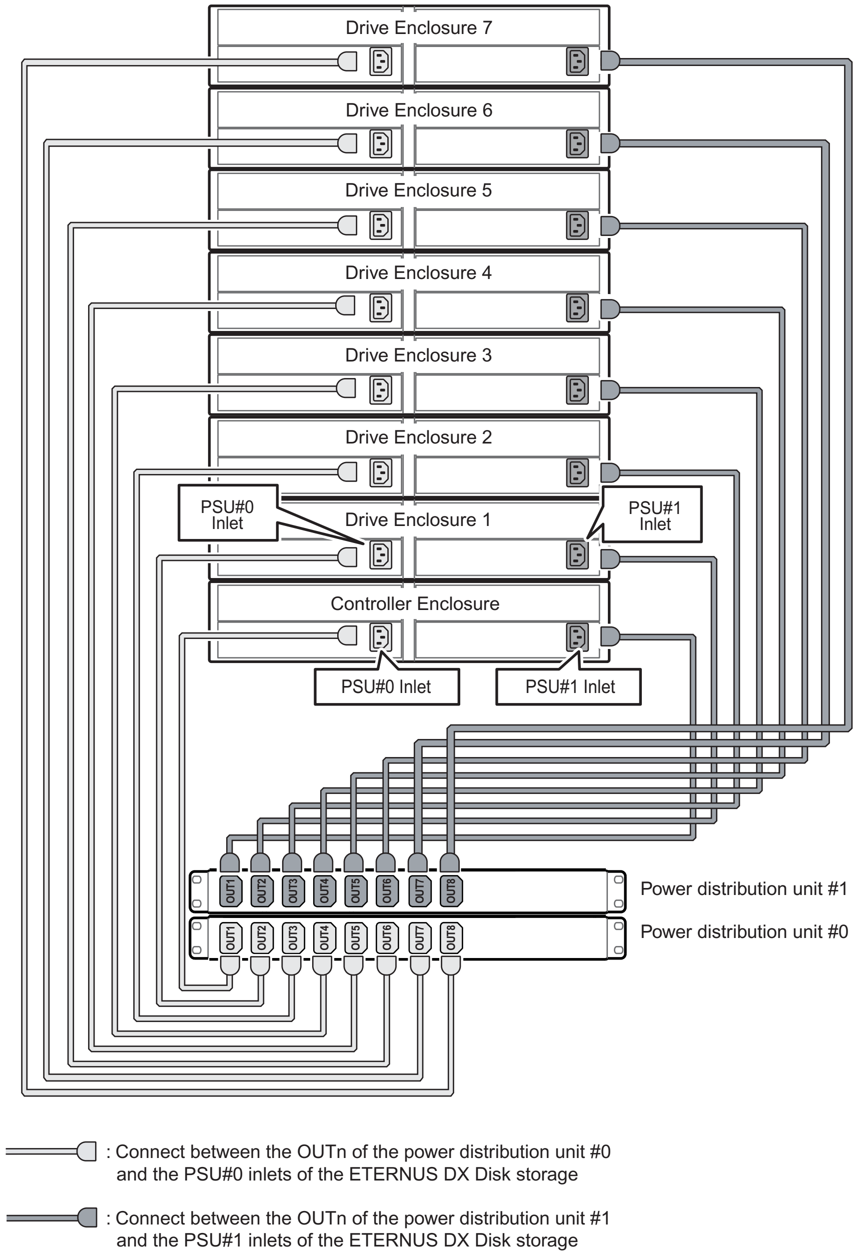
- Each enclosure has two power supply units (PSU#0 and PSU#1). The power cords must be connected to the inlets of both power supply units.
- Connect the PSU#0 power cord to power distribution unit#0 (the lower power distribution unit). Connect the PSU#1 power cord to power distribution unit#1 (the higher power distribution unit).

The following figures show a connection diagram of AC outlet cables.

- For Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 6 enclosures connection)


Drive Enclosure 5
Drive Enclosure 4
Drive Enclosure 3
Drive Enclosure 2
PSU#0 Inlet
Drive Enclosure 1
PSU#1 Inlet
Controller Enclosure
PSU#0 Inlet
PSU#1 Inlet
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
Power distribution unit #1
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
Power distribution unit #0
: Connect between the OUTn of the power distribution unit #0 and the PSU#0 inlets of the ETERNUS DX Disk storage
: Connect between the OUTn of the power distribution unit #1 and the PSU#1 inlets of the ETERNUS DX Disk storage

For Power distribution unit for DX80 S2/DX90 S2 (AC200-240V, 2U, Max 8 enclosures connection)


Drive Enclosure 7
Drive Enclosure 6
Drive Enclosure 5
Drive Enclosure 4
Drive Enclosure 3
Drive Enclosure 2
PSU#0 Inlet
Drive Enclosure 1
PSU#1 Inlet
Controller Enclosure
PSU#0 Inlet
PSU#1 Inlet
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
OUT8
Power distribution unit #1
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
OUT8
Power distribution unit #0

: Connect between the OUTn of the power distribution unit #0 and the PSU#0 inlets of the ETERNUS DX Disk storage

: Connect between the OUTn of the power distribution unit #1 and the PSU#1 inlets of the ETERNUS DX Disk storage

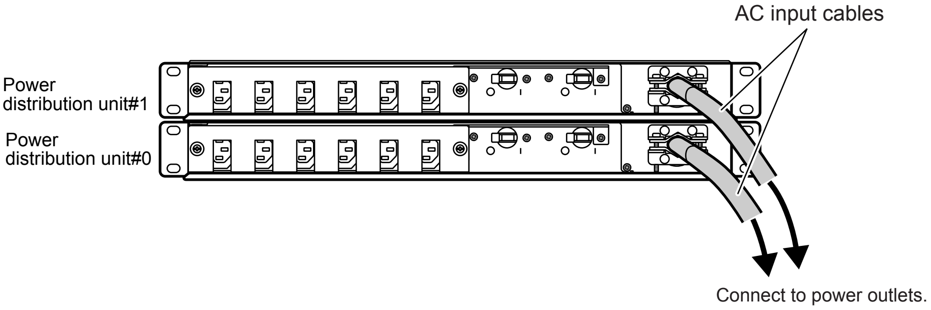
3 Use the power cord clamps to prevent the power plugs from coming unplugged.

Attach the power cord clamps removed in Step 1.

4 Connect the plugs on the other end of the power cords (AC input cables) that are attached to the power distribution unit (4m) to sockets.

IMPORTANT

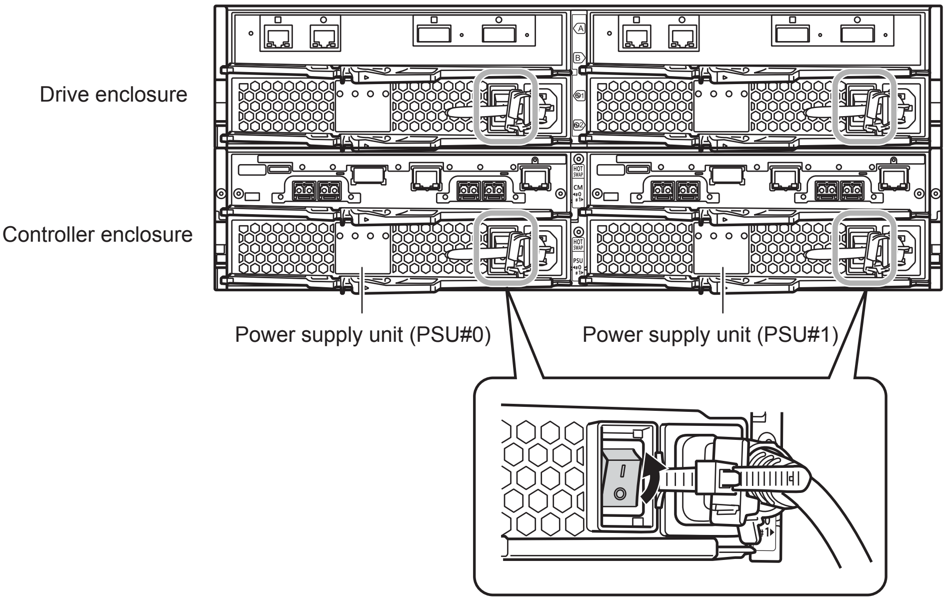
Power supply failure can be prevented by connecting the power cords (AC input cables) on the power distribution unit #0 side and the power distribution unit #1 side to different power sources.


AC input cables
Power distribution unit#1
Power distribution unit#0
Connect to power outlets.

5 Turn the PSU switch of the power supply unit to the ON position (marked "|").

IMPORTANT

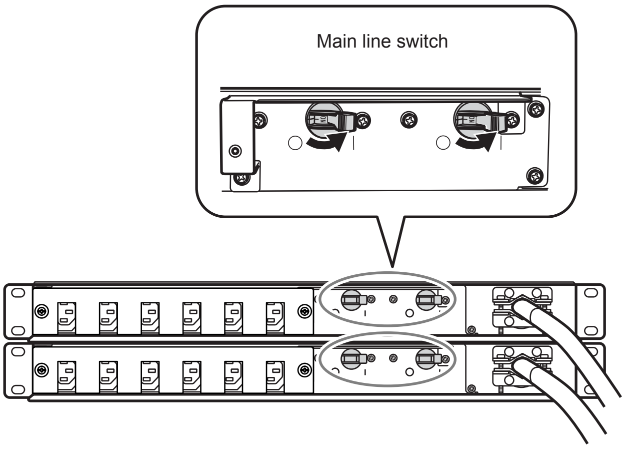
Make sure all of the PSU switches are in the ON position.


Drive enclosure
Controller enclosure
Power supply unit (PSU#0)
Power supply unit (PSU#1)

6 Turn the main line switch of the power supply unit to the ON position (marked "|").

IMPORTANT

Make sure all of the main line switches are in the ON position.



AC power is supplied to an enclosure.

- For the controller enclosure, the POWER LED on the power supply unit blinks green.
- For the drive enclosure, the POWER LED on the power supply unit and the LINE LED on the front emit green lights and the fan revolves at high speed for 30 seconds.

End of procedure

Chapter 5
Setup

This chapter explains how to set up the ETERNUS DX Disk storage system.

5.1 Basic Setup

Use ETERNUS Web GUI to perform a basic setup of the ETERNUS DX Disk storage system.

5.1.1 ETERNUS DX Disk Storage System and PC Terminal Connection

Connect a PC terminal to the ETERNUS DX Disk storage system.

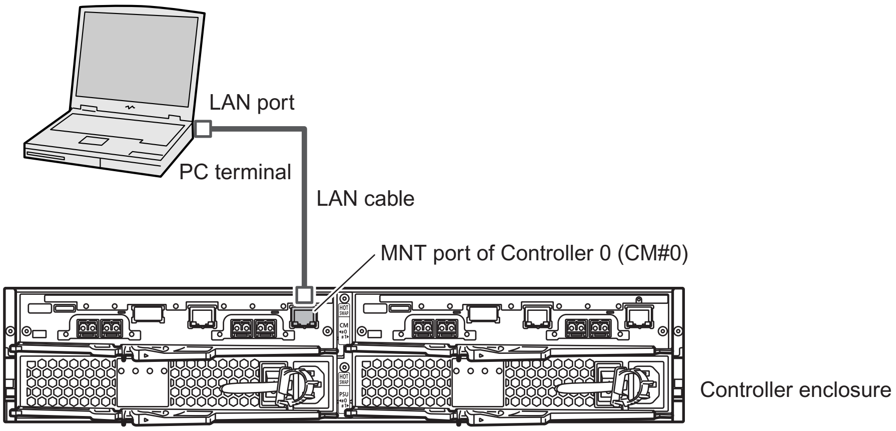
Connect the PC terminal to the MNT port of Controller 0 (CM#0) on the controller enclosure directly with the LAN cable (for operation management).

Refer to "1.2 Setup Preparation" (page 25) for LAN connection properties setup information of the PC terminal.

Note

The ETERNUS DX Disk storage system and the PC terminal must be connected directly since the network environment of the ETERNUS DX Disk storage system is set using the PC terminal for the initial setup of the ETERNUS DX Disk storage system.

Figure 5.1 PC terminal connection for initial setup



- When the LAN cable for the MNT port of Controller 0 (CM#0) is connected to a network device, connect the cable to a PC terminal.
- Remove the LAN cable that is connected to the MNT port of Controller 1 (CM#1).

5.1.2 Powering On

Turn on the PC terminal and the ETERNUS DX Disk storage system.
Follow the procedure below to turn on the ETERNUS DX Disk storage system.

Note

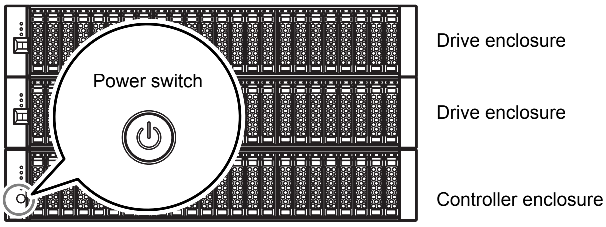
Before turning on the ETERNUS DX Disk storage system, make sure that the main line switches of the power distribution units and the PSU switches on the power supply units of the ETERNUS DX Disk storage system are "ON" and that the LINE LEDs of the drive enclosures are green.

IMPORTANT

- After turning the power on, it takes about two minutes for the ETERNUS DX Disk storage system to become READY (i.e. the READY LED turns on). If an error is detected during the initial power-on diagnostic phase, a longer time (up to ten minutes) may be required before the READY LED turns on.
- When turning on the ETERNUS DX Disk storage system for the first time, volume formatting operation, which is set as factory default, may be performed. However, the ETERNUS DX Disk storage system setting operation can be continued. When canceling a volume format, delete the volume. For details on how to delete volume, refer to "ETERNUS Web GUI User's Guide".

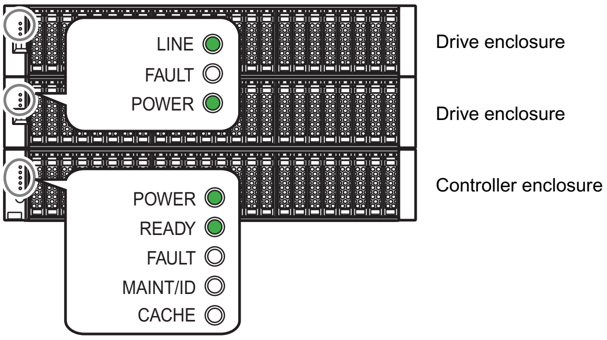
Procedure

1 Press the Power switch of the controller enclosure.



The POWER LEDs on the controller enclosure and the drive enclosures are turned on.

2 After about two minutes, check that the READY LED of the controller enclosure is lit up.



When checking the connection between the PC terminal and the ETERNUS DX Disk storage system, execute the "ping" command at the PC command prompt. An example of ping execution is shown below: ("192.168.1.1" is the default IP address)

```
ping 192.168.1.1
```

If the execution results in an error, check the network settings of the PC terminal.

IMPORTANT

If communication fails even though the MNT port of Controller 0 (CM#0) and the LAN port of the PC terminal are connected, check that the Master LED of Controller 0 (CM#0) is on. If the Master LED of Controller 1 (CM#1) is on for a dual-controller type, use the MNT port of Controller 1 (CM#1).

End of procedure

5.1.3 ETERNUS Web GUI Startup

Start up ETERNUS Web GUI in the Web browser of the connected PC terminal.

Procedure

1 Open the Web browser on the PC terminal.

2 Enter either of the following URLs in the address bar of the Web browser.

http://192.168.1.1/

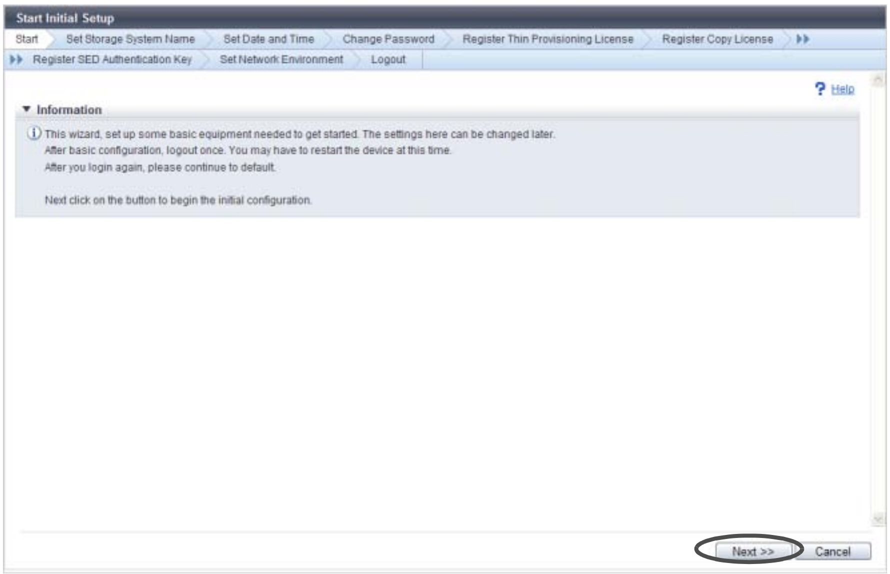
The login screen for ETERNUS Web GUI appears.

3 To change the user interface language, click the [Option] button and select "English" or "Japanese" in "Language".

4 Enter the Username and Password.

User name: root
Password: root (by default)

After logging in, the initial setup screen of ETERNUS Web GUI appears.



Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
Information

This wizard, set up some basic equipment needed to get started. The settings here can be changed later.
After basic configuration, logout once. You may have to restart the device at this time.
After you login again, please continue to default.

Next click on the button to begin the initial configuration.

Next >>
Cancel

End of procedure

5.1.4 Initial Setup

Perform the settings that are required before operation of the ETERNUS DX Disk storage system on the initial setup screen.

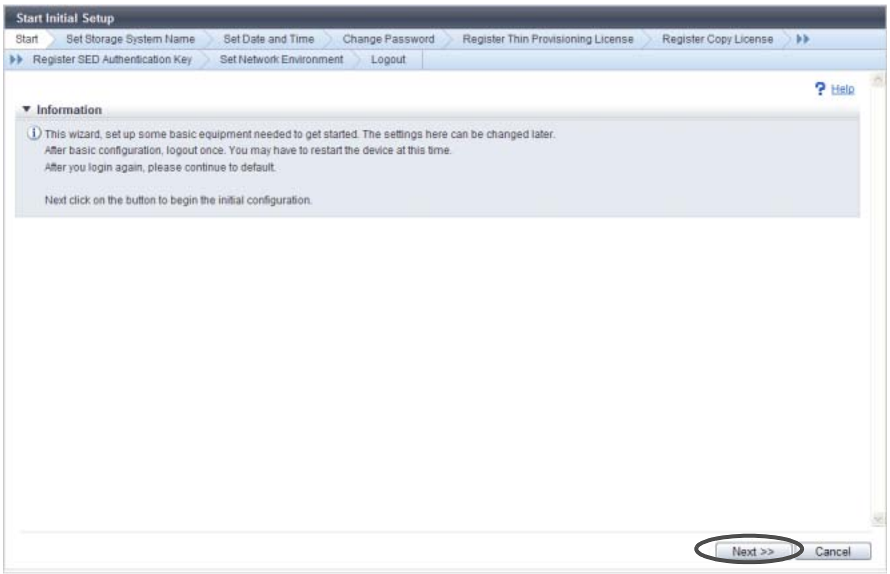
Perform the following settings according to the wizard screen:

- Set Storage System Name
- Set Date and Time
- Change Password
- Register Thin Provisioning License
- Register Copy License
- Register SED Authentication Key
- Set Network Environment

Follow the procedure below to perform initial setup. For details on the settings, refer to "ETERNUS Web GUI User's Guide".

Procedure

1 Click the [Next>>] button in the [Start Initial Setup] screen.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
Information
Next >>
Cancel

This wizard, set up some basic equipment needed to get started. The settings here can be changed later.
After basic configuration, logout once. You may have to restart the device at this time.
After you login again, please continue to default.

Next click on the button to begin the initial configuration.

The [Set Storage System Name] screen appears.

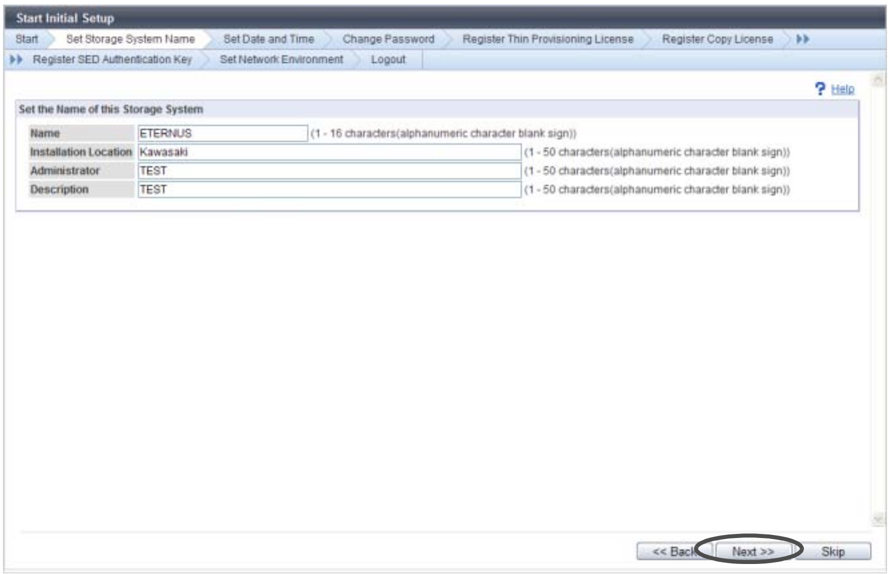
2 Set the name of the ETERNUS DX Disk storage system.

Set the name of the ETERNUS DX Disk storage system.

Note

The information that is set here is used for network management by SNMP. The name of the ETERNUS DX Disk storage system is displayed in the login and operation screens of ETERNUS Web GUI.

2-1 Specify the required items and click the [Next>>] button.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
<< Back
Next >>
Skip

Set the Name of this Storage System

Name	ETERNUS	(1 - 16 characters(alphanumeric character blank sign))
Installation Location	Kawasaki	(1 - 50 characters(alphanumeric character blank sign))
Administrator	TEST	(1 - 50 characters(alphanumeric character blank sign))
Description	TEST	(1 - 50 characters(alphanumeric character blank sign))

A confirmation screen appears.

2-2 Click the [OK] button.
The name of the ETERNUS DX Disk storage system is set and the setting completion screen appears.

2-3 Click the [Done] button.
The [Set Date and Time] screen appears.

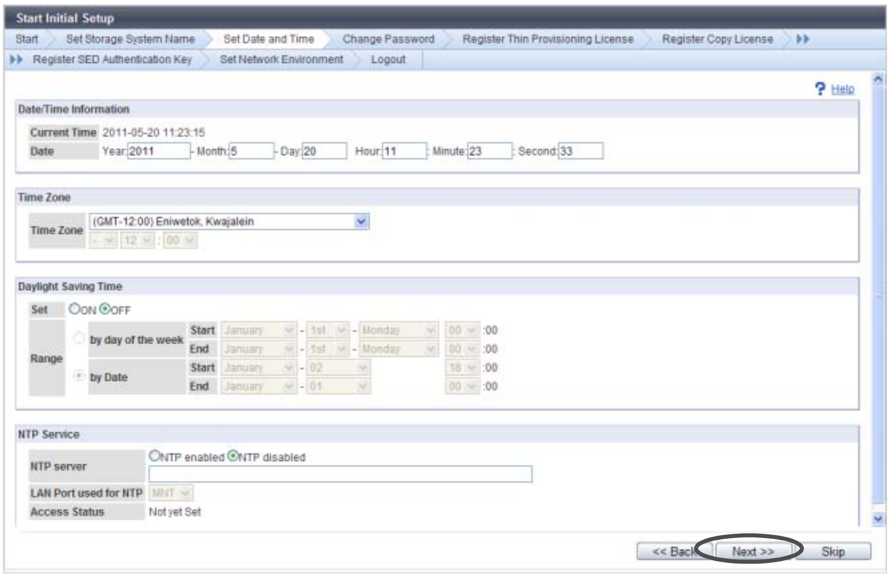
3 Set date and time.

Set the time, date and time zone of the internal clock in the ETERNUS DX Disk storage system.

IMPORTANT

To use the NTP function, set up the NTP function after the initial setup is complete.

3-1 Specify the required items and click the [Next>>] button.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
<< Back
Next >>
Skip

Date/Time Information

Current Time 2011-05-20 11:23:15

Date Year: 2011 - Month: 5 - Day: 20 Hour: 11 : Minute: 23 : Second: 33

Time Zone

Time Zone (GMT-12:00) Eniwetok, Kwajalein
- 12 : 00

Daylight Saving Time

Set ○ON ●OFF

Range
○ by day of the week Start January - 1st - Monday 00 :00
End January - 1st - Monday 00 :00
● by Date Start January - 02 18 :00
End January - 01 00 :00

NTP Service

NTP server ○NTP enabled ●NTP disabled

LAN Port used for NTP MNT

Access Status Not yet Set

A confirmation screen appears.

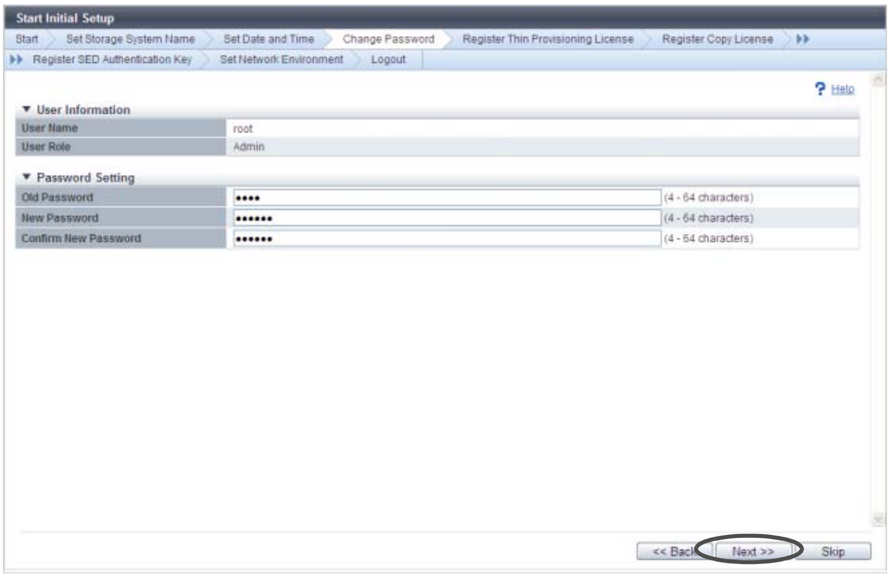
3-2 Click the [OK] button.
The data and time is set and the setting completion screen appears.

3-3 Click the [Done] button.
The [Change Password] screen appears.

4 Change the password.

Change the initial account password.

4-1 Specify the required items and click the [Next>>] button.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
? Help
<< Back
Next >>
Skip

▼ User Information

User Name	root
User Role	Admin

▼ Password Setting

Old Password	••••	(4 - 64 characters)
New Password	••••••	(4 - 64 characters)
Confirm New Password	••••••	(4 - 64 characters)

A confirmation screen appears.

4-2 Click the [OK] button.
The password is changed and the change completion screen appears.

4-3 Click the [Done] button.
The [Register Thin Provisioning License] screen appears.

5 Register the Thin Provisioning Feature License.

When the Thin Provisioning Feature License is registered as a factory setting, proceed to Step 6.
This screen is displayed when a Thin Provisioning Feature License is not registered.
To register the license, purchase the optional "Thin Provisioning Feature License". For details, refer to "Feature activation licenses" that is provided with the Thin Provisioning Feature License.

■ To skip registration of the Thin Provisioning Feature License

(1) Click the [Skip] button.
The [Register Copy License] screen appears.

■ To register the Thin Provisioning Feature License

(1) Set the required items and click the [Set] button.
A confirmation screen appears.

(2) Click the [OK] button.
The Thin Provisioning Feature License is registered and the setting completion screen appears.

(3) Click the [Done] button.
The [Register Copy License] screen appears.

6 Register the Advanced Copy license.

Click the [Skip] button to proceed to the [Register SED Authentication Key] screen.

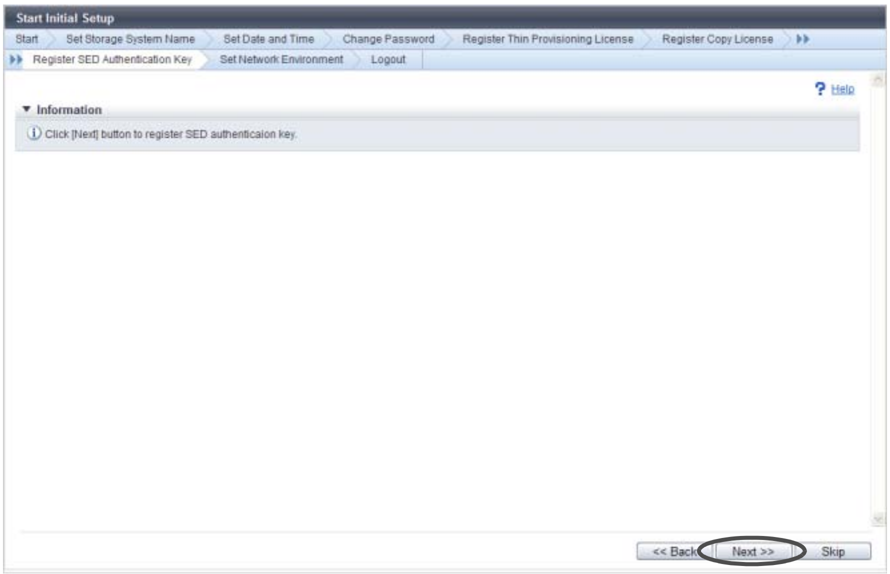
Note

When registering the copy license for ETERNUS SF AdvancedCopy Manager or ETERNUS SF Express, refer to the manuals that are supplied with ETERNUS SF AdvancedCopy Manager or ETERNUS SF Express.

7 Register the SED authentication key.

When Self Encrypting Drives (SEDs) are installed in the ETERNUS DX Disk storage system, register the SED authentication key.

7-1 A message to confirm whether to register the SED authentication key is displayed. Click the [Next>>] button.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
Information
<< Back
Next >>
Skip

Click [Next] button to register SED authenticaion key.

A confirmation screen appears.

7-2 Click the [OK] button.
The SED authentication key is registered and the registration completion screen appears.

7-3 Click the [Done] button.
The [Setup Network Environment] screen appears.

Note

- The SED authentication key can be registered even if no SEDs are or will be installed.
- When SEDs are already installed in the ETERNUS DX Disk storage system, a message that requests rebooting appears. Reboot the ETERNUS DX Disk storage system.

8 Set the network environment.

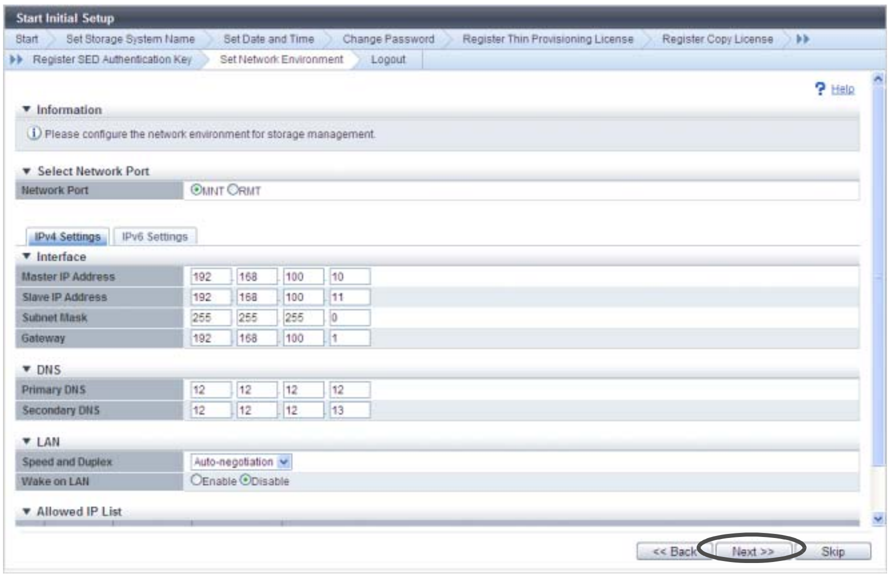
Set the ETERNUS DX Disk storage system environment for network communication.

8-1 Click the [IPv4 Settings] tab to specify an IPv4 address. Click the [IPv6 Settings] tab to specify an IPv6 address.

8-2 Enter the necessary items such as the IP address of the MNT port, and click the [Next>>] button.

Note

To allow connection to devices in a network to which the ETERNUS DX Disk storage system does not belong, set "Gateway" and specify the IP address (network address) or the connect IP address of the connection destination device in "Allowed IP List". Click the [Add] button in the "Allowed IP List" field and register the IP address (network address) or the connect IP address in the Add Allow IP screen.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
IPv4 Settings
IPv6 Settings
<< Back
Next >>
Skip

Information

Please configure the network environment for storage management.

Select Network Port

Network Port	● MNT ○ RMT

Interface

Master IP Address	192 . 168 . 100 . 10
Slave IP Address	192 . 168 . 100 . 11
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 100 . 1

DNS

Primary DNS	12 . 12 . 12 . 12
Secondary DNS	12 . 12 . 12 . 13

LAN

Speed and Duplex	Auto-negotiation
Wake on LAN	○ Enable ● Disable

Allowed IP List

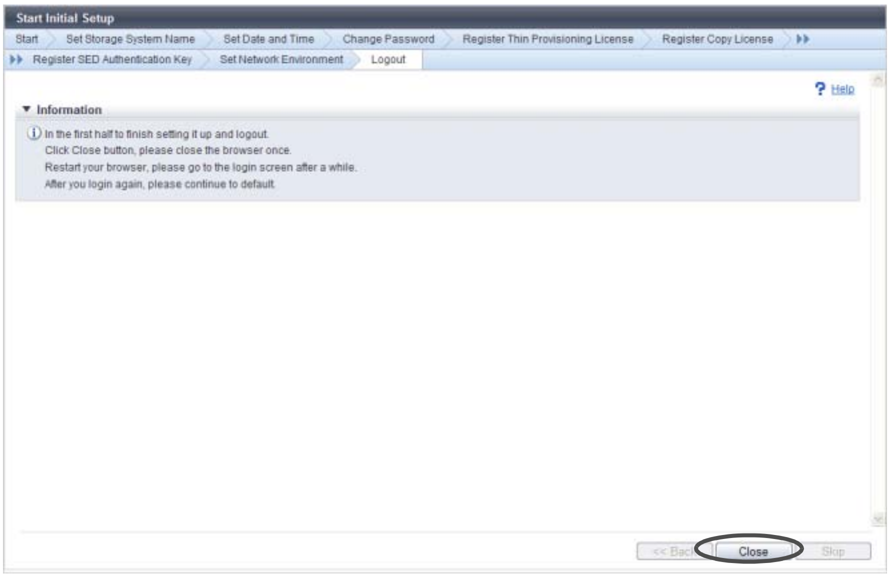
A confirmation screen appears.

8-3 Click the [OK] button.
The network setting is applied and the setting completion screen appears.

8-4 Click the [Done] button.
The [Logout] screen appears.

9 Log out from ETERNUS Web GUI.

9-1 Click the [Close] button.


Start Initial Setup
Start
Set Storage System Name
Set Date and Time
Change Password
Register Thin Provisioning License
Register Copy License
Register SED Authentication Key
Set Network Environment
Logout
Help
Information
<< Back
Close
Skip

In the first half to finish setting it up and logout.
Click Close button, please close the browser once.
Restart your browser, please go to the login screen after a while.
After you login again, please continue to default.

Initial setup 1 is complete and the screen returns to the [Login] screen.

9-2 Close the Web browser.

10 Remove the LAN cable (for operation management) from the PC terminal and connect the LAN cables (for operation management) of the MNT ports on Controller 0 and Controller 1 to the network of the customer.

11 Restart the Web browser and log in to ETERNUS Web GUI with the changed IP address.

End of procedure

5.1.5 RAID Configuration Settings

Use ETERNUS Web GUI to set RAID configurations in the ETERNUS DX Disk storage system.
Perform the following settings:

- RAID group creation
- Volume creation
- Hot spare registration

IMPORTANT

For regions other than EMEA&I, the RAID groups, the volumes, and the host affinities are configured with the following factory default conditions.

- RAID groups
  RAID groups are configured according to the drive options that are purchased at the same time as the ETERNUS DX Disk storage system.
- Volumes
  One maximum capacity volume is created in each RAID group.
- Host affinities
  All of the servers can be connected. Note that "Host groups", "CA port groups", and "LUN groups" are not created.

To change the factory default settings, delete the current configuration and perform the settings again.
Refer to "ETERNUS Web GUI User's Guide" for details on deleting factory default settings.

This section describes how to perform configuration settings using Standard or Open type volumes.

5.1.5.1 RAID Group Creation

Create RAID groups (groups of drives that configure RAID in the ETERNUS DX Disk storage system) to create volumes.

IMPORTANT

- For regions other than EMEA&I, this setting is not required when the RAID groups are set with the factory default settings. To change the factory default settings, delete the factory settings (LUN mappings, volumes, and RAID groups) and then create your own RAID groups. For details on deleting factory settings, refer to "ETERNUS Web GUI User's Guide".
- For RAID5, RAID5+0, and RAID6, ensure that a single RAID group is not being configured with too many drives. Doing so may increase the time to perform data restoration from parities and Rebuild/Copyback when a drive fails.
- SAS disks and Nearline SAS disks can be installed together in the same RAID group. Note that SAS disks and Nearline SAS disks cannot be installed with SSDs or SEDs.
- Use drives that are the same size (2.5" or 3.5"), capacity, and speed to configure RAID groups.
  - If a RAID group is configured with drives that have different capacities, all the drives in the RAID group are recognized as having the same capacity as the drive with the smallest capacity in the RAID group and the rest of the capacity in the drives that have a larger capacity cannot be used.
  - If a RAID group is configured with drives that have different speeds, the performance of the RAID group is reduced to the speed of the drive that has the lowest speed.

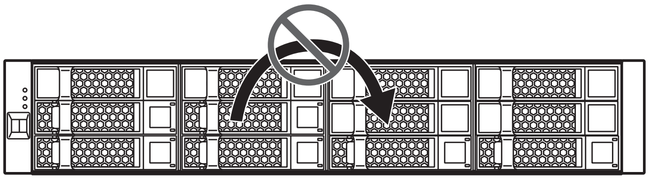
⚠ CAUTION

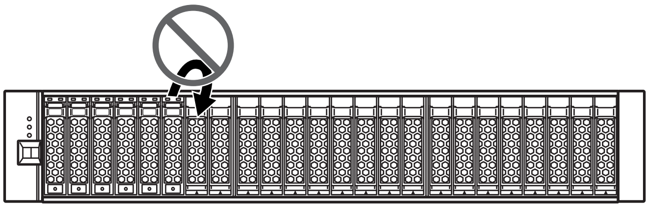
Do

- Remember that a RAID0 configuration is not redundant. This means that if a RAID0 drive fails, the data will not be recoverable. RAID1, RAID1+0, RAID5, RAID5+0, and RAID6 are recommended as the RAID level.

Do Not

- Do not uninstall the drives that are installed by default or move them to any other slot.
  Contact your sales representative or maintenance engineer if drives that are installed by default need to be uninstalled or moved to another slot.





The procedure to register a RAID group is as follows:

Procedure

1 Click the [RAID Group] tab on the navigation of the ETERNUS Web GUI screen.

The [RAID Groups] screen appears.

2 In [Action], click [Create].

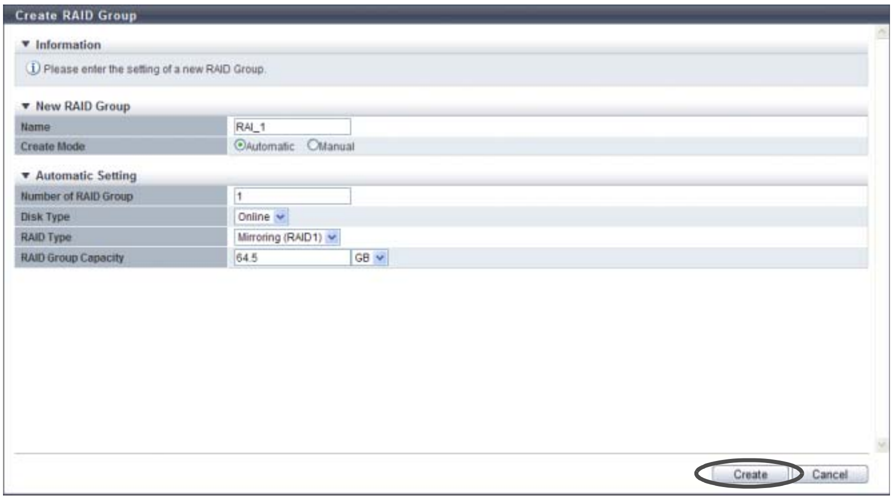
The [Create RAID Group] screen appears.

3 Enter the name of the RAID group that is to be registered and select "Automatic" or "Manual" for "Create Mode".

When "Automatic" is selected, the settings for "Automatic Setting" are displayed.
When "Manual" is selected, the settings for "Manual Setting" are displayed.

4 Set the required items and click the [Create] button.

The following screen shows the settings that are displayed when "Automatic" is selected.



Create RAID Group

▼ Information

Please enter the setting of a new RAID Group.

▼ New RAID Group

Name	RAI_1
Create Mode	● Automatic ○ Manual

▼ Automatic Setting

Number of RAID Group	1
Disk Type	Online
RAID Type	Mirroring (RAID1)
RAID Group Capacity	64.5 GB

A confirmation screen appears.

5 Click the [OK] button.

The RAID group is registered and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [RAID Groups] screen.

End of procedure

5.1.5.2 Volume Creation

Create volumes (areas in the drives of a RAID group) in the RAID group.

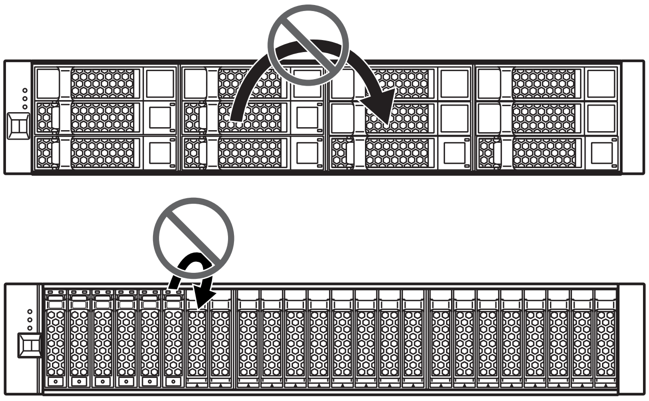
IMPORTANT

For regions other than EMEA&I, this setting is not required when the volumes are set with the factory default settings. To change the factory default settings, delete the factory settings (LUN mappings and volumes) and then create your own volumes. For details on deleting factory settings, refer to "ETERNUS Web GUI User's Guide".

⚠ CAUTION

Do Not

- Do not uninstall the drives that are installed by default or move them to any other slot.
  Contact your sales representative or maintenance engineer if drives that are installed by default need to be uninstalled or moved to another slot.



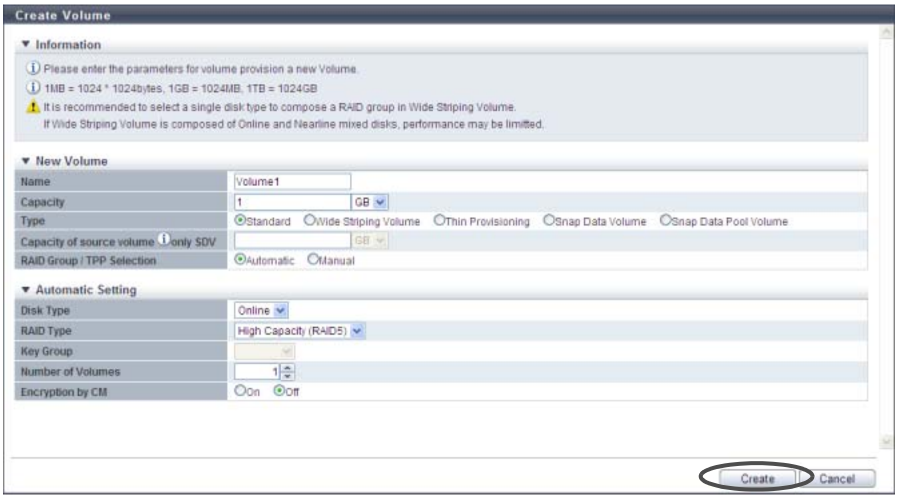
The procedure to create a volume is as follows:

Procedure

1. Click the [Volume] tab on the navigation of the ETERNUS Web GUI screen.
   The [Volumes] screen appears.
2. In [Action], click [Create].
   The [Create Volumes] screen appears.
3. Select "Automatic" or "Manual" for "RAID Group / TPP Selection".

4 Enter the name of the volume that is to be created in "Name", set the required items, and click the [Create] button.

The following screen shows the settings that are displayed when creating a Standard type volume in an automatically selected RAID group.



Create Volume

▼ Information

Please enter the parameters for volume provision a new Volume.

1MB = 1024 * 1024bytes, 1GB = 1024MB, 1TB = 1024GB

It is recommended to select a single disk type to compose a RAID group in Wide Striping Volume.
If Wide Striping Volume is composed of Online and Nearline mixed disks, performance may be limited.

▼ New Volume

Name	Volume1
Capacity	1 GB
Type	● Standard ○ Wide Striping Volume ○ Thin Provisioning ○ Snap Data Volume ○ Snap Data Pool Volume
Capacity of source volume only SDV	GB
RAID Group / TPP Selection	● Automatic ○ Manual

▼ Automatic Setting

Disk Type	Online
RAID Type	High Capacity (RAID5)
Key Group	
Number of Volumes	1
Encryption by CM	○ On ● Off

A confirmation screen appears.

5 Click the [OK] button.

The volume is created and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [Volumes] screen.

End of procedure

5.1.5.3 Hot Spare Registration

Register the hot spare for the failure of a drive.

IMPORTANT

Check the factory settings and register a hot spare as required.

Note

The following two types of hot spare are available:

- Global Hot Spare
  This is available for any RAID group.
- Dedicated Hot Spare
  This is only available to one specified RAID group.

For a RAID group that contains important data, assign "Dedicated Hot Spares", in order to preferentially improve the RAID group's access to hot spares.

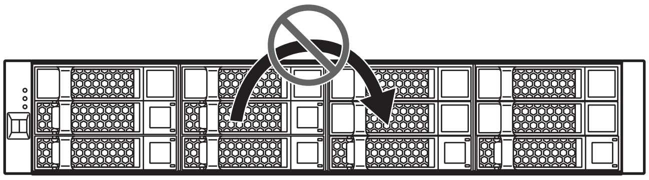
⚠ CAUTION

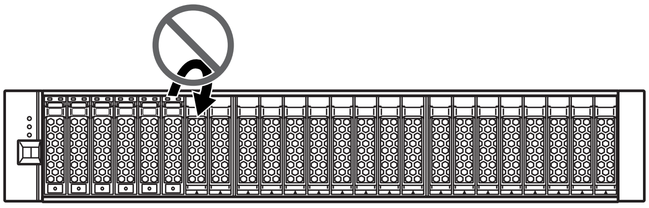
Do

- Registering hot spares is recommended.
  When hot spares are registered, data in drives with failures or errors can be automatically recovered.
- A smaller capacity drive is not usable as a hot spare for a larger capacity data drive.

Do Not

- Do not uninstall the drives that are installed by default or move them to any other slot.
  Contact your sales representative or maintenance engineer if drives that are installed by default need to be uninstalled or moved to another slot.





Global Hot Spare registration

The procedure to register a Global Hot Spare is as follows:

⚠ CAUTION

Do

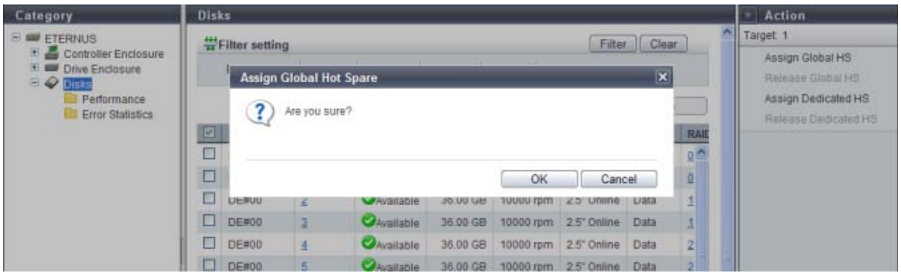
- When registering Global Hot Spares, make sure to specify at least one drive for each drive type (SAS disks, Nearline SAS disks, SSDs, or SEDs) with the same capacity or larger.
  If different speed SAS disks are installed, register a Global Hot Spare for each speed.

Procedure

1. Click the [Component] tab on the navigation of the ETERNUS Web GUI screen. On the [Component] screen, click "Disks" in [Category].
   The [Disks] screen appears.

2 Select the drive that is to be registered as the Global Hot Spare and click "Assign Global HS" in [Action].

A confirmation screen appears.


Category
ETERNUS
Controller Enclosure
Drive Enclosure
Disks
Performance
Error Statistics
Disks
Filter setting
Filter
Clear
RAID
Action
Target: 1
Assign Global HS
Release Global HS
Assign Dedicated HS
Release Dedicated HS
Assign Global Hot Spare
OK
Cancel

Are you sure?

☐	DE#00	2	Available	36.00 GB	10000 rpm	2.5" Online	Data	1
☐	DE#00	3	Available	36.00 GB	10000 rpm	2.5" Online	Data	1
☐	DE#00	4	Available	36.00 GB	10000 rpm	2.5" Online	Data	2
☐	DE#00	5	Available	36.00 GB	10000 rpm	2.5" Online	Data	2

3 Click the [OK] button.

The Global Hot Spare is registered and the registration completion screen appears.

4 Click the [Done] button.

The screen display returns to the [Disks] screen.

End of procedure

Dedicated Hot Spare registration

The procedure to register a Dedicated Hot Spare is as follows:

⚠ CAUTION

Do

- When registering Dedicated Hot Spares, the drive size (2.5" or 3.5") and the drive speed must be the same. In addition, the capacity of each hot spare should be the same as or larger than the capacity of the drives in the RAID group.
- A single Dedicated Hot Spare can only be registered to one RAID group. A single Dedicated Hot Spare cannot be registered for multiple RAID groups.

Procedure

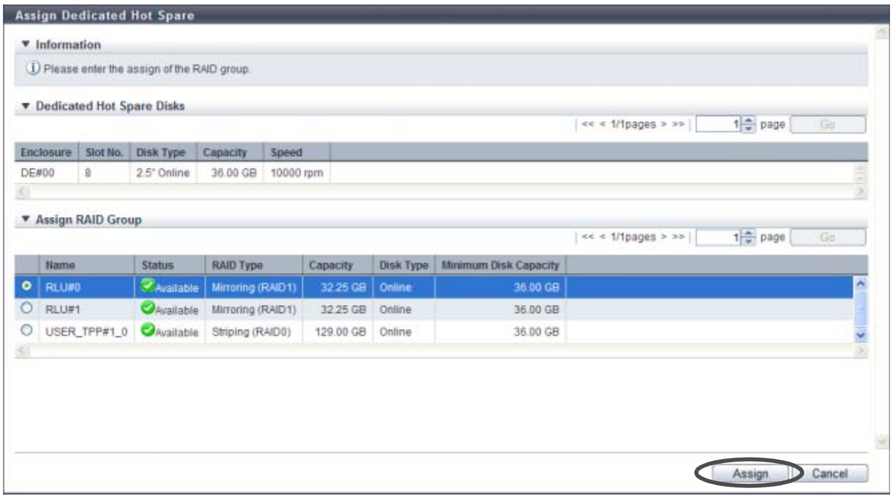
1 Click the [Component] tab on the navigation of the ETERNUS Web GUI screen. On the [Component] screen, click "Disks" in [Category].

The [Disks] screen appears.

2 Select the drive that is to be registered as the Dedicated Hot Spare and click "Assign Dedicated Hot Spare" in [Action].

The [Assign Dedicated Hot Spare] screen appears.

3 Select the RAID group for the drive that was selected in Step 2 as the Dedicated Hot Spare.
Click the [Assign] button.


Assign Dedicated Hot Spare
▼ Information
▼ Dedicated Hot Spare Disks
| << < 1/1pages > >> | 1 page Go
▼ Assign RAID Group
| << < 1/1pages > >> | 1 page Go
Assign
Cancel

Please enter the assign of the RAID group.

Enclosure	Slot No.	Disk Type	Capacity	Speed
DE#00	8	2.5" Online	36.00 GB	10000 rpm

	Name	Status	RAID Type	Capacity	Disk Type	Minimum Disk Capacity
●	RLU#0	✓Available	Mirroring (RAID1)	32.25 GB	Online	36.00 GB
○	RLU#1	✓Available	Mirroring (RAID1)	32.25 GB	Online	36.00 GB
○	USER_TPP#1_0	✓Available	Striping (RAID0)	129.00 GB	Online	36.00 GB

A confirmation screen appears.

4 Click the [OK] button.

The Dedicated Hot Spare is registered and the registration completion screen appears.

5 Click the [Done] button.

The screen display returns to the [Disks] screen.

End of procedure

5.1.6 Host Affinity Settings

Use ETERNUS Web GUI to set host affinity.
Host affinity settings ensure security when multiple servers are connected by assigning the servers that can access the volumes.
Note that the volumes that are to be accessed can be specified for each host interface port.

Follow the procedure below to set host affinity by associating a host group, a CA port group, and a LUN group.

Set host affinity in the following order:

- Host group addition
- Port parameter settings
- CA Port group creation
- LUN group addition
- Host affinity creation

For details on the setting procedures, refer to "ETERNUS Web GUI User's Guide". Also refer to "User's Guide -Server Connection-" as required.

5.1.6.1 Host Group Addition

Add the information on the hosts (servers) that access the ETERNUS DX Disk storage system via the host interface port. Create a host group when adding a host.
A host group is a group of hosts (HBAs) that have the same interface and access the same LUN groups.

IMPORTANT

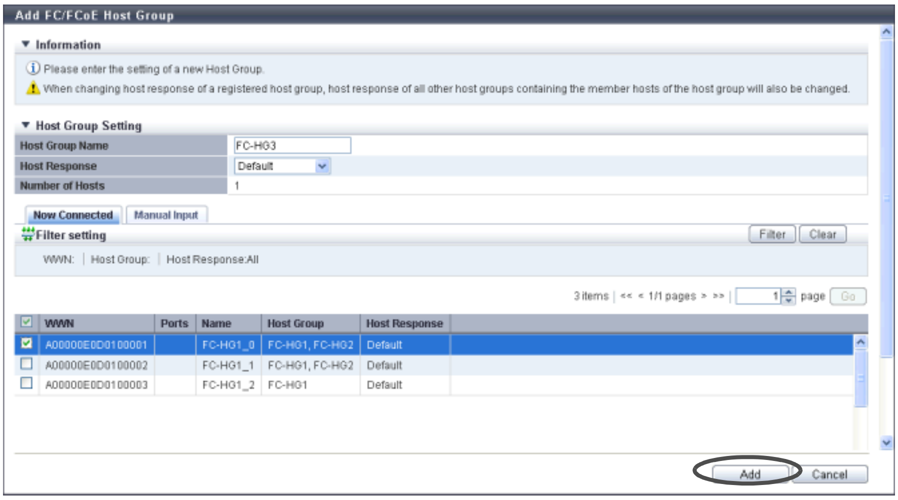
Make sure to perform the appropriate host response settings before performing host group registration. If the appropriate host response settings are not set, volumes may not be recognized or the expected performance may not be possible. For details on the host response settings, refer to "ETERNUS Web GUI User's Guide" or "User's Guide -Server Connection-".

The procedure to register a host group is as follows:

For FC or FCoE host groups

Procedure

1. Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen.
2. In [Action], click "Add FC/FCoE Host Group".
   The [Add FC/FCoE Host Group] screen appears.
3. Enter a host group name to be created, and select a host response to be assigned to the host group.
4. Register an FC host or an FCoE host in a host group and click the [Add] button.
   The following screen shot shows registration of a host by clicking the [Now Connected] tab.



Add FC/FCoE Host Group

Information

Please enter the setting of a new Host Group.

When changing host response of a registered host group, host response of all other host groups containing the member hosts of the host group will also be changed.

Host Group Setting

Host Group Name	FC-HG3
Host Response	Default
Number of Hosts	1

Filter setting

WWN: | Host Group: | Host Response:All

3 items | << < 1/1 pages > >> | 1 page

☑	WWN	Ports	Name	Host Group	Host Response
☑	A00000E0D0100001		FC-HG1_0	FC-HG1, FC-HG2	Default
☐	A00000E0D0100002		FC-HG1_1	FC-HG1, FC-HG2	Default
☐	A00000E0D0100003		FC-HG1_2	FC-HG1	Default

   A confirmation screen appears.

5. Click the [OK] button.
   The FC/FCoE host group is added and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [Host Group] screen.

End of procedure

For iSCSI host groups

Procedure

1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen.

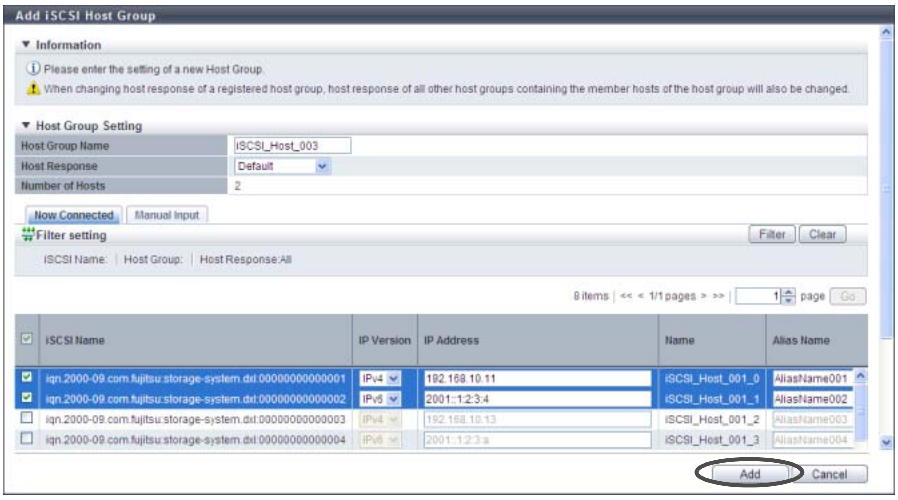
2 In [Action], click "Add iSCSI Host Group".

The [Add iSCSI Host Group] screen appears.

3 Enter a host group name to be created, and select a host response to be assigned to the host group.

4 Register an iSCSI host in a host group and click the [Add] button.

The following screen shot shows registration of a host by clicking the [Now Connected] tab.



Please enter the setting of a new Host Group.

When changing host response of a registered host group, host response of all other host groups containing the member hosts of the host group will also be changed.

Host Group Name	iSCSI_Host_003
Host Response	Default
Number of Hosts	2

iSCSI Name: | Host Group: | Host Response:All

☑	iSCSI Name	IP Version	IP Address	Name	Alias Name
☑	iqn.2000-09.com.fujitsu:storage-system.dxl:0000000000001	IPv4	192.168.10.11	iSCSI_Host_001_0	AliasName001
☑	iqn.2000-09.com.fujitsu:storage-system.dxl:0000000000002	IPv6	2001::1:2:3:4	iSCSI_Host_001_1	AliasName002
☐	iqn.2000-09.com.fujitsu:storage-system.dxl:0000000000003	IPv4	192.168.10.13	iSCSI_Host_001_2	AliasName003
☐	iqn.2000-09.com.fujitsu:storage-system.dxl:0000000000004	IPv6	2001::1:2:3:a	iSCSI_Host_001_3	AliasName004

A confirmation screen appears.

5 Click the [OK] button.

The iSCSI host group is added and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [Host Group] screen.

End of procedure

■ For SAS host groups

Procedure

1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen.

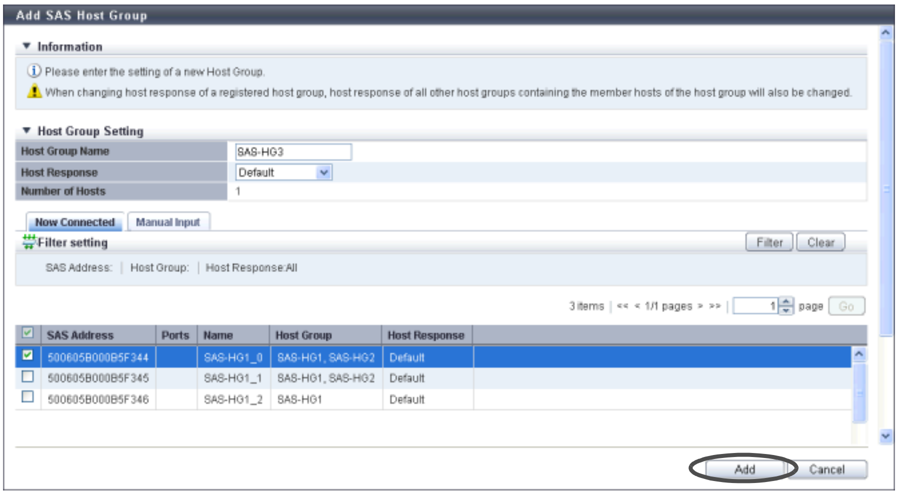
2 In [Action], click "Add SAS Host Group".

The [Add SAS Host Group] screen appears.

3 Enter a host group name to be created, and select a host response to be assigned to the host group.

4 Register a SAS host in a host group and click the [Add] button.

The following screen shot shows registration of a host by clicking the [Now Connected] tab.



Please enter the setting of a new Host Group.

When changing host response of a registered host group, host response of all other host groups containing the member hosts of the host group will also be changed.

Host Group Name	SAS-HG3
Host Response	Default
Number of Hosts	1

SAS Address: | Host Group: | Host Response:All

☑	SAS Address	Ports	Name	Host Group	Host Response
☑	500605B000B5F344		SAS-HG1_0	SAS-HG1, SAS-HG2	Default
☐	500605B000B5F345		SAS-HG1_1	SAS-HG1, SAS-HG2	Default
☐	500605B000B5F346		SAS-HG1_2	SAS-HG1	Default

A confirmation screen appears.

5 Click the [OK] button.

The SAS host group is added and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [Host Group] screen.

End of procedure

5.1.6.2 Port Parameter Settings

Set the connection information between the host interface port and the server.

The procedure to set the port parameters is as follows.
The screens for setting port parameters vary depending on the host interface port that is being used.

For FC ports

Set the connection information for the FC ports on the ETERNUS DX Disk storage system and the server.

Note

This section describes the port parameter settings when the port mode is "FC-CA" or "FC-CA/RA" (for server connection).
For details on the port parameter settings for the "FC-RA" port mode (ports used for Remote Equivalent Copy (REC)) or the "Initiator" port mode (ports used for Storage Migration), refer to "ETERNUS Web GUI User's Guide".

Procedure

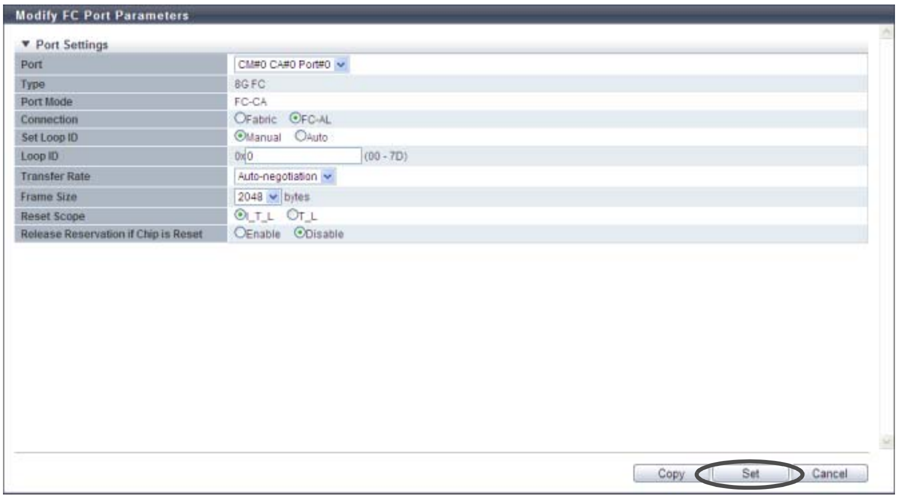
1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "FC" under "Port Group" in [Category].

The [FC Port Group] screen appears.

2 Select the checkbox for the FC port to set the port parameters for in the [FC Port Group] screen and then click "Modify FC Port Parameters" in [Action].

The [Modify FC Port Parameters] screen appears.

3 Set the required items and click the [Set] button.



Modify FC Port Parameters

▼ Port Settings

Port	CM#0 CA#0 Port#0
Type	8G FC
Port Mode	FC-CA
Connection	○Fabric ●FC-AL
Set Loop ID	●Manual ○Auto
Loop ID	0x 0 (00 - 7D)
Transfer Rate	Auto-negotiation
Frame Size	2048 bytes
Reset Scope	●I_T_L ○T_L
Release Reservation if Chip is Reset	○Enable ●Disable

A confirmation screen appears.

4 Click the [OK] button.

The port parameter is set and the setting completion screen appears.

5 Click the [Done] button.

The screen display returns to the [FC Port Group] screen.

End of procedure

For iSCSI ports

Set the connection information for the iSCSI ports on the ETERNUS DX Disk storage system and the server.

Note

This section describes the port parameter settings when the port mode is "iSCSI-CA" or "iSCSI-CA/RA" (for server connection).
For details on the port parameter settings for the "iSCSI-RA" port mode (ports used for Remote Equivalent Copy (REC)), refer to "ETERNUS Web GUI User's Guide".

Procedure

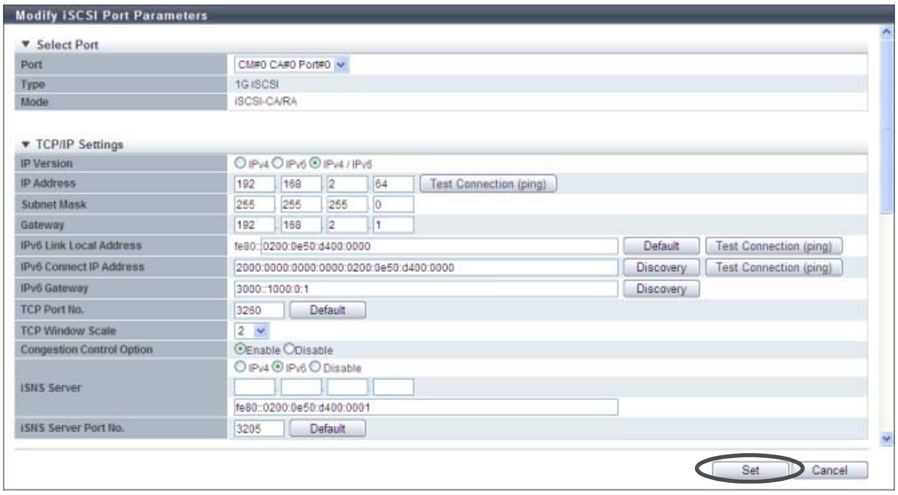
1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "iSCSI" under "Port Group" in [Category].

The [iSCSI Port Group] screen appears.

2 Select the checkbox for the iSCSI port to set the port parameters for in the [iSCSI Port Group] screen and then click "Modify iSCSI Port Parameters" in [Action].

The [Modify iSCSI Port Parameters] screen appears.

3 Set the required items and click the [Set] button.



Modify iSCSI Port Parameters

▼ Select Port

Port	CM#0 CA#0 Port#0
Type	1G iSCSI
Mode	iSCSI-CA/RA

▼ TCP/IP Settings

IP Version	○ IPv4 ○ IPv6 ● IPv4 / IPv6
IP Address	192 . 168 . 2 . 64
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 2 . 1
IPv6 Link Local Address	fe80::0200:0e50:d400:0000
IPv6 Connect IP Address	2000:0000:0000:0000:0200:0e50:d400:0000
IPv6 Gateway	3000::1000:0:1
TCP Port No.	3260
TCP Window Scale	2
Congestion Control Option	●Enable ○Disable
iSNS Server	○ IPv4 ● IPv6 ○ Disable fe80::0200:0e50:d400:0001
iSNS Server Port No.	3205

A confirmation screen appears.

4 Click the [OK] button.

The port parameter is set and the setting completion screen appears.

5 Click the [Done] button.

The screen display returns to the [iSCSI Port Group] screen.

End of procedure

For FCoE ports

Set the connection information for the FCoE ports on the ETERNUS DX Disk storage system and the server.

Procedure

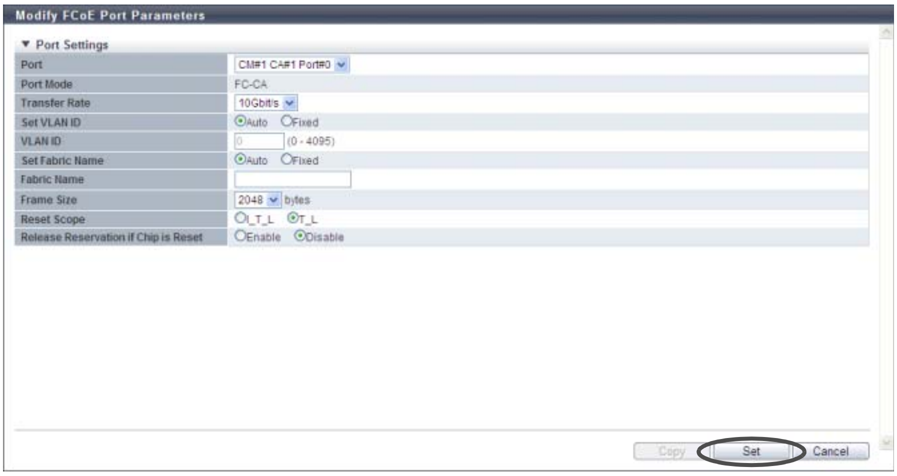
1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "FCoE" under "Port Group" in [Category].

The [FCoE Port Group] screen appears.

2 Select the checkbox for the FCoE port to set the port parameters for in the [FCoE Port Group] screen and then click "Modify FCoE Port Parameters" in [Action].

The [Modify FCoE Port Parameters] screen appears.

3 Set the required items and click the [Set] button.



Port	CM#1 CA#1 Port#0
Port Mode	FC-CA
Transfer Rate	10Gbit/s
Set VLAN ID	● Auto ○ Fixed
VLAN ID	0 (0 - 4095)
Set Fabric Name	● Auto ○ Fixed
Fabric Name	
Frame Size	2048 bytes
Reset Scope	○ I_T_L ● T_L
Release Reservation if Chip is Reset	○ Enable ● Disable

A confirmation screen appears.

4 Click the [OK] button.

The port parameter is set and the setting completion screen appears.

5 Click the [Done] button.

The screen display returns to the [FCoE Port Group] screen.

End of procedure

For SAS ports

Set the connection information for the SAS ports on the ETERNUS DX Disk storage system and the server.

Procedure

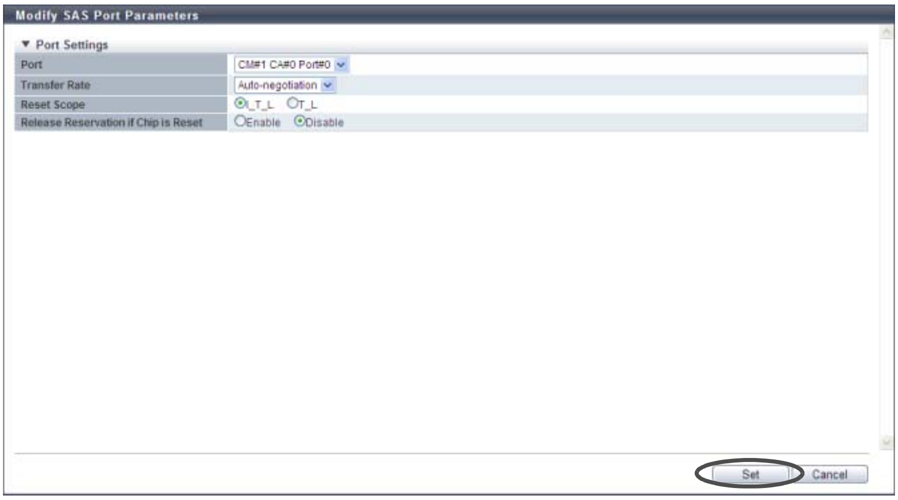
1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "SAS" under "Port Group" in [Category].

The [SAS Port Group] screen appears.

2 Select the checkbox for the SAS port to set the port parameters for in the [SAS Port Group] screen and then click "Modify SAS Port Parameters" in [Action].

The [Modify SAS Port Parameters] screen appears.

3 Set the required items and click the [Set] button.



Port	CM#1 CA#0 Port#0
Transfer Rate	Auto-negotiation
Reset Scope	● I_T_L ○ T_L
Release Reservation if Chip is Reset	○ Enable ● Disable

A confirmation screen appears.

4 Click the [OK] button.

The port parameter is set and the setting completion screen appears.

5 Click the [Done] button.

The screen display returns to the [SAS Port Group] screen.

End of procedure

5.1.6.3 CA Port Group Creation

Create a CA port group for a host to access the ETERNUS DX Disk storage system. A CA port group is a group of host interface ports that have the same interface and connect to the specific host group.

IMPORTANT

Only host interface ports with "CA" or "CA/RA" can be registered in a CA port group.
For details about port mode settings, refer to "ETERNUS Web GUI User's Guide".

The procedure to create a CA port group is as follows:

Procedure

1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "Port Group" in [Category].

The [CA Port Group] screen appears.

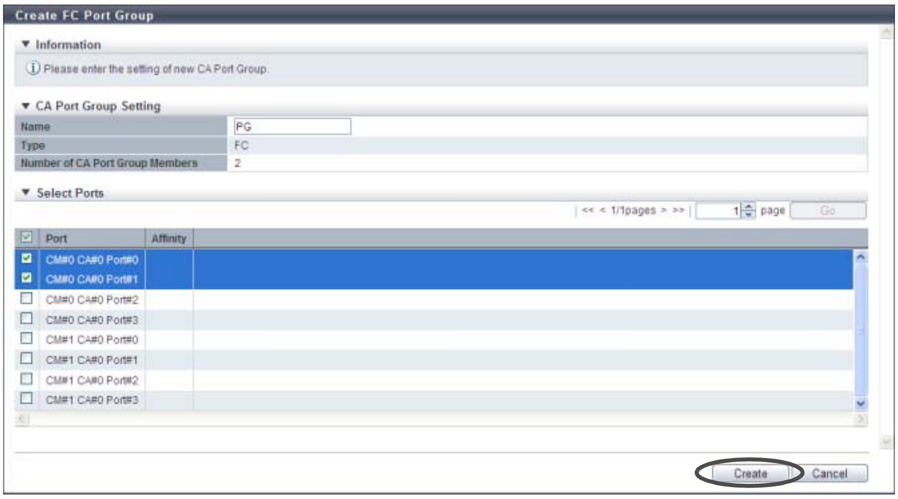
2 In [Action], click one of the following items.

- To create an FC port group, select "Create FC Port Group"
- To create an iSCSI port group, select "Create iSCSI Port Group"
- To create a SAS port group, select "Create SAS Port Group"
- To create an FCoE port group, select "Create FCoE Port Group"

The [Modify Port Mode] screen appears.

3 In the CA port group creation screen, enter the name of the CA port group that is to be created, select the checkbox for the ports that are to be registered in the CA port group, and click the [Create] button.

The following example shows the [Create FC Port Group] screen.



Please enter the setting of new CA Port Group.

Name	PG
Type	FC
Number of CA Port Group Members	2

☑	Port	Affinity
☑	CM#0 CA#0 Port#0	
☑	CM#0 CA#0 Port#1	
☐	CM#0 CA#0 Port#2	
☐	CM#0 CA#0 Port#3	
☐	CM#1 CA#0 Port#0	
☐	CM#1 CA#0 Port#1	
☐	CM#1 CA#0 Port#2	
☐	CM#1 CA#0 Port#3	

A confirmation screen appears.

4 Click the [OK] button.

The CA port group is created and the setting completion screen appears.

5 Click the [Done] button.

The screen display returns to the [CA Port Group] screen.

End of procedure

5.1.6.4 LUN Group Addition

Add a group of volumes that can be recognized by the host (LUN group).
For each LUN group, volume numbers are assigned for the Logical Unit Numbers (LUNs) that are recognized by the server.
LUN groups can be recognized by the host by using the "Create Host Affinity" function to assign a CA port group and a LUN group to a host group.

The procedure to create a LUN group is as follows:

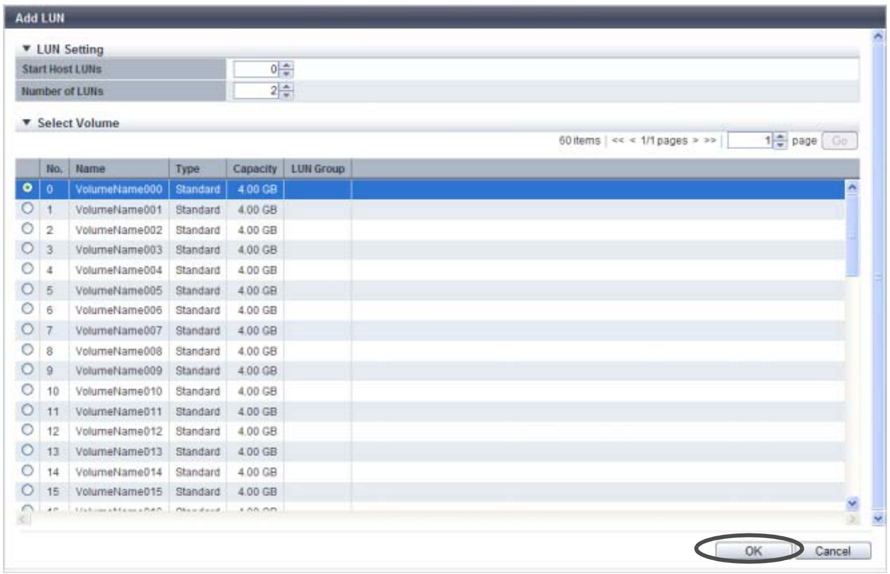
Procedure

1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "LUN Group" in [Category].
The [LUN Group] screen appears.

2 In [Action], click "Modify LUN Group".
The [Modify LUN Group] screen appears.

3 Enter the LUN group name in [LUN Group Setting]. Click the [Add] button in [Define LUN Group].
The [Add LUN] screen appears.

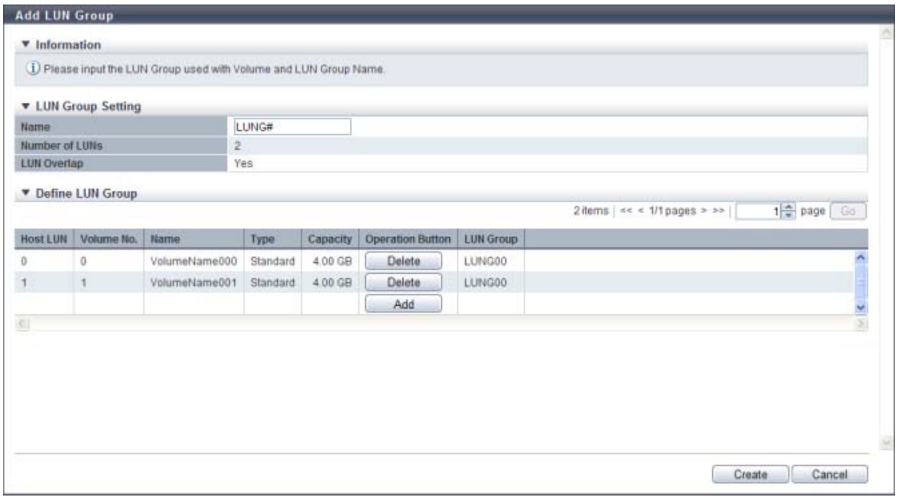
4 Enter the number for the first LUN and number of LUNs to allocate to the LUN group in [LUN Setting], select the number for the first volume to be allocated, and click the [OK] button.



Start Host LUNs: 0
Number of LUNs: 2

	No.	Name	Type	Capacity	LUN Group
●	0	VolumeName000	Standard	4.00 GB	
○	1	VolumeName001	Standard	4.00 GB	
○	2	VolumeName002	Standard	4.00 GB	
○	3	VolumeName003	Standard	4.00 GB	
○	4	VolumeName004	Standard	4.00 GB	
○	5	VolumeName005	Standard	4.00 GB	
○	6	VolumeName006	Standard	4.00 GB	
○	7	VolumeName007	Standard	4.00 GB	
○	8	VolumeName008	Standard	4.00 GB	
○	9	VolumeName009	Standard	4.00 GB	
○	10	VolumeName010	Standard	4.00 GB	
○	11	VolumeName011	Standard	4.00 GB	
○	12	VolumeName012	Standard	4.00 GB	
○	13	VolumeName013	Standard	4.00 GB	
○	14	VolumeName014	Standard	4.00 GB	
○	15	VolumeName015	Standard	4.00 GB	

The LUNs that are to be registered in the LUN group and the information for the volumes that are allocated to the LUNs are displayed.



Please input the LUN Group used with Volume and LUN Group Name.

Name	LUNG#
Number of LUNs	2
LUN Overlap	Yes

Host LUN	Volume No.	Name	Type	Capacity	Operation Button	LUN Group
0	0	VolumeName000	Standard	4.00 GB	Delete	LUNG00
1	1	VolumeName001	Standard	4.00 GB	Delete	LUNG00
					Add	

5 Click the [Create] button.

A confirmation screen appears.

6 Click the [OK] button.

The LUN group is added and the setting completion screen appears.

7 Click the [Done] button.

The screen display returns to the [LUN Group] screen.

End of procedure

5.1.6.5 Host Affinity Creation

Create an association between a host group and a CA port group and an association between a host group and a LUN group to enable the host to recognize a LUN group.

The procedure to create a host affinity is as follows:

Procedure

1 Click the [Connectivity] tab on the navigation of the ETERNUS Web GUI screen. On the [Connectivity] screen, click "Create Host Affinity" in [Action].

The [Create Host Affinity] screen appears.

2 Select the connection target from "Host Group - CA Port Group" in "Target Connection".

3 Select the "Host Group", the "CA Port Group", and the "LUN Group" that are to be associated.

3-1 Click the [Browse] button in "Host Group".
A screen to select the host group appears.

3-2 Select the connection target from "Host Group" or "All" in "Target Connection".

Note

To allow all of the hosts to recognize the LUN group, select "All" for "Target Connection".

- When "Host Group" is selected
  Select a host group to be associated with a host affinity, and click the [OK] button.
- When "All" is selected
  Select a host response, and click the [OK] button.

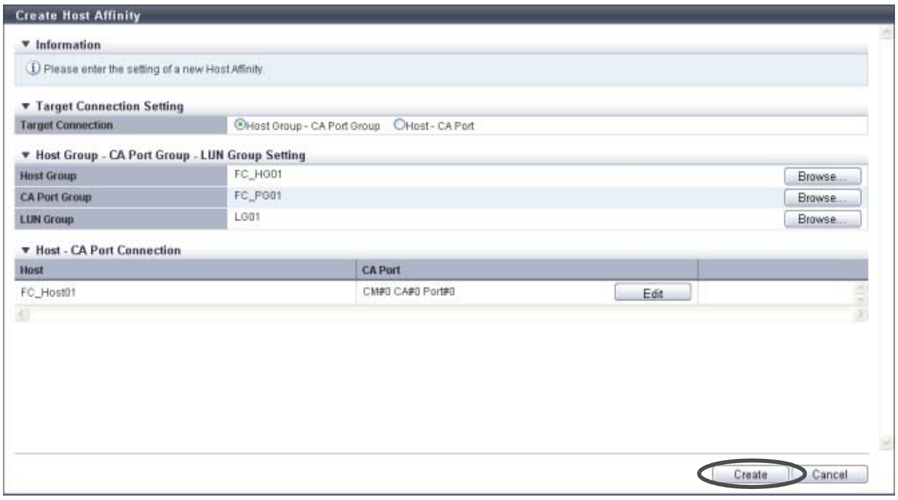
3-3 Click the [Browse] button in "CA Port Group".
A screen to select the CA port group appears.

3-4 Select the CA port group that is to be associated and click the [OK] button.
The name of the selected CA port group is displayed in "CA Port Group".

3-5 Click the [Browse] button in "LUN Group".
A screen to select the LUN group appears.

3-6 Select the LUN group that is to be associated and click the [OK] button.
The name of the selected LUN group is displayed in "LUN Group".

4 Check the path between the host and the host interface port on the ETERNUS DX Disk storage system in [Host - CA Port Connection], and click the [Create] button.



Create Host Affinity

▼ Information

Please enter the setting of a new Host Affinity.

▼ Target Connection Setting

Target Connection	● Host Group - CA Port Group ○ Host - CA Port

▼ Host Group - CA Port Group - LUN Group Setting

Host Group	FC_HG01
CA Port Group	FC_PG01
LUN Group	LG01

▼ Host - CA Port Connection

Host	CA Port
FC_Host01	CM#0 CA#0 Port#0

A confirmation screen appears.

5 Click the [OK] button.

The host affinity is created and the registration completion screen appears.

6 Click the [Done] button.

The screen display returns to the [Connectivity] screen.

End of procedure

Note

This ends the basic settings. If further setup is necessary, refer to "ETERNUS Web GUI User's Guide".

5.2 ETERNUS DX Disk Storage System Monitoring Setup

Perform the ETERNUS DX Disk storage system monitoring setup if required.
For details on the setting procedures, refer to "ETERNUS Web GUI User's Guide".

Note

This section explains the procedure for the ETERNUS DX Disk storage system monitoring setup using ETERNUS Web GUI. For the ETERNUS DX Disk storage system monitoring setup using ETERNUS CLI, refer to "ETERNUS CLI User's Guide".

5.2.1 Event Notification Setup

Select whether to report events detected in the ETERNUS DX Disk storage system. There are six methods for event notification: Host Sense Key Code Qualifier, SNMP Trap, E-Mail, syslog, REMCS, and AIS Connect.
The events are classified into three levels: "Error Severity Level", "Warning Level", and "Informational Level". Event notification contents can be specified for each event level.

The event notification setting is explained below.

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of the ETERNUS Web GUI screen, click [System].

The [System] screen appears.

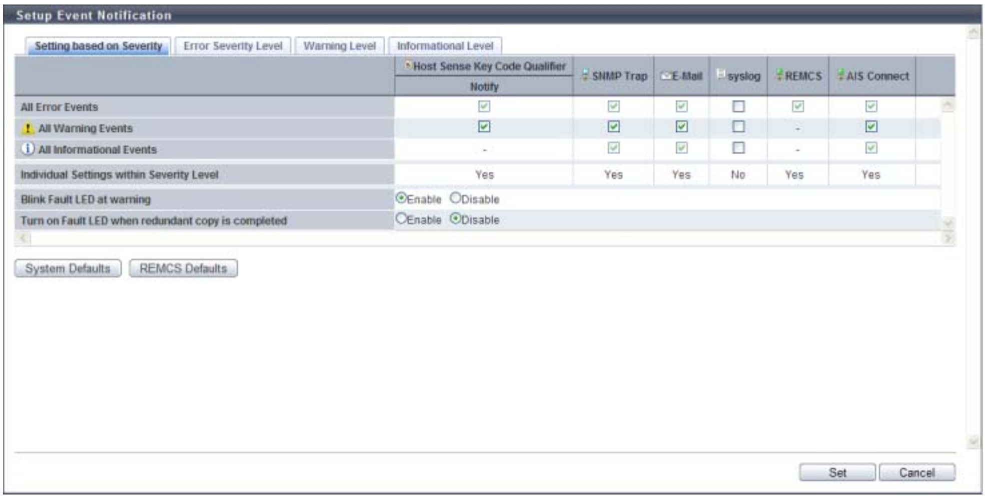
3 In [Category], click [Event/Dump].

The [Event/Dump] screen appears.

4 In [Action], click [Setup Event Notification].

The [Setting based on Severity] tab screen of the [Setup Event Notification] screen appears.

5 In the [Setting based on Severity] tab screen, select the required items.


Setup Event Notification
Setting based on Severity
Error Severity Level
Warning Level
Informational Level
System Defaults
REMCS Defaults
Set
Cancel

	Host Sense Key Code Qualifier	SNMP Trap	E-Mail	syslog	REMCS	AIS Connect
	Notify					
All Error Events	☑	☑	☑	☐	☑	☑
All Warning Events	☑	☑	☑	☐	-	☑
All Informational Events	-	☑	☑	☐	-	☑
Individual Settings within Severity Level	Yes	Yes	Yes	No	Yes	Yes

Blink Fault LED at warning ● Enable ○ Disable

Turn on Fault LED when redundant copy is completed ○ Enable ● Disable

6 Click the [Error Severity Level] tab.

The [Error Severity Level] tab screen appears.

7 In the [Error Severity Level] tab screen, select the required items.

8 Click the [Warning Level] tab.

The [Warning Level] tab screen appears.

9 In the [Warning Level] tab screen, select the required items.

10 Click the [Informational Level] tab.

The [Informational Level] tab screen appears.

11 In the [Informational Level] tab screen, select the required items.

12 Click the [Set] button to apply the specified settings.

A confirmation screen appears.

13 Click the [OK] button.

The event notification settings are applied.

14 Check the setting completion message and click the [Done] button.

The screen display returns to the [Event/Dump] screen.

End of procedure

5.2.2 E-mail Setup

If an event occurs in the ETERNUS DX Disk storage system, the event information is reported to the specified e-mail address.

Note

- Up to five e-mail addresses can be set.
- Make sure to check whether the e-mail messages are received correctly after the e-mail notification environment setup is complete.
- E-mail messages are not sent again when a communication error occurs between the ETERNUS DX Disk storage system and the SMTP server.

The e-mail setting is explained below.

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of the ETERNUS Web GUI screen, click [System].

The [System] screen appears.

3 In [Category], click [Network].

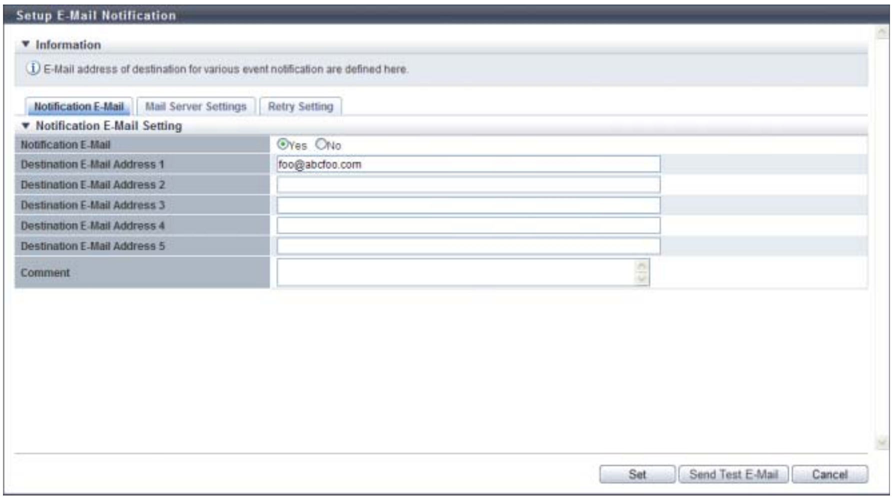
The [Basic] tab screen of the [Network] screen appears.

4 In [Action], click [Setup E-Mail Notification].

The [Notification E-Mail] tab screen of the [Setup E-Mail Notification] screen appears.

5 In the [Notification E-Mail] tab screen, set the following items:

- Select "Yes" for "Notification E-Mail".
- Enter the destination e-mail address or addresses for the Destination E-Mail Address fields.



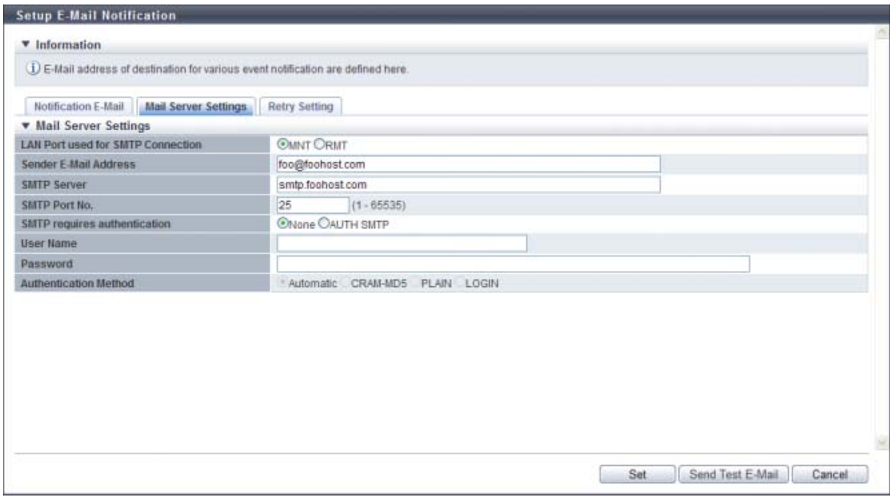
E-Mail address of destination for various event notification are defined here.

Notification E-Mail	● Yes ○ No
Destination E-Mail Address 1	foo@abcfoo.com
Destination E-Mail Address 2	
Destination E-Mail Address 3	
Destination E-Mail Address 4	
Destination E-Mail Address 5	
Comment	

6 Click the [Mail Server Settings] tab.

The [Mail Server Settings] tab screen appears.

7 In the [Mail Server Settings] tab screen, set the required items.


Setup E-Mail Notification
▼ Information
Notification E-Mail
Mail Server Settings
Retry Setting
▼ Mail Server Settings
Set
Send Test E-Mail
Cancel

E-Mail address of destination for various event notification are defined here.

LAN Port used for SMTP Connection	● MNT ○ RMT
Sender E-Mail Address	foo@foohost.com
SMTP Server	smtp.foohost.com
SMTP Port No.	25 (1 - 65535)
SMTP requires authentication	● None ○ AUTH SMTP
User Name	
Password	
Authentication Method	● Automatic ○ CRAM-MD5 ○ PLAIN ○ LOGIN

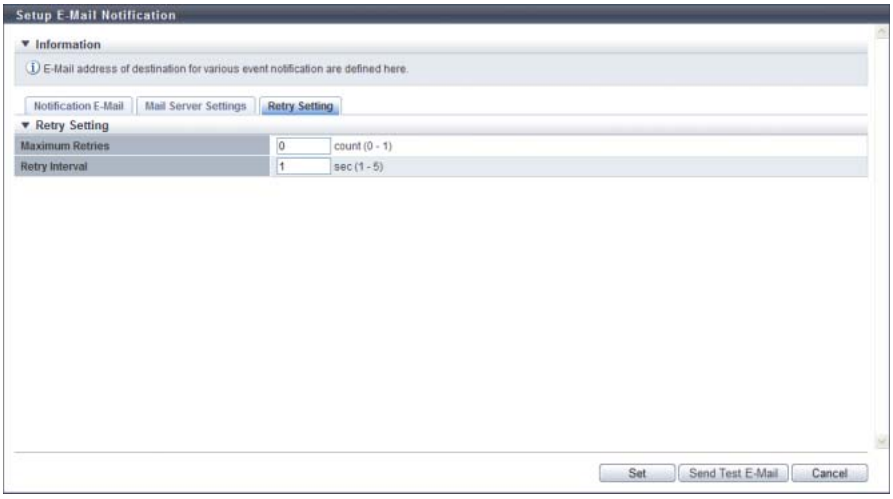
8 Click the [Retry Setting] tab.

The [Retry Setting] tab screen appears.

9 In the [Retry Setting] tab screen, set the required items.

Note

The Retry Setting does not need to be changed from the default value for normal operation.


Setup E-Mail Notification
▼ Information
Notification E-Mail
Mail Server Settings
Retry Setting
▼ Retry Setting
Set
Send Test E-Mail
Cancel

E-Mail address of destination for various event notification are defined here.

Maximum Retries	0 count (0 - 1)
Retry Interval	1 sec (1 - 5)

10 Click the [Set] button to apply the specified settings.

A confirmation screen appears.

11 Click the [OK] button.

The e-mail notification settings are applied.

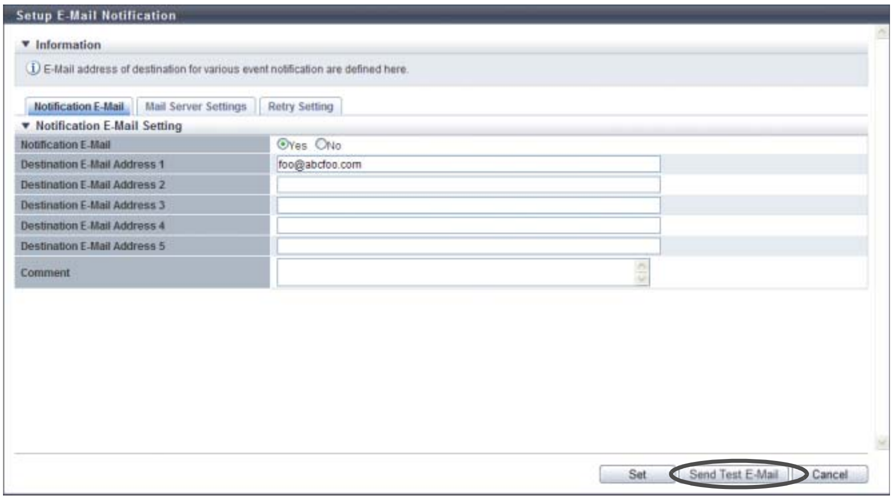
12 Check the setting completion message and click the [Done] button.

The screen display returns to the [Network] screen.

13 Send a test mail to confirm that e-mail messages can be sent to the e-mail addresses that are set.

13-1 In [Action] on the [Network] screen, click [Setup E-Mail Notification].
The [Setup E-Mail Notification] screen appears.

13-2 Click the [Send Test E-Mail] button.



E-Mail address of destination for various event notification are defined here.

Notification E-Mail	● Yes ○ No
Destination E-Mail Address 1	foo@abcfoo.com
Destination E-Mail Address 2	
Destination E-Mail Address 3	
Destination E-Mail Address 4	
Destination E-Mail Address 5	
Comment	

13-3 Check that the test mail is sent to the e-mail addresses that are set.
For details on the event code and message of the test mail, refer to "User's Guide -Operation-".

End of procedure

5.2.3 Syslog Setup

If an event occurs in the ETERNUS DX Disk storage system, logs for the event can be sent to the specified syslog server (external server).

Note

- Up to two syslog servers can be set.
- Make sure to check whether the syslog server receives logs correctly after the syslog notification environment setup is complete.
- Logs are not sent again when a communication error occurs between the ETERNUS DX Disk storage system and the syslog server.

The syslog setting is explained below.

Procedure

1. Start ETERNUS Web GUI.
2. On the navigation of the ETERNUS Web GUI screen, click [System].

   The [System] screen appears.
3. In [Category], click [Network].

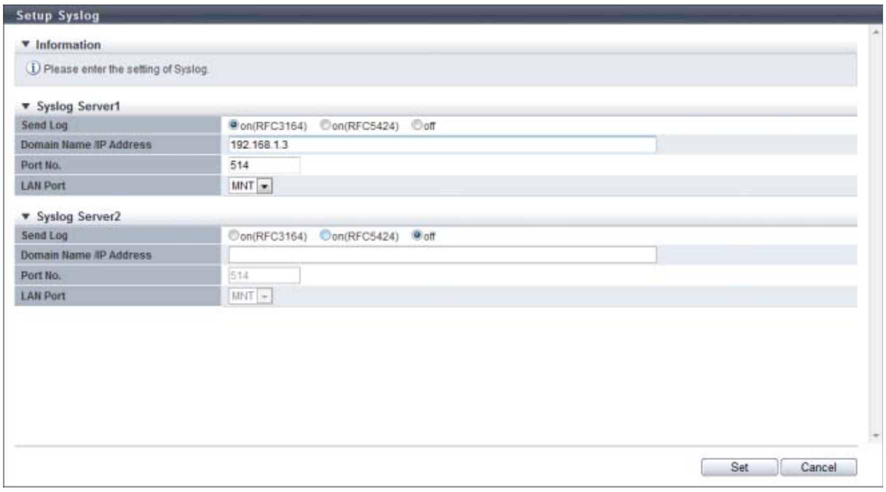
   The [Basic] tab screen of the [Network] screen appears.
4. In [Action], click [Setup Syslog].

   The [Setup Syslog] screen appears.
5. In the [Setup Syslog] screen, set the following items:
   - Select "on(RFC3164)" or "on(RFC5424)" for "Send Log".

     IMPORTANT

     To send syslog messages in a message format that is defined with RFC5424 to a syslog server that supports the RFC5424 format, select "on(RFC5424)". If not, select "on(RFC3164)".

   - Enter the domain name or IP address of the syslog server in "Domain Name /IP Address".



Setup Syslog

▼ Information

Please enter the setting of Syslog.

▼ Syslog Server1

Send Log	● on(RFC3164) ○ on(RFC5424) ○ off
Domain Name /IP Address	192.168.1.3
Port No.	514
LAN Port	MNT

▼ Syslog Server2

Send Log	○ on(RFC3164) ○ on(RFC5424) ● off
Domain Name /IP Address	
Port No.	514
LAN Port	MNT

6. Click the [Set] button.

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

   The syslog notification settings are applied.
8. Check the setting completion message and click the [Done] button.

   The screen display returns to the [Network] screen.

End of procedure

5.2.4 SNMP Trap Setup

SNMP Trap can be sent to the SNMP Manager (monitoring server) when an event occurs in the ETERNUS DX Disk storage system.

The SNMP Trap setting is explained below.

IMPORTANT

Carefully read this manual and the manuals that are supplied with the monitoring software (SNMP Manager) that is to be used before monitoring the ETERNUS DX Disk storage system.

ETERNUS DX Disk storage system settings

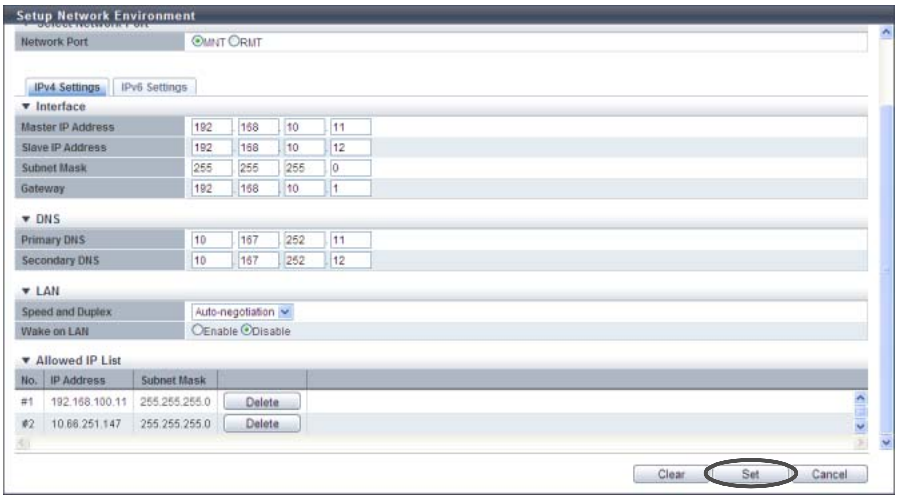
The SNMP Trap setting for the ETERNUS DX Disk storage system is explained below.

Procedure

1 Set up the network environment for the ETERNUS DX Disk storage system.

When the ETERNUS DX Disk storage system and the monitoring server are in different subnet environments, set the Gateway IP address and the Allowed IP List (IP address of the monitoring server or the network address to which the monitoring server belongs) on the [Setup Network Environment] screen of ETERNUS Web GUI.
For details on the settings, refer to "ETERNUS Web GUI User's Guide".

The following screen shot shows an example of the settings when the [IPv4 Settings] tab is selected.



Network Port: ● MNT ○ RMT

▼ Interface

Master IP Address: 192 . 168 . 10 . 11

Slave IP Address: 192 . 168 . 10 . 12

Subnet Mask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 10 . 1

▼ DNS

Primary DNS: 10 . 167 . 252 . 11

Secondary DNS: 10 . 167 . 252 . 12

▼ LAN

Speed and Duplex: Auto-negotiation

Wake on LAN: ○ Enable ● Disable

▼ Allowed IP List

No.	IP Address	Subnet Mask	
#1	192.168.100.11	255.255.255.0	Delete
#2	10.66.251.147	255.255.255.0	Delete

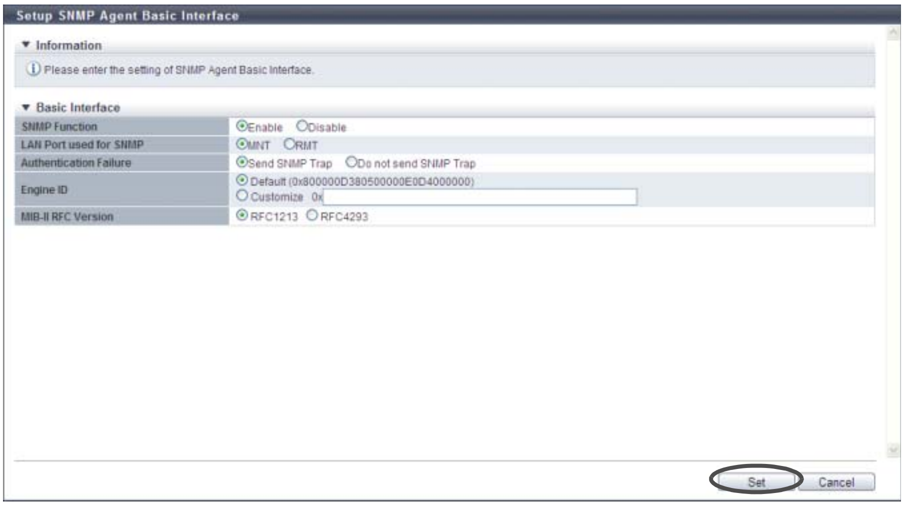
2 Set up the SNMP environment.

2-1 On the navigation of the ETERNUS Web GUI screen, click [System].
The [System] screen appears.

2-2 In [Category], click [Network].
The [Basic] tab screen of the [Network] screen appears.

2-3 In [Action], click [Setup SNMP Agent Basic Interface].
The [Setup SNMP Agent Basic Interface] screen appears.

2-4 Select "Enable" for "SNMP Function", set the required items in the [Setup SNMP Agent Basic Interface] screen, and click the [Set] button.
Select the LAN port that was set up in Step 1 for "LAN Port used for SNMP".



Please enter the setting of SNMP Agent Basic Interface.

SNMP Function	● Enable ○ Disable
LAN Port used for SNMP	● MNT ○ RMT
Authentication Failure	● Send SNMP Trap ○ Do not send SNMP Trap
Engine ID	● Default (0x800000D380500000E0D4000000) ○ Customize 0x
MIB-II RFC Version	● RFC1213 ○ RFC4293

A confirmation screen appears.

2-5 Click the [OK] button.
The SNMP Agent basic settings are applied.

2-6 Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

3 Set up the SNMP Manager.

Set up the SNMP Manager (monitoring server) that is the destination of the SNMP Trap transmission.

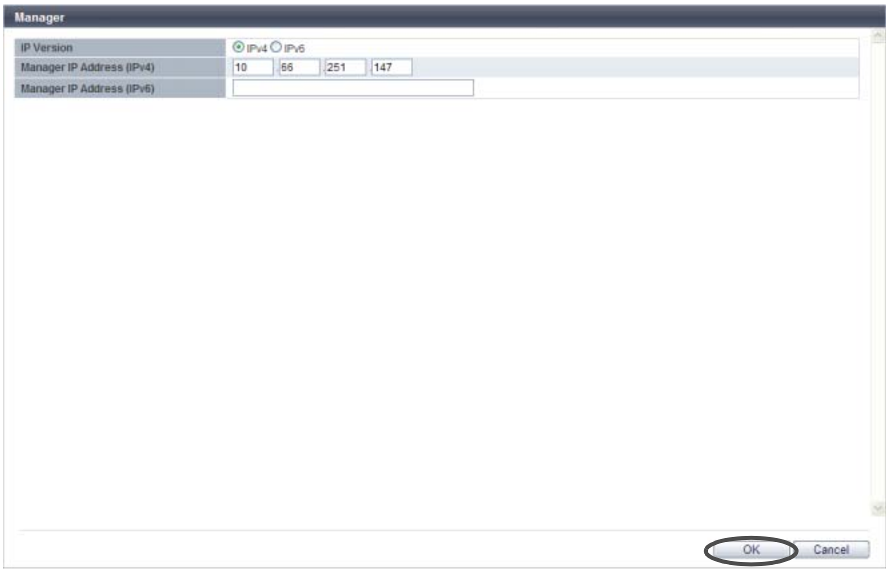
Note

This step is not required when ETERNUS SF Storage Cruiser is used to monitor the ETERNUS DX Disk storage system.

3-1 In [Action], click [Setup SNMP Manager].
The [Setup SNMP Agent Manager] screen appears.

3-2 In the manager list of the [Setup SNMP Agent Manager] screen, click the [Add] button.
The [Manager] screen appears.

3-3 Enter the IP address of SNMP Manager (monitoring server) and click the [OK] button.


Manager

IP Version	● IPv4 ○ IPv6
Manager IP Address (IPv4)	10 . 66 . 251 . 147
Manager IP Address (IPv6)	

The screen display returns to the manager list of the [Setup SNMP Agent Manager] screen.

3-4 Check the SNMP Manager that was added in Step 3-3 is displayed in the manager list and click the [Set] button.
A confirmation screen appears.

3-5 Click the [OK] button.
The SNMP Manager settings are applied.

3-6 Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

4 Set up a community or a user.

Set up the community or the user that is used for SNMP Trap.

Note

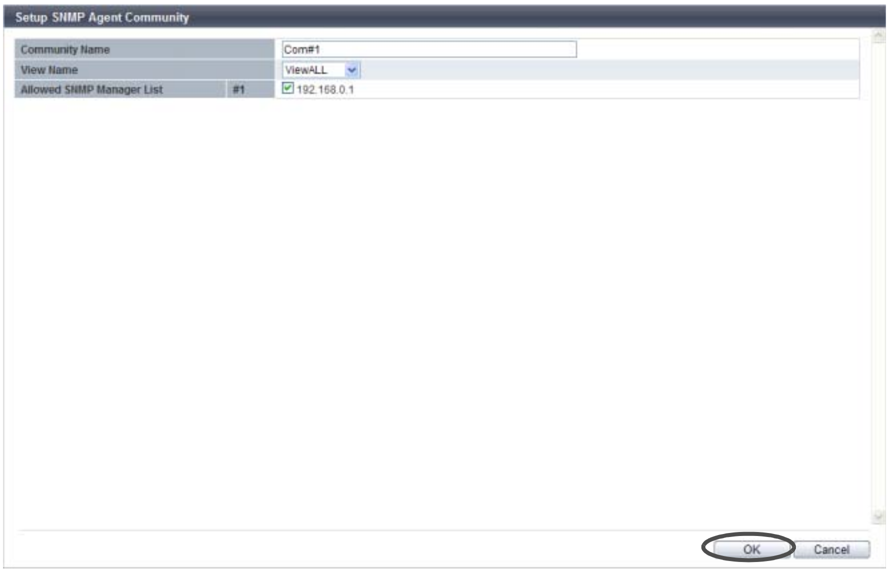
To use SNMPv1 or SNMPv2c, perform the "Setup SNMP Agent Community" settings.
To use SNMPv3, perform the "Setup SNMP Agent User" settings.

■ Community setup

(1) In [Action], click [Setup SNMP Agent Community].
The [Setup SNMP Agent Community] screen appears.

(2) In the community list of the [Setup SNMP Agent Community] screen, click the [Add] button.

(3) Enter the community name, set the required items, and click the [OK] button.



Setup SNMP Agent Community

Community Name		Com#1
View Name		ViewALL
Allowed SNMP Manager List	#1	☑ 192.168.0.1

The screen display returns to the community list of the [Setup SNMP Agent Community] screen.

(4) Check the SNMP Agent community name that was set in Step (3) is added in the community list and click the [Set] button.
A confirmation screen appears.

(5) Click the [OK] button.
The SNMP Agent community settings are applied.

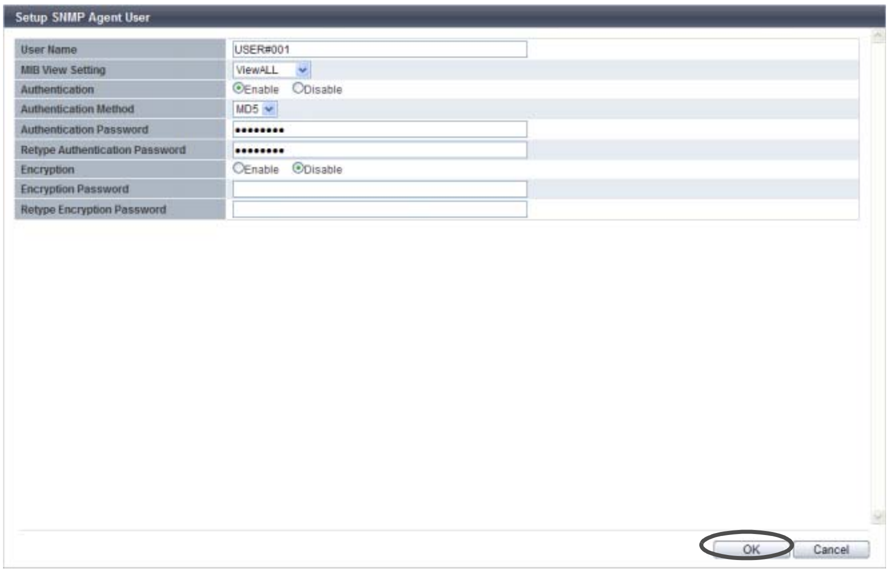
(6) Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

■ User setup

(1) In [Action], click [Setup SNMP Agent User].
The [Setup SNMP Agent User] screen appears.

(2) In the user list of the [Setup SNMP Agent User] screen, click the [Add] button.

(3) Enter the user name, set the required items, and click the [OK] button.



Setup SNMP Agent User

User Name	USER#001
MIB View Setting	ViewALL
Authentication	● Enable ○ Disable
Authentication Method	MD5
Authentication Password	••••••••
Retype Authentication Password	••••••••
Encryption	○ Enable ● Disable
Encryption Password	
Retype Encryption Password	

The screen display returns to the user list of the [Setup SNMP Agent User] screen.

(4) Check the SNMP Agent user name that was set in Step (3) is added in the user list and click the [Set] button.
A confirmation screen appears.

(5) Click the [OK] button.
The SNMP Agent user settings are applied.

(6) Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

5 Set up the SNMP Trap.

Set up the destination for sending the SNMP Trap.

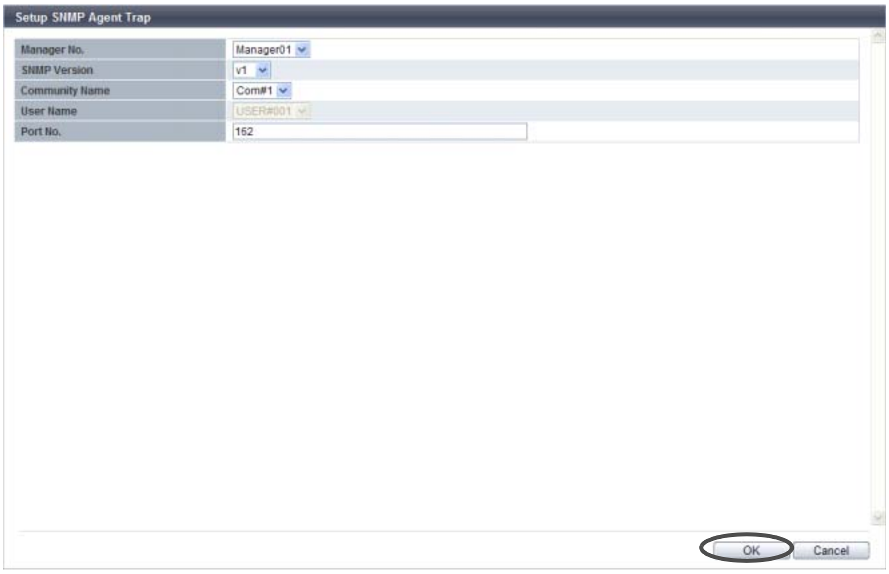
Note

This step is not required when ETERNUS SF Storage Cruiser is used to monitor the ETERNUS DX Disk storage system.

5-1 In [Action], click [Setup SNMP Agent Trap].
The [Setup SNMP Agent Trap] screen appears.

5-2 In the trap list of the [Setup SNMP Agent Trap] screen, click the [Add] button.

5-3 Select the Manager No. that was set in Step 3 for "Manager No.", set the required items, and click the [OK] button.



Setup SNMP Agent Trap

Manager No.	Manager01
SNMP Version	v1
Community Name	Com#1
User Name	USER#001
Port No.	152

The screen display returns to the trap list of the [Setup SNMP Agent Trap] screen.

5-4 Check the SNMP Trap that was set in Step 5-3 is added in the trap list and click the [Set] button.
A confirmation screen appears.

5-5 Click the [OK] button.
The SNMP Agent Trap settings are applied.

5-6 Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

6 Download the MIB file.

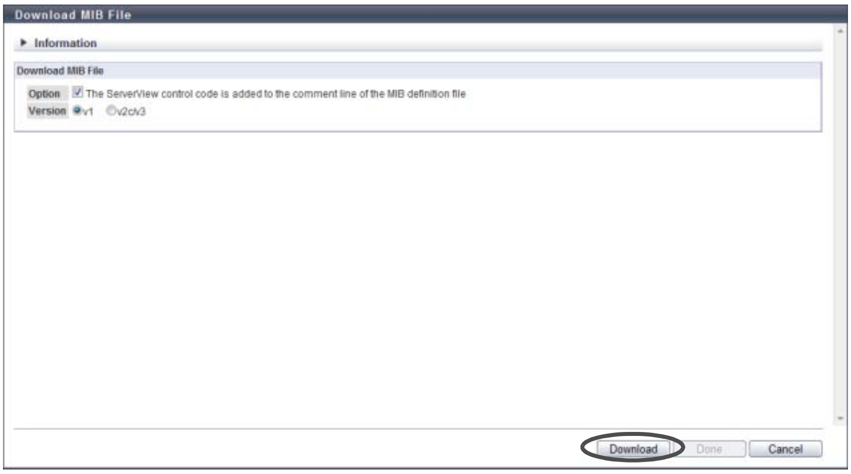
Download the MIB file that is registered in the ETERNUS DX Disk storage system.

6-1 In [Action], click [Download MIB File].
The [Download MIB File] screen appears.

6-2 In the [Download MIB File] screen, set the required items and click the [Download] button.

Note

Select the "The ServerView control code is added to the comment line of the MIB definition file" checkbox when downloading the MIB file for monitoring the ETERNUS DX Disk storage system by ServerView.



Download MIB File

▶ Information

Download MIB File

Option ☑ The ServerView control code is added to the comment line of the MIB definition file

Version ● v1 ○ v2c/v3

A confirmation screen appears.

6-3 Click the [OK] button.
A dialog box to download the file appears.

6-4 Click the [Save] button.
The MIB file is saved.

6-5 Check the setting completion message and click the [Done] button.
The screen display returns to the [Network] screen.

End of procedure

Monitoring server settings

Install and set up the monitoring software on the server side.
Refer to the manual that is provided with the monitoring software to install and set the monitoring software.

Note

Register the file that was downloaded in Step 6 of "ETERNUS DX Disk storage system settings" as the MIB definition file for the monitoring software.

SNMP Trap test

Perform the SNMP Trap test to check that the SNMP Trap can be sent from the ETERNUS DX Disk storage system to the SNMP Manager.
The SNMP Trap test setting is explained below.

Procedure

1 Perform the test transmission of the SNMP Trap.

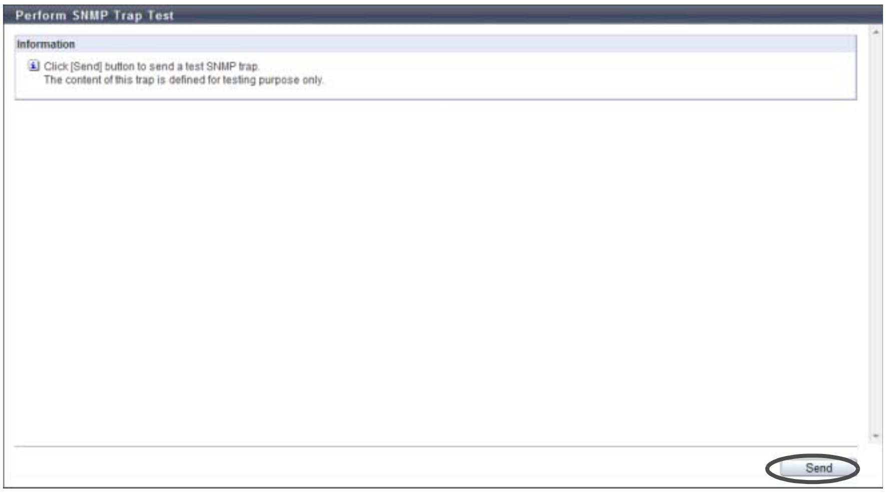
1-1 Start ETERNUS Web GUI.

1-2 On the navigation of the ETERNUS Web GUI screen, click [System].
The [System] screen appears.

1-3 In [Category], click [Network].
The [Basic] tab screen of the [Network] screen appears.

1-4 In [Action], click [Send SNMP Trap].
The [Perform SNMP Trap Test] screen appears.

1-5 In the [Perform SNMP Trap Test] screen, click the [Send] button.



Click [Send] button to send a test SNMP trap.
The content of this trap is defined for testing purpose only.

A confirmation screen appears.

1-6 Click the [OK] button.
The test transmission of the SNMP Trap is performed.

1-7 Check the transmission completion message and click the [Done] button.
The screen display returns to the [Network] screen.

2 Check the result of the test transmission.

Check that the SNMP Trap is notified to the monitoring server.
For details on the messages of the SNMP Trap for test transmission, refer to "User's Guide -Installation & Operation-".

If the SNMP Manager cannot receive an SNMP Trap, check that the network has no trouble, and the settings for the ETERNUS DX Disk storage system are correct.

- Is the LAN between the monitoring server and ETERNUS DX Disk storage system connected correctly? Execute the "ping" command from the monitoring server, and confirm the reply from the ETERNUS DX Disk storage system.

IMPORTANT

When "ICMP" is disabled by the firewall settings for ETERNUS Web GUI, the "ping" command cannot be used for confirmation. Enable "ICMP" before executing the "ping" command.

- Is the monitoring software set correctly to monitor the ETERNUS DX Disk storage system?
- Are the SNMP environment settings and the transmission destination for the SNMP Trap set correctly on the ETERNUS DX Disk storage system?

End of procedure

5.2.5 Remote Support Setup

When using the remote support, reporting problems in the ETERNUS DX Disk storage system to the remote support center must be set.

Note

Remote support allows prompt detection and resolution of trouble.

There are two types for performing remote support function; by using AIS Connect function and by using REMCS.

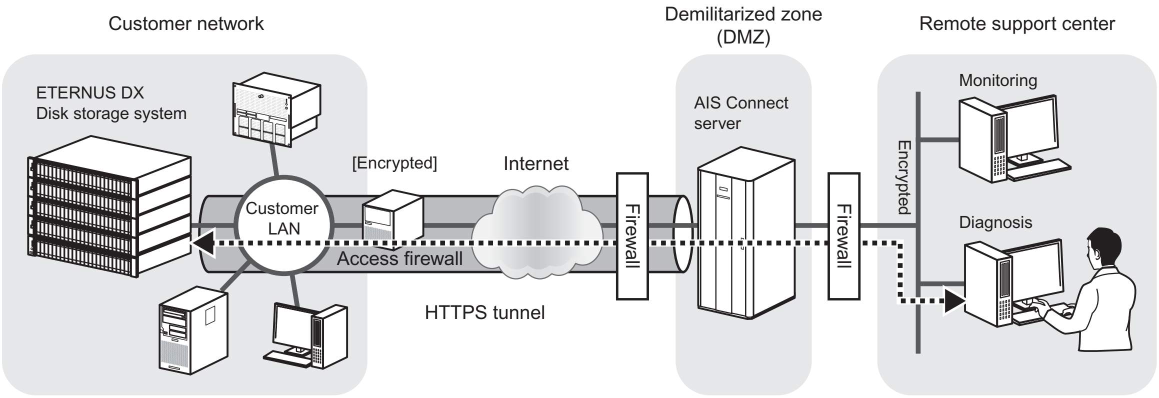
Caution

- Note that AIS Connect and REMCS are not available in some regions. Contact the Support Department for details.
- AIS Connect and REMCS cannot be used at the same time. AIS Connect function can only be used when REMCS is not specified or is stopped. When REMCS is used, suspend the REMCS function, and then enable the AIS Connect function. Refer to "ETERNUS Web GUI User's Guide" for details.

AIS Connect function

Overview of the AIS Connect function

Figure 5.2 Overview of the AIS Connect function


Customer network
Demilitarized zone (DMZ)
Remote support center
ETERNUS DX Disk storage system
Customer LAN
[Encrypted]
Internet
Access firewall
HTTPS tunnel
Firewall
AIS Connect server
Firewall
Encrypted
Monitoring
Diagnosis

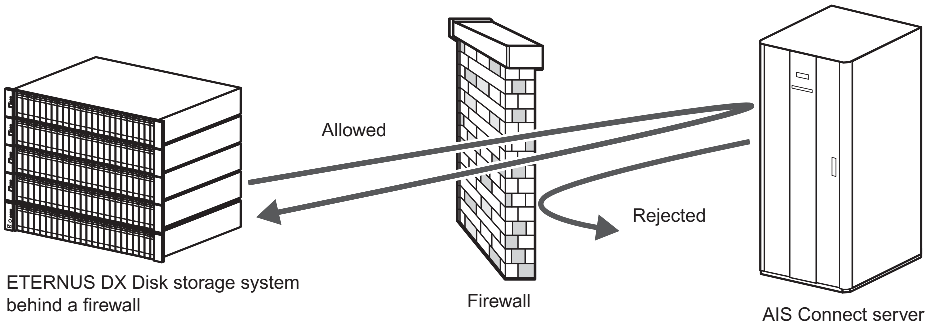
The diagram above describes the overview of the AIS Connect function. The left-hand side represents the customer and the right-hand side represents the service provider. The connection set-up initiative is always from the customer side based on regular AIS Connect agent contacts (Simple Object Access Protocol (SOAP) messages) with the AIS Connect server that can be reached via the Internet.
AIS Connect agent requests to the AIS Connect server can be handled directly and immediately. AIS Connect server requests to the AIS Connect agent (remote access) cannot be sent until the next contact has been set up. If remote access of the AIS Connect is enabled by the customer, the AIS Connect agent then executes the requests from customer operations such as setting up a tunnel for "remote access" or initiating a file transfer.
Contact set-up and request processing are performed via an HTTPS tunnel. Under certain circumstances, the firewall must be configured on the customer side to enable this type of tunnel to be set up. Likewise, proxies (plus ID and password) can be specified during Internet access configuration.

AIS Connect agent can perform the following actions:

- Notifying events (Information event, Warning event, or Error event) in the ETERNUS DX Disk storage system to the AIS Connect server
- Sending ETERNUS DX Disk storage system logs to the AIS Connect server
- Remote access from the AIS Connect server to the ETERNUS DX Disk storage system

Security features

Figure 5.3 Security features



Connection from an AIS Connect agent to the AIS Connect server can be set up via a SOAP message that is based on HTTPS. Access can only be initiated by an AIS Connect agent at the ETERNUS DX Disk storage system site of the customer as illustrated by the diagram above. The AIS Connect server offers a certificate and the AIS Connect agent verifies this certificate for every connection setup. All transferred data is protected against spy-out and manipulation.

For setup procedure for remote support (by AIS Connect), refer to "5.2.5.1 Remote Support (by AIS Connect) Setup" (page 135).

Caution

In some regions, the usage of AIS Connect is limited to contract customers.
Contact the Support Department for details.

REMCS

For setup procedure for remote support (by REMCS), refer to "5.2.5.2 Remote Support (by REMCS) Setup" (page 136).

The following sections explain how to set the ETERNUS DX Disk storage system for remote support.
For details on the settings, refer to "ETERNUS Web GUI User's Guide".

5.2.5.1 Remote Support (by AIS Connect) Setup

When using the remote support function by AIS Connect, perform the environment settings for connecting to the remote server (AIS Connect server) in the remote support center.

IMPORTANT

- If the REMCS function is being used, temporarily stop the REMCS function.
- In EMEA&I region, the "Log Transmission" setting for the "Set E-Mail Notification" function may be enabled ("Yes" is displayed). If this setting is enabled, disable it (select "No").

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of ETERNUS Web GUI screen, click [System].

The [System] screen appears.

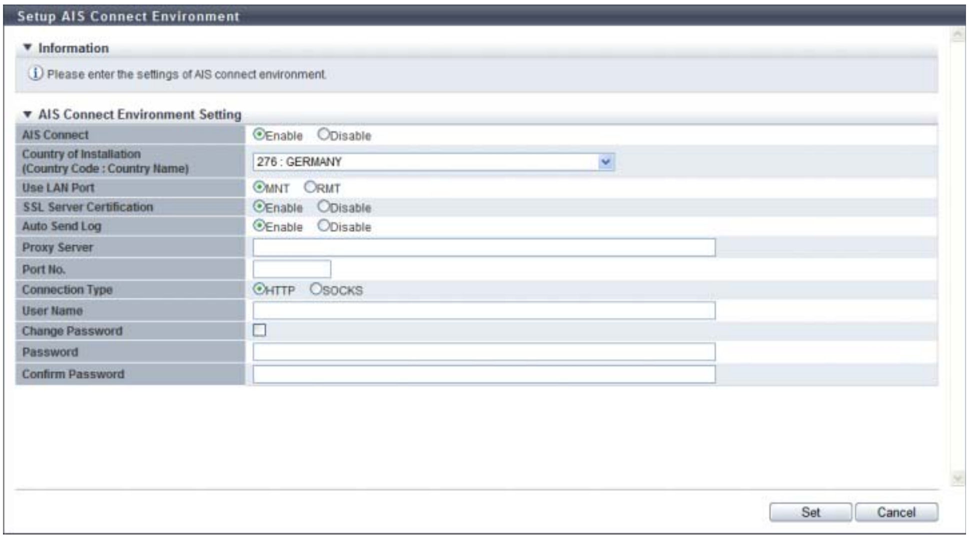
3 In [Category], click [AIS Connect] in [Remote Support].

The [Remote Support] screen appears.

4 Perform the environment settings for the AIS Connect function.

4-1 In [Action], click [Setup AIS Connect Environment].
The [Setup AIS Connect Environment] screen appears.

4-2 Select "Enable" for "AIS Connect" and then "Country code : Country name" for "Country of Installation(Country Code : Country Name)". Perform the other additional settings that are required.



Setup AIS Connect Environment

▼ Information

Please enter the settings of AIS connect environment.

▼ AIS Connect Environment Setting

AIS Connect	● Enable ○ Disable
Country of Installation (Country Code : Country Name)	276 : GERMANY
Use LAN Port	● MNT ○ RMT
SSL Server Certification	● Enable ○ Disable
Auto Send Log	● Enable ○ Disable
Proxy Server	
Port No.	
Connection Type	● HTTP ○ SOCKS
User Name	
Change Password	☐
Password	
Confirm Password	

4-3 Click the [Set] button.
A confirmation screen appears.

4-4 Click the [OK] button.
The AIS Connect settings are applied.

4-5 Check the setting completion message and click the [Done] button.
The screen display returns to the remote support screen.

5 Confirm the connection of the ETERNUS DX Disk storage system and the AIS Connect server in the remote support center.

5-1 In [Action], click [Test Server Connectivity].
A confirmation screen appears.

5-2 Click the [OK] button.
The connection with the server is checked. The result is displayed in the [Test Server Connectivity Result] screen.

5-3 Click the [Done] button.
The screen display returns to the remote support screen.

6 Send the test event to confirm that the event is reported to the AIS Connect server.

6-1 In [Action], click [Send AIS Connect Test Event].
A confirmation screen appears.

6-2 Click the [OK] button.
The test event is sent to the AIS Connect server. The result is displayed in the [Send AIS Connect Test Event Result] screen.

6-3 Click the [Done] button.
The screen display returns to the remote support screen.

End of procedure

5.2.5.2 Remote Support (by REMCS) Setup

When using the remote support function by REMCS, perform the environment settings for connecting to the remote support center, and register the customer information to send to the remote support center.

IMPORTANT

If the AIS Connect function is being used, disable the AIS connect function and then start the remote support (by REMCS) setup.

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of ETERNUS Web GUI screen, click [System].

The [System] screen appears.

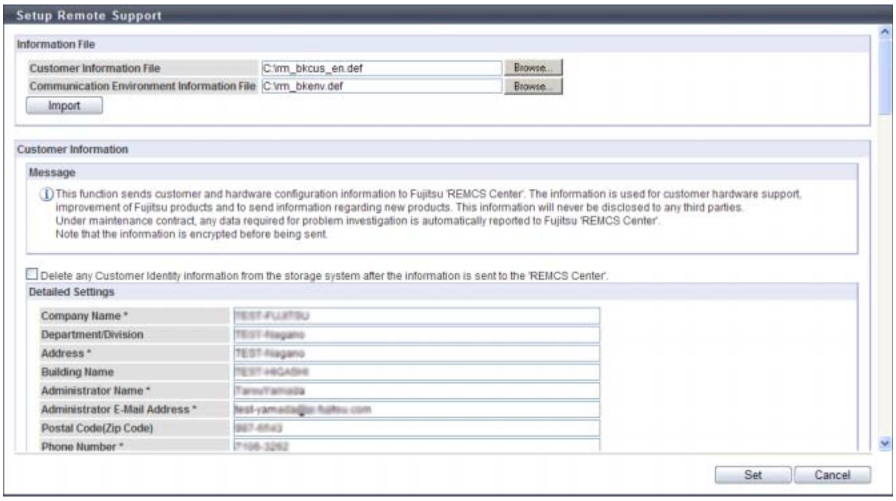
3 In [Category], click [REMCS] in [Remote Support].

The [Support Information] tab screen of the [Remote Support] screen appears.

4 In [Action], click [Setup Remote Support].

The [Setup Remote Support] screen appears.

5 In the [Setup Remote Support] screen, set the items in "Customer Information" and "Communication Environment Information".


Setup Remote Support

Information File

Customer Information File	C:\rm_bkcus_en.def	Browse...
Communication Environment Information File	C:\rm_bkenv.def	Browse...

Customer Information

Message

This function sends customer and hardware configuration information to Fujitsu 'REMCS Center'. The information is used for customer hardware support, improvement of Fujitsu products and to send information regarding new products. This information will never be disclosed to any third parties.
Under maintenance contract, any data required for problem investigation is automatically reported to Fujitsu 'REMCS Center'.
Note that the information is encrypted before being sent.

☐ Delete any Customer Identity information from the storage system after the information is sent to the 'REMCS Center'.

Detailed Settings

Company Name *
Department/Division
Address *
Building Name
Administrator Name *
Administrator E-Mail Address *
Postal Code(Zip Code)
Phone Number *

6 Click the [Set] button.

A confirmation screen appears.

7 Click the [OK] button.

The remote support settings are applied.

8 Check the setting completion message and click the [Done] button.

The screen display returns to the remote support screen.
The specified information is sent to the remote support center and the connection of the ETERNUS DX Disk storage system and the remote support center is checked. The connection check result is sent to the e-mail address that is set in "Result notification information".

End of procedure

5.2.6 Audit Log Setup

Audit trail logs (hereinafter referred to as "audit log") that record performed operations by using the ETERNUS DX Disk storage system and the system actions that are associated with these operations can be sent to the specified syslog server (external server).

Note

- Up to two syslog servers can be specified.
- After the environmental settings for audit logs are complete, confirm that the audit log is successfully received on the syslog server.
- Even if a communication error occurs between the ETERNUS DX Disk storage system and the syslog server, the audit log is not sent again.

The audit log setting is explained below.

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of ETERNUS Web GUI screen, click [System].
The [System] screen appears.

3 In [Category], click [Audit Log].
The [Audit Log] screen appears.

4 If "Disable" is specified for "Audit Log", select "Enable".

4-1 Click [Enable Audit Log] in [Action].
A confirmation screen appears.

4-2 Click the [OK] button.
Enabling of the audit log starts.

4-3 Check the setting completion message and click the [Done] button.
The screen display returns to the [Audit Log] screen.

5 Specify the syslog server to which the audit log is sent.

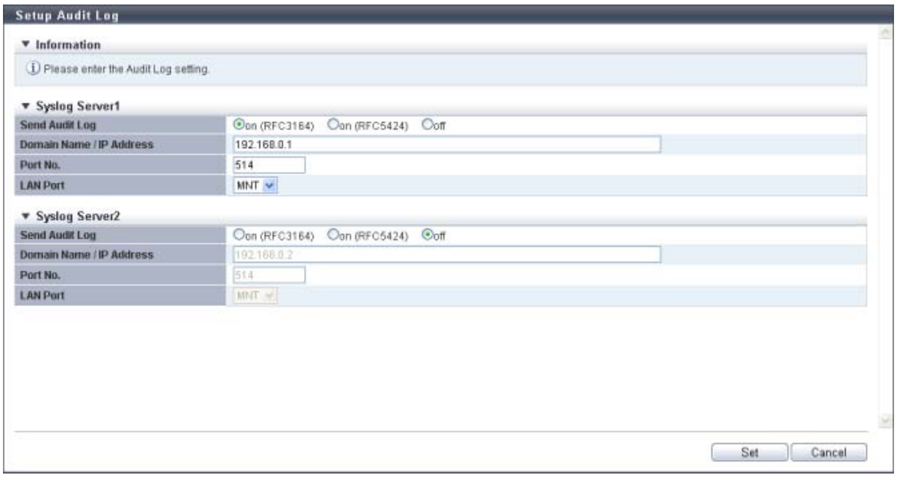
5-1 Click [Setup Audit Log] in [Action].
The [Setup Audit Log] screen appears.

- Select "on (RFC3164)" or "on (RFC5424)" for "Send Audit Log".

IMPORTANT

To send audit log messages in RFC5424 format to a target syslog server that supports RFC5424, select "on (RFC5424)". If this is not the case, select "on (RFC3164)".

- Specify the domain name or the IP address of the syslog server for "Domain Name/IP Address".



Setup Audit Log

▼ Information

ⓘ Please enter the Audit Log setting.

▼ Syslog Server1

Send Audit Log	● on (RFC3164) ○ on (RFC5424) ○ off
Domain Name / IP Address	192.168.0.1
Port No.	514
LAN Port	MNT

▼ Syslog Server2

Send Audit Log	○ on (RFC3164) ○ on (RFC5424) ● off
Domain Name / IP Address	192.168.0.2
Port No.	514
LAN Port	MNT

5-2 Click the [Set] button.
A confirmation screen appears.

5-3 Click the [OK] button.
Setting of the audit log starts.

5-4 Check the setting completion message and click the [Done] button.
The screen display returns to the [Audit Log] screen.

End of procedure

5.3 Power Control Setup

Perform power control settings as required.
Power control setting is required when enabling the Auto Power function (AC automatic linkage mode) or the Power Resume function (automatic power recovery mode), or when using the power control with the power synchronized unit.

Note

This section explains the procedure for the ETERNUS DX Disk storage system power control setup using ETERNUS Web GUI. For the ETERNUS DX Disk storage system power control setup using ETERNUS CLI, refer to "ETERNUS CLI User's Guide".

For details on the power control setup, refer to "ETERNUS Web GUI User's Guide".

5.3.1 Setup of the Auto Power Function and/or the Power Resume Function

To automatically turn on the ETERNUS DX Disk storage system when AC power is supplied or when power is restored after a power failure, use ETERNUS Web GUI to enable the Auto Power function and/or the Power Resume function.

- Auto Power function (AC automatic linkage mode)
  When the Auto Power function is enabled, the ETERNUS DX Disk storage system is automatically turned on when AC power is supplied.
  The Auto Power function is disabled for the factory default setting.

- Power Resume function (automatic power recovery mode)
  When the Power Resume function is enabled, the ETERNUS DX Disk storage system is automatically turned on when the power supply is restored after a power failure.
  The Power Resume function is disabled for the factory default setting.

Table 5.1 shows how the ETERNUS DX Disk storage system operates when the Auto Power function and the Power Resume function are enabled or disabled.

Table 5.1 ETERNUS DX Disk storage system operation according to the settings of the Auto Power function and the Power Resume function

ETERNUS Web GUI settings	How the ETERNUS DX Disk storage system operates
Auto Power function is disabled Power Resume function is disabled	The ETERNUS DX Disk storage system is not automatically turned on even when AC power is supplied or when power is restored after a power failure.
Auto Power function is enabled Power Resume function is disabled	The ETERNUS DX Disk storage system is automatically turned on when AC power is supplied. The ETERNUS DX Disk storage system is not turned on even when power is restored after a power failure.
Auto Power function is disabled Power Resume function is enabled	The ETERNUS DX Disk storage system is not turned on even when AC power is supplied. The ETERNUS DX Disk storage system is automatically turned on when power is restored after a power failure.
Auto Power function is enabled Power Resume function is enabled	The ETERNUS DX Disk storage system is automatically turned on when AC power is supplied and when power is restored after a power failure.

The procedure to enable the Auto Power function and/or the Power Resume function is described below.

Procedure

1 Start ETERNUS Web GUI.

2 On the navigation of ETERNUS Web GUI screen, click [System].

The [System] screen appears.

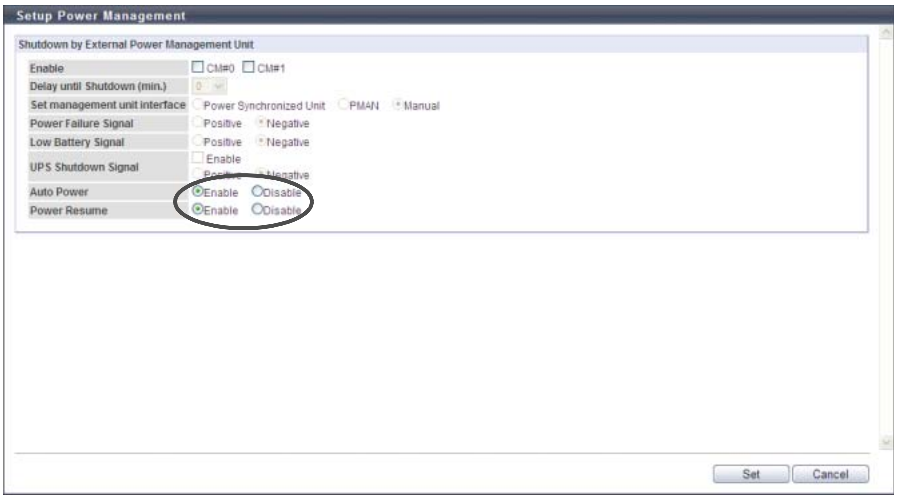
3 In [Category], click [System Settings].

The [System Settings] screen appears.

4 In [Action], click [Setup Power Management].

The [Setup Power Management] screen appears.

5 In the [Setup Power Management] screen, select "Enable" for "Auto Power" and/or "Power Resume".



Setup Power Management

Shutdown by External Power Management Unit

Enable	☐ CM#0 ☐ CM#1
Delay until Shutdown (min.)	0
Set management unit interface	○ Power Synchronized Unit ○ PMAN ● Manual
Power Failure Signal	○ Positive ● Negative
Low Battery Signal	○ Positive ● Negative
UPS Shutdown Signal	☐ Enable ○ Positive ● Negative
Auto Power	● Enable ○ Disable
Power Resume	● Enable ○ Disable

6 Click the [Set] button.

A confirmation screen appears.

7 Click the [OK] button.

The Auto Power function and/or the Power Resume function setting is applied.

8 Check the setting completion message and click the [Done] button.

The screen display returns to the [System Settings] screen.

End of procedure

5.3.2 Connection Setup for the ETERNUS DX Disk Storage System and Power Synchronized Units

Refer to "User's Guide -Power Synchronized Unit-" that is provided with the power synchronized unit for the required settings to use power control by connecting power synchronized units to an ETERNUS DX Disk storage system.

5.4 Server Connection Setup

Perform the settings required to connect to the server and install the required drivers. Perform the settings required for network devices connecting the server and the ETERNUS DX Disk storage system.
After the server connection setup, confirm that the volumes in the ETERNUS DX Disk storage system can be recognized by the server.

For details on the server connection setup, refer to the following documents:

- ETERNUS Web GUI User's Guide
- ETERNUS CLI User's Guide
- User's Guide -Server Connection-
- Manuals of the drivers to be installed

5.5 System Status Check

Check the status of the ETERNUS DX Disk storage system on the ETERNUS Web GUI screen or ETERNUS CLI.

Note

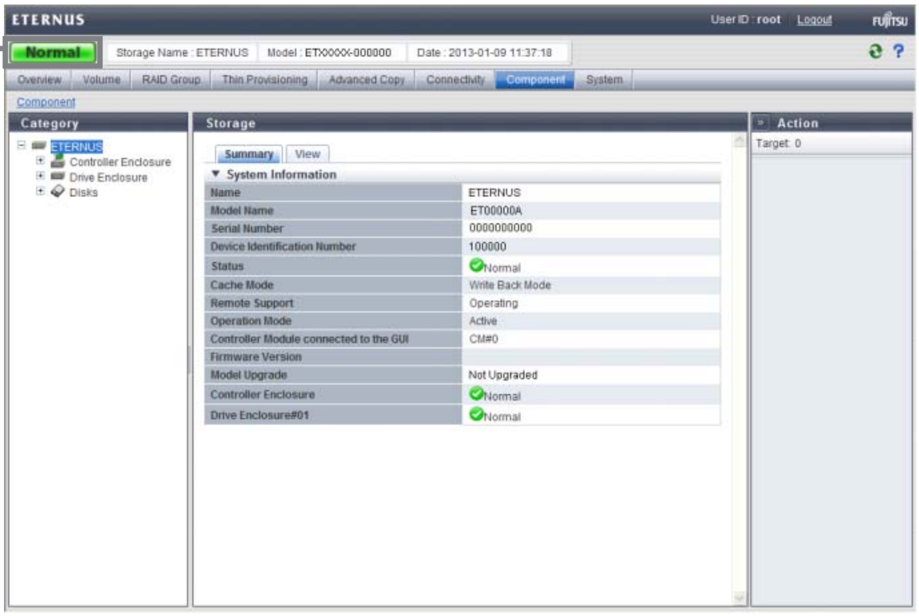
This section explains the procedure for the system status check using ETERNUS Web GUI. For the ETERNUS DX Disk storage system monitoring setup using ETERNUS CLI, refer to "ETERNUS CLI User's Guide".

Component status check

The status of the ETERNUS DX Disk storage system can be checked by general status in the upper left of the ETERNUS Web GUI screen.

When the general status image is "Normal", the ETERNUS DX Disk storage system is in normal status.

When the general status image is other than "Normal" ("Error", "Warning", etc.), an abnormality has been detected in the ETERNUS DX Disk storage system. Check the status of each component on the [Storage] screen.
To display the [Storage] screen, click the [Component] tab on the navigation of the ETERNUS Web GUI screen.


ETERNUS
User ID : root
Logout
FUJITSU
Normal
Overview
Volume
RAID Group
Thin Provisioning
Advanced Copy
Connectivity
Component
System
Component
Category
ETERNUS
Controller Enclosure
Drive Enclosure
Disks
Storage
Summary
View
Action
Target: 0

General status

Storage Name : ETERNUS
Model : ETXXXXX-000000
Date : 2013-01-09 11:37:18

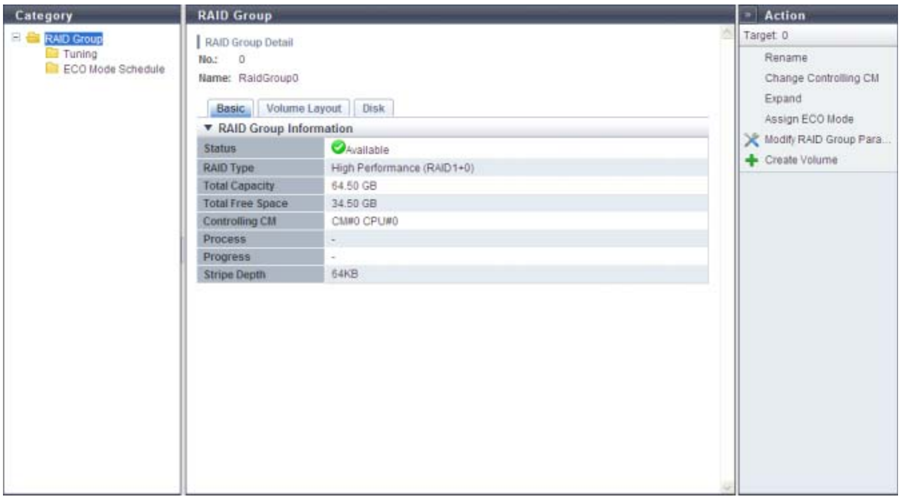
▼ System Information

Name	ETERNUS
Model Name	ET00000A
Serial Number	0000000000
Device Identification Number	100000
Status	✓Normal
Cache Mode	Write Back Mode
Remote Support	Operating
Operation Mode	Active
Controller Module connected to the GUI	CM#0
Firmware Version	
Model Upgrade	Not Upgraded
Controller Enclosure	✓Normal
Drive Enclosure#01	✓Normal

If there is a component in Warning or Error status, contact your sales representative or maintenance engineer.

RAID group check

On the [RAID Group Information] screen of ETERNUS Web GUI, the status of RAID groups that you have created is displayed. Check if RAID configuration is set correctly.
To display the [RAID Group Information] screen, click the [RAID Group] tab on the navigation of the ETERNUS Web GUI screen. In the [RAID Groups] screen that appears, select which RAID group to check the information for and click the name or No. of this RAID group.


Category
RAID Group
Tuning
ECO Mode Schedule
RAID Group
Basic
Volume Layout
Disk
Action
Rename
Change Controlling CM
Expand
Assign ECO Mode
Modify RAID Group Para...
Create Volume

RAID Group Detail
No.: 0
Name: RaidGroup0

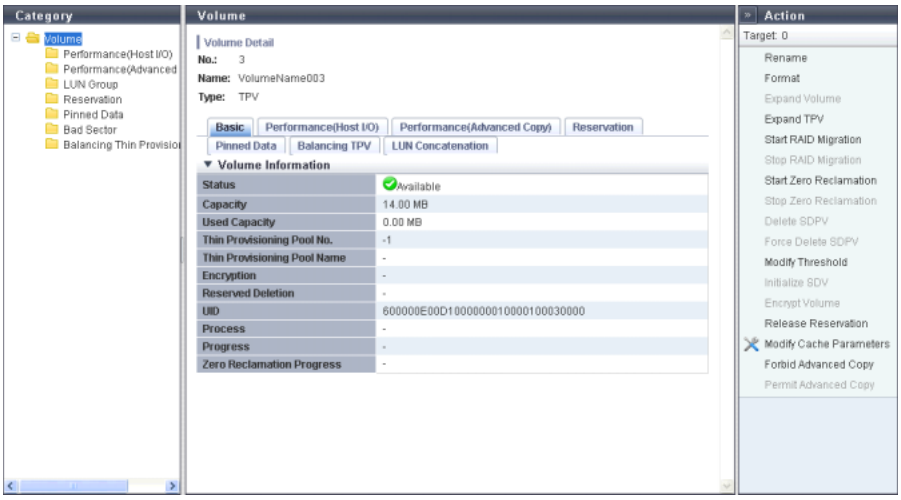
RAID Group Information

Status	✓Available
RAID Type	High Performance (RAID1+0)
Total Capacity	64.50 GB
Total Free Space	34.50 GB
Controlling CM	CM#0 CPU#0
Process	-
Progress	-
Stripe Depth	64KB

Target: 0

Volume check

On the [Volume Information] screen of ETERNUS Web GUI, the status of volumes that you have created is displayed. Check if volumes are set correctly.
To display the [Volume Information] screen, click the [Volume] tab on the navigation of the ETERNUS Web GUI screen. In the [Volumes] screen that appears, select which volume to check the information for and click the name or No. of this volume.


Category
Volume
Performance(Host I/O)
Performance(Advanced
LUN Group
Reservation
Pinned Data
Bad Sector
Balancing Thin Provisio
Volume
Basic
Performance(Host I/O)
Performance(Advanced Copy)
Reservation
Pinned Data
Balancing TPV
LUN Concatenation
Action
Rename
Format
Expand Volume
Expand TPV
Start RAID Migration
Stop RAID Migration
Start Zero Reclamation
Stop Zero Reclamation
Delete SDPV
Force Delete SDPV
Modify Threshold
Initialize SDV
Encrypt Volume
Release Reservation
Modify Cache Parameters
Forbid Advanced Copy
Permit Advanced Copy

Volume Detail
No.: 3
Name: VolumeName003
Type: TPV

Volume Information

Status	✓Available
Capacity	14.00 MB
Used Capacity	0.00 MB
Thin Provisioning Pool No.	-1
Thin Provisioning Pool Name	-
Encryption	-
Reserved Deletion	-
UID	600000E00D1000000010000100030000
Process	-
Progress	-
Zero Reclamation Progress	-

Target: 0

After checking whether all of the preceding settings are correctly performed, setup of the ETERNUS DX Disk storage system is complete.

5.6 Powering Off after Completion of the Setup Procedure

To turn off the ETERNUS DX Disk storage system, perform one of the procedures below.

- Via the Power switch
  Press the Power switch to turn off the ETERNUS DX Disk storage system.
- Via the power synchronized unit
  Use the power synchronized unit to turn off the ETERNUS DX Disk storage system.

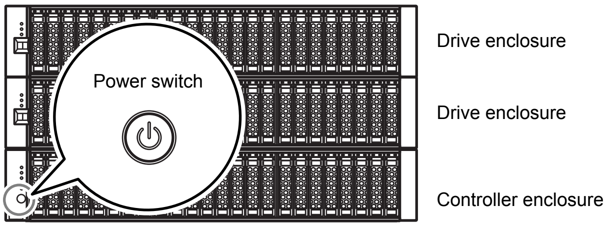
IMPORTANT

- When turning off the ETERNUS DX Disk storage system, the power shuts off after the data in the cache memory is written to the drives. Therefore, it may take one minute (maximum six minutes) for the power supply to be completely turned off.
- Do not turn off the power of the ETERNUS DX Disk storage system, the network devices that connect the ETERNUS DX Disk storage system, or the server while the server is operating, as this may result in the loss of data or prevent data from being saved.
- When using a power synchronized unit for power control, make sure to turn off the power with the server. Even if the ETERNUS DX Disk storage system is turned off by using the Power switch, the power synchronization function automatically turns on the power.

This section explains how to use the Power switch to turn off the ETERNUS DX Disk storage system. For other procedures, refer to the related manuals.

Procedure

1 Press and hold the Power switch of the controller enclosure for four seconds or more.



The READY LED on the controller enclosure is turned off.

IMPORTANT

Press the Power switch only once. If the Power switch is pressed again between the time of the READY LED turning off and the POWER LED turning off, the ETERNUS DX Disk storage system power may turn on.

2 The ETERNUS DX Disk storage system power is turned off.

The POWER LED of the controller enclosure and the POWER LEDs of the drive enclosures are turned off.

End of procedure

ETERNUS DX80 S2/DX90 S2 Disk storage system
User's Guide -Installation-

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