ETERNUS Web GUI User's Guide (Operation)

FUJITSU Storage ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays



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Preface

This manual provides operational information about Web GUI for the FUJITSU Storage ETERNUS DX60 S3/ DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems and Web GUI for the FUJITSU Storage ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays (hereinafter referred to as "ETERNUS Web GUI"). It should be used for reference when monitoring the FUJITSU Storage ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, and the FUJITSU Storage ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays (hereinafter referred to as "ETERNUS DX/AF" or "storage system"). Knowledge of UNIX or Windows® system management is required.

This manual is written for controller firmware versions V10L60 and later. (V10L61 and later in a Unified Storage environment.) Some of the functions herein may not be supported for firmware versions V10L5x and earlier.

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Structure of This Manual

This manual consists of the following eight chapters and three appendices.

• Chapter 1 Screen Operations

This chapter describes operation screens for ETERNUS Web GUI.

- Chapter 2 System Status
 This chapter describes system status.
- Chapter 3 Component Status
 This chapter describes component status in the ETERNUS DX/AF storage systems.
- Chapter 4 Volume Status
 This chapter describes volume status.
- Chapter 5 Connectivity Status
 This chapter describes connection status between the host and the ETERNUS DX/AF storage systems.
- Chapter 6 RAID Group Status
 This chapter describes RAID group status.

- Chapter 7 Thin Provisioning Pool Status
 This chapter describes Thin Provisioning Pool status.
- Chapter 8 Advanced Copy Status

This chapter describes Advanced Copy status.

The following contents are described as appendices:

- Status List
- Error Code
- Setting Procedures for Replacing HBAs

Latest Information

The information in this manual is subject to change without notice for functionality expansion and improvement of the ETERNUS DX/AF storage systems. The latest version of this manual and the latest information of the ETERNUS DX/AF storage systems are released in the following web-site. Access the following address if needed.

http://www.fujitsu.com/global/support/products/computing/storage/disk/manuals/

Related Manuals

Related manuals (*1) for this manual are listed below.

- FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Overview
- FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Site Planning Guide
- FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Design Guide (Basic)
- FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Configuration Guide (Basic)
- FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Operation Guide (Basic)
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Overview
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Site Planning Guide
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Design Guide (Basic)
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Configuration Guide (Basic)
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Operation Guide (Basic)
- FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Overview
- FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Site Planning Guide
- FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Design Guide (Basic)
- FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Configuration Guide (Basic)
- FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Operation Guide (Basic)
- FUJITSU Storage ETERNUS AF250 All-Flash Arrays Overview
- FUJITSU Storage ETERNUS AF250 All-Flash Arrays Site Planning Guide
- FUJITSU Storage ETERNUS AF250 All-Flash Arrays Design Guide (Basic)
- FUJITSU Storage ETERNUS AF250 All-Flash Arrays Configuration Guide (Basic)
- FUJITSU Storage ETERNUS AF250 All-Flash Arrays Operation Guide (Basic)

- FUJITSU Storage ETERNUS AF650 All-Flash Arrays Overview
- FUJITSU Storage ETERNUS AF650 All-Flash Arrays Site Planning Guide
- FUJITSU Storage ETERNUS AF650 All-Flash Arrays Design Guide (Basic)
- FUJITSU Storage ETERNUS AF650 All-Flash Arrays Configuration Guide (Basic)
- FUJITSU Storage ETERNUS AF650 All-Flash Arrays Operation Guide (Basic)
- FUJITSU Storage ETERNUS DX200F All-Flash Arrays Overview
- FUJITSU Storage ETERNUS DX200F All-Flash Arrays Site Planning Guide
- FUJITSU Storage ETERNUS DX200F All-Flash Arrays Design Guide (Basic)
- FUJITSU Storage ETERNUS DX200F All-Flash Arrays Configuration Guide (Basic)
- FUJITSU Storage ETERNUS DX200F All-Flash Arrays Operation Guide (Basic)
- FUJITSU Storage ETERNUS DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Configuration Guide (NAS)
- FUJITSU Storage ETERNUS DX, ETERNUS AF Configuration Guide -Server Connection-
- FUJITSU Storage ETERNUS DX, ETERNUS AF Configuration Guide (Web GUI) ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays
- ETERNUS Web GUI User's Guide (Settings) FUJITSU Storage ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays
- ETERNUS CLI User's Guide FUJITSU Storage ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays
- FUJITSU Storage ETERNUS SF KM V2.5 Overview
- FUJITSU Storage ETERNUS SF KM V2.5 Scenarios
- FUJITSU Storage ETERNUS SF KM V2.5 Planning
- FUJITSU Storage ETERNUS SF KM V2.5 Administering
- FUJITSU Storage ETERNUS SF KM V2.5 Reference
- FUJITSU Storage ETERNUS SF KM V2.5 Glossary
- FUJITSU Storage ETERNUS SF KM V2.5 Installation and Configuration Guide
- FUJITSU Storage ETERNUS SF KM V2.5 Installation Guide (Windows)
- FUJITSU Storage ETERNUS SF KM V2.5 Installation Guide (Linux)
- FUJITSU Storage ETERNUS SF KM V2.5 Replication Environment Setup Guide (Windows)
- FUJITSU Storage ETERNUS SF KM V2.5 Replication Environment Setup Guide (Linux)
- FUJITSU Storage ETERNUS SF Storage Cruiser Operation Guide
- ETERNUS vCenter Plug-in 3.0.0 User's Guide
- *1: Download the required manuals for your system environment.

The Structures and Contents of ETERNUS Web GUI Manuals

The ETERNUS Web GUI manual is composed of the following three manuals.

- FUJITSU Storage ETERNUS DX, ETERNUS AF Configuration Guide (Web GUI)
- ETERNUS Web GUI User's Guide (Settings)
- ETERNUS Web GUI User's Guide (Operation)

	The following	table d	escribes	the conte	ents of e	each m	ianual.
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Manual name	Contents
	This manual describes the installation and the environmental settings for the ETERNUS DX/ AF storage systems. For basic settings that are not described in this manual, refer to the following manuals.
	 "FUJITSU Storage ETERNUS DX60 S3 Disk Storage Systems Configuration Guide (Basic)"
FUJITSU Storage ETERNUS DX, ETERNUS AF	 "FUJITSU Storage ETERNUS DX100 S3/DX200 S3 Disk Storage Systems Configuration Guide (Basic)"
(Web GUI)	 "FUJITSU Storage ETERNUS DX500 S3/DX600 S3 Disk Storage Systems Configuration Guide (Basic)"
	 "FUJITSU Storage ETERNUS AF250 All-Flash Arrays Configuration Guide (Basic)"
	 "FUJITSU Storage ETERNUS AF650 All-Flash Arrays Configuration Guide (Basic)"
	 "FUJITSU Storage ETERNUS DX200F All-Flash Arrays Configuration Guide (Basic)"
ETERNUS Web GUI User's Guide (Settings)	This manual describes the procedures, setup parameters, input conditions, and the default values for ETERNUS Web GUI. Refer to this manual for functions and advanced settings that are not described in "FUJITSU Storage ETERNUS DX, ETERNUS AF Configuration Guide (Web GUI)".
ETERNUS Web GUI User's Guide (Operation)	This manual describes the monitoring information of the system status for the ETERNUS DX/AF storage systems. This manual also describes how to check the results of the ETERNUS Web GUI configuration.

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Naming Conventions

Product names

• The following abbreviations are used for Microsoft[®] Windows Server[®].

Product name	Abbreviation	
Microsoft [®] Windows Server [®] 2008 Datacenter		
Microsoft [®] Windows Server [®] 2008 Enterprise		
Microsoft® Windows Server® 2008 Standard	Windows Server 2008	
Microsoft® Windows Server® 2008 for Itanium-Based Systems		
Microsoft [®] Windows Server [®] 2008 HPC Edition		
Microsoft® Windows Server® 2008 R2 Datacenter		
Microsoft® Windows Server® 2008 R2 Enterprise		
Microsoft® Windows Server® 2008 R2 Standard	Windows Server 2008 R2	
Microsoft® Windows Server® 2008 R2 for Itanium-Based Systems		
Microsoft® Windows Server® 2008 R2 HPC Edition		
Microsoft® Windows Server® 2012 Datacenter		
Microsoft® Windows Server® 2012 Standard	Windows Server 2012	
Microsoft® Windows Server® 2012 Essentials	Willdows Server 2012	
Microsoft [®] Windows Server [®] 2012 Foundation		
Microsoft [®] Windows Server [®] 2012 R2 Datacenter		
Microsoft® Windows Server® 2012 R2 Standard	Windows Server 2012 R2	
Microsoft [®] Windows Server [®] 2012 R2 Essentials		
Microsoft [®] Windows Server [®] 2016 Datacenter	Windows Server 2016	
Microsoft® Windows Server® 2016 Standard		

• Oracle Solaris might be described as Solaris, Solaris Operating System, or Solaris OS.

• Trademark symbols such as [™] and [®] are omitted in this document.

ETERNUS storage system models

The following naming conventions describe ETERNUS storage system models in this manual.

ETERNUS storage system models	Naming conventions
ETERNUS DX60 S3/DX100 S3/DX200 S3 Disk Storage Systems,	storage system
ETERNUS DX500 S3/DX600 S3 Disk Storage Systems,	ETERNUS DX
ETERNUS DAGTOU SS/DAGTOU SS/DAGGOU SS DISK Storage Systems, ETERNUS DX200F All-Flash Arrays	ETERNUS DX storage systems
ETERNUS DX60 S3/DX100 S3/DX200 S3 Disk Storage Systems,	storage system
ETERNUS DX500 S3/DX600 S3 Disk Storage Systems, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems	ETERNUS DX/AF
ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays	ETERNUS DX/AF storage systems
ETERNUS DX60 S3/DX100 S3/DX200 S3 Disk Storage Systems, ETERNUS DX500 S3/DX600 S3 Disk Storage Systems, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems	ETERNUS DX S3 series
ETERNUS DX60 S3/DX100 S3/DX200 S3 Disk Storage Systems	ETERNUS DX60 S3/DX100 S3/DX200 S3
ETERNUS DX100 S3/DX200 S3 Disk Storage Systems	ETERNUS DX100 S3/DX200 S3
ETERNUS DX500 S3/DX600 S3 Disk Storage Systems	ETERNUS DX500 S3/DX600 S3
ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems	ETERNUS DX8100 S3/DX8700 S3/DX8900 S3
ETERNUS DX60 S3 Disk Storage Systems	ETERNUS DX60 S3
ETERNUS DX100 S3 Disk Storage Systems	ETERNUS DX100 S3
ETERNUS DX200 S3 Disk Storage Systems	ETERNUS DX200 S3
ETERNUS DX500 S3 Disk Storage Systems	ETERNUS DX500 S3
ETERNUS DX600 S3 Disk Storage Systems	ETERNUS DX600 S3
ETERNUS DX8100 S3 Disk Storage Systems	ETERNUS DX8100 S3
ETERNUS DX8700 S3 Disk Storage Systems	ETERNUS DX8700 S3
ETERNUS DX8900 S3 Disk Storage Systems	ETERNUS DX8900 S3
ETERNUS AF250/AF650 All-Flash Arrays	ETERNUS AF
	ETERNUS AF250/AF650
ETERNUS AF250 All-Flash Arrays	ETERNUS AF250
ETERNUS AF650 All-Flash Arrays	ETERNUS AF650
ETERNUS DX200F All-Flash Arrays	ETERNUS DX200F
ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, ETERNUS AF250/AF650, ETERNUS DX200F, ETERNUS DX90 S2, ETERNUS DX410 S2/DX440 S2, ETERNUS DX8100 S2/DX8700 S2, ETERNUS DX8100 S2/DX8700 S2, ETERNUS DX410/DX440, ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000/ETERNUS8000, ETERNUS6000	ETERNUS storage system
ETERNUS DX410/DX440 Disk Storage Systems	ETERNUS DX400 series
ETERNUS DX8TUU/DX84UU/DX87UU Disk Storage Systems	ETEKINUS DX8000 Series

Units in this manual

Except as otherwise noted, the following units are used in this manual:

- Drive capacity assume that 1KB = 1000 bytes, 1MB = 1000KB, 1GB = 1000MB, and 1TB = 1000GB (example: "600GB drive").
- Other capacities (such as for RAID Groups and volumes) assume that 1KB = 1024 bytes, 1MB = 1024KB, 1GB = 1024MB, and 1TB = 1024GB.

Note that the screen shots in this manual were captured during development of the software and the actual screens may be different.

Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

Notes for ETERNUS Web GUI

Notes for Using ETERNUS Web GUI

Note the following points when using ETERNUS Web GUI:

• If the PC and the ETERNUS DX/AF belong to a different network and the transfer rate setting for each network does not match, the retransmission of packets occurs more frequently and the operation screen for ETERNUS Web GUI may take more time to be displayed.

By setting the same transfer rate for each network, the time to display the operation screen can be reduced.

Note the following items when setting the transfer rate.

- Set the same transfer rate for each network (or adjust to the lowest of the transfer rates)
- When the transfer rate for the ETERNUS DX/AF is not "Auto-negotiation", the same transfer rate must also be set for the network switches
- Do not use the standard buttons of each browser (for example, the [Back] button, the [Forward] button, and the [Refresh] button), the [F5] (refresh) key, or the [Back Space] (back) key.
- If the message "Lock was relinquished to another user or expired by timeout." appears after the operation is started, the ETERNUS Web GUI operation is suspended due to an update by another user or a timeout. Click the [OK] button to return to the previous screen and then restart the function.
- If the confirmation message "Do you wish to forcibly acquire the lock?" appears after the operation is started, another user is updating data. If the [OK] button is clicked, the data update of the other user may fail.
- If the warning message "The login authority was lost." appears after the operation is started, the login state of ETERNUS Web GUI for the current user is lost. Click the [OK] button to return to the login screen. Log in again to continue using ETERNUS Web GUI.

Operating Environment

Confirmed operating environment		Version
Web browser Microsoft Internet Explorer		7.0, 8.0, 9.0, 10.0 (desktop version), 11.0 (desktop version)
	Mozilla Firefox	3.6.x, ESR 10.0.x, ESR 17.0.x, ESR 24.0.x
Display resolution	 1024 × 768 or more 24-bit color or more is recommended 	-

The following PC environment is required to use ETERNUS Web GUI.

Caution

- Note the following points:
 - Set "Do not use proxy server" as the proxy setting
 - Configure the temporary file (cache) setting of pages so that the pages are updated every time the browser is started
 - For example, when using Internet Explorer 7.0, select "Every time I start Internet Explorer".
 - Enable the JavaScript setting
 - When Auto Reading of pages is available, enable the setting
- Furthermore, when using ETERNUS Web GUI with Microsoft Internet Explorer 7.0, note the following points:
 - [Automatic prompting for file downloads] and [Allow websites to open windows without address or status bars] must be enabled. Click the [Custom Level] button under the Internet Options-Security tab and select the radio buttons for both of these items.
 - [Show friendly HTTP error messages] must be disabled. Click the Internet Options-Advanced tab and clear the [Show friendly HTTP error messages] checkbox.
- Furthermore, when using ETERNUS Web GUI with Microsoft Internet Explorer 8.0, note the following points:
 - [Automatic prompting for file downloads] and [Allow websites to open windows without address or status bars] must be enabled. Click the [Custom Level] button under the Internet Options-Security tab and select the radio buttons for both of these items.
 - The SmartScreen Filter function must be disabled. If the SmartScreen Filter function is enabled, click the [Custom Level] button under the Internet Options-Security tab and disable [Use SmartScreen Filter].
 - Set the following items for [Compatibility View Settings] under the Tools menu.
 - If an address for the ETERNUS DX/AF is displayed in the [Websites you've added to Compatibility View:] field, select and then delete the address
 - Clear the [Display intranet sites in Compatibility View] checkbox
 - Clear the [Display all websites in Compatibility View] checkbox
- Furthermore, when using ETERNUS Web GUI with Microsoft Internet Explorer 9.0, Microsoft Internet Explorer 10.0 (desktop version), or Microsoft Internet Explorer 11.0 (desktop version), note the following points:
 - [Allow websites to open windows without address or status bars] must be enabled. Click the [Custom Level] button under the Internet Options-Security tab and select the [Allow websites to open windows without address or status bars] radio button.
 - The SmartScreen Filter function must be disabled. If the SmartScreen Filter function is enabled, click the [Custom Level] button under the Internet Options-Security tab and disable [Use SmartScreen Filter].
 - Set the following items for [Compatibility View Settings] under the Tools menu.
 - If an address for the ETERNUS DX/AF is displayed in the [Websites you've added to Compatibility View:] field, select and then delete the address
 - Clear the [Display intranet sites in Compatibility View] checkbox
 - Clear the [Display all websites in Compatibility View] checkbox (if this item is displayed)
 - When using SSL (https), scroll to Security on the Internet Options-Advanced tab and clear the [Do not save encrypted pages to disk] checkbox.

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Chapter 1 Screen Operations

This chapter describes the ETERNUS Web GUI screen operations.

Click the [⑦] icon or the [Help] link for a detailed explanation of the functions used during operation. An explanation (help) screen of the function is displayed.

Caution

- Be sure to log out after all necessary operations are completed.
- If the operation screen is not updated when accessing ETERNUS Web GUI, close the web browser, and log in again.

1.1 Overview

Overview screen appears immediately after logging in to ETERNUS Web GUI. The status of the ETERNUS DX/AF storage systems and the usage of RAID groups, Thin Provisioning Pools (TPP), and Snap Data Pools (SDP) can be checked in this screen.

Caution

- The [Initial Setup] screen is displayed for the first login after installation of the ETERNUS DX/AF is complete.
- If the system message "Currently Network Configuration is set to factory default." is displayed, the network environment settings for the MNT port must be performed. Use the [Setup Network Environment] function in the [Network] screen under the [System] navigation. Some functions are not available if the network environment settings are incomplete.
- If the system message "Configuration was applied to storage system." is displayed, the ETERNUS DX/AF must be rebooted. Any setting processes cannot be performed until the applied configuration information is enabled by rebooting the storage system.
- If the system message ""Expand Volume Mode" was updated. Please restart the storage system to update "Expand Volume Mode" effectively." is displayed, the ETERNUS DX/AF must be rebooted. The number of volumes and copy sessions is not increased until the ETERNUS DX/AF is rebooted and the new "Expand Volume Mode" is specified.
- When the application schedule for controller firmware is being reserved, a message to that effect as well as "Firmware Version", "Application Start Date", and "Apply Mode" are displayed. When the application mode is "Update & Reboot", the ETERNUS DX/AF is automatically rebooted after the controller firmware is applied.
- If the message which indicates that the controller firmware application has been reserved disappears before the reserved date, the reservation may be canceled automatically. In this case, reserve the application schedule for the controller firmware again. Refer to "Apply Controller Firmware" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

- If the system message "Unified Storage license has been registered." is displayed, the unified upgrade must be performed. Note that "Maintenance Operation" policy is required to perform the unified upgrade.
- TPP usage is displayed only when the Thin Provisioning function is enabled.
- SDP usage is displayed when one of the following conditions applies:
 - Advanced Copy function license has been registered
 - "Enable" is displayed for the "Unified Storage" field

For the ETERNUS DX60 S3

ETERNUS DX60 S3					U	ser ID : root	Logout	Į	บโทรม
Normal	ge Name : ETERNUS Model : E	T00000A-000000	Date : 2015-08-	24 10:35:32				÷	
Overview Volume	RAID Group Thin Provisioning	Advanced Copy	Connectivity	Component	System				
						Auto	Refresh	OFF	~
Hardware Componen	ts		RAIL) Group					
	Modules	Drives							- 1
Normal	40	24			RAID Group Count			5	
Warning	0	0		•)	Volume Count:			2	
(DError	0	0		1					
Entor	0	0		Total Used Car	sacity:		16 00 G	A.	
System Information				Total Free Cap	acity:	787.00 GB			
Storage System Name	ETERNUS			Total Capacity:			803 00 G	a	
Model Name	ET00000A						000.000		
Serial Number	000000		1000		B 1				
Firmware Version	V10L42-0000		Thin	Provisioning	1 Pool				
Status	Normal								
Cache Mode	Write Back Mode		1		Thin Provisioning Pool Count	to:		3	
Remote Support	-				Volume Count:			2	
Connecting Module	CM#0								
			_	Total Llead Div	airal Canacilu		20.20.0		
				Total Eren Phys	nical Capacity.		29.30 G	2	
				Total Pree Phys	Sical Capacity.		203.07 G	3	
				Maximum Pool	Capacity:		292.97 G	20	
			in the second						
			Snaj	o Data Pool					
					Snap Data Pool Count:			1	
				1					

For the ETERNUS DX100 S3

ETERNUS DX100 S3					Use	r ID : root	Logout	1	FUĴÎTSU
Normal Storage N	ame : ETERNUS Model : E	T00000A-000000	Date : 2015-08-	24 10:34:48				-	0 0
Overview Volume RAID	O Group Thin Provisioning	Advanced Copy	Connectivity	Component	System				
						Auto I	Refresh	OFF	×
Hardware Components			RAIL) Group					
	Modules	Drives		T					1
Normal	40	24			RAID Group Count			5	
1 Warning	0	0		•)	Volume Count:			2	
CError	0	0		1					
CITCA				Total Used Cap	acity:		16.00 G	в	
System Information				Total Free Cap	acity:		787.00 GB		
Storage System Name	ETERNUS			Total Capacity:		4	803.00 G	в	
Model Name	ET00000A								
Unified Storage	Disable		1000	Desulation from	Basel				
Serial Number	000000		Inin	Provisioning	1900				
Firmware Version	V10L42-0000								
Status	Normal		19		Thin Provisioning Pool Count:			3	
Cache Mode	Write Back Mode			·	Volume Count:			2	
Remote Support	7.							54	
Connecting Module	CM#0								
				Total Used Phy	sical Capacity:		29.30 G	в	
			2003	Total Free Phys	sical Capacity:	1	263.67 GI	в	
				Total Physical (Capacity:		292.97 G	в	
				Maximum Pool	Capacity:		256.00 TI	в	
			Snap	p Data Pool					
					Snap Data Pool Count:			1	

For the ETERNUS DX200 S3, the ETERNUS DX500 S3/DX600 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F

ETERNUS DX500 S3						User ID : root	Logout	FUIÎTSU	
Normal Storage Nar	me : ETERNUS Model : E	T00000A-4310901012	2 Date : 2	016-08-25 17:33	3.58			00	
Overview Volume RAID (Group Thin Provisioning	Advanced Copy	Connectivity	Component	System				
				Lannaadalaanaada		Aut	o Refresh	OFF 🗸	
Hardware Components			RAI	D Group					
	Modules	Drives							
Normal	93	528			RAID Group Count		249		
Warning	0	0		5.)	Volume Count:		110		
0	0								
WEITOF	0	0		Total Used Car	naoihr		105.70		
System Information				Total Eree Can	pacity.		1.00 18		
Storage System Name	ETERNUS			Total Casacity	acky.		20.67 18		
Model Name	del Name ET00000A			Total Capacity.			22.33 18		
Unified Storage	Disable								
Deduplication/Compression	Disable		Thin	Provisioning	g Pool				
Serial Number	431090101212								
Firmware Version	V10L60-0000		10						
Status	Normal				Thin Provisioning Pool Count:	Count	246		
Cache Mode	Write Back Mode				Volume Count:		36		
Battery	89%								
Remote Support	-			Total Used Phy	vsical Capacity:		2.35 TB		
Connecting Module	CM#0			Total Free Phy	sical Capacity:		21.11 TB		
				Total Physical	Capacity:		23.46 TB		
				Maximum Pool	Capacity:		256.00 TB		
			Sna	p Data Pool					
			(Snap Data Pool Coun	t	1		

For the ETERNUS DX8100 S3

TERNUS DX8100	\$3						User ID : r	oot <u>Loqout</u>		FUโ๊กรม
Normal Str	orage Name : ETI	ERNUS Model : E	000000-A000000	Date : 2015-11-	10 10:17:47					2 3
Overview Volume	RAID Group	Thin Provisioning	Advanced Copy	Connectivity	Component	System				
								Auto Refresh	OFF	v
Hardware Compone	ants			RAIL) Group					
	Mod	dules	Drives							
Normal	57		96			RAID Gro	up Count	2	28	
! Warning	0		0		•)	Mainframe	Systems Volume Count:	1	12	
Or more			0		1	Open Syst	tems Volume Count:	10)5	
Error	U		0		Total Used Cap	acity:		488 00 G	R	
System Information	i				Total Free Capa	acity:		14 48 T	B	
Storage System Name	ETE	RNUS			Total Capacity:			14.96 T	в	
Model Name	ETO	A0000								
Serial Number	000	000		This	Drowieloning	Real				
Firmware Version	V10	L50-a200			Flowisioning	F001				
Status	3	lormal								
Cache Mode	Writ	e Back Mode		1		Thin Provi	sioning Pool Count		3	
Battery	899					Volume Count:		4		
Remote Support	Ope	rating								
Connecting Module	CM	10			Total Lizad Phys	rical Canacit		20.20.0		
					Total Eree Phys	ical Canacib	1. r	29.30 0	0	
				-	Total Physical C	anacity:		203.07 G		
					Maximum Pool	Capacity:		128.00 T	в	
				Snap	Data Pool					=1
						Snap Data	a Pool Count:		1	
					Total Used Cap	acity:		50.00 G	в	

For the ETERNUS DX8700 S3/DX8900 S3

ETERNUS DX8700 S3						User IC	:root Logout	FUโกรเ	
Normal Storage	Name : ETERNUS Model : E	T00000A-000000 D	ate : 2015-06-	09 09:19:08				00	
Overview Volume RA	ID Group Thin Provisioning	Advanced Copy	Connectivity	Component	System				
							Auto Refresh OF	F V	
Hardware Components		_	RAI	D Group					
	Modules	Drives						1	
Normal	367	1536			RAID Gro	oup Count:	63		
Warning	0	0		Volume Count:			157		
OFror	0	0							
- Linor			_	Total Used Cap	acity:		172.00 GB		
System Information				Total Free Cap	acity:		24.94 TB		
Storage System Name	ETERNUS			Total Capacity:			25.11 TB		
Model Name	ET00000A		_						
Serial Number	000000		Thir	Provisioning	Pool				
Filmware version	V10L40-0000			1101Isidining	1 001				
status	Normal		_ /						
Cache Mode	Write Back Mode		_ (Thin Prov	isioning Pool Count	246		
Battery	022h				Volume C	Count:	18		
Connecting Medule	Operating CE#0 Cha#0		- \						
Connecting module	CENO CIVINO			Total Used Phy	sical Canaci	b.	2.26 70		
				Total Eres Phys	tical Canacit	v.	2.35 TB		
				Total Physical (Canaciby:		21,1110		
				Maximum Dool	Canacity.		23.40 18		
				matornam Poor	Capacity.		200.00 18		
			Sna	p Data Pool					
					Snap Dat	a Pool Count	i		

Auto Refresh

The [Overview] screen is refreshed at the specified update interval.

Select the update interval to refresh the [Overview] screen from "OFF", "60 sec.", "120 sec.", or "180 sec.". The initial state is "OFF".

The monitoring time is reset to "0" when the update interval is changed or the $[\odot]$ icon is clicked. If the specified interval is a value other than "OFF", the new update interval is applied after the monitoring time is reset.

The update interval works while the user is logged in to ETERNUS Web GUI even when other functions are started from the [Overview] screen. The update interval returns to the initial state ("OFF") when the Master CM is switched or when the user logs out of ETERNUS Web GUI.

Caution

Auto refresh is available only for the [Overview] screen. Screens other than [Overview] are refreshed when the [] icon is clicked or a screen is redisplayed.

System Messages

A system message is displayed.

• ① Message

When any information from the ETERNUS DX/AF exists, an information message is displayed.

• 📥 Message

When an event causes warning status, a warning message is displayed. If a warning message is generated, the LCD message is displayed. If an Advanced Copy path in warning status exists, a message is displayed.

• 😂 Message

When an event causes error status, an error message is displayed. If an error message is generated, the LCD message is displayed. If an Advanced Copy path in error status exists, a message is displayed.

🔵 Note

An "LCD message" is a message to notify if a failure or warning status occurs. It is displayed when the Master CM is used to operate the ETERNUS DX (or when a user logs in to the ETERNUS DX8700 S3/DX8900 S3 by specifying the Master IP address (*1) via a web browser).

*1: Refer to "Setup Network Environment" in "ETERNUS Web GUI User's Guide (Settings)" for details.

System Messages—	System Messages			RAID Group	
	1 Pinned data has occurre	d. Please check the det	ails by the volume navigation.		
	Hardware Components			RAID Group Count	64
		Modules	Disks	Volume Count	5
	Normal	49	408	Talai Unad Canada	540 A0 AD
	1.Warning	0	0	Total Free Capacity	63.50 TB
	GError	0	0	Total Capacity:	64.00 TB
	System Information				
	Storage System Name	ETERNUS		Thin Provisioning Pool	
	Hodel Name	province and a			

Hardware Components

The number of components for each status is displayed.

- 🔹 🧭 Normal
 - Modules
 - The number of components (*1) in normal status ("👩" or "👩") is displayed.
 - Drives
 - The number of drives in normal status ("👩" or "👩") is displayed.
- 🔔 Warning
 - Modules
 - The number of components (*1) in warning status (" \bigcirc " or " \bigwedge ") is displayed.
 - Drives
 - The number of drives in warning status (" \bigcirc " or " \land ") is displayed.
- 🔹 😂 Error
 - Modules

The number of components (*1) in error status ("[®]) is displayed.

- Drives
 - The number of drives in error status ("🛜") is displayed.
- *1: The number of components that can be maintained. The number of components does not include the number of drives.

System Information

The information of the ETERNUS DX/AF is displayed.

- Storage System Name
 - The name for the ETERNUS DX/AF is displayed.

When logged in with a user account that can display detailed component information (*1), a link is displayed on the storage system name.

Click this link to display the [Storage] screen in the [Component] navigation.

- *1: A user account with the "Status Display" policy or the "Maintenance Operation" policy can display detailed component information. When logged in with a user account that has a "Monitor", "Admin", "StorageAdmin", "SecurityAdmin", or "Maintainer" default role, a link is displayed on the storage system name.
- Model Name

The model name of the ETERNUS DX/AF is displayed.

Unified Storage

The support status of the unified storage function is displayed.

If the Unified Storage function is enabled, the ETERNUS DX can be used as a Unified Storage system (a SAN and NAS system).

For the ETERNUS DX60 S3 and the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, this item is not displayed. For the ETERNUS AF250/AF650 and the ETERNUS DX200F, "Disable" is displayed.



When upgrading a SAN system to a Unified Storage system, after the unified firmware is applied to the active and inactive controllers, this item is changed to "Enable".

Deduplication/Compression

Whether the Deduplication/Compression function is enabled or disabled is displayed.

For the ETERNUS DX60 S3/DX100 S3 and the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, this item is not displayed.

- Serial Number The serial number of the ETERNUS DX/AF is displayed.
- Firmware Version
 - The current controller firmware version is displayed.
 - VxxLyy-zzzz (Vxx: Version, Lyy: Level, zzzz: Release number)
- Status

The detailed general status of the ETERNUS DX/AF is displayed. If the storage system is in normal status, "

• Cache Mode

The current cache mode and the factor of the mode are displayed. The normal status is "Write Back Mode". For the ETERNUS DX8700 S3/DX8900 S3, click this item to display the [Controller Enclosure] screen. Refer to "3.2 Controller Enclosure" (page 81) for details.

- Write Back Mode

When a Write request is issued from the host, "Write Complete" is displayed after writing to the cache area is complete.

- Write Through Mode

When a Write request is issued from the host, "Write Complete" is displayed after writing to the cache area and the drives is complete.

In the Write Through Mode, "Write Through (factors)" is displayed. When there are multiple factors, all the factors are separated with a "/" (slash) and displayed.

The factors of the Write Through Mode are described below:

- Write Through (Pinned Data)
 - A large amount of pinned data (*1) occurred in the ETERNUS DX/AF.
- Write Through (Battery)
- The battery charge level is low.
- Write Through (Maintenance)

One of the following functions is currently being used:

- Upgrading the controller firmware in hot mode
- Changing the Controlling CM of the RAID group
- Adding the Controller Module (*2)
- Setting the Deduplication/Compression mode (when enabling)
- Setting the exclusive read cache size
- Write Through (1CM)
 - The ETERNUS DX/AF operated with 1CM. (*3)
 - *1: "Pinned data" is the data left in the cache memory due to unsuccessful write-back to the volume from the cache memory.
 - *2: When reassigning the Controlling CM for the RAID group using all normal CMs including the added CM, the cache mode is temporarily changed to "Write Through Mode" during a configuration.
 - *3: This mode is displayed when "1CM Write Through" is enabled by using the procedure in "Setup Subsystem Parameters" in "ETERNUS Web GUI User's Guide (Settings)" function and the ETERNUS DX/AF operated with 1CM (only 1CM can be used due to an error such as a CM failure). The "1CM Write Through" setting for the "Setup Subsystem Parameters" function is displayed and can be changed when logged in using a user account with the "Maintenance Operation" policy. The initial state is "Disable".

Battery

The battery charge level is displayed.

When the battery charge level is 90% or more, "Full Charge" is displayed. When the battery charge level is less than 90%, "xx%" is displayed.

For the ETERNUS DX8700 \$3/DX8900 \$3, the lowest battery charge level among all CEs is displayed. Click this item to display the [Controller Enclosure] screen. Refer to <u>"3.2 Controller Enclosure" (page 81)</u> for details.

This item is displayed for the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650.

Remote Support

The Remote Support status (REMCS or AIS Connect) is displayed.

- Operating
- The Remote Support is operating.
- Maintenance in Progress

The ETERNUS DX/AF is under maintenance and the Remote Support is temporarily stopped. After the maintenance is complete, Remote Support is automatically resumed.

- Stopped
- The Remote Support has been stopped.
- "_"

The Remote Support setting is not performed.

- Connecting Module The Controller Module (CM) to which ETERNUS Web GUI is connected is displayed.
- RAID Groups

The usage of RAID groups is displayed.

• Pie chart

The pie chart indicates the total used capacity and the total free capacity in the RAID groups. Blue: Total used capacity Gray: Total free capacity

RAID Group Count

The number of RAID groups registered in the ETERNUS DX/AF is displayed. The "RAID Group Count" includes the number of RAID groups that configure TPPs, the number of RAID groups that configure FTRPs, the number of RAID groups that are registered as REC Disk Buffers, and the number of RAID groups that are registered as Extreme Cache Pools (EXCPs).

Volume Count

The number of volumes registered in the ETERNUS DX/AF is displayed. The "Volume Count" displays the number of "Standard" type volumes and "Wide Striping Volumes (WSV)".

Total Used Capacity

The total used capacity of the RAID groups [TB/GB/MB] is displayed. The "Total Used Capacity" is the total capacity of all of the RAID groups that are used. An example of this capacity is space that is used for volumes in the RAID groups. The "Total Used Capacity" includes the capacity of the RAID groups that configure TPPs, the capacity of the RAID groups that configure FTRPs, the capacity of the RAID groups that are registered as REC Disk Buffers, and the capacity of the RAID groups that are registered as EXCPs.

• Total Free Capacity

The total free capacity of the RAID groups [TB/GB/MB] is displayed. The "Total Free Capacity" is a total of unused capacities in the RAID groups. The "Total Free Capacity" includes the capacity of the RAID groups that configure TPPs, the capacity of the RAID groups that configure FTRPs, the capacity of the RAID groups that are registered as REC Disk Buffers, and the capacity of the RAID groups that are registered as EXCPs.

Total Capacity

The total capacity of the RAID groups [TB/GB/MB] is displayed. The "Total Capacity" is the total capacity of all the RAID groups in the ETERNUS DX/AF. The "Total Capacity" includes the capacity of the RAID groups that configure TPPs, the capacity of the RAID groups that configure FTRPs, the capacity of the RAID groups that are registered as REC Disk Buffers, and the capacity of the RAID groups that are registered as EXCPs.

Total Free Capacity = Total Capacity - Total Used Capacity

Thin Provisioning Pool

The usage of TPP is displayed.

• Pie chart

The pie chart indicates the total used physical capacity and the total free physical capacity in the TPPs. Blue: Total used physical capacity Gray: Total free physical capacity

- Thin Provisioning Pool Count The number of TPPs registered in the ETERNUS DX/AF is displayed.
- Volume Count The number of volumes registered in the ETERNUS DX/AF is displayed. This value displays the number of "TPV" type volumes.
- Total Used Physical Capacity The total used physical capacity of the TPPs [PB/TB/GB/MB] is displayed. The "Total Used Physical Capacity" is the total physical capacity of all the TPPs that are used for volumes.
- Total Free Physical Capacity The total free physical capacity of the TPPs [PB/TB/GB/MB] is displayed. The "Total Free Physical Capacity" is the total unused physical capacity of all the TPPs.
- Total Physical Capacity

The total physical capacity of the TPPs [PB/TB/GB/MB] is displayed. The "Total Physical Capacity" is the total physical capacity of all the TPPs in the ETERNUS DX/AF.

Total Free Physical Capacity = Total Physical Capacity - Total Used Physical Capacity

Maximum Pool Capacity

The maximum pool capacity is displayed.

The maximum pool capacity is the maximum total capacity for TPPs and FTRPs that can be created in the ETERNUS DX/AF.

The "Maximum Pool Capacity" is specified by using the [Set Thin Provisioning] function. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Snap Data Pool

The usage of SDP is displayed.

• Pie chart

The pie chart indicates the total used capacity and the total free capacity in the SDP. Blue: Total used capacity Gray: Total free capacity

• Snap Data Pool Count

The number of SDPs that are registered in the ETERNUS DX/AF is displayed.

SDP becomes available when creating a Snap Data Pool Volume (SDPV). One SDP is created in the ETERNUS DX/AF.

- Total Used Capacity
 The total used capacity of the SDP [TB/GB/MB] is displayed. The "Total Used Capacity" is the total capacity of
 the SDP that is used for volumes.
- Total Free Capacity The total free capacity of the SDP [TB/GB/MB] is displayed. The "Total Free Capacity" is the total unused capacity of the SDP.
- Total Capacity

The total capacity of the SDP [TB/GB/MB] is displayed. The "Total Capacity" is the total capacity of the SDP in the ETERNUS DX/AF.

Total Free Capacity = Total Capacity - Total Used Capacity

1.2 Screen Structures

ead crumb list —	Volume	aa -							
	Category	Vol	ıme						Action
		#	- ilter s	etting				Filter Clear	Target 0
	Performance(QoS)		Name:	Status: All Typ	e:All Encryp	tion:All P	rocess:All \$	torage Cluster All	+ Create
	Performance(Advanced LUN Group Reservation				11 items	4 4 1/1 p	ages + H	1 page Go	Rename
	Bad Sector		No.	Name	Status	Type	Capacity	RAID Group/TPP/FTRP No.	Expand Volume
	Balancing Thin Provisio		0	VolumeName000	Available	Standard	4.00 G8	1	Expand TPV
		0	1	VolumeName001	Available	Standard	4.00 GB	1	Start RAU Migration
			z	VolumeName002	Available	Standard	1.00 GB	1	Optimize TPV/FTV Capa
			3	VolumeName003	Available	TPV	4.00 GB	1	Cancel Optimizing TPV/F
			4	VolumeName004	Available	TPV	1.00 GB	1	Delete SDPV
			5	VolumeName005	Available	TPV	4.00 GB	1	Force Delote SDPV
			6	VolumeName006	Available	SDPV	1.00 G8	1	Moony (PV (Intesticit)
			z	VolumeName007	Available	Standard	4.00 GB	7	Entrypt Volume
			8	VolumeName008	Available	TPV	120.00 GB	1	Decrypt Volume
			2	VolumeName009	Available	Standard	4.00 GB	9	Forbid Advanced Copy
		0.	10	VolumeName010	Available	Standard	1 00 GR	1	Permit Advanced Copy

This section describes screen layouts for functions other than Overview screen.

Header

User ID, [Logout] link, general status, storage system name, model name, date, [3] icon (Refresh), and [3] icon (Help) are displayed in the header. Only when the maintenance is being performed for the

ETERNUS DX/AF, [Maintenance Mode] icon is displayed. The header is always displayed.

• General status of the ETERNUS DX/AF

Status of each component in the ETERNUS DX/AF is monitored periodically, and the result is displayed as a general status icon with character strings. Refer to <u>"A.1 Storage System General Status" (page 404)</u> for details about the general status.

Navigation

Overview, Volume, RAID Group, Thin Provisioning, Advanced Copy, Connectivity, Component, and System tabs are displayed.

Click the tab for the function that is to be used to display a list screen for that function. The navigation is always displayed.

Bread crumb list

Bread crumb indicates the location of the current screen on ETERNUS Web GUI. Click the link to display the list screen of the target item.

Category

The subordinate items are displayed for an item that is clicked in the navigation. The category directory is used for switching the contents that are displayed in the Main screen. Click the item for the function that is to be used. The horizontal width of the category area can be changed.

📕 Main

A list of items is displayed for an item that is clicked on the navigation or in the category. The filter setting area may also be displayed for some lists.

Action

Only the available functions for the selected items from the navigation or in the category are displayed. Click the function that is to be used to display the wizard screen.

Click the [>>] button to switch the display of the action area.

The number of operation targets that is selected in the Main area is displayed in the "Target:" field. When no selections are made, "0" is displayed.

1.3 List Screen/Detailed Screen

There are two types of main screens; a list screen and a detailed screen. The header, bread crumb list, and navigation areas are not included in the screen shots in this section.

List screen

A list of the items that were clicked on the navigation or in the category is displayed. For items with detailed information, links to the detailed screens are displayed.

Type:Al Encrypt 11 items p Status 0 Available 0 Available 0	ion All Pro	cess:All S ges ► H Capacity	Filter Clear	Target: 0 Cruate Cruate Cruate Format Expansively Volume
Type:Al Encrypt 11/tems p Status 0 Available 0 Available 0 Available 0	ton: All Pro () 1/1 pag Type Standard	cess All S ges ► H Capacity	RAID Group/TPP/FTRP No.	Create Create Teartame Format Expand Volume
11 items () Status () Available () Available	Type Standard	Capacity	RAID Group/TPP/FTRP No.	Format Expand Volume
Status Status Status Status Status Status Status Status	Type Standard	Capacity	RAID Group/TPP/FTRP No.	Expand Volume
ne000 ØAvailable	Standard	400.08		and the second se
e001 OAvailable		4,00,00	1	Expand TPV Start RAID Menution
	Standard	4.00 GB	1	Stop RAID Migration
ne002 ØAvailable	Standard	1.00 GB	1	Oplimize TPV/FTV Capac
Available	TPV	4.00 GB	1	Cancel Optimizing TPV/F
Available	TPV	1.00 GB	1	Delete SDPV
Available	TPV	4.00 GB	1	Force Deeles SUPY
ne005 OAvailable	SOPV	1.00 GB	1	Initialize SDV
Available	Standard	4.00 GB	7	Encrypt Volume
Available	TPV	120.00 GB	1	Decrypt Volume
Available	Standard	4.00.08	9 🗸	Forbid Advanced Copy
ne@10 @Avaitable	Standard	1 00 GR	1	Permit Advanced Copy
	neo01 QAvailable neo04 QAvailable neo05 QAvailable neo05 QAvailable neo05 QAvailable neo05 QAvailable neo05 QAvailable neo05 QAvailable neo010 QAvailable neo010 QAvailable	Constraints TPV Constraints TPV Constraints TPV Constraints TPV Constraints SPV Constraints SDPV Constraints SDPV Constraints SDPV Constraints SDPV Constraints SDPV Constraints SDR Constraints SDR Constraints Standard Vertraints Standard	04001 QAvailable TPV 4.00.08 04003 QAvailable TPV 1.00.06 05005 QAvailable TPV 4.00.08 05005 QAvailable TPV 4.00.08 05005 QAvailable SDPV 1.00.06 05005 QAvailable SDPV 1.00.06 05005 QAvailable Standard 4.00.08 05005 QAvailable TPV 120.00.06 05005 QAvailable Standard 4.00.08 05005 QAvailable Standard 4.00.08 05005 QAvailable Standard 1.00.018	00000 PAvailable TPV 4.00.08 1 00001 PAvailable TPV 1.00.06 1 00002 PAvailable TPV 4.00.06 1 00002 PAvailable SDPV 1.00.06 1 00002 PAvailable SDPV 1.00.06 7 00002 PAvailable TPV 1.20.00.06 1 00002 PAvailable Standard 4.00.06 9 00002 PAvailable Standard 1.00.07 1

Links to detailed screen

Detailed screen

Click the link for each item in the list screen to display a detailed screen. Click the tabs that are displayed to switch the display.

ategory	Volume		Action			
de Volume	Volume Detail		Target: 0			
Performance/ideal Performance/ideal	No.: 1 Name: VolumeName001 Type: Standard	Rename Format Expand Volume				
	Basic Used RAID Group Reservation Pinned Data	Expand TPV Start RAID Migration				
	▼ Volume Information		Stop HAID Migration			
	Status	Available	Optimize TPV/FTV Capacit			
	Capacity	4.00 GB	Cancel Optimizing TPV/F			
	Capacity on RAID Group	4.00 GB (4194304.00 KB)	Delete SDPV			
	RAID Group No.	AID Group No. 1 AID Group Name RAIDName001 extyption -				
	RAID Group Name					
	Encryption					
	Wide Stripe Size		Initialize SQV			
	Reserved Deletion		Encrypt Volume			
	UID	82383C3D3E3F36003839616263640001	Release Reservation			
	Storage Cluster	Disable	Modify Cache Parameters			
	Process	Formatting	Forthist Advanced Comu			
	Progress	2%	Poroid Advanced Copy			
	Estimated Time Left	19 min.	Fermit Advanced Copy			
	Remaining Size	997 MB				
	Optimizing Capacity Progress	-				

Tabs to change detailed screens

Note

For some items, the same information may be displayed for the list screen and the detailed screen. From "Chapter 2 System Status" (page 35) onward, only the information for items in the detailed screen that is different from the list screen is described.

1.4 Basic Operation

	ETERNUS DX500 S3					User	ID root Logout	FUITSU				
	Normal Storag	e Name : 6	ETERN	US	Model : MODEL-SAS	-43109010121	2 Date :	2014-05-12 17	33:42			e 🕐
	Overview Volume RAID Group This Provisioning Advanced Copy Connectivity Component System											
Filter setting —	Volume						_					
The second	Category		Volu	ıme		_		_	_	-	 Action 	
Page specification Number of target items Sorting criteria		##Filter setting							1	Create		
		11 items H + Un page > H 1 2 page Go							Rename Format			
Select All checkbox —	Bed Sector Balancing Than Provision		No.	Name	Status	Type	Capacity	RAID Group/TPP/FTRP No	n.	Expand Volume		
		TUNISIUN		0	VolumeName000 VolumeName001	OAvailable OAvailable	Standard Standard	4.00 GB	1	^	Espans (FV Star, RAO Migration Step RAID Migration Optimise TRVFTV Galacity Cancel Optimizing TRVFT Databa SDPV Force Databa SDPV Models SDPV Encrypt Volume	n n
				2	VolumeName003	OAvaiable OAvaiable	TPV TPV	4.00 GB	1			
				5	VolumeName005	OAvalable OAvalable	TPV	4.00 G8		l		
				I	YolumeName007	Available	Standard	4.00 GE	7			
			10 10	VolumeName809	OAvailable OAvailable	Standard Standard	4.00 GB	9		Permit Advanced Copy	tapy Tapy	
		<	<	Accelerative and a constraints of the	0 Gravalahle		>	•				

Select the desired item and execute the selected operation.

Selecting an operation

When an item in the navigation or category is clicked, a list items for the selected item is displayed. Select the checkbox or checkboxes of the listed items for the desired operation. Note that some operations, such as creating new volumes, do not require the item to be selected.

The following operations are available in the list screen:

Filter setting

Filter setting is a function used to display a list of only the items that meet all the specified conditions. The settings that can be specified vary depending on the function that is selected. No filtering is set by default.

Number of target items

The number of operation target items that are registered in the ETERNUS DX/AF is displayed.

• Page specification

Page specification is a function used to display the specified page. This setting is available when lists are displayed on multiple pages. The total number of pages and the current page number is displayed.

- Click the [<<] button to display the first page.
- Click the [<] button to display the previous page.
- Click the [>] button to display the next page.
- Click the [>>] button to display the last page.

When specifying the page that is to be displayed, input the numeric character in the page specification spin box and click the [Go] button. A list for the specified page is displayed.

Sort

Sorting is a function that rearranges the order of the display items in ascending order (A - Z or 0 - 9), in descending order (Z - A or 9 - 0), or in a specific order. Click the sorting criteria to change the order. The item that is furthest to the left is displayed in ascending order by default.

Note that the order of some display items that have specific meanings (such as the concatenation order of volumes) cannot be sorted.

• Select All checkbox

The "Select All" checkbox is the first item in the left of the item field. Click this checkbox to select all of the checkboxes that are listed. This checkbox is left clear by default.

Displaying multiple items

When there are multiple display targets, a display target and a [Show...] link are displayed. Click the [Show...] link to display all of the items and a [Hide...] link. Click the [Hide...] link to return to the default display.

Executing an operation

Select the desired operation item from the navigation or category, and then select the function that is to be executed in the Action field.

Only the available functions for the displayed item are displayed in the Action field. Some functions in the Action field require one target item from the list to be selected, some functions require multiple target items to be selected, and other functions can be performed without selecting any items.

• [Cancel] button

Deletes the newly added or changed information, and then returns to the previous screen. Or cancels the current operation, and then returns to the previous screen.

Updating the screen display

When the [] icon in the global header is clicked or a category, a navigation, or an action is selected, the most recently updated screen is obtained. If a tab is clicked, the screen is not updated. Note that only the [Overview] screen automatically updates periodically according to the specified update interval.

Note

The header, bread crumb list, and navigation areas are not included in the screen shots in the following chapters and sections.

Chapter 2 System Status

This chapter describes system management. System status displays the status information of volumes. System status screens can be displayed by clicking the following categories:

Category	System status screen
Storage system name	System (Basic Information)
Network	Network
Remote Support	REMCS
	AIS Connect
Root Certificate	Root Certificate
Key Management	Key Management
Key Group	Key Group
User Settings	Define Role
Eco-mode	Eco-mode
Event/Dump	Event/Dump
Audit Log	Audit Log
Firmware Maintenance	Firmware Maintenance
Storage Migration	Storage Migration
Utility	<u>Utility</u>
System Settings	System Settings

Detailed information of the system settings can be displayed from the following screen:

- Eco-mode Schedule Detail
- Path Group Detail Information

2.1 System (Basic Information)

This function displays the system information and a list of users who are currently logged in.

> Caution

- If the message "Currently Network Configuration is set to factory default." is displayed in the system message field, the network environment settings for the MNT port must be performed. Use the [Setup Network Environment] function in the [Network] screen under the [System] navigation. Some functions are not available if the network environment settings are incomplete.
- If the message "Configuration was applied to storage system." is displayed in the system message field, the ETERNUS DX/AF must be rebooted. Any setting processes cannot be performed until the applied configuration information is enabled by rebooting the storage system.
- The "Login User" list is displayed only when a user account with the "User Management" policy is used to log in.
- The following login users are displayed:
 - Users who are logged in to the Master CM from ETERNUS Web GUI
 - Users who are logged in to the Slave CM from ETERNUS Web GUI
 - Users who are logged in to the Master CM from ETERNUS CLI or other software (Users who are logged in to the Slave CM from ETERNUS CLI or other software are not displayed.)

Note

- If the system message "Unified Storage license has been registered." is displayed, the unified upgrade must be performed. Note that "Maintenance Operation" policy is required to perform the unified upgrade.
- The storage system name is displayed at the top of the [System] navigation category. The "Storage System Name" is specified using the [Modify Storage System Name] function. Refer to "Modify Storage System Name" in "ETERNUS Web GUI User's Guide (Settings)"
- Click the "Storage System Name" in the category again to display the latest information in the screen.

For the ETERNUS DX8700 S3/DX8900 S3


For the other models

Category	System									Action
🖻 🚔 ETERNUS	▼ Syster	System Information								Target: 0
Network	Storage S	ystem Name		E	ETERNUS					Initial Setup
Key Management	Model Na	me		E	ET00000A Disable					Change User Password Set SSH Public Key
Liser Settings	Unified St	orage		D						
Eco-mode	Deduplica	tion/Compres	sion	D	sable					Pat Doductication/Compre
Event/Dump	Storage C	luster		D	Disable					Con Dealpheador Pounipre
Audit Log	Virtual Vo	lume		D	Disable					
Firmware Maintenance	Serial Number				431090101212					
Storage Migration	WWN			50	00000E0D4000100					
System Settings	Firmware	Version		V	V10L60-0000					
	Status			e	Normal					
	Cache Mode Remote Support Operation Mode Connecting Module			W	Virite Back Mode Normal CM#0					
				N						
				CI						
	▼ Login	User								
	Interface	Session ID	User ID	Role	Login Date	Lock	IP Address			
	GUI	* 13	root	Admin	2016-08-25 17:54:39	No	:1			
	0							3		
									~	

The following items are displayed in the Main area:

- System Information
- Storage System Name

The name for the ETERNUS DX/AF is displayed. By clicking this item, the [Storage] screen in the [Component] navigation is displayed.

Model Name

The model name of the ETERNUS DX/AF is displayed.

Unified Storage

The support status of the unified storage function is displayed.

If the Unified Storage function is enabled, the ETERNUS DX can be used as a Unified Storage system (a SAN system and a NAS system).

For the ETERNUS DX60 S3 and the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, this item is not displayed. For the ETERNUS AF250/AF650 and the ETERNUS DX200F, "Disable" is displayed.

O Note

When upgrading a SAN system to a Unified Storage system, after the unified firmware is applied to the active and inactive controllers, this item is changed to "Enable".

Deduplication/Compression

Whether the Deduplication/Compression function is enabled or disabled is displayed. For the ETERNUS DX60 S3/DX100 S3 and the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, this item is not displayed.

Storage Cluster

If a license for the Storage Cluster function has already been registered, "Enable" is displayed. If the license is not registered, "Disable" is displayed.

Note that ETERNUS Web GUI cannot be used to register a Storage Cluster license. To register the license, use ETERNUS SF Storage Cruiser.

For the ETERNUS DX60 S3, this item is not displayed.

Virtual Volume

Whether the Virtual Volume function is enabled or disabled is displayed.

The Virtual Volume function cannot be set with Web GUI. To set the Virtual Volume function, use ETERNUS SF Storage Cruiser.

For the ETERNUS DX60 S3, this item is not displayed.

- Serial Number The serial number of the ETERNUS DX/AF is displayed.
- WWN

The WWN of the ETERNUS DX/AF is displayed.

• Firmware Version

The current controller firmware version is displayed.

- VxxLyy-zzzz (Vxx: Version, Lyy: Level, zzzz: Release number)
- Status

General status (detail) of the ETERNUS DX/AF is displayed. Refer to <u>"A.1 Storage System General Status"</u> (page 404) for details.

• Cache Mode

The current status and the factor of the cache are displayed. The normal status is "Write Back Mode". Refer to <u>"Cache Mode" (page 26)</u> in <u>"1.1 Overview"</u> for details.

- Write Back Mode
- Write Through (Pinned Data)
- Write Through (Battery)
- Write Through (Maintenance)
- Write Through (1CM)
- Remote Support

The Remote Support status (REMCS or AIS Connect) is displayed. If the Remote Support is not set, a "-" (hyphen) is displayed.

- Operating
- The Remote Support is operating.
- Maintenance in Progress

The ETERNUS DX/AF is under maintenance and the Remote Support is temporarily stopped. After the maintenance is complete, Remote Support is automatically resumed.

- Stopped The Remote Support is stopped.
- Operation Mode

The operation mode is displayed.

- Normal
 - The ETERNUS DX/AF is in operation.
- Maintenance Mode
- The ETERNUS DX/AF is under maintenance.
- Connecting Module

The CM to which ETERNUS Web GUI is connected is displayed.

🕨 Login User

Interface

The interface type for users who are logged in is displayed.

- GUI

Users logged in via ETERNUS Web GUI or users logged in via ETERNUS Web GUI from the AIS Connect server

- CLI

Users logged in via ETERNUS CLI or users logged in via ETERNUS CLI from the AIS Connect server SOFT

- SOFT

Users logged in from software.

"SOFT" is displayed in the following conditions:

- When users log in from software with the default "Software" role via CLI
- When users log in using SMI-S via software
- When users log in from software using Dynamic LUN Mirroring (DLM) via CLI
- Session ID

An identification number for users who are logged in is displayed. A session ID is obtained for each login and released with each logout. Because the session ID is obtained discretely, the same session ID is not used even if the same user logs in again. ETERNUS Web GUI uses session IDs between 1 - 999 and ETERNUS CLI (including when the interface is "SOFT") uses session IDs from 10001 onwards. In a Unified Storage environment, ETERNUS Web GUI uses session IDs from 10001 onwards for internal processes in the same way as ETERNUS CLI. An "*" (asterisk) is added on top of the current user's (your) session ID.

- 0 - 65535

- For the current user's (your) session: * xxxxx (xxxxx: 0 - 65535)

• User ID

The user name (user ID) for a user who is logged in is displayed. When the interface is "SOFT" (SMI-S or DLM), a "-" (hyphen) is displayed. A "-" (hyphen) is also displayed for internal process sessions of ETERNUS Web GUI in a Unified Storage environment.

• Role

The user role for a user who is logged in is displayed. A "-" (hyphen) is displayed for internal process sessions of ETERNUS Web GUI in a Unified Storage environment.

- Monitor
- Admin
- StorageAdmin
- AccountAdmin
- SecurityAdmin
- Maintainer
- Software
- Custom role
- Login Date

The login date and time are displayed.

YYYY-MM-DD hh:mm:ss (YYYY: Year (2001 - 2037), MM: Month (01 - 12), DD: Date (01 - 31), hh: Hour (00 - 23), mm: Minute (00 - 59), ss: Second (00 - 59))

Lock

If a logged in user is updating data that is managed by the ETERNUS DX/AF, "Yes" is displayed. If a user is not updating data, "No" is displayed. When "Yes" is displayed for a user, other users with "No" displayed cannot update data.

Note that multiple users cannot update data that is managed by the ETERNUS DX/AF at the same time. The storage system is exclusively used by a user who is updating the data. The exclusion is released when the updating is complete.

• IP Address

The IP address for a user who is logged in is displayed. If an AIS Connect server is used to log in, "AIS Connect Server" is displayed. When the interface is "SOFT" (SMI-S or DLM), a "-" (hyphen) is displayed. A "-" (hyphen) is also displayed for internal process sessions of ETERNUS Web GUI in a Unified Storage environment.

- For IPv4 address
 - XXX.XXX.XXX.XXX
 - xxx: 0 255 (decimal)
- For IPv6 address
 - xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to "IPv6 Address Notation" (page 253) for details.

2.2 Network

This function displays the network environment of each port in the ETERNUS DX/AF.

Caution

- If the message "Currently Network Configuration is set to factory default." is displayed in the system
 message field, the network environment settings for the MNT port must be performed. Perform the
 [Setup Network Environment] function in [Action]. Some functions are not available if the network
 environment settings are incomplete. Refer to "Setup Network Environment" in "ETERNUS Web GUI User's
 Guide (Settings)" for details.
- Click the [] icon to display the latest screen. Note that after changing the firewall setting and returning to this screen, it takes approximately 10 seconds to update the display contents. Wait at least 10 seconds and click the [] icon or click [Network] in the category to display the [Network] screen again.

IPv4 Settings

The network setting information is displayed.

The Simple Network Management Protocol (SNMP) Information and the E-Mail Information are displayed under the network setting information.

Category	Net	work							» Action	
	1	Pv4 Set	tings	/6 Setting	s Firewall			~	Target: 0	
Remote Support		Port	Speed an	d Duplex	Master IP Address	Slave IP Address	Subnet Mask		Selup Network	
IE Contract Management		MNT	Auto-nego	tiation	192.168.0.10	192.168.0.11	255.255.255.0		Setup Firewall	
Eco-mode		RMT	Auto-nego	tiation	192.168.100.10	192.168.100.11	255.255.255.0		Setup SNMP Interface	
Event/Dump		FST	Auto-nego	tiation	192.168.200.10	192.168.200.20	255.255.255.0	~	Setup SNMP MiR View	
Firmware Maintenance	<							>	Setup SNMP User	
Storage Migration	SNMP Information								Setup SNMP Community	
System Settings	SNMP Function Enable								Setup SNMP Trap	
	-	E-Mail	Informatio	n					Download MIB File	
	Not	tificatio	n E-Mail	Disable	t				Send SNMP Trap	
									Display SMTP Log	
									Setup E-Mail Notification	
									Setup Syslog	
									Setup SSH Server Key Create SSL Certificate	
									Create Key/CSR	
									Register SSL Certificate	
								5		

The following items are displayed in the Main area:

• Port

The port type is displayed.

- For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F MNT and RMT
- For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650 MNT, RMT, and FST

• Speed and Duplex

The transfer speed and the communication method are displayed.

- Auto-negotiation
- 1Gbit/s
- 100Mbit/s Half
- 100Mbit/s Full
- 10Mbit/s Half
- 10Mbit/s Full
- Master IP Address

The IP address of the Master CM, which has been specified to the port, is displayed. If not specified, the field is blank.

• Slave IP Address

The IP address of the Slave CM, which has been specified to the port, is displayed. This item is not displayed for the 1CM model. If not specified, the field is blank.

Subnet Mask

The Subnet Mask, which has been specified to the port, is displayed. If not specified, the field is blank.

- SNMP Information
- SNMP Function Whether the SNMP function is enabled or disabled is displayed.
- E-Mail Information
- Notification E-Mail Whether the E-mail notification is enabled or disabled is displayed.

IPv6 Settings

The network setting information is displayed. The SNMP Information and the E-Mail Information are displayed under the network setting information.

	» Action
ETERNUS	Target: 0
ETERNUS IPv4 Settings IPv4 Settings Firewall Ramote Support Port Speed and Duplex Master IP Link Local Address Master Connect IP Address Is Kay Management Imv4 Settings Firewall Imv4 Settings Firewall Is Kay Management Imv4 Settings Firewall Imv4 Settings 2000:1:194.0:1 Is Eco-mode Eco-mode Firewall Imv4 Auto-negotiation FeB0:1:0:0:66 2000:2:1:8:64:0:65 Imvare Maintenance Firewall Imvare Maintenance Firewall System Settings System Settings Imvare Maintenance System Settings Firewall Imformation Storage Migration Storage Migration Imvare Maintenance E-Mail Information Information Information Notification E-Mail Disable	Target 0 Setup Network Setup ShutP Interface Setup SNMP Interface Setup SNMP Mill View Setup SNMP Mill View Setup SNMP Mill View Setup SNMP Community Setup SNMP Trap Download Mill File Setup SNMP Trap Display SMTP Log Setup SSH Server Key Create SSL Certificate Create Key/CSR Register SSL Certificate

The following items are displayed in the Main area:

- Port
 - The port type is displayed.
 - For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F MNT and RMT
 - For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650 MNT, RMT, and FST
- Speed and Duplex

The transfer speed and the communication method are displayed.

- Auto-negotiation
- 1Gbit/s
- 100Mbit/s Half
- 100Mbit/s Full
- 10Mbit/s Half
- 10Mbit/s Full
- Master IP Link Local Address

The link local address of the Master CM, which has been specified to the port, is displayed. If not specified or when the port type is "FST", the field is blank.

Master Connect IP Address

The connect IP address of the Master CM, which has been specified to the port, is displayed. "Master Connect IP Address" corresponds to "Master IP Address" for IPv4. If not specified or when the port type is "FST", the field is blank.

- Slave IP Link Local Address
 The link local address of the Slave CM, which has been specified to the port, is displayed.
 This item is not displayed for the 1CM model.
 If not specified or when the port type is "FST", the field is blank.
- Slave Connect IP Address

The connect IP address of the Slave CM, which has been specified to the port, is displayed. "Slave Connect IP Address" corresponds to "Slave IP Address" for IPv4. This item is not displayed for the 1CM model. If not specified or when the port type is "FST", the field is blank.

- Length of Subnet Prefix
 The prefix length for the connect IP address is displayed between 3 128 (unit: bit).

 "Length of Subnet Prefix" corresponds to "Subnet Mask" for IPv4.

 If not specified or when the port type is "FST", the field is blank.
- SNMP Information
- SNMP Function Whether the SNMP function is enabled or disabled is displayed.
- E-Mail Information
- Notification E-Mail Whether the E-mail notification is enabled or disabled is displayed.

Firewall

The Firewall setting information is displayed. The SNMP Information and the E-Mail Information are displayed under the Firewall setting information.

Category	Net	work										» Action
ETERNUS	1	Pv4 Set	ttings	IPv6 Set	ings	Firewal					~	Target 0
			Accep	table Prot	ocol							Setup Network
Key Management User Settings See media		Port	нттр	HTTPS	Telnet	S SH	ICMP	Maintenance- Secure	SNMP	RCIL	ETERNUS I Discovery	Setup SNMP Interface
Event/Dump		MNT	~	~	~	~	~	~	~		× _	Setup SNMP Manager
Audit Log		RMT	*	~	~	~	~	~	~			Setup SNMP MIB View
Storage Migration		FST	~	~	~		~	~			~	Setup SNMP User
🗎 Utility	<										>	Setup SNMP Community
System Settings		SNMP	Informa	tion								Setup SNMP Trap
	SN	MP Fur	iction	Ena	ible	_						Download MIB File
											Send SNMP Trap	
		E-Mail	Informa	tion								Display SMTP Log
	Notification E-Mail Disable								Setup E-Mail Notification			
												Setup Syslog
												Setup SSH Server Key
												Create SSL Certificate
												Create Key/CSR
												Register SSL Certificate

The following items are displayed in the Main area:

• Port

The port type is displayed.

- For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F MNT and RMT
- For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650 MNT, RMT, and FST
- Acceptable Protocol
- HTTP

Whether the HTTP connection is enabled or disabled is displayed. (*1)

• HTTPS

Whether the HTTPS connection is enabled or disabled is displayed. (*1)

Telnet

Whether the Telnet connection is enabled or disabled is displayed. (*1)

• SSH

Whether the Secure SHell (SSH) connection is enabled or disabled is displayed. (*1)

ICMP

Whether the Internet Control Message Protocol (ICMP) connection is enabled or disabled is displayed. (*1)

- Maintenance-Secure Whether the Maintenance-Secure connection is enabled or disabled is displayed. (*1)
- SNMP Whether the SNMP connection is enabled or disabled is displayed. (*1)

• RCIL

Whether the Remote Cabinet Interface over LAN (RCIL) connection is enabled or disabled is displayed. (*1) Whether RCIL is enabled or disabled is only displayed for the MNT port. The RMT port and the FST port are always disabled.

ETERNUS DX Discovery
 Whether the ETERNUS DX Discovery connection is enabled or disabled is displayed. (*1)
 The ETERNUS DX Discovery is a port to connect ETERNUS DX/AF storage systems in the network by using the
 Remote Installation function.
 Whether ETERNUS DX Discovery is enabled or disabled is only displayed for the MNT port. The RMT port and
 the FST port are always disabled.

- *1: When the SNMP connection is enabled, " * " is displayed. If the SNMP connection is disabled, the field is blank.
- SNMP Information
- SNMP Function Whether the SNMP function is enabled or disabled is displayed.
- E-Mail Information
- Notification E-Mail Whether the E-mail notification is enabled or disabled is displayed.

2.3 Remote Support

This function displays the set state for the Remote Support function (REMCS or AIS Connect).

🔵 Note

- When only REMCS is available, the [REMCS] screen appears. Refer to <u>"2.3.1 REMCS" (page 46)</u> for details.
- When only AIS Connect is available, the [AIS Connect] screen appears. Refer to <u>"2.3.2 AIS Connect" (page 49)</u> for details.
- When both REMCS and AIS Connect are available, setting information for REMCS and AIS Connect are displayed.
 - Click [REMCS] in the category and display the [REMCS] screen to perform the REMCS actions. Refer to "2.3.1 REMCS" (page 46) for details.
 - Click [AIS Connect] in the category and display the [AIS Connect] screen to perform the AIS Connect actions. Refer to <u>"2.3.2 AIS Connect" (page 49)</u> for details.

2.3.1 REMCS

This function displays the Remote Support function settings and the operation status in the ETERNUS DX/AF.

Caution

REMCS and AIS Connect 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 "Stop/Restart Remote Support" in "ETERNUS Web GUI User's Guide (Settings)" for details.

REMCS can be specified or restarted when the AIS Connect function is disabled. Refer to "Setup AIS Connect Environment" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Support Information

Category	Remote Support			» Action
E C ETERNUS	Support Information Event Information		~	Target 0
Network	Customer Information Setup	Already set	7	Display Communication Log
It Car Management	Communication Environment Setup	Already set		Setup Remote Support
User Settings	Support Status	Operating	-	Update Customer Info
Eco-mode	Controller Firmware Version	V10L20-0001		Lindate Connection Info
Event/Dump	Automatic Firmware Upgrade	Enable Once per Week Sunday 10:11		opdate connection mo
Audit Log	Automatic Firmware update (with activation on next power cycle)	Enable		Setup Log Sending Param Stop/Restart Remote Sup
Storage Migration	Automatic Log Transmission	Enable		
Cisiity	Periodic Log Transmission	Enable Once per Week Monday 08:09		
			~	

The following items are displayed in the Main area:

- Customer Information Setup Whether or not the customer information has been specified at the REMCS center is displayed.
- Communication Environment Setup Whether or not the communication environment information has been specified at the REMCS center is displayed.
- Support Status

The Remote Support status is displayed.

- "-" (hyphen)
 - The Remote Support is not operating.
- Operating

The Remote Support is operating.

- Maintenance in Progress
 The ETERNUS DX/AF is under maintenance. When the operation to complete maintenance is performed, the status returns to "Operating".
 - Stopped

The Remote Support has temporarily been stopped. Use the procedure in "Stop/Restart Remote Support" in "ETERNUS Web GUI User's Guide (Settings)" to restart the Remote Support and return to the "Operating" state.

If the support status is "Operating" or "Maintenance in Progress", one of the messages below appears in parentheses based on the Remote Support operating status.

- Controller Firmware Download in Progress
- Termination of Controller Firmware Download in Progress
- Controller Firmware Upgrade in Progress
- Log Collection in Progress
- Controller Firmware Version

The current controller firmware version is displayed.

- VxxLyy-zzzz (Vxx: Version, Lyy: Level, zzzz: Release number)

• Automatic Firmware Upgrade

Whether the automatic firmware upgrade is enabled or disabled is displayed. This item is not displayed in a Unified Storage environment.

- "-" (hyphen)

The Remote Support is not operating.

- Enable Download schedule

The automatic firmware upgrade is enabled. Receive controller firmware according to the download schedule.

- Disable

The automatic firmware upgrade is disabled.

• Automatic Firmware upgrade (with activation on next power cycle)

Whether or not to execute the controller firmware application, after controller firmware download has been completed, is displayed. This item is not displayed in a Unified Storage environment.

- "-" (hyphen)

The Remote Support is not operating.

- Enable

Execute the controller firmware application after controller firmware download is complete. The downloaded controller firmware will be changed to the controller firmware which will be enabled at the next startup.

- Disable

Do not execute the controller firmware application after controller firmware download is complete.

Automatic Log Transmission

Whether the automatic log transmission is enabled or disabled when an error occurs is displayed.

- "-" (hyphen)
- The Remote Support is not operating.
- Enable

The automatic log transmission is enabled. The internal log of the ETERNUS DX/AF is automatically sent to the REMCS center when an error occurs.

- Disable

The automatic log transmission is disabled.

Periodic Log Transmission

Whether the periodical log transmission is enabled or disabled is displayed.

- "-" (hyphen)

The Remote Support is not operating.

- Enable Transmission schedule The periodical log transmission is enabled. The internal log of the ETERNUS DX/AF is automatically sent to the REMCS center according to the transmission schedule.
- Disable

The periodical log transmission is disabled.

Event Information

In this screen, ten latest pieces of event information are displayed.

Remote Support			» Action
Support Informatio	Event Information	~	Target 0
Date	Event		Display Communication Log
2010-01-02 03:04:09	Controller Firmware List Acquisition V10L20-0001		Setup Remote Support
2010-01-02 03:04:06	Controller Firmware DownloadV10L20-0001	-	Update Customer Info
2010-01-02 03:04:07	Controller Firmware Upgrade NotificationV10L20-0001		Opdate Connection Imo
2010-01-02 03:04:06	Registration (Internet Connection: New)		Stop Day Serving Param
2010-01-02 03:04:05	Registration (Internet Connection: Update)		
2010-01-02 03:04:04	REMCS Environment Settings (Internet Connection)		
2010-01-02 03:04:03	Controller Firmware Automatic Download settings		
2010-01-02 03:04:02	Periodic Connection		
2010-01-02 03:04:01	Start of Maintenance	~	
<		>	
	Remote Support Support Informatic Date 2010-01-02 03 04 09 2010-01-02 03 04 08 2010-01-02 03 04 06 2010-01-02 03 04 06 2010-01-02 03 04 06 2010-01-02 03 04 06 2010-01-02 03 04 06 2010-01-02 03 04 03 2010-01-02 03 04 03 2010-01-02 03 04 03 2010-01-02 03 04 03 2010-01-02 03 04 03 2010-01-02 03 04 04	Remote Support Information Support Information Event Date Event 2010-01-02 03:04:09 Controller Firmware List AcquisitionV10L20-0001 2010-01-02 03:04:09 Controller Firmware DownloadV10L20-0001 2010-01-02 03:04:06 Registration (Internet Connection: Update) 2010-01-02 03:04:06 Registration (Internet Connection: Update) 2010-01-02 03:04:07 REMCS Environment Settings (Internet Connection) 2010-01-02 03:04:03 Controller Firmware Automatic Download settings 2010-01-02 03:04:04 REMCS Environment Settings (Internet Connection) 2010-01-02 03:04:03 Periodic Connection 2010-01-02 03:04:04 Start of Maintenance	Remote Support Support Information Date Event Controller Firmware List AcquisitionV10L20-0001 2010-01-02 03:04:09 Controller Firmware DownloadV10L20-0001 2010-01-02 03:04:06 Registration (Internet Connection: Update) 2010-01-02 03:04:06 Registration (Internet Connection: Update) 2010-01-02 03:04:07 Remote Service Automatic Download settings 2010-01-02 03:04:03 Controller Firmware Automatic Download settings 2010-01-02 03:04:04 REMCS Environment Settings (Internet Connection) 2010-01-02 03:04:03 Periodic Connection 2010-01-02 03:04:04 Start of Maintenance 2010-01-02 03:04:01 Start of Maintenance

The following items are displayed in the Main area:

Date

The date and time when the Remote Support events occurred, are displayed.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Event

The Remote Support event is displayed.

2.3.2 AIS Connect

This function displays the setting information for AIS Connect.

The AIS Connect function can be used to monitor or control multiple ETERNUS DX/AF storage systems from a remote server (AIS Connect server).

┝ Caution

REMCS and AIS Connect 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 "Stop/Restart Remote Support" in "ETERNUS Web GUI User's Guide (Settings)" for details.

REMCS can be specified or restarted when the AIS Connect function is disabled. Refer to "Setup AIS Connect Environment" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

Use ETERNUS CLI to set "Service Contract Responsibility (Country Code : Country Name)". Note that the "Maintenance Operation" policy is required to set this item.

Category	Remote Support			* Action
ETERNUS	▼ AIS Connect Environment		~	Target 0
Construction C	AIS Connect Environment AIS Connect Country of Installation (Country Code : Country Name) Service Contract Responsibility (Country Code : Country Name) Use LAN Port SSL Server Certification Proxy Server Port No. Connection Type Isere Hamp	Enable Open remote service conditions 276 : GERMANY 276 : GERMANY WNT Use Enable •••• SOCKS		Farget 0 Setup Als Connect Enviro Setup Remote Session Pe Send Log Test Server Connectivity Send Als Connect Test E
	User Name Remote Session Permission Remote Session Session Timeout	Permit 4h	-	
	Remote Session Session Timeout	Permit 4h		

The following items are displayed in the Main area:

- AIS Connect Environment
- AIS Connect

Whether the AIS Connect function is enabled or disabled is displayed.

When "Country of Installation (Country Code : Country Name)" has been set, the [Open remote service conditions] link is displayed. Click this item to display the consent form regarding the handling of personal information.

- Country of Installation (Country Code : Country Name) The shipment destination (storage system location) is displayed in "Country Code : Country Name" format. If not specified, "Not Selected" is displayed.
- Service Contract Responsibility (Country Code : Country Name) The country in which the support office for the ETERNUS DX/AF is located is displayed in "Country Code : Country Name" format.

Caution

This item is not displayed when "Service Contract Responsibility (Country Code : Country Name)" is not specified from ETERNUS CLI.

• Use LAN Port

The LAN port that is used for communication with the AIS Connect server is displayed.

- MNT
- RMT
- SSL Server Certification

Whether the Secure Socket Layer (SSL) server certification is used (Use) or not (Not Use) is displayed.

Automatic Log Transmission

Whether the automatic log transmission is enabled or disabled when an error occurs is displayed. When "Automatic Log Transmission" is enabled, the ETERNUS DX/AF automatically sends logs to the AIS Connect server when a fail event (error level or warning level) occurs. • Proxy Server

The IPv4 address or the Fully Qualified Domain Name (FQDN) of the proxy server is displayed. If the proxy server is not specified, the field is blank.

- IPv4 address
- XXX.XXX.XXX.XXX

xxx: 0 - 255 (decimal)

- FQDN

Up to 63 alphanumeric characters and symbols

• Port No.

The port number for the proxy server is displayed. If the proxy server is not specified, the field is blank.

• Connection Type

The communication method for the proxy server is displayed. If the proxy server is not specified, the field is blank.

- HTTP
- SOCKS
- User Name

The user name for proxy server authentication is displayed. If the proxy server is not specified, the field is blank.

Remote Session Permission

Remote Session

Whether to permit or forbid a remote session from the AIS Connect server is displayed.

Session Timeout

The timeout value for a remote session connection is displayed. If the timeout limit is not specified, "Unlimited" is displayed.

If the time exceeds the specified value without a remote session connection, remote session permission is disabled and the set state changes to "Forbid".

2.3.3 Root Certificate

This function displays the root certificate that is used for SSL communication with the AIS Connect server.

Caution

If multiple certificates are included in the root certificate file, up to 6 issuer names and their validity periods are displayed.

Note

- The root certificate that is registered in the ETERNUS DX/AF is displayed by default. When the root certificate is updated, only the latest certificate is displayed. For details on how to update the root certificate, refer to "Import Root Certificate" in "ETERNUS Web GUI User's Guide (Settings)".
- The root certificate is only used for authentication with the AIS Connect server.

Category	Root Certificate				» Action
ETERNUS	Trusted Root Certification	on Authorities		~	Target 0
Network Remote Support	Issuer Name	Valid From	Valid To		Import Root Certificate
Root Certificate	Fujitsu1 Certification Authority	2014-05-09 10:14:16	2015-05-09 10:14:16		
Key Management	Fujitsu2 Certification Authority	2014-05-09 10:14:16	2015-06-09 10:14:16	-	
Eco-mode	Fujitsu3 Certification Authority	2014-07-09 10:14:16	2015-07-09 10:14:16		
Event/Dump	Fujitsu4 Certification Authority	2014-08-09 10:14:16	2015-08-09 10:14:16		
Audit Log	Fujitsu5 Certification Authority	2014-09-09 10:14:16	2015-09-09 10:14:16	~	
Storage Migration	<			>	

The following items are displayed in the Main area:

- Trusted Root Certification Authorities
- Issuer Name

The issuer name for the root certificate is displayed.

Valid From

The start date and time of the root certificate validity period is displayed.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Valid To

The end date and time of the root certificate validity period is displayed.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 - 12), DD: Date (01 - 31), hh: Hour (00 - 23), mm: Minute (00 - 59), ss: Second (00 - 59))

2.4 Key Management

This function displays the setting parameters for the key server. In this section, the SED authentication key is referred to as "key".

Cau	tion
Culu	CIUI

The ETERNUS DX60 S3 does not support the key management functions.

ETERNUS Network Remote Support Kork Management Machine Name EterNUS Kork Management EternUS Kork Management Machine Name EternUS Kork Management EternUS EternUS Kork Management EternUS EternUS	ort No. LAN Port 596 MNT 596 MNT		Add Key Server Xetup Key Machine Nam Add Key Server X Detete Key Berver X Modify Key Server
Network Remoto Support Remoto Support Very Management Remoto Support User Settings Ec-mode EvertDurp Audit Log Firmware Maintenance Storage Migration Utility System Settings	ort No. LAN Port 596 MNT 596 MNT	Ç	Setup Key Machine Nam
Key Group Uder Settings Ec-mode EventDump Audt Log Firmware Maintenance Storage Migration Udity System Settings	ort No. LAN Port 596 MNT 596 MNT	Ç	X Delete Key Server
Uder Settings Ec-mode EventDump AddLog System Settings	ort No. LAN Port 396 MNT 396 MNT	0	X Modify Key Server
Eventbump 1 192.168.0.1 56 Eventbump 2 fe80:e110.c206.50e3.7322 56 Storage Migration UNIN System Settings	596 MNT 596 MNT	, ,	
Image Maintenance 2 fe80.e110.c206.50e3.7322 56 Image Migration Utility System Settings	596 MNT	~	
Storage Variation		>	
Country Country System Settings			

The following items are displayed in the Main area:

- Key Management Machine Name
- Key Management Machine Name
 The name of the device that is connected to the key server is displayed. If the key management device
 name is not specified, the field is blank.
- Key Server
- Server ID The key server ID is displayed.
- Domain Name / IP Address

The domain name (Fully Qualified Domain Name: FQDN) or the IP address for the key server is displayed. Note that the IPv6 address is displayed as an abbreviation. Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

• Port No.

The port number that is used to communicate with the key server is displayed.

LAN Port

The LAN port that is used to communicate with the key server is displayed.

- MNT
- RMT

2.4.1 Key Group

This function displays the key information that is used for a key group and the SSL/KMIP certificate information.

The key group combines all of the RAID groups that use the same key.

🔵 Note

The RAID groups that are registered in the key group can be checked by using the [SED Key Group] screen. Refer to "SED Key Group" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Category	Key Group				» Action		
E 🖴 ETERNUS	T Key Group			~	Target: 0		
Network Demote Support	Name		KeyGroup1		🕂 Create Key Group		
Herindra Support Herindra Support Herindra Support Key Group Group Settings Eco-mode Eco-mode Eco-mode Firmware Migration Utility System Settings Slave	Storage System	Group Name	ETERNUS_DX		X Delete Key Group		
	Key Status		Normal		Modify Key Group Update SED Key		
	Security Level		High	2			
	Recovery Mode		Automatic				
	Key Expiration D	ate	2014-12-12		Import SSL/KMIP Certifica		
	Master Server	Server ID	1				
		Domain Name / IP Address	192.168.0.1				
		Status	Normal				
		Server ID	2				
	Slave Server	Domain Name / IP Address	2001.a.b.c.d.e.f8				
		Status	Normal				
	* SSL / KMIP (
	Issuer Name		Fujitsu Certification Authority				
	Subject Name		Key Management Server				
	Valid From		2014-05-09 13:44:47	-			
	Valid To		2015-05-09 13:44:47				
	Serial Number		602199653074063				

The following items are displayed in the Main area:

- Key Group
- Name

The key group name is displayed. If no key groups are created, the field is blank. The key group name corresponds to "Serial Number", which is managed in the key server.

• Storage System Group Name

The storage system group name is displayed. If no key groups are created, the field is blank. The storage system group combines the key management device (Key Management Machine) name that is managed by the user with the key groups. The storage system group name corresponds to "Device Group Name", which is managed in the key server. Note that "ETERNUS_DX" is specified as the factory default storage system group name when "ETERNUS SF KM" (key management software) is shipped.

Key Status

The key status is displayed. If no key groups are created, the field is blank. Refer to "A.6 Key Status" (page 412) for details.

Security Level

The security level for the key group is displayed. If no key groups are created, the field is blank. "Security Level" indicates the handling level when application of the SED key to the target RAID group fails. If the key for the relevant RAID group cannot be obtained from the key server due to a communication error and the SEDs that configure the RAID group are changed to hot spares or changed to new SEDs due to failure or maintenance, the ETERNUS DX/AF performs operations according to the selected security level.

- High

Rebuilding to hot spares for which the key cannot be changed after SED failure is not performed. The RAID group loses its redundancy (" A Exposed", " Partially Exposed" (only for High Reliability (RAID6)), " Exposed (Fast)" (only for High Reliability (RAID6-FR)), or " Partially Exposed (Fast)" (only for High Reliability (RAID6-FR)).

When SED maintenance is being performed, replacing a SED with a new SED for which the key cannot be changed does not complete successfully. If this action is performed, the status of the new SED changes to "Replace Not Exist".

When communication between the key server and the ETERNUS DX/AF returns to normal and the key can be obtained, the SED status changes to normal. Rebuilding to the SED for which the status changed to normal is performed after the key is changed. Note that "Modifying" may be displayed for the key status for few minutes even though the SED key has already changed. After changing the key, maintenance of the SEDs is complete.

- Low

Rebuilding or maintenance is performed by using the common key if changing of the key in the key server fails due to a network error.

Even if the security level is changed from "High" to "Low", the rebuilding process does not start immediately after the level is changed. Rebuilding processes start after the ETERNUS DX/AF recognizes that changing of the security level and the key is complete.

• Recovery Mode

The recovery mode for the key group is displayed. If no key groups are created, the field is blank. The recovery mode is a method to recover locked (*1) RAID groups or SEDs after communication with the key server is resolved. For RAID groups in locked status, "S SED Locked" is displayed. For SEDs in locked

status, "👩 Not Exist" is displayed.

*1: A blocked status that occurs when the key of the RAID groups cannot be obtained.

- Automatic

This mode recovers locked RAID groups or SEDs when the communication error with the key server is resolved.

- Manual

Use the [Recovery SED] function of ETERNUS Web GUI to recover the locked RAID groups or SEDs when the communication error with the key server is resolved.

• Key Expiration Date

The key expiration date is displayed. If no key groups are created, the field is blank.

When the key has expired, a new key is obtained from the key server and automatically applied in place of the expired key.

Note that the display contents for this item changes as follows:

- When the key status is "Modifying", the expiration date before the key was replaced is displayed.
- When the key status is "Unregistered Server Certificate", "No SSL Certificate", "Network Error", "Not Acquired", or "Key Server Error", a "-" (hyphen) is displayed.
 - YYYY-MM-DD (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31))

- Master Server
 - Server ID

The key server ID for the master server is displayed. If no key group is created or if no master server is specified, the field is blank.

- Domain Name / IP Address

The domain name (FQDN) or the IP address of the master server is displayed. If no key groups are created or if no master server is specified, the field is blank.

Note that the IPv6 address is displayed as an abbreviation. Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

- Status

The master server status is displayed. If no key group is created or if no master server is specified, the field is blank. Refer to <u>"A.7 Key Server Status" (page 413)</u> for details.

- Slave Server
 - Server ID

The key server ID of the slave server is displayed. If no key group is created or if no slave server is specified, the field is blank.

- Domain Name / IP Address

The domain name (FQDN) or the IP address of the slave server is displayed. If no key group is created or if no slave server is specified, the field is blank.

Note that the IPv6 address is displayed as an abbreviation. Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

- Status

The slave server status is displayed. If no key group is created or if no slave server is specified, the field is blank. Refer to <u>"A.7 Key Server Status" (page 413)</u> for details.

- SSL / KMIP Certificate
- Issuer Name

The certificate authority name that issues the SSL / KMIP certificate is displayed. If the certificate is not imported, the field is blank.

Subject Name

The name of the destination to which the SSL / KMIP certificate is issued is displayed. If the certificate is not imported, the field is blank.

Valid From

The start date and time of the SSL / KMIP certificate validity period is displayed. If the certificate is not imported, the field is blank.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Valid To

The end date and time of the SSL / KMIP certificate validity period is displayed. If the certificate is not imported, the field is blank.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Serial Number

The serial number for the SSL / KMIP certificate is displayed. If the certificate is not imported, the field is blank.

When created, the serial number is combined with the issuer name, which is a unique number in the certificate authority.

2.5 Define Role

The registered custom roles in the ETERNUS DX/AF are displayed. A custom role is a role created by the user in combination of policies, in addition to the default roles.



The following items are displayed in the Main area:

- Role
 - The custom role name is displayed.

2.6 Eco-mode

A list of the Eco-mode setting state and the Eco-mode schedule that is registered in the ETERNUS DX are displayed.

The Eco-mode function schedules the drive operating time in compliance with Massive Arrays of Idle Disks (MAID). This function saves power by stopping the drive motors or turning off the drives power outside of the scheduled operating time period.

┝ Caution

The ETERNUS AF250/AF650 and the ETERNUS DX200F do not support this function.

Category	Eco-mod	e					» Action
ETERNUS	▼ Eco-m	ode General Settin	as			~	Target: 0
Network	Eco-mode	1	De	sable			Modify Eco-mode Setting
Remote Support Remote Support User Settings Exempts Function Firmware Maintenance Storage Migration	Eco-mode Eco-mode No. Q	oode Schedule Schedule Name EveryDay	Events 1	RAID Group 0	Thin Provisioning Pool	°	Modify Eco-mode Setting Create Schedule Create Schedule Modify Schedule

The following items are displayed in the Main area:

- Eco-mode General Settings
- Eco-mode

The Eco-mode setting (enabled or disabled) for all of the ETERNUS DX storage systems is displayed.

- Eco-mode Schedule
- No.

The schedule number is displayed.

By clicking this link, the [Eco-mode Schedule] screen is displayed. Refer to <u>"2.6.1 Eco-mode Schedule</u> <u>Detail" (page 59)</u> for display items.

If the Eco-mode is controlled with the Storage Foundation Software ETERNUS SF, a "-" (hyphen) is displayed.

Schedule Name

The schedule name is displayed.

If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed.

Events

The number of events that are registered in the schedule is displayed. If the Eco-mode is controlled with the Storage Foundation Software ETERNUS SF, a "-" (hyphen) is displayed.

- RAID Group The number of RAID groups for which the schedule is allocated to is displayed.
- Thin Provisioning Pool The number of Thin Provisioning Pools for which the schedule is allocated to is displayed.

2.6.1 Eco-mode Schedule Detail

In this screen, the detailed information of an Eco-mode schedule is displayed.

itegory	Eco-mode Sched	Action					
ETERNUS	▼ Schedule	T Schedule					
Network	No.		0	1	X Modify Schedule		
E Key Management	Schedule Name		EcoModeSched_000				
User Settings	▼ Event List	▼ Event List					
Event/Dump	Event	From Time	To Time				
Audit Log	Every week Monday	09:00	10:00	0			
Storage Migration	<			>			
🗎 Utility							
System Settings							
	1						

The following items are displayed in the Main area:

- Schedule
- No.

The schedule number is displayed.

- Schedule Name The schedule name is displayed.
- Event List
- Event
 - The detailed event information is displayed.
- From Time
 - The time at which the event application is started is displayed.
 - hh:mm (hh: Hour, mm: Minute)
- To Time

The time at which the event application is stopped is displayed.

- hh:mm (hh: Hour, mm: Minute)

2.7 Event/Dump

This function records and displays the event history of the ETERNUS DX/AF as an event log.



2.8 Audit Log

This function displays the audit log information.

An audit log records not only operations that are performed by a user, but also how the ETERNUS DX/AF operates for these operations. The audit log function that is provided with the ETERNUS DX/AF transfers the following information to external servers; when an operation is performed, who performed the operation, where the operation was performed, the details of the operation, and the results of the operation.

Caution

When the procedure in "Enable Audit Log" in "ETERNUS Web GUI User's Guide (Settings)" is executed, "Enable" is displayed for "Audit Log" in the "Audit Log Information" field even if an external server is not specified. Specify the external server to which the audit log is sent. Refer to "Setup Audit Log" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

Except for the functions that are listed below, the audit log collects all of the information for operations (including logging in and logging out) that are performed via ETERNUS Web GUI and ETERNUS CLI (including when the interface is "SOFT" (*1)).

- Export Cache Parameters
- Export Performance Information
- Send SNMP Trap Test
- Create Key/CSR
- Download Template File for Storage Migration Settings
- Backup Configuration
- Get G-List (*2)
- All of the display functions (e.g. displaying the volume list or displaying of the RAID group list)
- *1: Refer to <u>"2.1 System (Basic Information)" (page 36)</u> for details.
- *2: Operations that can be performed when logged in using a user account with the "Maintenance Operation" policy.

Category	Audit Log					» Action
🗄 🚔 ETERNUS	▼ Audit Log Inf	~	Target: 0			
Network Remote Support Remote Support Management Les Settings Eco-mode Eco-mode Event/Dump	Audit Log	Enable				Enable Audit Log Disable Audit Log Setup Audit Log
Audit Log Firmware Maintenance Storage Migration Utility						
Cystem Settings						
					~	

The following items are displayed in the Main area:

• Audit Log Whether the audit log function is enabled or disabled is displayed.

2.9 Firmware Maintenance

This function performs the maintenance operation for the firmware that is managed in the ETERNUS DX/AF. Firmware maintenance is performed to update the firmware version. The firmware can be applied after being registered in the Bootup and Utility Device (BUD) of the CM.

Caution

- When the application schedule for the controller firmware is being reserved, the [Apply Controller Firmware] function is not displayed in [Action]. The [Apply Controller Firmware] function is automatically started with the date and time that are displayed in the information field according to the application mode that is used.
- When the application mode is "Update & Reboot", the ETERNUS DX/AF is automatically rebooted after the controller firmware is applied.
- If an application schedule for the controller firmware is not reserved, the [Delete Controller Firmware Schedule] function is not displayed in [Action].
- If the message which indicates that the controller firmware application has been reserved disappears before the reserved date, the reservation may be canceled automatically. In this case, reserve the application schedule for the controller firmware again. Refer to "Apply Controller Firmware" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Category	Firmware Maintenance		Action	
🗉 🧰 ETERNUS	Controller Firmware Information	tion	~	Target: 0
Remote Support	Current Firmware Version Firmware Version after Restart	V10L20-0000 V10L20-0001		Apply Firmware
Arey Management Guer Settings Eco-mode System Settings	Firmware version after restart	V 10L20-0001		

The following items are displayed in the Main area:

- Current Firmware Version
 The current controller firmware version is displayed.
 - VxxLyy-zzzz (Vxx: Version, Lyy: Level, zzzz: Release number)
- Firmware Version after Restart The controller firmware version after the next power on is displayed.

2.10 Storage Migration

This function displays the setting and progress of Storage Migration.

Storage Migration is the function for migrating data by connecting other storage systems (migration source) and the ETERNUS DX/AF (migration destination). Data migration is possible regardless of the server and the OS, and without using server resources.

┝ Caution

- When performing a Storage Migration, confirm that there is no access from the host to the migration source volume.
- The requirements for access from the host to the destination volumes varies depending on the operation mode.
 - For "Migration & Host IO", Storage Migration can be performed even if host access exists in the migration destination volume after a migration is started.
 - For "Migration", "Migration + Quick Compare", or "Quick Compare", perform a Storage Migration without access from the host to the destination volume.
 - For "Migration + Full Compare" or "Full Compare", perform a Storage Migration without access from the host to any volume in the destination storage system.
- The path groups must be deleted after the data migration is complete. If the operation mode is "Migration & Host IO", the ETERNUS DX/AF is in one of the following conditions until the path groups are deleted.
 - The host I/O response is reduced.
 - If the migration path is blocked, the host I/O may stop.
- Do not perform the following operations when there are Storage Migration paths (hereinafter referred to as "path group") established.
 - Configuration of an Advanced Copy destination to the migration destination volume
 - Configuration of an Advanced Copy destination to the migration source volume
 - Formatting of the destination volume
 - RAID diagnosis in the RAID group to which the destination volume belongs
 - Disk diagnosis of the disk drives in the RAID group to which the destination volume belongs
 - CM hot expansion on the destination storage system
 - Memory hot expansion on the destination storage system

- The path groups must be deleted after the data migration is complete. The following operations are not available before path groups are deleted:
 - Hot controller firmware upgrade is being performed in the destination storage system
 - Eco-mode schedule setting of the RAID group to which the destination volume belongs
 - Eco-mode schedule setting of the Thin Provisioning Pool (TPP) to which the destination volume belongs
 - Capacity expansion of the RAID group to which the destination volume belongs
 - RAID migration of the destination volume
 - Encryption of the destination volume
 - Capacity expansion of the destination volume
 - Deletion of the destination volume
 - Port mode modification of the destination FC-Initiator port
 - Port parameter setting of the destination FC-Initiator port
 - Reduction of the CA to which the destination FC-Initiator port belongs

🔵 Note

- To start Storage Migration, refer to "Start Storage Migration" in "ETERNUS Web GUI User's Guide (Settings)".
- A started Storage Migration can be suspended, stopped, and restarted in volume units on the [Path Group Detail Information] screen. Refer to "Suspend Storage Migration", "Stop Storage Migration", or "Restart Storage Migration" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Caregory	Sto	rage Migra	tion					» Action
CHERNUS Network Remote Support Werkerings Econode EventDump Audit Log Firmware Maintenance BorgenMaration Utily System Settings	Sto	rage Migra Path Group Q	Vendor ID FJ-000	Product ID E2000	Serial No. 00002000	Progress	, ,	Action Target 0 Start Download Template Delete Path

The following items are displayed in the Main area:

Path Group

The path group number is displayed. Click this item to display the [Path Group Detail Information] screen. Refer to "2.10.1 Path Group Detail Information" (page 65) for details.

A path group combines the paths for data migration into a group for each source storage system. The paths from a single source storage system to the local (destination) storage system constitute a path group.

Vendor ID

The manufacturer name of the source storage system to which the path is created is displayed. An inconvertible code is displayed as "*".

Product ID

The product name of the source storage system to which the path is created is displayed. An inconvertible code is displayed as "*". Serial Number The serial number of the source storage system to which the path is established is displayed. An inconvertible code is displayed as "*". Progress The progress of Storage Migration for the path group is displayed. Status The general status of Storage Migration for the path group is displayed. - 🥑 Complete All Storage Migration operations have completed normally. 🛛 Error There are one or more LUNs that do not exist in the migration source volume, or there are one or more volumes for which Storage Migration failed due to error (displayed in red characters). 🖸 Stop Storage Migration has been stopped or suspended for one or more volumes (all other volumes have completed Storage Migration normally), or Storage Migration of all the volumes has been stopped or suspended. Normal Other than above. The status display priority order is "👧 Error" > "👩 Normal" > "👩 Stop" > "👩 Complete".

2.10.1 Path Group Detail Information

In this screen, the detailed information of a path group is displayed.

Category	Sto	rage Mig	gration							» Action		
ETERNUS		▼ Storage Migration Path Information								Target: 0		
Remote Support	Pat	Path Group 0							Download Result			
It Key Management	Ver	Vendor ID FJ-000						Restart				
User Settings	Pro	duct ID		E2000						Suspend		
Eco-mode	Ser	ial No.		00002000						Stop		
Event/Dump	Op	eration Mo	ode	Migration						Chap		
Audit Log	Sta	tus		Normal								
Firmware Maintenance	Pre	aress										
Storage Migration							10					
System Settings		Migration Connection Path										
	50	Irce WWN		CA Port								
	000	10203040	50607	CM#0 CA#0 Po	ort#0			^				
	080	08090A089C0D0E0E CM#0 CA#0 Port#1										
	1											
		Storage M	Aigration	n Volume List								
				512 ite	ms 14 4	1/6 pages 🕨	н	1 page Go				
		Source	Source LUN (H	iex)	Source LUN Status	Destination Volume	Destination Volume	Destination Volume				
			0,0000		Augilable	0	0,0000	VolumeName				
			942000		- mydrabie		unuudu	 A source warne 				
		+	0×0000	000000000001	Available	1	0x0001	VolumeName				
		53	0×0000	000000000002	Available	2	0x0002	VolumeName				
	П	+1	0x0000	00000000003	Available	3	0x0003	VolumeName	Ť			

The following items are displayed in the Main area:

🔵 Note

Items displayed in this screen vary depending on whether the previous screen is the [Storage Migration] screen or the [Start Storage Migration] screen. When the previous screen is the [Storage Migration] screen, the progress of Storage Migration is checked. When the previous screen is the [Start Storage Migration] screen, the start status of Storage Migration is checked.

Storage Migration Path Information

Path Group

The path group number is displayed.

• Vendor ID

The manufacturer name of the source storage system to which the path is created is displayed. An inconvertible code is displayed as "*".

• Product ID

The product name of the source storage system to which the path is created is displayed. An inconvertible code is displayed as "*".

Serial Number

The serial number of the source storage system to which the path is established is displayed. An inconvertible code is displayed as "*".

Operation Mode

The operation mode for the path group is displayed.

When the operation mode setting is omitted, "Migration" is displayed.

- Migration

Data migration from the source storage system to the destination storage system is performed.

- Migration + Quick Compare

Data migration from the source storage system to the destination storage system and a data comparison of source LUNs and destination volumes are performed. "Quick Compare" compares data in a part of the volume area. "Migration + Quick Compare" consecutively executes "data migration" and "data comparison" for each volume.

- Migration + Full Compare

Data migration from the source storage system to the destination storage system and a data comparison of source LUNs and destination volumes are performed. "Full Compare" compares data in entire volume area. "Migration + Full Compare" consecutively executes "data migration" and "data comparison" for each volume.

Quick Compare

A data comparison of source LUNs and destination volumes is performed. "Quick Compare" compares data in a part of the volume area.

- Full Compare

A data comparison of source LUNs and destination volumes is performed. "Full Compare" compares data.

- Migration & Host IO

Data migration from the source storage system to the destination storage system is performed. Stop the operation only when switching the host connection to the migration destination storage system. This enables continued host access to the migration destination volume during the data migration.

Status

The general status of Storage Migration for the path group is displayed.

This item is displayed only when the previous screen is the [Storage Migration] screen.

- 🥑 Complete

All Storage Migration operations have completed normally.

- 😵 Error

There are one or more LUNs that do not exist in the migration source volume, or there are one or more volumes for which Storage Migration failed due to error (displayed in red characters).

- 👩 Stop

Storage Migration has been stopped or suspended for one or more volumes (all other volumes have completed Storage Migration normally), or Storage Migration of all the volumes has been stopped or suspended.

Investigation of the second sec

The status display priority order is "👧 Error" > "👩 Normal" > "👩 Stop" > "🌏 Complete".

• Progress

The progress of Storage Migration for the path group is displayed. This item is displayed only when the previous screen is the [Storage Migration] screen.

- Migration Connection Path
- Source WWN The WWN for the source FC-CA port is displayed.
- CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the destination FC-Initiator is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Storage Migration Volume List
- Source LUN

The source LUN is displayed in decimal number.

Source LUNs are displayed with decimal numbers if the source LUNs are specified with decimal numbers when Storage Migration setting files are created. Source LUNs are also displayed with decimal numbers if the source LUNs satisfy the conditions for being specified with decimal numbers. If the source LUNs do not satisfy the conditions for being specified with decimal numbers, a "-" (hyphen) is displayed. Refer to "Download Template File for Storage Migration Settings" in "ETERNUS Web GUI User's Guide (Settings)" for details.

• Source LUN (Hex)

The source LUN is displayed in hexadecimal number.

- Source LUN Status The status of the source LUN is displayed.
 - 🥑 Available The source LUN can be used
 - Not Available
 The source LUN cannot be used
 - Not Exist The source LUN does not exist
- Destination Volume No. The destination volume number is displayed in decimal number.
- Destination Volume Name The destination volume name is displayed.
- Destination Volume No. (Hex) The destination volume number is displayed in hexadecimal number.
- Capacity The destination volume capacity is displayed.
- Migration Status

The data migration status is displayed.

This item is displayed only when the previous screen is the [Storage Migration] screen.

- Initial
- Initial state
- Waiting Awaiting migration
- Running
- Migrating
- Normal End Normally completed
- Suspend
- In suspension
- Stop
- Stopped
- Error (xxx) (xxx) indicates the error factor.
- "-" (hyphen)
 Does not exist in the source LUN (the LUN status is "Not Exist").

┝ Caution

If "Waiting" is displayed, the data migration does not start automatically. Restart the data migration manually.

```
    Progress
```

The data transfer progress is displayed. This item is displayed only when the previous screen is the [Storage Migration] screen.

- Start Time
- End Time

The start and end times of data migration are displayed.

This item is displayed only when the previous screen is the [Storage Migration] screen.

YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 - 12), DD: Date (01 - 31), hh: Hour (00 - 23), mm: Minute (00 - 59), ss: Second (00 - 59))

The start and end times are displayed as shown below depending on the migration status.

Migration status	Start time	End time
Initial	The start time is not displayed.	Blank
Waiting		
Running	The migration start time is displayed.	
Normal End		The migration end time is displayed.
Suspend		The time when migration suspends is displayed.
Stop		The time when migration stops is displayed.
Error (xxx)		The time when migration stops due to error is displayed.

┝ Caution

- When Storage Migration is restarted when its migration status is "Suspend" or "Error", data migration restarts from the point of suspension. In this case, the start time is not changed.
- When Storage Migration is restarted when its migration status is "Stop", data migration of the LUN is started over from scratch. The start time is changed to the migration restart time.

Error Location

The storage system in which a data migration error occurs is displayed.

If no error is occurred, a "-" (hyphen) is displayed.

This item is displayed only when the previous screen is the [Storage Migration] screen.

- Source
 - Migration source storage system
- Destination

Local (migration destination) storage system

Result

When the source LUN and destination volume are in normal status, the "Result" field is blank. An error message is displayed when an error is detected in the source LUN or destination volume. This item is displayed only when the previous screen is the [Start Storage Migration] screen.

2.11 Utility

Descriptions on the actions that can be started from the [Utility] screen are displayed.



2.12 System Settings

This function displays the system setting information.

Category	System Settings		* Action	
	▼ Information	~	Target: 0 Modify Storage Name Modify Date and Time	
Remote Support	① System Settings can be managed.			
User Settings	 System Settings Information 			Change Box ID
Event/Dump	Storage System Name	ETERNUS		Setup Subsystem Parame
Audit Log	Date	2016-08-25 15:45:04		Setup Encryption Mode
Ermware Maintenance	Box ID	00ETERNUSDXMS2ET00000A####EI000000######		Setup SMI-S Environment
Storage Migration	Encryption Mode	Disable		Satur Dahug Mode
Dtility	SMI-S	Enable		Desister SED Very
System Settings	SMI-S Performance Information	Enable		Register SED Key
	SED Authentication Key	Not Registered		Setup Disk Patrol
	Disk Drive Patrol	Enable		Setup Power Management
	Extreme Cache Mode	Extreme Cache		Setup Extreme Cache
	Extreme Cache Memory Size	1000 GB		Satur Exclusion Road Co.
			~	

The following items are displayed in the Main area:

• Storage System Name

The name for the ETERNUS DX/AF is displayed.

• Date

The date and time when the event occurs are displayed.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Box ID

The Box ID is displayed.

Box ID is the information to be used for application software to define the remote storage system. The initial Box ID is a device ID that is created by combining device information (series name, model, serial number, etc.).

Encryption Mode

The encryption mode setting is displayed.

- For controller firmware versions "V10L50-3000", "V10L52-3000", and "V10L53" and later
 - Fujitsu Original Encryption
 - AES-128
 - AES-256
 - Disable
- For controller firmware versions other than the above
 - Fujitsu Original Encryption
 - AES
 - Disable

SMI-S

The current SMI-S setting is displayed.

- Enable
- Disable

┝ Caution

When enabling or disabling of the SMI-S is being performed, the [Setup SMI-S Environment] action cannot be clicked.

SMI-S Performance Information

The setting status for the SMI-S performance information response is displayed.

- Enable
- Disable
- SED Authentication Key Whether the SED authentication key has been "Registered" or "Not Registered" is displayed.
- Disk Drive Patrol

Whether the Disk Drive Patrol function is enabled or disabled is displayed.

• Extreme Cache Mode

The selected Extreme Cache (EXC) mode is displayed.

For the ETERNUS DX60 S3, the ETERNUS DX8100 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F, this item is not displayed.

- Extreme Cache
- Extreme Cache Pool
- Not Used
- Extreme Cache Memory Size

The specified capacity (GB) of the EXC is displayed.

A "-" (hyphen) is displayed when the Extreme Cache mode is "Not Used".

For the ETERNUS DX60 S3, the ETERNUS DX8100 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F, this item is not displayed.

The following Extreme Cache memory size is displayed according to the Extreme Cache mode.

Model	Extreme C	Cache Mode			
	Extreme Cache (EXC)	Extreme Cache Pool (EXCP)			
ETERNUS DX100 S3/DX200 S3	N/A	The total value of the EXCP			
ETERNUS DX500 S3/DX600 S3	The specified EXC memory size in the ETERNUS DX	memory size for each CM			
ETERNUS DX8700 S3/DX8900 S3	The total value of the EXC memory size for each CM				
Chapter 3 Component Status

Component status displays the status information of volumes. Component status screens can be displayed by clicking the following categories:

Category	Component status screen
Storage system name	Storage (Basic Information)
Controller Enclosure	Controller Enclosure
Controller Module	Controller Module
Performance	Performance (CM)
Error Statistics	Port Error Statistics (for the ETERNUS AF250 and the ETERNUS DX200F)
Channel Adapter	Channel Adapter
Performance	Performance (CA)
PCIe Flash Module	PCIe Flash Module
Performance	Performance (PCIe Flash Module)
Bootup and Utility Device	Bootup and Utility Device
Power Supply Unit	Power Supply Unit (CE)
Battery	Battery
Frontend Enclosure	Frontend Enclosure
Frontend Router	Frontend Router
Service Controller	Service Controller
FE Power Supply Unit	Power Supply Unit (FE)
FAN Unit	FAN Unit
Operation Panel	Operation Panel
Drive Enclosure	Drive Enclosure
I/O Module	I/O Module
Error Statistics	Port Error Statistics
Power Supply Unit	Power Supply Unit (DE)
Fan Expander Module	Fan Expander Module
Drives	Drives
Performance	Performance (Drive)
Error Statistics	Drive Error Statistics

Detailed information of the components can be displayed from the following screens:

- Controller Enclosure Detail
- <u>Controller Module Detail</u>
- Channel Adapter Detail
- PCIe Flash Module Detail
- PSU/CPSU (CE) Detail
- Frontend Router Detail
- <u>Service Controller Detail</u>
- FE Power Supply Unit Detail
- FAN Unit Detail
- Drive Enclosure Detail
- <u>I/O Module Detail</u>
- Power Supply Unit (DE) Detail
- Fan Expander Module Detail
- Drive Detail
- Bootup and Utility Device Detail
- SAS Cable Detail
- Frontend Cable Detail
- Management Cable Detail
- Port Detail

3.1 Storage (Basic Information)

The general information for the ETERNUS DX/AF is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

aregory	Storage			Action
	Summary Enclosure View		~	Target 0
Frontend Enclosure	System Information			
E Drive Enclosure	Storage System Name	ETERNUS	3	
E @ Drives	Model Name	ET00000A		
	Serial Number	000000		
	Device Identification Number	2A0000		
	Status	Normal		
	Battery	89%		
	Operation Mode	Normal		
	Model Upgrade	Not Upgraded		

• For the other models

Category	Storage			» Action
	Summary Enclosure View		~	Target 0
Drive Enclosure	▼ System Information			
🗉 🥥 Drives	Storage System Name	ETERNUS		
	Model Name	ET00000A		
	Serial Number	000000		
	Device Identification Number	2A0000		
	Status	Normal		
	Battery	Full Charge		
	Operation Mode	Normal		
	Model Upgrade	Not Upgraded		
			2	

The following items are displayed in the Main area:

- Storage System Name The name of the ETERNUS DX/AF is displayed.
- Model Name The model name of the ETERNUS DX/AF is displayed.
- Serial Number The serial number of the ETERNUS DX/AF is displayed.
- Device Identification Number The identification number of the ETERNUS DX/AF is displayed.
- Status

The general status of the ETERNUS DX/AF is displayed. Refer to <u>"A.1.1 Storage System General Status</u> (<u>Detail</u>)" (page 405) for details.

• Battery

The battery charge level is displayed.

When the battery charge level is 90% or more, "Full Charge" is displayed. When the battery charge level is less than 90%, "xx%" is displayed.

For the ETERNUS DX8700 \$3/DX8900 \$3, the lowest battery charge level among all CEs is displayed. Click this item to display the [Controller Enclosure] screen. Refer to "3.2 Controller Enclosure" (page 81) for details.

This item is displayed for the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650.

Operation Mode

The operation mode is displayed.

- Normal
 - The ETERNUS DX/AF is operating.
- Maintenance Mode
- The ETERNUS DX/AF is under maintenance.
- Model Upgrade

Whether the model upgrade is possible or not is displayed. When this item is not displayed, the model upgrade is not possible.

- Not Upgraded

A model upgrade has not been performed yet.

- Upgraded

A model upgrade has been performed.

View

• For the ETERNUS DX60 S3

Category	Storage	* Action
Category	Storage Summary Enclosure View DE#03 DE#03 DE#01 CE DE#01 CE DE#01	Action Target 0

 For the ETERNUS DX100 S3/DX200 S3, the ETERNUS DX500 S3/DX600 S3 (DE#00 - DE#17), the ETERNUS DX8100 S3, or the ETERNUS AF650

Category	Storage	» Action
ETERNUS Controller Enclosure	Summary Enclosure View	Target 0
Enclosure Orive Enclosure Orives	Ø DE#03	
	CE402	
	C DE#00	
	CE No.	

• For the ETERNUS DX500 S3/DX600 S3 (DE#00 - DE#1A)

Category	Storage		» Action
ETERNUS Enclosure	Summary Enclosure View	^	Target 0
	#08 - #17 #08 - #1A		
	@ DE#07		
	Ø DE#06		
	CE#05		
	CE#14		
	CE#04		
	♥ DE#13		
	C DE#03		
	Ø DE#12		
	DE#02		
		~	

For the ETERNUS DX8700 S3/DX8900 S3 (CE/FE)

Category	Storage	_	» Action
ETERNUS Controller Enclosure Drive Enclosure Drive Enclosure	Summary Enclosure View CE / FE DE#0x	^	Target 0
F Drives	CERS	~	

• For the ETERNUS DX8700 S3/DX8900 S3 (DE#xx)

Category	Storage		» Action
Category Catego	Storage Summary Enclosure View CE / FE DEPOX DE#04 DE#04 DE#03 DE#02 DE#02 DE#04		Action Target 0
	C DERO	X	

• For the ETERNUS AF250 or the ETERNUS DX200F

Category	Storage	» Action
Enternus	Summary Enclosure View	Target 0

The following items are displayed in the Main area:

• Storage system image

The front view of the enclosures that are installed in the ETERNUS DX/AF is displayed. The enclosure statuses are displayed with icons. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F, click the [CE] link to display the [Controller Enclosure Detail] screen. Refer to "3.6 Controller Enclosure Detail" (page 117) for display items.

For the ETERNUS DX60 S3/DX100 S3/DX200 S3 and the ETERNUS DX8100 S3, click the [DE] link to display the [Drive Enclosure Detail] screen. Refer to "3.15 Drive Enclosure Detail" (page 152) for display items.

For the ETERNUS DX500 S3/DX600 S3 and the ETERNUS AF650, specify the range for the DEs and then click a DE to display the [Drive Enclosure Detail] screen. Refer to <u>"3.15 Drive Enclosure Detail" (page 152)</u> for display items.

For the ETERNUS DX8700 S3/DX8900 S3, the [CE/FE] button and the [DE#xx] button are displayed. By clicking the [CE/FE] button, the CE#x (x: CE number) and the Frontend Enclosure (FE) screen is displayed. By clicking the CE#x, the [Controller Enclosure Detail] screen is displayed. Refer to <u>"3.6 Controller</u> <u>Enclosure Detail" (page 117)</u> for display items. By clicking the FE, the [Frontend Enclosure] screen is displayed. Refer to "3.3 Frontend Enclosure" (page 100) for display items.

By clicking the [DE#xx] button, the DEs in the relevant range are displayed. By clicking the DE#xx, the [Drive Enclosure Detail] screen is displayed. Refer to <u>"3.15 Drive Enclosure Detail" (page 152)</u> for display items.

3.2 Controller Enclosure

The Controller Enclosure (CE) information is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

🔵 Note

For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F, clicking "Controller Enclosure" in the category displays the [Controller Enclosure Detail] screen. Refer to "3.6 Controller Enclosure Detail" (page 117) for details.

Category	Controller	Enclosu	e			Action
E ETERNUS	Enclosure	Status	Charge Rate	Cache Mode	~	Target 0
Controller Module	CEMO	Normal	89%	Write Back Mode		
Channel Adapter	CE#1	Normal	89%	Write Back Mode	-	
Power Supply Unit	CE#2	Normal	89%	Write Back Mode		
Battery	<u>CE#3</u>	Normal	Full Charge	Write Back Mode	~	
Drive Enclosure	<				>	
on Control						

The following items are displayed in the Main area:

Enclosure

The CE number is displayed. By clicking this item, the [Controller Enclosure Detail] screen is displayed. Refer to "3.6 Controller Enclosure Detail" (page 117) for display items.

Status

The CE status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Charge Rate

The battery charge level for CE is displayed.

When the battery charge level is 90% or more, "Full Charge" is displayed. When the battery charge level is less than 90%, "xx%" is displayed.

• Cache Mode

The current status and the factor of the cache are displayed. The normal status is "Write Back Mode". Refer to <u>"Cache Mode" (page 26)</u> in <u>"1.1 Overview"</u> for details.

- Write Back Mode
- Write Through (Pinned Data)
- Write Through (Battery)
- Write Through (Maintenance)
- Write Through (1CM)

3.2.1 Controller Module

The CM information is displayed.

For the ETERNUS DX8700 S3/DX8900 S3

Category	Con	troller Mo	dule			» Action
ETERNUS		Enclosure	CM	Status	~	Target 0
B Controller Module		CEMO	<u>CM#0</u>	Normal	~	
Performance		CENO	CM#1	Normal	1	
PCle Flash Module		CE#1	CM#D	Normal		
Rattery		<u>CE#1</u>	<u>CM#1</u>	Conormal.		
Frontend Enclosure		<u>CE#2</u>	<u>CM#0</u>	Normal		
Drive Enclosure Orives		CE#2	CM#1	Normal		
		CE#3	CM#D	Overmai		
		CEW3	CM#1	Shormal .	*	
					~	

For the other models

Category	Cor	itroller	Module		» Action
E ETERNUS		CM	Status	~	Target 0
Controller Module		CM#0	Normal	0	
Performance		CM#1		~	
Channel Adapter PCle Flash Module	<			>	
NV Power Supply Unit					
Battery					
II @ Drives					
				Y	

The following items are displayed in the Main area:

Enclosure

The CE number is displayed. By clicking this item, the [Controller Enclosure Detail] screen is displayed. Refer to <u>"3.6 Controller Enclosure Detail" (page 117)</u> for display items. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

• CM

The CM number is displayed. By clicking this item, the [Controller Module] screen is displayed. Refer to "3.7 Controller Module Detail" (page 127) for display items.

Status

The CM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.2.2 Performance (CM)

The CM performance information is displayed.

🔵 Note

- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.

For the ETERNUS DX8700 S3/DX8900 S3



For the other models

Category	Perfor	mance			» Action
E ETERNUS	CM	Buey Data	Conv Domainder Count		Target 0
Controller Enclosure	CLARG	busy hate	Copy Remainder Count		Export Performance Info
Performance	CIMBO	509	0.00 KB	^	
🗉 💕 Channel Adapter	<u>CM#1</u>	509	0.00 KB	~	
PCle Flash Module	<			>	
Power Supply Unit					
T I Drive Enclosure					
E @ Drives					
	1				
				\vee	

The following items are displayed in the Main area:

- Enclosure The CE number is displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.
- CM

The CM number is displayed.

- Busy Rate The CPU busy rate is displayed.
- Copy Remainder Count The remaining capacity of the copy session is displayed.
 "Copy Remainder Count" is displayed for each Controlling CM in the RAID group to which the copy source volume belongs.

3.2.3 Port Error Statistics (for the ETERNUS AF250 and the ETERNUS DX200F)

The total number of errors for ports is displayed.

An increasing number of errors in the information is used to notify early replacement for warning status components. This can also be used as analysis information when performance is reduced.

- 🔵 Note
- This function is available for the ETERNUS AF250 and the ETERNUS DX200F. For the other models, refer to "3.4.2 Port Error Statistics" (page 109).
- Errors that occur in the SAS transmission line are detected in CM and recovered by retries. Note that detecting an error is not an immediate cause of data failure.



The following items are displayed in the Main area:

Enclosure

Controller Enclosure that has ports is displayed.

Expander
 The chip is

The chip installation location that is targeted by the port error detection is displayed.

• Port No.

The port number that is targeted by the port error detection is displayed.

• Phy No.

The Phy number of the port that is targeted by the port error detection is displayed.

Status

The Phy status is displayed.

- Link Up
- Link Down
- N/A
- Invalid Dword

The number of Invalid Dword occurrences is displayed.

"Invalid Dword" indicates an error in the SAS transmission line. The SAS interface encodes 8-bit to 10-bit to improve the transmission error ratio. This error is detected when the SAS interface fails encoding.

- Disparity Error
 The number of Disparity Error occurrences is displayed.
 "Disparity Error" indicates an error in the SAS transmission line. The SAS interface encodes 8-bit to 10-bit to improve the transmission error ratio. This error is detected when the SAS interface fails encoding.
- Loss of Dword Synchronization The number of Loss of Dword Synchronization occurrences is displayed.
 "Loss of Dword Synchronization" indicates that the SAS interface failed encoding and the SAS link synchronization is broken.
- Phy Reset Problem
 The number of Phy Reset Problem occurrences is displayed.
 "Phy Reset Problem" is detected when resetting and recovering the port in which an error occurred.

Filter setting

Filter	Description
Expander	Select the installation location of the chip that is to be displayed.

3.2.4 Channel Adapter

The information of all the CAs registered in the ETERNUS DX/AF is displayed.

For the ETERNUS DX8700 S3/DX8900 S3

Tategory	Cha	innel Adap	ter	_	_			» Action
ETERNUS		Enclosure	CM	CA	Туре	Status	~	Target 0
E Controller Module		CEMD	CMRO	CANO	FC 2port	Normal		
E S Channel Adapter		CEMO	CM#1	CARO	FC 2port	Normal		
🗉 👹 PCle Flash Module		CE#1	CM#0	CA#0	FC 2port	Normal		
Power Supply Unit Battery		<u>CE#1</u>	CM#1	<u>CA#0</u>	FC 2port	Normal		
Erontend Enclosure		<u>CE#2</u>	<u>CM#0</u>	<u>CA#0</u>	FC 2port	Normal		
Drive Enclosure Orives		CE#2	<u>CM#1</u>	CARD	FC 2port	Normal		
2. J		CE#3		CARD	FC 2port	Normal	~	
		CEW3	CMW1	CARO	FC 2port	Normal		
							~	

For the other models

Category Channel Adapter Target: 0 Target: 0 Target: 0 Target: 0 Channel Adapter Target: 0 Tar

The following items are displayed in the Main area:

Enclosure

The CE number is displayed. By clicking this item, the [Controller Enclosure Detail] screen is displayed. Refer to <u>"3.6 Controller Enclosure Detail" (page 117)</u> for display items. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

• CM

The CM number is displayed. By clicking this item, the [Controller Module] screen is displayed. Refer to <u>"3.7</u> <u>Controller Module Detail" (page 127)</u> for display items.

• CA

The CA number is displayed. By clicking this item, the [Channel Adapter Detail] screen is displayed. Refer to <u>"3.8 Channel Adapter Detail" (page 132)</u> for display items.

Type

The CA type is displayed.

The display items in this filed vary depending on the storage system model.

- For the ETERNUS DX60 S3
 - FC 2port
 - 1G-iSCSI 2port
 - 10G Base-T iSCSI 2port
 - 6G-SAS 2port
- For the ETERNUS DX100 S3/DX200 S3
 - FC 2port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 10G Base-T iSCSI 2port
 - 6G-SAS 2port
 - 10G-FCoE 2port
 - 10G-NAS 2port
 - 1G-NAS 4port

- For the ETERNUS DX500 S3/DX600 S3
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 1G-iSCSI-RA 2port
 - 10G-FCoE 2port
 - 10G-NAS 2port
 - 1G-NAS 4port
- For the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 1G-iSCSI-RA 2port
 - 10G-FCoE 2port
- For the ETERNUS AF250
 - FC 2port
 - 10G-iSCSI 2port
 - 10G Base-T iSCSI 2port
- For the ETERNUS AF650
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port
- For the ETERNUS DX200F
 - FC 2port
 - 10G-iSCSI 2port

🔵 Note

Note that a 1-port type CA for the ETERNUS DX60 S3/DX100 S3 is displayed as "2port" (for FC, "FC 2port" is displayed). Similarly, a 2-port type CA (1G-NAS) is displayed as "1G-NAS 4port". Available ports can be checked in the [Internal Parts] tab of the [Channel Adapter Detail] screen. The [Add Channel Adapter Port] function is displayed in the action field only when a 1-port type CA or a 2-port type CA is installed in the ETERNUS DX. Refer to "3.8 Channel Adapter Detail" (page 132) for details. Note that 1-port type CAs are not available in some regions.

Status

The CA status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.2.5 Performance (CA)

The CA port performance information is displayed.

┝ Caution

When the port mode is "Initiator", the CA port performance is not displayed.

🔵 Note

- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.

For the ETERNUS DX8700 S3/DX8900 S3

category	Performan	» Action							
ETERNUS		Target: 0							
Controller Enclosure Controller Module Controller Module Adapter									Export Performance Info
E & Channel Adapter	Enclosure	CM	CA	Port	Port Mode	Read IOPS	Write IOPS	Read Throughput	
Performance	CE#0	CM#0	CA#0	Port#0	CA	20IOPS	20IOPS	100MB	
Controller Enclosure Controller Module Controller Module Channel Adapter PCIe Flash Module DTV Enclosure PCIe Power Supply Unit DTV Enclosure PCIe Power Supply Cont PCIe Power	CE#0	CM#0	CA#0	Port#1	RA	20IOPS	20IOPS	100MB	
	CE#0	CM#1	CA#0	Port#0	CA	2010PS	20IOPS	100MB	
	CE#0	CM#1	CA#0	Port#1	RA	20IOPS	20IOPS	100MB	
	CE#1	CM#0	CANO	Port#0	CA	2010PS	20(OPS	100MB	
	CE#1	CM#0	CANO	Port#1	RA	2010PS	2010PS	100MB	
	CE#1	CM#1	CANO	Port#0	CA	2010PS	20(OPS	100MB	
	CE#1	CM#1	CANO	Port#1	RA	2010PS	20(OPS	100MB	
	CE#2	CM#0	CANO	Port#0	RA	2010PS	20(OPS	100MB	
	CE#2	CM#D	CA#D	Port#1	CA/RA	40IOPS	40IOPS	200MB	
	CE#2	CM#1	C.A#D	Port#0	RA	2010PS	20(OPS	100MB	
	CE#2	CM#1	CA#D	Port#1	CA/RA	40IOPS	40IOPS	200MB	
	CE#3	CM#D	CA#D	Port#0	RA	2010PS	20IOPS	100MB	
	CE#3	CM#D	CA#D	Port#1	CA/RA	40IOPS	40IOPS	200MB	
	CE#3	CM#1	CA#0	Port#0	RA	2010PS	20IOPS	100MB ¥	
	<	0,000		- 111A					

For the other models

ategory	Perfor	mance)						-	» Action
ETERNUS	CM	CA	Port	Port Mode	Read IODS	Write IODS	Read Throughout	Write Throu	~	Target 0
Controller Enclosure	Clano	CARD	Porte	CA	00000	00000	Nedu Throughput	write milou		Export Performance Infe
Channel Adapter	CWIND	CARU	Portero	GA	UIUPS	UIUPS	UMB/S	^	1	
Performance	CM#0	CA#0	Port#1	CA	OIOPS	OIOPS	OMB/s			
🗉 👹 PCle Flash Module	CM#1	CA#0	Port#0	RA	0IOPS	0IOPS	0MB/s			
NV Power Supply Unit	CM#1	CA#0	Port#1	CA/RA	0IOPS	DIOPS	0MB/s			
Battery	<							>		
Drive Enclosure										

The following items are displayed in the Main area:

- Enclosure The CE number is displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.
- CM

The CM number is displayed.

- CA The CA number is displayed.
- Port

The port number is displayed.

Port Mode

The port mode is displayed.

- CA
- RA
- CA/RA
- Read IOPS

The number of reads per second is displayed.

- Write IOPS The number of writes per second is displayed.
- Read Throughput The amount of data that is read per second is displayed.
- Write Throughput The amount of data that is written per second is displayed.

3.2.6 PCIe Flash Module

This function displays the PCIe Flash Module (PFM) information.

Caution

If a PFM is not available for reading and writing, "S Error" is displayed for the status. If this occurs, replace the PFM. Note that PFMs can be replaced by a maintenance engineer who has the "Maintenance Operation" policy.

🔵 Note

- PFMs can be installed in the ETERNUS DX500 S3/DX600 S3 and the ETERNUS DX8700 S3/DX8900 S3.
- If the PFM capacity in each CM for the ETERNUS DX500 S3/DX600 S3 does not match, the EXC memory size that can be used for the CM is reduced to the smallest capacity.
- For the ETERNUS DX8700 S3/DX8900 S3, the PFM capacity in each CM is used as an EXC memory size.

For the ETERNUS DX8700 S3/DX8900 S3



For the other models

Category	PCI	e Flash Mod	ule					» Action
ETERNUS		PFM	Type	Capacity	Status	Health		Target 0
E Gontroller Module		CM#0 PFM#0	HHHL	512GB	Normal	100 %	^	
Channel Adapter		CM#1 PEM#0	HHHL	512GB	Normal	100 %	~	
Performance	<						>	
Power Supply Unit								
Babery Drive Enclosure								
II 🖗 Drives								
	1							
							Y	

The following items are displayed in the Main area:

• Enclosure

The CE number is displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

• PFM

The PFM number is displayed. Click this item to display the [PCIe Flash Module Detail] screen. Refer to "3.9 PCIe Flash Module Detail" (page 137) for display items.

- Type
 - The PFM type is displayed
- Capacity

The PFM capacity is displayed.

Status

The PFM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Health

The lifetime information of the PFM is displayed.

- 100% 6%
 - The PFM is available.
- 5% 1%

"1 Warning" is displayed as the status.

- The PFM is approaching its end of life.
- 0%

" Error" is displayed as the status. Reading from or writing to the PFM is not available.

3.2.7 Performance (PCIe Flash Module)

This screen displays the performance information of the PFM.

🔵 Note

- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.
- PFMs can be installed in the ETERNUS DX500 S3/DX600 S3 and the ETERNUS DX8700 S3/DX8900 S3.



For the ETERNUS DX8700 S3/DX8900 S3

For the other models

Category	Performance	e			» Action
ETERNUS	PFM	Busy Rate		~	Target 0
 Controller Enclosure Controller Module 	CM#0 PFM#0		1005		Export Performance Info
🗉 💉 Channel Adapter	CLIES DELING		100 %	0	
PCIe Flash Module	CARTIFFARD	-	150%		
NV Power Supply Unit					
Battery					
Drive Enclosure					
In V Drives					
				4	

The following items are displayed in the Main area:

• Enclosure

The CE number is displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

• PFM

The PFM number is displayed.

Busy Rate

When performance monitoring has started, the busy rate of the PFM is displayed with a bar and a numerical number. If performance monitoring has stopped, "0%" is displayed for the busy rate.

3.2.8 Bootup and Utility Device

The BUD information is displayed.

This function is displayed for the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3.

For the ETERNUS DX8100 S3

Category	Boo	tup and Util	ity Device				Action
E ETERNUS		BUD	Status	Status Code	Error Code		Target 0
Controller Enclosure Controller Module		CM#0 BUD#0	Normal	0×E001	0×0000		
Channel Adapter Declure and Linux D		CM#0 BUD#1	Normal	0×E001	0x0000		
Power Supply Unit	<					>	
Battery							
1 Q Drives							
							-

For the ETERNUS DX8700 S3/DX8900 S3

Category	Boo	tup and U	tility Device					Action
ETERNUS		Enclosure	BUD	Status	Status Code	Error Code	~	Target 0
Controller Module		CE#0	CM#0 BUD#0	Normal	0xE001	0×0000		
Channel Adapter PCle Flash Module		CE#0	CMW0 BUD#1	Normal	0xE001	0x0000	-	
Poolup and Utility De		CE#0	CM#1 BUD#0	Normal	0xE001	0x0000		
Battery		CE#0	CM#1 BUD#1	Normal	0xE001	0x0000		
🕑 🏄 Frontend Enclosure		CE#1	CM#0 BUD#0	Normal	0xE001	0x0000		
		CE#1	CM#0 BUD#1	Normal	0xE001	0×0000		
+ V Drives		CE#1	CM#1 BUD#0	Normal	0xE001	0x0000		
		CE#1	CMW1 BUDW1	Normal	0xE001	0x0000		
		CE#2	CMW0 BUDW0	Normal	0xE001	0x0000		
		CE#2	CMW0 BUDW1	Normal	0xE001	0x0000		
		CE#2	CM#1 BUD#0	Normal	0xE001	0x0000		
		CE#2	CM#1 BUD#1	Normal	0xE001	0x0000		
		CE#3	CM#0 BUD#0	Normal	0xE001	0x0000		
		CE#3	CM#0 BUD#1	Normal	0xE001	0x0000		
		CE#3	CM#1 BUD#0	Normal	0xE001	0×0000		
		CE#3	CM#1 BUD#1	Normal	0xE001	0x0000		
		CE#4	CMW0 BUDW0	Normal	0xE001	0x0000	~	

The following items are displayed in the Main area:

Enclosure

The CE number is displayed.

This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

BUD

The BUD number is displayed.

Click this item to display the [Bootup and Utility Device Detail] screen. Refer to <u>"3.20 Bootup and Utility</u> <u>Device Detail" (page 169)</u> for display items.

- Status The BUD status is displayed. Refer to "A.5 Component Status" (page 410) for details.
- Status Code The status code of BUD is displayed.
- Error Code The error code of BUD is displayed.

3.2.9 Power Supply Unit (CE)

The PSU information for a CE is displayed.



For the other models



The following items are displayed in the Main area:

- Enclosure The enclosure where the PSU or the CPUS is installed is displayed. For the ETERNUS DX8700 S3/DX8900 S3, the CE number is displayed.
- PSU

The PSU number is displayed. By clicking this item, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items. This item is displayed for the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F.

CPSU

The CPSU number is displayed. By clicking this item, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items. This item is displayed for the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650.

Status

The PSU status or the CPSU status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.2.10 Battery

The information of the Battery Unit (BTU) and the Battery Charger Unit (BCU) is displayed. This function is displayed for the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650.

BTU

• For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3, and the ETERNUS AF650



• For the ETERNUS DX8700 S3/DX8900 S3

Category	Batt	lery							Action
ETERNUS Controller Enclosure Sector Controller Module		TU BCU	Target: 0						
Channel Adapter Channel Adapter		Enclosure	Component	Status	Status Code	Error Code	Charge Rate	Expiratic	
		CE#0	BTU #0	Normal	0xE001	0x0000	Full Charge	2020-	
Battery		CE#0	BTU #1	Normal	0xE001	0x0000	Full Charge	2020-	
Frontend Enclosure Drive Enclosure		CE#0	BTU #2	Normal	0xE001	0×0000	Full Charge	2020-	
III 🖗 Drives		CE#1	BTU #0	Normal	DxED01	0x0000	Full Charge	2020-	
		CE#1	BTU#1	Normal	0xE001	0x0000	Full Charge	2020-	
		CE#1	BTU #2	Normal	0xE001	0x0000	Full Charge	2020-	
		CE#2	BTU #0	Normal	0xE001	0x0000	Full Charge	2020-	
		CE#2	BTU #1	Normal	0xE001	0x0000	Full Charge	2020-	
		CE#2	BTU #2	Normal	0xE001	0×0000	Full Charge	2020-	
		CE#3	BTU #0	Normal	0xE001	0x0000	Full Charge	2020-	
		CE#3	BTU #1	Normal	0xE001	0x0000	Full Charge	2020-	
	~	CF#1	RTII#7	Chinemal	0vE001	0/000	Full Chame	2020-	
								~	

The following items are displayed in the Main area:

- Enclosure The CE number is displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.
- Component The BTU number is displayed.
- Status The BTU status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The BTU status code is displayed.
- Error Code The BTU error code is displayed.
- Charge Rate
 The BTU charge rate is displayed.
 When the battery charge level is 90% or more, "Full Charge" is displayed. When the battery charge level is less than 90%, "xx%" is displayed.
 - Expiration Date The expiration date for the BTU is displayed.

BCU

• For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3, and the ETERNUS AF650

Category	Batte	ry					» Action
ETERNUS Controller Enclosure Controller Module Controller Module Controller Module Poler Flash Module Power Supply Unit	BT V BC	U BCU	ion				Target 0
🗉 💉 Channel Adapter		Component	Status	Status Code	Error Code	Î.	
PCIe Flash Module		BCU #0	Normal	0xE001	0x0000	0	
Battery		BCU #1	Normal	0xE001	0x0000	~	
Drive Enclosure		BCU #2	Normal	0xE0D1	0x0000	~	
LD 🗸 Drives	<					>	
							,

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Batt	lery							» Action	
ETERNUS Controller Enclosure Controller Module Controller Module Channel Adapter Channel Adapter Channel Module Channel Module Channel Channel Module		TU BCU BCU Inform	^	Target 0						
		Enclosure	Component	Status	Status Code	Error Code	T.			
PCle Flash Module Power Supply Unit		CE#0	BCU #0	Normal	0xE001	0x0000				
		CE#0	BCU #1	Normal	0xE001	0x0000	-			
Frontend Enclosure Drive Enclosure		CE#0	BCU #2	Normal	0xE001	0x0000				
III @ Drives		CE#1	BCU #0	Normal	DxED01	0x0000				
		CE#1	BCU #1	Normal	0xED01	0×0000				
		CE#1	BCU #2	Normal	0xE001	0x0000				
		CE#2	BCU #0	Normal	0xE001	0x0000				
		CE#2	BCU #1	Normal	0xE001	0×0000				
		CE#2	BCU #2	Normal	0×E001	0×0000				
		CE#3	BCU #0	Normai	0xE001	0×0000				
		CE#3	BCU #1	Normal	0xE001	0×0000				
		CF#3	RC11#2	Chiromal	0vF001	0/000	*			
	<						>			
								\leq		

The following items are displayed in the Main area:

- Enclosure
 The CE number is displayed.
 This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.
- Component The BCU number is displayed.
- Status The BCU status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The BCU status code is displayed.
- Error Code The BCU error code is displayed.

3.3 Frontend Enclosure

The Frontend Enclosure (FE) information is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Summary

ategory	Frontend En	closure					» Action
ETERNUS	Summany	Econt View	Rear View			-	Target 0
Controller Enclosure	▼ FE Informa	tion	There are a				Turn on locator beacor
Frontend Router	Location	Status	Error Code	Sensor 1	Sensor 2		Turn off locator beacon
Service Controller	Intake Temp	Normal	0x0000	48 C / 118 F	49 C / 120 F	~	
FAN Unit	Exhaust Temp	Normal	0x0000	-	a.;	~	
Operation Panel	<					2	
Drive Enclosure							

The following items are displayed in the Main area:

Location

The installation location of the thermal sensor is displayed.

- Intake Temp
- Exhaust Temp
- Status

The thermal sensor status is displayed.

Error Code

The error code of the thermal sensor is displayed.

• Sensor 1

For the "Intake Temp" field, temperature of the SVC#0 is displayed in Celsius (C) and in Fahrenheit (F). If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

For the "Exhaust Temp" field, a "-" (hyphen) is usually displayed.

Sensor 2

For the "Intake Temp" field, temperature of the SVC#1 is displayed in Celsius (C) and in Fahrenheit (F). If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

For the "Exhaust Temp" field, a "-" (hyphen) is usually displayed.

Front View

Category	Fro	ntend En	closure				» Action
ETERNUS Controller Enclosure Frontand Enclosure Frontand Router Power Supply Unit FAN Unit Operation Panel Orive Enclosure F Drives	5 ¥	iummary FE Front V	Target: 0				
	OF OS	ANU#2 MC#1 ANU#0					
	0 5	VC#0	Parts Info	mation	4444444 4444444	1	
		Parts	Status	Status Code	Error Code		
	0	SVC#0	Normal	0xE001	0x0000	0	
	0	SVC#1	Normal	0xE001	0x0000		
	0	FANUMO	Normal	0xE001	0x0000		
	0	EANU#1	Normal	0xE001	0×0000		
	0	EANU#2	Normal	0xE001	0x0000		
	0	EANU#3	Normal	0xE001	0x0000	~	
	<	2				> ~	

The following items are displayed in the Main area:

• Storage system image

The front view of the FE that is installed in the ETERNUS DX is displayed.

The Service Controller (SVC) status and the FAN Unit (FANU) status are indicated by icons. Refer to <u>"A.5</u> <u>Component Status" (page 410)</u> for details.

By clicking the SVC number, the [Service Controller Detail] screen is displayed. Refer to <u>"3.12 Service</u> <u>Controller Detail" (page 146)</u> for display items.

By clicking the FANU number, the [FAN Unit Detail] screen is displayed. Refer to <u>"3.14 FAN Unit Detail"</u> (page 150) for display items.

Parts

The SVC number and the FANU number are displayed.

By clicking the SVC number, the [Service Controller Detail] screen is displayed. Refer to <u>"3.12 Service</u> <u>Controller Detail" (page 146)</u> for display items.

By clicking the FANU number, the [FAN Unit Detail] screen is displayed. Refer to <u>"3.14 FAN Unit Detail"</u> (page 150) for display items.

Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

• Status Code

The status code of each component is displayed.

Error Code

The error code of each component is displayed.

Rear View

Category	Fro	ntend Er	closure				» Action
ETERNUS Controller Enclosure Frontend Router Frontend Router Prove Controller Preservice Controller		iummary FE Rear V	Target: 0				
	FPS		SUW3	RT#3			
FAN Unit Operation Panel	F	1	177	RT#2			
Prive Enclosure Prives	FPS	U#0 FP	SUW1	RT#1			
	222			FRT#0			
	•	FE Interne	I Parts Info	ormation	1		
	0	Parts	Status	Status Code	Error Code		
	0	ERT#1	Normal	0xED01	0×0000	^	
	0	ERT#2	Normal	0xE001	0x0000		
	0	ERI#3	Normal	DxE001	0x0000		
	0	EPSU#0	Normal	0xE001	0x0000		
	0	EPSU#1	Normal	0xED01	0x0000		
	0	FPSU#2	Normal	0xED01	0×0000	~	
	2	EDOI HIS	P	0-2004	0-000	> *	

The following items are displayed in the Main area:

• Storage system image

The rear view of the FE that is installed in the ETERNUS DX is displayed.

The Frontend Router (FRT) status and the FE Power Supply Unit (FPSU) status are indicated by icons. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

By clicking the FRT number, the [Frontend Router Detail] screen is displayed. Refer to <u>"3.11 Frontend</u> Router Detail" (page 143) for display items.

By clicking the FPSU number, the [FE Power Supply Unit Detail] screen is displayed. Refer to <u>"3.13 FE Power</u> Supply Unit Detail" (page 148) for display items.

Parts

The FRT number and the FPSU number are displayed.

By clicking the FRT number, the [Frontend Router Detail] screen is displayed. Refer to <u>"3.11 Frontend</u> Router Detail" (page 143) for display items.

By clicking the FPSU number, the [FE Power Supply Unit Detail] screen is displayed. Refer to <u>"3.13 FE Power</u> Supply Unit Detail" (page 148) for display items.

Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

• Status Code

The status code of each component is displayed.

Error Code

The error code of each component is displayed.

3.3.1 Frontend Router

The FRT information is displayed.

This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Category	From	ntend R	outer		» Action		
E ETERNUS		FRT	Status	^	Target 0		
E Gonzoler Enclosure	0	ERTIO	Normal				
Service Controller	0	ERT#1	Normal				
Power Supply Unit	0	ERT#2	Normal				
FAN Unit Operation Panel	0	ERT#3	Normal	~			
🗉 💷 Drive Enclosure	<			>			
III @ Drives							
	1						
				~			

The following items are displayed in the Main area:

Status

The FRT number is displayed. By clicking the FRT number, the [Frontend Router Detail] screen is displayed. Refer to <u>"3.11 Frontend Router Detail" (page 143)</u> for display items.

Status

The FRT status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.3.2 Service Controller

The SVC information is displayed.

This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.



The following items are displayed in the Main area:

SVC

The SVC number is displayed. By clicking the SVC number, the [Service Controller Detail] screen is displayed. Refer to "3.12 Service Controller Detail" (page 146) for display items.

Status

The SVC status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.3.3 Power Supply Unit (FE)

The information of PSU for FE is displayed.





The following items are displayed in the Main area:

Enclosure

The enclosure where the FPSU is installed is displayed.

FPSU

The FPSU number is displayed. By clicking the FPSU number, the [FE Power Supply Unit Detail] screen is displayed. Refer to "3.13 FE Power Supply Unit Detail" (page 148) for display items.

Status

The FPSU status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.3.4 FAN Unit

The FANU information is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Category	FAN Unit	» Action
Category ETERNUS Controller Enclosure Frontend Enclosure Frontend Enclosure Frontend Router Frontend R	FAN Unit FANU Status FANU Status FANU FANUS FANUS FANUS	Action Target 0
in 🗣 Unves		

The following items are displayed in the Main area:

FANU

The FANU number is displayed. By clicking the FANU number, the [FAN Unit Detail] screen is displayed. Refer to <u>"3.14 FAN Unit Detail" (page 150)</u> for display items.

• Status

The FANU status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.3.5 Operation Panel

The Operation Panel (OPNL) information is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Summary

Category	Operation Panel	» Action		
ETERNUS Controller Enclosure	Summary		~	Target 0
E Frontend Enclosure	▼ OPNL Informatio	n		
Frontend Router	Location	OPNL		
Service Controller	Status	One of the second se		
Power Supply Unit	Status Code	0xE001		
SF FAN Unit	Error Code	0x0000		
	Part Number	CA07555-D052		
Orive Enclosure	Serial Number	Serial Number PP132401W6 Hardware Revision A1		
Diffes	Hardware Revision			
			~	

The following items are displayed in the Main area:

- Location The OPNL is displayed.
- Status The OPNL status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The OPNL status code is displayed.
- Error Code The OPNL error code is displayed.
- Part Number The part number of the OPNL is displayed.
- Serial Number The serial number of the OPNL is displayed.
- Hardware Revision The hardware version of the OPNL is displayed.

3.4 Drive Enclosure

The DE information is displayed.

Caution

The ETERNUS AF250 and the ETERNUS DX200F do not support this function.



The following items are displayed in the Main area:

• Enclosure

The DE number is displayed. By clicking this item, the [Drive Enclosure] screen is displayed. Refer to "3.15 Drive Enclosure Detail" (page 152) for display items.

Status

The DE status is displayed. Refer to "A.5 Component Status" (page 410) for details.

• Type

The DE type is displayed.

The DE type indicates the drive size and the maximum number of drives that can be installed.

3.4.1 I/O Module

The I/O Module (IOM) information is displayed.

BIETERNUS Controller Enclosure Controller	Category	1/0	Module					» Action
Image: Chromo Enclosure IDM Status Image: Chromo Statistics DEm00 IDMR0 IONormal Image: Chromo Statistics DEm00 IDMR1 IONormal Image: Dem00 IDMR1 IONE1 IONermal Image: Dem02 IDMR1 IONermal IDEm03 IOMR1 Image: Dem03 IDMR1 IONermal Image: Onermal Image: Onermal Image: Dem03 IOMR1 IONermal Image: Onermal Image: Onermal Image: Dem03 IOMR1 IONermal Image: Onermal Image: Onermal Image: Dem03 IOMR1 IONermal Image: Onermal Imag	E ETERNUS				8 items)((< 1/1 pages >>)(1 m page [Go 🔨	Target: 0
IdMAGGE DEW00 LOMB Normal Image: Derives Image: Derives Normal Image: Derives Image: Derives Image: Derives Normal Image: Derives Image: Derives Image: Derives Normal Image: Derives Image: Derives Image: Derives Normal Image: Derives Image: Derives	E B Drive Enclosure	-	Enclosure	IOM	Status			
MP Power Supply Unit DE#00 LOM#1 Ownmail IF IMADE DE#01 LOM#2 Ownmail IF IMADE DE#01 LOM#2 Ownmail IDE#02 LOM#2 Ownmail IDE#02 LOM#2 Ownmail IDE#03 LOM#2 Ownmail IDE#03 LOM#2 Ownmail IDE#03 LOM#2 Ownmail	Error Statistics	0	DE#00	IOMMO	Normal		~	
▲ Fan Expander Modul ○ DE#01 LOM#2 Onormal ♥ ◇ Drives ○ DE#01 LOM#2 Onormal ○ DE#01 LOM#2 ◇Normal ○ DE#02 LOM#2 ◇Normal ○ DE#03 LOM#2 ◇Normal ○ DE#03 LOM#2 ◇Normal	Power Supply Unit	0	DE#00	10M#1	Normal			
DE#01 LOM#1 ONormal DE#02 LOM#2 Onormal DE#03 LOM#2 Onormal DE#03 LOM#2 Onormal DE#03 LOM#2 Onormal	Pan Expander Moou Files	0	DE#01	IOM#0	Normal			
DE#02 LOM#2 ©Normal DE#02 IOM#1 ©Normal DE#03 IOM#2 ©Normal DE#03 IOM#2 ©Normal		0	DE#01	IOM#1	Normal			
DE#02 IOM#1 Ovormal DE#03 IOM#2 Ovormal DE#03 IOM#2 Ovormal		0	DE#02	IOM#D	Normai			
DEPO3 LOME2 ©Normal		0	DE#02	IOM#1	Normal			
DEW03 IOM#1 ONormal		0	DE#03	IOM#0	Normal			
		0	DE#03	IOM#1	Normal			
		<					>	
							Y	

The following items are displayed in the Main area:

• Enclosure

The enclosure where the IOM is installed is displayed.

IOM

The IOM number is displayed. By clicking this item, the [I/O Module] screen is displayed. Refer to <u>"3.16 I/O Module Detail" (page 157)</u> for display items.

• Status

The IOM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Filter setting

The filter setting is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Filter	Description
Enclosure	Select the DE that is to be displayed.
Status	Select the IOM status that is to be displayed.
3.4.2 Port Error Statistics

The total number of errors for CM expander and DE IOM ports is displayed. An increasing number of errors in the information is used to notify early replacement for warning status components. This can also be used as analysis information when performance is reduced.

🔵 Note

Errors that occur in the SAS transmission line are detected in CM and recovered by retries. Note that detecting an error is not an immediate cause of data failure.

Category P	ort Error	Statistics								» Action
E ETERNUS	#Filter se	etting					Filt	er Clear	^	Target 0
Drive Enclosure	Expand	ier;All								
Power Supply Unit			128 iten	15 14	< 1/2 pag	jes 🗼	1	1 🜩 page 🛛 Go		
Fan Expander Modul	Enclosure	Expander	Port No.	Phy No.	Status	Invalid Dword	Disparity Error	Loss of Dword Synchronization		
				PHY#0	Link Up	0	0	~		
				PHY#1	Link Up	0	0	^		
			PULHU	PHY#2	Link Up	0	0			
				PHY#3	Link Up	0	0			
			Port#1	PHY#0	Link Up	0	0			
				PHY#1	Link Up	0	0			
				PHY#2	Link Up	0	0			
		C1480.10C		PHY#3	Link Up	0	0			
		CARD IOC		PHY#0	Link Up	0	0			
			Dout#2	PHY#1	Link Up	0	0			
			- UTIME	PHY#2	Link Up	0	0			
				PHY#3	Link Up	0	0			
				PHY#0	Link Up	0	0			
			Doutle?	PHY#1	Link Up	0	0	~		
			- 01072	PHY#2	Link Up	0	0		~	

The following items are displayed in the Main area:

Enclosure

Enclosures (Controller Enclosure, Drive Enclosure) that have ports are displayed.

• Expander

The chip installation location that is targeted by the port error detection is displayed.

• Port No.

The port number that is targeted by the port error detection is displayed.

• Phy No.

The Phy number of the port that is targeted by the port error detection is displayed.

Status

The Phy status is displayed.

- Link Up
- Link Down
- N/A
- Invalid Dword

The number of Invalid Dword occurrences is displayed.

"Invalid Dword" indicates an error in the SAS transmission line. The SAS interface encodes 8-bit to 10-bit to improve the transmission error ratio. This error is detected when the SAS interface fails encoding.

- Disparity Error
 The number of Disparity Error occurrences is displayed.
 "Disparity Error" indicates an error in the SAS transmission line. The SAS interface encodes 8-bit to 10-bit to improve the transmission error ratio. This error is detected when the SAS interface fails encoding.
- Loss of Dword Synchronization The number of Loss of Dword Synchronization occurrences is displayed.
 "Loss of Dword Synchronization" indicates that the SAS interface failed encoding and the SAS link synchronization is broken.
- Phy Reset Problem
 The number of Phy Reset Problem occurrences is displayed.
 "Phy Reset Problem" is detected when resetting and recovering the port in which an error occurred.

Filter setting

Filter	Description
Expander	Select the installation location of the chip that is to be displayed.

3.4.3 Power Supply Unit (DE)

The PSU information for a DE is displayed.

Category	Pov	ver Supply	Unit			» Action
ETERNUS				10 items	H	Target 0
E Brive Enclosure	1	Enclosure	PSU	Status		
Power Supply Unit	0	DE#00	PSUM	Normal		
Fan Expander Modu	0	DE#00	PSU#1	Normal		
Drives	0	DE#01	PSU#0	Normal		
	0	DE#01	PSU#1	Normal		
	0	DE#02	PSU#0	Normal		
	0	DE#02	PSU#1	Normal		
	0	DE#02	PSU#2	Normal		
	0	DE#02	PSU#3	Normal		
	0	DE#03	PSUMO	Normal	~	
	0	DE#03	PSUM1	Chlormal		
					1	
					~	
1 2						

The following items are displayed in the Main area:

Enclosure

The enclosure where the PSU is installed is displayed.

PSU

The PSU number is displayed.

By clicking this item, the [Power Supply Unit (DE)] screen is displayed. Refer to <u>"3.17 Power Supply Unit</u> (DE) Detail" (page 159) for display items.

Status

The PSU status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.4.4 Fan Expander Module

This function displays the Fan Expander Module (FEM) information.

Category	Fai	n Expande	r Modul	•		» Action
E ETERNUS		Enclosure	FEM	Status	~	Target 0
E Drive Enclosure	0	DE#02	EEM#0	Normal	^	
I/O Module Rower Supply Linit	0	DE#02	EEM#1	Normal	~	
Fan Expander Modu	1				>	
I III Prives						
	1					
	1					
()						

The following items are displayed in the Main area:

• Enclosure

The drive enclosure number is displayed.

FEM

The FEM number is displayed. Click this item to display the [Fan Expander Module Detail] screen. Refer to "3.18 Fan Expander Module Detail" (page 161) for display items.

• Status

The FEM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.5 Drives

The drive information is displayed.

Category	Driv	ves							» Action
ETERNUS	#	Filter setting					Filter	Clear	Target 0
Controller Enclosure Drive Enclosure Fine Performance Error Statistics		Assign Global HS Release Global HS							
				264 items)	< 1/3 pag	les 🕨 H	1 -	age Go	Assign Dedicated HS Release Dedicated HS
		Enclosure	Slot No.	Status	Capacity	Speed	Туре	Usage	× Remove Disk Drive
		CE	Q	Available	600.00 GB	15000 rpm	2.5" Online	Data	Start Diagnosis
		CE	1	Available	600.00 GB	15000 rpm	2.5" Online	Data	Preventive Maintenance
		CE	2	Spare	800.00 GB		2.5" SSD	Global F	Force Enable
		CE	3	Spare	800.00 GB		2.5" SSD	Dedicate	Force Disable
		CE	4	Available	800.00 GB		2.5" SSD	Data	
		CE	5	Available	800.00 GB	-	2.5" SSD	Data	
		CE	<u>6</u>	Available	800.00 GB		2.5" SSD-M	Data	
		CE	I	Available	800.00 GB	-	2.5" SSD-M	Data	
		CE	8	Spare	800.00 GB	2	2.5" SSD-M	Global F	
		CE	2	OPresent	1.00 TB	15000 rpm	2.5" Nearline	Data	
		CE	10	OPresent	1.00 TB	15000 rpm	2.5" Nearline	Data	
		CE	11	OPresent	1.00 TB	15000 rpm	2.5" Nearline	Data	
		CE	12	OPresent	1.00 TB	15000 rpm	2.5" Nearline	Data	
		CE	13	OPresent	1.00 TB	15000 rpm	2.5" Nearline	Data 🗸	
	<			-				>	×

The following items are displayed in the Main area:

• Enclosure

The enclosure where the drive is installed is displayed.

Slot No.

The slot number of the enclosure where the drive is installed is displayed. By clicking the drive image, the [Drives] screen is displayed. Refer to "3.19 Drive Detail" (page 164) for display items.

Status

The drive status is displayed. Refer to "A.5.1 Drive Status" (page 411) for details.

Capacity

The capacity of the drive is displayed.

┝ Caution

The drive capacity that is displayed for the SSD-L (*1) differs from the product's actual capacity. For example, the drive capacity of a "1.92TB SSD-L" is displayed as "2.00 TB".

*1: SSD-Ls are available at a lower cost per capacity than conventional SSDs by optimizing the guaranteed write endurance and the reserved space.

Speed

The drive speed is displayed. For SSD or SSD SED, a "-" (hyphen) is displayed.

- 15000 rpm
- 10000 rpm
- 7200 rpm

 Type The drive type is displayed. - 2.5" Online 2.5-inch SAS disk - 2.5" Online AF 2.5-inch SAS disk (Advanced Format supported) - 2.5" Nearline 2.5-inch Nearline SAS disk 2.5" Nearline AF 2.5-inch Nearline SAS disk (Advanced Format supported) - 3.5" Online 3.5-inch SAS disk - 3.5" Online AF 3.5-inch SAS disk (Advanced Format supported) - 3.5" Nearline 3.5-inch Nearline SAS disk 3.5" Nearline AF 3.5-inch Nearline SAS disk (Advanced Format supported) - 2.5" SSD-M 2.5-inch SSD-M (12 Gbit/s) (*1) - 3.5" SSD-M 3.5-inch SSD-M (12 Gbit/s) (*1) - 2.5" SSD-L 2.5-inch SSD-L (12 Gbit/s) (*1) - 3.5" SSD-L 3.5-inch SSD-L (12 Gbit/s) (*1) - 2.5" SSD 2.5-inch SSD (6 Gbit/s) (*1) - 3.5" SSD 3.5-inch SSD (6 Gbit/s) (*1) - 2.5" Online SED 2.5-inch Online SED 3.5" Nearline SED 3.5-inch Nearline SED - 2.5" SSD-M SED 2.5-inch SSD-M SED (*2) - 3.5" SSD-M SED 3.5-inch SSD-M SED (*2) - 2.5" SSD-L SED 2.5-inch SSD-L SED (*2) - 3.5" SSD-L SED 3.5-inch SSD-L SED (*2) *1: The displayed item varies depending on the interface speed (bandwidth) or the capacity of the reserved space. • "SSD-M" is displayed for SSDs with an interface speed of 12Gbit/s.

- "SSD-L" is displayed for Value SSDs with an interface speed of 12Gbit/s.
- "SSD" is displayed for SSDs with an interface speed of 6Gbit/s.
- Unless otherwise specified, this manual refers to "SSD-M", "SSD-L", and "SSD" collectively as "SSD".
- *2: In this manual, there may be cases when "SSD SED" is used as a collective term for options and drive types.

Usage

The usage of the drive is displayed.

- For a drive that is used for user data or an unused drive Data
- For a drive that is registered as a Global Hot Spare Global Hot Spare
- For a drive that is registered as a Dedicated Hot Spare Dedicated Hot Spare
- RAID Group

When the drive belongs to a RAID group, the RAID group number and the RAID group name are displayed. However, if the drive usage is "Dedicated Hot Spare", the RAID group number and the RAID group name are displayed even when the drive is not used as a Hot Spare. Click this item to display the [RAID Group Detail] screen.

When the usage is not "Dedicated Hot Spare" and the drive is not registered in a RAID group, a "-" (hyphen) is displayed.

Health

The drive lifetime information is displayed between 0% - 100%. As the lifetime of the drive is reduced, the health level of the drive is decreased.

- A "-" (hyphen) is displayed in the following conditions:
 - The drive is neither "SSD" nor "SSD SED"
 - The lifetime information cannot be obtained

Filter setting

Filter	Description
Enclosure	Select the enclosure in which the target drive is installed.
Slot No.	Specify the slot number of the drive that is to be displayed. When not using the slot number for filtering, leave this item blank.
Status	Select the drive status that is to be displayed.
Capacity	Specify the capacity of the drive that is to be displayed. When not using the drive capacity for filtering, specify "0".
Туре	Select the drive type that is to be displayed.
Usage	Select the usage of the drive that is to be displayed.

3.5.1 Performance (Drive)

The drive performance information is displayed.

Note

- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.

Category	Performan	Performance									
ETERNUS	#Filter se	Hiter setting									
Controller Enclosure Drive Enclosure Orives	Enclosu	Enclosure Ali Slot No.: Minimum Busy Rate:									
Error Statistics											
	Enclosure	Slot No.	Busy Rate								
	DE#00	0		0%	^						
	DE#00	1		0%							
	DE#00	2		0%							
	DEM00	3		0%							
	DE#00	4		0%							
	DE#00	5		0%							
	DE#00	6		0%							
	DEM00	7	L	0%							
	DE#00	8		0%							
	DE#00	9	-	0%							
	DE#00	10	-	0%	~						
	DF#00	51	1	0%							
	· C :				2						

The following items are displayed in the Main area:

• Enclosure

The enclosure where the drive is installed is displayed.

Slot No.

The slot number of the enclosure where the drive is installed is displayed.

Busy Rate

The busy rate of the drive is displayed with a bar and a numerical number. When a drive is in the "😵 Broken" or "😵 Not Supported" state, a "-" (hyphen) is displayed.

Filter setting

Filter	Description							
Enclosure	Select the enclosure in which the target drive is installed.							
Slot No.	Specify the slot number of the drive that is to be displayed. When not using the slot number for filtering, leave this item blank.							
Minimum Busy Rate	Specify the minimum busy rate for the drive that is to be displayed. The drives with a busy rate that exceeds the specified minimum busy rate are displayed. When not using the minimum busy rate for filtering, leave this item blank.							

3.5.2 Drive Error Statistics

The total number of drive errors is displayed.

An increasing number of disk errors can be used as a sign for the early replacement of warning components or as information to analyze performance when performance is reduced. Any unnecessary drive error information can be deleted.

Category	Driv	e Error Si		» Action								
ETERNUS Controller Enclosure Drive Enclosure Orive Enclosure Orives Drives Orives Orives Orives Orives Orives			~	Target 0								
		Enclosure	Slot No.	Port No.	Media Error	Drive Error	Drive Recovered Error	S.M.A.R.T. Event	I/O Timeout	Link Error		Clear Error
		DE#00	Drive#0	Port#0 Port#1	0	0	0	0	0	^		
		DE#00	Drive#1	Port#0 Port#1	0	0	0	0	0			
		DE#00	Drive#2	Port#0 Port#1	0	0	0	0	0			
		DE#00	Drive#3	Port#0	0	0	0	0	0			
		DE#00	Drive#4	Port#0	0	0	0	0	0			
		DE#00	Drive#5	Port#1	0	0	0	0	0			
		05#00	Drivette	Port#1 Port#0	0	0	0	0	0			
		05#00	Drive#7	Port#1 Port#0	0	0	0	0	0			
	1	DE#00	DIVER7	Port#1 Port#0	0	0	0	0	0	~		
	<									>		

The following items are displayed in the Main area:

- Enclosure The enclosure where the drive is installed is displayed.
- Slot No. The slot number of the enclosure where the drive is installed is displayed.
- Port No. The drive port number is displayed.
- Media Error The number of Media Error occurrences is displayed.
- Drive Error The number of Drive Error occurrences is displayed.
- Drive Recovered Error The number of Drive Recovered Error occurrences is displayed.
- S.M.A.R.T. Event The number of S.M.A.R.T. Event occurrences is displayed.
- I/O Timeout The number of I/O Timeout occurrences is displayed.
- Link Error The number of Link Error occurrences is displayed.
- Check Code Error The number of Check Code Error occurrences is displayed.

3.6 Controller Enclosure Detail

The detailed CE information is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Controller E	nclosure					Action		
ETERNUS	Summary	Eront View	Rear View	1		-	Target: 0		
Controller Enclosure	T CEHO later	Summary From view Real view							
 Controller Module 	* CE#0 Infor	mauon	0004				Turn off locator beacon		
Channel Adapter ECle Elseb Module	Charge Rate		Winto Dack	Mede					
PCle Flash Module Power Supply Unit	Social Number								
Battery	Other Informat	ion	000000000	000					
Frontend Enclosure	Gine Internet								
🗉 📾 Drive Enclosure	Location	Status	Error Code	Sensor 1	Sensor 2				
1. V Drives	Intake Temp	Normai	0x0000	19 C / 66 F	40 C / 104 F	~			
	Exhaust Temp	Normal	0x0000	20 C / 68 F	41 C / 105 F	~			
						2			

• For the other models

Category	» Action						
ETERNUS	Summany	Econt View	Rear View			~	Target: 0
E Controller Enclosure	T CE Informa		Turn on locator beacon				
Controller Module	* CE Informe	10011	RN000000000	00000000			Turn off locator beacon
PCle Flash Module	Other Informat	ion	000000000000000000000000000000000000000	0000000			
N Power Supply Unit	Other information	1011	000000000000				
Battery	Location	Status	Error Code	Sensor 1	Sensor 2		
Drive Enclosure Drives	Intake Temp	Maintenance	0x0000	20 C / 68 F	21 C / 69 F	~	
Co ver unives	Exhaust Temp	Maintenance	0x0000	21 C / 69 F	22 C / 71 F	~	
	6					5	

The following items are displayed in the Main area:

- Charge Rate
 The battery charge level for CE is displayed.
 When the battery charge level is 90% or more, "Full Charge" is displayed. When the battery charge level is
 less than 90%, "xx%" is displayed.
 This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.
- Cache Mode

The current status and the factor of the cache are displayed. This item is displayed for the ETERNUS DX8700 S3/DX8900 S3.

- Write Back Mode
- Write Through (Pinned Data)
- Write Through (Battery)
- Write Through (Maintenance)
- Write Through (1CM)
- Serial Number

The serial number of the CE is displayed.

- Other Information Additional information for the CE is displayed.
- Location

The installation location of the thermal sensor is displayed.

- Intake Temp
- Exhaust Temp
- Status

The status of thermal sensor is displayed.

• Error Code

The error code for the thermal sensor is displayed.

Sensor 1

The temperature of CM#0 is displayed in Celsius (C) and in Fahrenheit (F).

If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

Sensor 2

The temperature of CM#1 is displayed in Celsius (C) and in Fahrenheit (F). If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

Front View

The image that is displayed in this screen varies depending on the storage system model.

Category	Cor	troller E	Action						
ETERNUS	-	Summary	Front View	Rear View	i				Target 0
Employee Controller Module E Controller Module E Channel Adapter N Power Supply Unit E Drive Enclosure E Orive Enclosure E		CE Front V			0 0 0 0 1 1 1 1	000 1111	0 0 0 0 0 1 1 1 1 1		Remove Disk Drive Assign Global HS Release Global HS Preventive Maintenance Force Enable Force Disable
		Parts	Status	Capacity	Speed	Type	Usage	RAID Gro	
		Drive#0	Available	600.00 GB	15000 rpm	Online	Data	0: RA	
		Drive#1	Available	600.00 GB	15000 rpm	Online	Data	0: RA	
		Drive#2	Spare	800.00 GB	-	SSD	Global Hot Spare	-	
		Drive#3	Spare	800.00 GB	1	SSD	Dedicated Hot Spare	1:88	
		Drive#4	Available	800.00 GB	1.0	SSD	Data	1: BA	
		Drive#5	Available	800.00 GB		SSD	Data	1: RA	
		Drive#6	Available	800.00 GB		SSD-M	Data	2: RA	
		Drive#7	Available	800.00 GB	1	SSD-M	Data	2:RA	
		Drive#8	Spare	800.00 GB	10	SSD-M	Global Hot Spare	-	
		Drive#9	OPresent	1.00 TB	15000 rpm	Nearline	Data	- ~	
	2	Delument.	n	+ 00 TD	45000 mm	Mondlan	Data	>	

• For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F

The following items are displayed in the Main area:

- Storage system image

The front view of the CE that is installed in the ETERNUS DX/AF is displayed. The number of drives that can be installed for each CE type is as follows:

- 2.5" CEs
 - 24 drives (24 drives are lined up horizontally)
- 3.5" CEs
 - 12 drives (3 drives are lined up vertically and 4 drives are lined up horizontally)
- When no drives are installed

Blank

The drive status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details. By clicking the drive image, the [Drive Detail] screen is displayed. Refer to <u>"3.19 Drive Detail" (page 164)</u> for display items.

- Parts

The drive number is displayed. By clicking the drive number, the [Drive Detail] screen is displayed. Refer to <u>"3.19 Drive Detail" (page 164)</u> for display items.

- Status

The drive status is displayed. Refer to "A.5.1 Drive Status" (page 411) for details.

- Capacity

The capacity of the drive is displayed.

Caution

The drive capacity that is displayed for the SSD-L differs from the product's actual capacity. For example, the drive capacity of a "1.92TB SSD-L" is displayed as "2.00 TB".

- Speed

The drive speed is displayed. For SSD or SSD SED, a "-" (hyphen) is displayed.

- 15000 rpm
- 10000 rpm
- 7200 rpm
- Туре

The drive type is displayed.

- Online
- SAS disks • Online AF
- Advanced Format supported SAS disks
- Nearline
 - Nearline SAS disks
- Nearline AF
- Advanced Format supported Nearline SAS disks
- SSD-M
 - SSD-Ms (12 Gbit/s) (*1)
- SSD-L
 - SSD-Ls (12 Gbit/s) (*1)
- SSD
- SSDs (6 Gbit/s) (*1)
- Online SED
 Online SEDs
- Nearline SED Nearline SEDs
- SSD-M SED
- SSD-M SEDs (*2)
- SSD-L SED
 - SSD-L SEDs (*2)
- *1: The displayed item varies depending on the interface speed (bandwidth) or the capacity of the reserved space. Unless otherwise specified, this manual refers to "SSD-M", "SSD-L", and "SSD" collectively as "SSD".
- *2: In this manual, there may be cases when "SSD SED" is used as a collective term for options and drive types.
- Usage

The usage of the drive is displayed.

- For a drive that is used for user data or an unused drive: Data
- For a drive that is registered as a Global Hot Spare: Global Hot Spare
- For a drive that is registered as a Dedicated Hot Spare: Dedicated Hot Spare
- RAID Group

When the drive belongs to a RAID group, the RAID group number and the RAID group name are displayed. However, if the drive usage is "Dedicated Hot Spare", the RAID group number and the RAID group name are displayed even when the drive is not used as a Hot Spare. Click this item to display the [RAID Group Detail] screen.

When the usage is not "Dedicated Hot Spare" and the drive is not registered in a RAID group, a "-" (hyphen) is displayed.

- Health

The drive lifetime information is displayed between 0% - 100%. As the lifetime of the drive is reduced, the health level of the drive is decreased.

A "-" (hyphen) is displayed in the following conditions:

- The drive is neither "SSD" nor "SSD SED"
- The lifetime information cannot be obtained

For the ETERNUS DX500 S3/DX600 S3 and the ETERNUS AF650

Category	ry Controller Enclosure												
ETERNUS Controler Enclosure Controler Module		Summary Fro	int View	lear View			^	Target: 0					
Channel Adapter Pole Flash Module Power Supply Unit	CM#1 PFM#1				2 88U #2	internet inter							
Battery	00	M#1 PFM#0			O BBU #1	mmmm 1995							
🕆 🗬 Drives	00	M#0 PEM#0											
	•	▼ CE Internal Parts Information											
	0	CMID PEMID	Status	0xE001	0x0000								
	0	CM#0 PFM#1	Normal	0xE001	0x0000	^							
	0	CM#1 PFM#0	Normal	0xE001	0x0000								
	0	CM#1 PFM#1	Normal	0xE001	0x0000								
	0	BTU #0	Normal	0xE001	0x0000								
	0	BTU#1	Normal	0xE001	0x0000								
	0	BTU #2	Normal	0xE001	0x0000								
	0	BCU #0	Normal	0xE001	0x0000	~							
	<		-			>	~						

The following items are displayed in the Main area:

- Storage system image

The front view of the CE that is installed in the ETERNUS DX/AF is displayed.

The PFM status and the Battery Backup Unit (BBU) status are indicated by icons. Refer to <u>"A.5</u> <u>Component Status" (page 410)</u> for details.

By clicking the PFM number, the [PCIe Flash Module Detail] screen is displayed. Refer to <u>"3.9 PCIe Flash Module Detail" (page 137)</u> for details.

By clicking the BBU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

- Parts

The PFM number, the Battery Unit (BTU) number, and the Battery Charger Unit (BCU) number are displayed.

By clicking the PFM number, the [PCIe Flash Module Detail] screen is displayed. Refer to <u>"3.9 PCIe Flash Module Detail" (page 137)</u> for details.

By clicking the BTU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

By clicking the BCU number, the [Battery Charger Unit Detail] screen is displayed. Refer to <u>"3.2.10</u> <u>Battery" (page 97)</u> for details.

- Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code

The status code of each component is displayed.

- Error Code

The error code of each component is displayed.

• For the ETERNUS DX8100 S3

Category	Con	troller l	Enclosure				Action
ETERNUS		Summary CE Front	Front View	N Rear View			Target 0
Channel Adapter Power Supply Unit Battery Composition Drive Enclosure Composition Drives					ØB	8U W2	
				BU#1			
					ØB	BU #0	
	•	CE Intern					
		Parts	Status	Status Code	Error Cod	0	
	0	BTU #0	Normal	0xE001	0×0000	^	
	0	BTU #1	Normal	0xE001	0×0000		
	0	BTU #2	Normal	0×E001	0x0000		
	0	BCU #0	Normal	0xE001	0x0000		
	0	BCU #1	Normal	0×E001	0x0000	~	
	0	BCU #2	Normal	0xE001	0x0000		
						201	

The following items are displayed in the Main area:

- Storage system image

The front view of the CE that is installed in the ETERNUS DX is displayed.

The BBU status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details. By clicking the BBU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

- Parts

The BTU number and the BCU number are displayed

By clicking the BTU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

By clicking the BCU number, the [Battery Charger Unit Detail] screen is displayed. Refer to <u>"3.2.10</u> Battery" (page 97) for details.

- Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code

The status code of each component is displayed.

- Error Code The error code of each component is displayed. For the ETERNUS DX8700 S3/DX8900 S3



The following items are displayed in the Main area:

- Storage system image

The front view of the CE that is installed in the ETERNUS DX is displayed.

The PFM status, the BBU status, and the Bootup and Utility Device (BUD) status are displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

By clicking the PFM number, the [PCIe Flash Module Detail] screen is displayed. Refer to "3.9 PCIe Flash Module Detail" (page 137) for details.

By clicking the BBU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

By clicking the BUD number, the [Bootup and Utility Device Detail] screen is displayed. Refer to "3.20 Bootup and Utility Device Detail" (page 169) for details.

Parts

The PFM number, the BTU number, the BCU number, and the BUD number are displayed By clicking the PFM number, the [PCIe Flash Module Detail] screen is displayed. Refer to "3.9 PCIe Flash

<u>Module Detail" (page 137)</u> for details. By clicking the BTU number, the [Battery Unit Detail] screen is displayed. Refer to <u>"3.2.10 Battery"</u> (page 97) for details.

By clicking the BCU number, the [Battery Charger Unit Detail] screen is displayed. Refer to <u>"3.2.10</u> Battery" (page 97) for details.

By clicking the BUD number, the [Bootup and Utility Device Detail] screen is displayed. Refer to <u>"3.20</u> Bootup and Utility Device Detail" (page 169) for details.

- Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

Status Code

The status code of each component is displayed.

- Error Code

The error code of each component is displayed.

Rear View

The image that is displayed in this screen varies depending on the storage system model.



For the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F

The following items are displayed in the Main area:

- Storage system image

The rear view of the CE that is installed in the ETERNUS DX/AF is displayed. The CM status and the Power Supply Unit (PSU) status are displayed with icons. By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items. By clicking the PSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Parts

The CM number and the PSU number is displayed.

By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items.

By clicking the PSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Status

The status of each component is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

For the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8700 S3/DX8900 S3, and the ETERNUS AF650

Category	Cont	roller Encl	osure		Action			
ETERNUS	Su V C	mmary Fr E Rear View	Target: 0					
Channel Adapter Channel Adapter Chie Flash Module Power Supply Unit Battery Comparison Drive Enclosure Comparison Drives	CPSL	IFO CPSUM	CARO					
	100	1	CA#D		℃CA#1	LEELenny, EEL XXXX		
			CMMB		1911	THE NE		
	▼ C	E Internal Pa	_					
	1	Parts	Status					
	0	CM#0	Normal				~	
	0	CM#1	Normal					
	0	CM#0 CA#0	Normal					
	0	CM#0 CA#1	Normal					
	0	CM#1 CA#0	Normal					
	0	CM#1 CA#1	Normal					
	0	CPSUMO	Normal					
	0	CPSU#1	Normal				~	
	<						2	

The following items are displayed in the Main area:

- Storage system image

The rear view of the CE that is installed in the ETERNUS DX/AF is displayed.

The CM status, the CA status, and the Controller enclosure Power Supply Unit (CPSU) status are displayed with icons.

By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items.

By clicking the CA number, the [Channel Adapter] screen is displayed. Refer to <u>"3.8 Channel Adapter</u> <u>Detail" (page 132)</u> for display items.

By clicking the CPSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Parts

The CM number, the CA number, and the CPSU number is displayed.

By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items.

By clicking the CA number, the [Channel Adapter] screen is displayed. Refer to <u>"3.8 Channel Adapter</u> <u>Detail" (page 132)</u> for display items.

By clicking the CPSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

• For the ETERNUS DX8100 S3

Category	Con	troller Enclo	sure						» Action
E EFERNUS Channel Adapter Channel Adapter Channel Adapter Channel Adapter Channel Adapter E Eatlery E Drives		ummary Fro	Target 0						
	CPS	UMO CPSUM1	CA#0 CA#0 CA#0 CMW1		©BUD#1 ©CA#1 ©BUD#1 ©CA#1				
		E Internal Par	CM#0	म म म on	No.	-	EE.		
		Parts	Status						
	0	CM#0	Normal						
	0	CM#1	Normal					2	
	0	CM#0 CA#0	Normal						
	0	CM#0 CA#1	Normal						
	0	CM#1 CA#0	Normal						
	0	CM#1 CA#1	Normal						
	0	CM#0 BUD#0	Normal						
	0	CM#0 BUD#1	Normal						
	0	CM#1 BUD#0	Normal					~	
	~	PARA PURA	A					> ~	

The following items are displayed in the Main area:

- Storage system image

The rear view of the CE that is installed in the ETERNUS DX is displayed.

The CM status, the CA status, BUD status, and the CPSU status are displayed with icons.

By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items.

By clicking the CA number, the [Channel Adapter] screen is displayed. Refer to <u>"3.8 Channel Adapter</u> <u>Detail" (page 132)</u> for display items.

By clicking the BUD number, the [Bootup and Utility Device Detail] screen is displayed. Refer to <u>"3.20</u> Bootup and Utility Device Detail" (page 169) for details.

By clicking the CPSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Parts

The CM number, the CA number, the BUD number, and the CPSU number is displayed.

By clicking the CM number, the [Controller Module] screen is displayed. Refer to <u>"3.7 Controller Module</u> <u>Detail" (page 127)</u> for display items.

By clicking the CA number, the [Channel Adapter] screen is displayed. Refer to <u>"3.8 Channel Adapter</u> <u>Detail" (page 132)</u> for display items.

By clicking the BUD number, the [Bootup and Utility Device Detail] screen is displayed. Refer to <u>"3.20</u> Bootup and Utility Device Detail" (page 169) for details.

By clicking the CPSU number, the [Controller Enclosure Power Supply Unit] screen is displayed. Refer to "3.10 PSU/CPSU (CE) Detail" (page 140) for display items.

- Status

The status of each component is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.7 Controller Module Detail

The detailed CM information is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Controller Module		_	* Action
ETERNUS	Summary Interna CE#0 CM#0 Inform	al Parts View nation	~	Target: 0
Performance	Location	CE#0 CM#0		
🗉 💕 Channel Adapter	Status	Onormal		
PCIe Flash Module	Memory Size	32.00 GB		
NV Power Supply Unit	Part Number	CmPN5678901234567890		
Battery	Serial Number	CmSN5678901234567890		
Frontend Enclosure	Hardware Revision	CmREV678		
Drive Enclosure	MAC Address (MNT)	00-01-02-03-04-05		
the prives	MAC Address (RMT)	MAC Address (RMT) 00-01-02-03-04-05		
	MAC Address (FST)	00-01-02-03-04-05		
	Active EC	EC#1		
	Next EC	EC#2		
	CPU Clock	2.82 GHz		
	CPU Status	Normal		
	CPU Status Code	0xE001		
	CPU Error Code	0x0000		
			ζ.	

For the other models

Category	Controller Module		» Action
E ETERNUS	Summary Interna	Target 0	
Controller Module	* CM#0 Information	01447	
Performance	Location	CM#U	
Channel Adapter	Status	Normal	
PCIe Flash Module	Memory Size	8.00 GB	
Battery	Part Number		
1 Prive Enclosure	Serial Number		
E @ Drives	Hardware Revision		
	MAC Address (MNT)	06-04-06-00-65-6E	
	MAC Address (RMT)	06-04-06-00-65-6E	
	MAC Address (FST)	06-04-06-00-65-6E	
	Active EC	EC#1	
	Next EC	EC#2	
	CPU Clock	2.81 GHz	
	CPU Status	⊘Normal	
	CPU Status Code	0xE001	
	CPU Error Code	0x0000	
		a u du constante da la constante	
			¥

The following items are displayed in the Main area:

- Location The CM number is displayed.
- Status

The CM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

🔵 Note

In the Unified Storage environment, "S Maintenance" is displayed until a NAS system volume is created. The CM status changes to " Normal" after a NAS user volume is created and the NAS system volume is generated.

- Memory Size The cache memory capacity of the CM is displayed.
- Part Number The port number of the CM is displayed.
- Serial Number The serial number of the CM is displayed.
- Hardware Revision The hardware version of the CM is displayed.
- MAC Address (MNT) The MAC address of the MNT Port is displayed.
- MAC Address (RMT) The MAC address of the RMT Port is displayed.
- MAC Address (FST) The MAC address of the FST Port is displayed. This item is displayed for the ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and the ETERNUS AF650.
- Active EC The Edition Control (EC) number of the currently running firmware is displayed.
- Next EC The EC number of the firmware that is to be run at the next power-on is displayed.
- CPU#n Clock The clock frequency of CPU#0 or CPU#1 is displayed.
- CPU#n Status The status of CPU#0 or CPU#1 is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- CPU#n Status Code The status code of CPU#0 or CPU#1 is displayed.
- CPU#n Error Code The error code of CPU#0 or CPU#1 is displayed.

Internal Parts

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Con	troller Module		 Action 			
E W ETERNUS	5	ummary Internal Parts	View			~	Target 0
Controller Enclosure		CE#0 CM#0 Internal Par	Force Enable				
Performance		Parts	Status	Error Code	Notes		
Channel Adapter	0	CA#0	Normai	0x0000			
No Power Supply Unit	0	CA#1	Normal	0x0000		~	
Battery	0	CA#2	Normal	0x0000			
E Prontend Enclosure Drive Enclosure	0	CA#3	Normal	0x0000			
Drives	0	Memory #0	Normal	0x0000	4.00 GB		
	0	Memory #1	Normal	0x0000	4.00 GB		
	0	Memory #2	Normal	0x0000	4.00 GB		
	0	Memory #3	Normal	0x0000	4.00 GB		
	0	Memory #4	Normal	0x0000	4.00 GB		
	0	Memory #5	Normal	0x0000	4.00 GB		
	0	Memory #6	Normal	0x0000	4.00 GB		
	0	Memory #7	Normal	0x0000	4.00 GB		
	0	BUD #0	Normal	0x0000			
	0	BUD #1	Normal	0x0000			
	0	CM FAN #0	Normal	0x0000			
		SAS Cable#0(OUT)	Normal	0x0000		~	
	<					> ~	

• For the other models

Category	Con	troller Module		Action			
ETERNUS Controller Enclosure Controller Module Performance		Summary Internal CM#0 Internal Parts	^	Target: 0 Force Enable			
		Parts	Status	Error Code	Notes		Recover NAS Engine
Channel Adapter Market Adapter	0	NAS Engine	Normal	0x0000			Recover NAS System Vol
Power Supply Unit	0	CA#0	Normal	0x0000		~	
Battery	0	Memory #D	Normal	0x0000	8.00 GB		
E Crives	0	BUD #0	Normal	0x0000			
	0	CM FAN #0	Normal	0x0000			
		SAS Cable#0(OUT)	Normal	0x0000			
		SAS Cable#1(OUT)	Normal	0x0000			
		DI#0 Port #0	Normal	0×0000			
		DI#0 Port #1	Normal	0x0000			
		CM EXP	Normal	0x0000			
		CM EXP InPort #0	Normal	0x0000			
		CM EXP InPort #1	Normal	0x0000			
		DMA Port #0	Normal	0x0000			
	1	DMA Port #1	Normal	0x0000			
		BIOS #0	Normal	0x0000			
		BIOS #1	Normal	0x0000		~	
	<					> v	

The following items are displayed in the Main area:

• Parts

The component name and the component number are displayed.

A link is displayed when the "Parts" is "SAS Cable". Click this link to display the [SAS Cable] screen. Refer to "3.21 SAS Cable Detail" (page 171) for display items.

The following items are displayed for the ETERNUS DX8700 S3/DX8900 S3.

- A link is displayed when the "Parts" is "Frontend Cable". Click this link to display the [Frontend Cable] screen. Refer to "3.22 Frontend Cable Detail" (page 172) for display items.
- A link is displayed when the "Parts" is "Management Cable". Click this link to display the [Management Cable] screen. Refer to <u>"3.23 Management Cable Detail" (page 173)</u> for display items.
- A link is displayed when the "Parts" is "BUD". Click this link to display the [Bootup and Utility Device Detail] screen. Refer to "3.20 Bootup and Utility Device Detail" (page 169) for display items.

Status

The component status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Error Code

The component error code is displayed.

Notes

Remarks are displayed.

- When "Parts" is "Memory", the memory capacity is displayed.
- When "Parts" is "SCU", the voltage information is displayed (for the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F).

View

For the ETERNUS DX8700 S3/DX8900 S3



• For the other models

Category	Controll	er Modul	le				* Action
ETERNUS	Summa	ry Inte Rear Viev	^	Target 0			
Performance Solution Channel Adapter Solution Poise Flash Module Power Supply Unit Battery				EF	- 55		
B Drive Enclosure Ø Drives	100	<u>[77]</u>	CARD	 E.F.			
						~	

The following items are displayed in the Main area:

• Storage system image

The rear view of the CE that is installed in the ETERNUS DX/AF is displayed. Components that are not the target CM are grayed out. The CM status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for display items.

3.8 Channel Adapter Detail

The detailed information for the Channel Adapter is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Channel Adapter	Channel Adapter								
E Bolphin#1	Summary Intern	al Parts View		~	Target 0					
E Controller Enclosure	▼ CE#0 CM#0 CA#0	Information								
Controller Module	Location	CERO CMED CARD								
Performance	CA Tune	EC 2port								
PCIa Flash Module	CAType	PG 2port		_						
N Power Supply Unit	Status	Normal								
Battery	Status Code	0×E001		-						
Frontend Enclosure	Part Number									
E Drive Enclosure	Serial Number									
E 🚱 Drives	Hardware Revision	-	_							
	Chip#0 Status	Normal								
	Chip#0 Status Code 0xE001									
	Chip#0 Error Code	0×0000								
	Chip#0 Active EC	×								
	Chip#0 Next EC	-								
	Chip#1 Status	Normal								
	Chip#1 Status Code	0xE001								
	Chip#1 Error Code	0×0000								
	Chip#1 Active EC	-								
	Chip#1 Next EC	-								
	▼ CF#0 CM#0 CA#0	Port Information								
	Location	CE#0 CM#0 CA#0 Port#0	CE#0 CM#0 CA#0 Port#1	-						
	Port Mode	CA	CA							
	Status	Normal	Normal							
	Status Code	0xE001	0xE001							
	Error Code	0x0010	0x0011							
	Туре	FC	FC							
	Connection	FC-AL	FC-AL							
	Loop ID	0x7D	0x7D							
	Class	Class3	Class3	~						
	Transfer Pate	Auto-mentiation	Auto-peopliation							

For the other models

Category	Channel Adapter				» Action		
ETERNUS Controller Enclosure Sector Controller Module	Summary Internet	al Parts View		^	Target 0		
	▼ CM#0 CA#0 Inform	▼ CM#0 CA#0 Information					
🗉 💉 Channel Adapter	Location	ocation CM#0 CA#0					
Performance	CA Type	FC 2port					
🗉 🞬 PCle Flash Module	Status	Normal					
NV Power Supply Unit	Status Code	0xE001					
Battery	Part Number	-		3			
Drive Enclosure	Serial Number						
11 🖌 Drives	Hardware Revision						
	Chip#0 Status	One of the second se					
	Chip#0 Status Code	0xE001					
	Chip#0 Error Code	0×0000					
	Chip#0 Active EC	-					
	Chip#0 Next EC	-					
	▼ CM#0 CA#0 Port						
	Location	CM#0 CA#0 Port#0	CM#0 CA#0 Port#1				
	Port Mode	CA	CA				
	Status	Normal	Normal				
	Status Code	0xE001	0xE001				
	Error Code	0x0000	0x0000				
	Туре	FC	FC				
	Connection	FC-AL	FC-AL				
	Loop ID	0x00	0x00				
	Class	Class3	Class3				
	Transfer Rate	Auto-negotiation	Auto-negotiation	~			

The following items are displayed in the Main area:

- Location The CA installation location is displayed.
- CA Type
 - The CA type is displayed.

The display items in this field vary depending on the storage system model.

- For the ETERNUS DX60 S3
 - FC 2port
 - 1G-iSCSI 2port
 - 10G Base-T iSCSI 2port
 - 6G-SAS 2port
- For the ETERNUS DX100 S3/DX200 S3
 - FC 2port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 10G Base-T iSCSI 2port
 - 6G-SAS 2port
 - 10G-FCoE 2port
 - 10G-NAS 2port
 - 1G-NAS 4port
- For the ETERNUS DX500 S3/DX600 S3
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 1G-iSCSI-RA 2port
 - 10G-FCoE 2port
 - 10G-NAS 2port
 - 1G-NAS 4port
- For the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port
 - 1G-iSCSI 2port
 - 1G-iSCSI-RA 2port
 - 10G-FCoE 2port
- For the ETERNUS AF250
 - FC 2port
 - 10G-iSCSI 2port
 - 10G Base-T iSCSI 2port
- For the ETERNUS AF650
 - FC 2port
 - FC 4port
 - 10G-iSCSI 2port

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- FC 2port
- 10G-iSCSI 2port

🔵 Note

Note that a 1-port type CA for the ETERNUS DX60 S3/DX100 S3 is displayed as "2port" (for FC, "FC 2port" is displayed). Similarly, a 2-port type CA (1G-NAS) is displayed as "1G-NAS 4port". Available ports can be checked in the [Internal Parts] tab. Note that 1-port type CAs and 2-port type CAs are not available in some regions.

Status

The CA status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The CA status code is displayed.
- Part Number The part number of the CA is displayed.
- Serial Number The serial number of the CA is displayed.
- Hardware Revision The hardware version of the CA is displayed.
- Chip#n Status The status of Chip#0 or Chip#1 is displayed. Refer to "A.5 Component Status" (page 410) for details.
- Chip#n Status Code The status code of Chip#0 or Chip#1 is displayed.
- Chip#n Error Code The error code of Chip#0 or Chip#1 is displayed.
- Chip#n Active EC A "-" (hyphen) is displayed.
- Chip#n Next EC A "-" (hyphen) is displayed.

CM#x CA#y Port Information

The detailed information of all the ports is displayed. Refer to <u>"FC port" (page 174)</u>, <u>"iSCSI port" (page 180)</u>, "SAS Port" (page 184), "FCoE port" (page 186), or <u>"NAS port" (page 188)</u> for display contents.

Internal Parts

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Cha	nnel Adapter				* Action
ETERNUS	5	ummary Internal Parts	View			A Target 0
E Controller Module	4.0	E#0 CM#0 CA#0 Interna	al Parts Info	ormation		
E Stannel Adapter		Port	Status	Error Code		
PCle Flash Module	0	CE#0 CM#0 CA#0 Port#0	Normal	0x0000	^	
NV Power Supply Unit	0	CE#0 CM#0 CA#0 Port#1	Normal	0x0000	~	
Battery	<				>	
III ■ Drive Enclosure III ♦ Drives						
						¥.

• For the other models

Category	Channel Adapter				* Action
ETERNUS	Summary Internal I	Parts Vie	w	~	Target 0
🗉 👹 Controller Module	▼ CM#0 CA#0 Internal	Parts Info	rmation		
E 🖉 Channel Adapter	Port	Status	Error Code		
Periomance	O CM#0 CA#0 Port#0	Normal	0x0000		
NV Power Supply Unit	O CM#0 CA#0 Port#1	Normal	0x0000 🗸		
Battery	<		>		
E & Drives					
				Y	

The following items are displayed in the Main area:

• Port

The CA port number is displayed. By clicking this item, the [Port] screen is displayed. Refer to <u>"3.24 Port</u> <u>Detail" (page 174)</u> for display items.

• Status

The CA port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

• Error Code The CA port error code is displayed.

View

For the ETERNUS DX8700 S3/DX8900 S3



For the other models

Category	Channel.	Adapter							» Action
ETERNUS Controller Enclosure	Summa V CM#0	ry Inten CA#0 Rea	nal Parts r View	View			6	_ ^	Target: 0
Channel Addiden Performance Performance Performance Power Supply Unit Battery					FF	-	FE		
 Enclosure Orives 	100	<u>[22]</u>	CARO		E C		FF		
		-							

The following items are displayed in the Main area:

- Storage system image
 - The rear view of the CE that is installed in the ETERNUS DX/AF is displayed. Components that are not the target CA are grayed out. The CA status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.9 PCIe Flash Module Detail

The detailed information for the PFM is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

ategory	PCIe Flash Module			 Action
ETERNUS	Summary View		~	Target 0
Controller Module	▼ CE#0 CM#0 PFM	#0 Information		
🗉 🖋 Channel Adapter	Location	CE#0 CM#0 PFM#0		
🖻 🍘 PCIe Flash Module	Туре	HHHL		
Performance	Capacity	1400GB		
Power Supply Unit	Status	One of the second se		
Battery Battery Frontend Enclosure Drug Enclosure	Health	100 %		
	Status Code	0xE001		
+ O Drives	Error Code	0x0000		
un en Dives	Part Number	CA07555-D052		
	Serial Number	PP132401W6		
	Hardware Revision	A1		

• For the other models

Category	PCIe Flash Module	1		» Action
E ETERNUS	Summary View		~	Target 0
🗉 键 Controller Module	▼ CM#0 PFM#0 Info	rmation		
🗉 💕 Channel Adapter	Location	CM#0 PFM#0		
🖻 🎬 PCle Flash Module	Туре	HHHL		
Performance	Capacity	51268		
Power Supply Unit Battery Drive Enclosure	Status	Onormal		
	Health	100 %		
	Status Code	DXE001		
17. 🖌 Drives	Error Code	0x0000		
	Part Number	CA07555-D052		
	Serial Number	PP132400W2		
	Hardware Revision	At		
			2	

The following items are displayed in the Main area:

- Location The installation location of the PFM is displayed.
- Type The PFM type is displayed.
- Capacity The PFM capacity is displayed.
- Status The PFM status is displayed. Refer to "A.5 Component Status" (page 410) for details.
- Health The lifetime information of the PFM is displayed.
- Status Code The PFM status code is displayed.
- Error Code The PFM error code is displayed.
- Part Number The part number of the PFM is displayed.
- Serial No. The serial number of the PFM is displayed.
- Hardware Revision The hardware version of the PFM is displayed.

View

For the ETERNUS DX8700 S3/DX8900 S3



• For the other models

Category	PCIe Flash Module		» Action
ETERNUS Controller Enclosure Superscript Controller Module	Summary View	~	Target: 0
Channel Adapter PCle Flash Module Performance			
Power Supply Unit Battery E I Drive Enclosure	mmmm		
🗉 🥔 Drives			
		Y	

The following items are displayed in the Main area:

• Storage system image

The front view of the CEs (CMs) that are installed in the ETERNUS DX is displayed. Components that are not the target PFM are grayed out. The PFM status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.10 PSU/CPSU (CE) Detail

The detailed information for the PSU or the CPSU is displayed.

Summary

• For the ETERNUS DX8700 S3/DX8900 S3

Category	Power Supply Uni	t		» Action
ETERNUS	Summary View		~	Target 0
Controller Enclosure Controller Module Controller Module Pcie Flash Module Pcie Flash Module Battery Battery Frontend Enclosure	▼ CE#0 CPSU#0 In	▼ CE#0 CPSU#0 Information		
	Location	CE#0 CPSU#0	1	
	Status	ONormal		
	Status Code	0xE001		
	Error Code	0x0000		
	Part Number	CA07555-D052		
E @ Drives	Serial Number	PP132401W6		
- Cliffed	Hardware Revision	At		

• For the other models

Category	Power Supply Uni	t		* Action
E ETERNUS	Summary View		~	Target 0
Controller Enclosure	▼ CE CPSU#0 Info	mation		
🗉 💕 Channel Adapter	Location	CE CPSU#0		
🕀 🎬 PCle Flash Module	Status	One of the second se		
Power Supply Unit	Status Code	0×E001		
Battery	Error Code	0x0000		
Drive Enclosure	Part Number			
to 🗸 Drives	Serial Number			
	Hardware Revision			
			2	

The following items are displayed in the Main area:

- Location The installation location of the PSU or the CPSU is displayed. For the ETERNUS DX8700 S3/DX8900 S3, the CE number is displayed.
- Status The PSU status or the CPSU status is displayed. Refer to "A.5 Component Status" (page 410) for details.
- Status Code The status code of PSU or CPSU is displayed.
- Error Code The error code of PSU or CPSU is displayed.
- Part Number The part number of PSU or CPSU is displayed.
- Serial Number The serial number of PSU or CPSU is displayed.
- Hardware Revision The hardware version of PSU or CPSU is displayed.

View

For the ETERNUS DX8700 S3/DX8900 S3



• For the other models

Category	Power St	upply Unit				Action
ETERNUS	Summa V CE CP	ry View SU#0 Rear View	^	Target 0		
Channel Adapter Channel Adapter Pole Flash Module N Power Supply Unit Battery Drive Enclosure	CPSUIIO			- 65		
🖲 🤣 Drives	A	<u>1</u>		- 75		
					~	

The following items are displayed in the Main area:

• Storage system image

The rear view of the CE that is installed in the ETERNUS DX/AF is displayed.

Components that are not the target PSU or CPSU are grayed out.

The PSU status or the CPSU status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.11 Frontend Router Detail

The detailed information for the FRT is displayed.

Summary

Category	Frontend Router		» Action	
ETERNUS	Summary Internal Parts View		Target 0	
Controller Enclosure Official Controller Enclosure	▼ FRT#0 Information			
Frontend Router	Location	FRT#D		
Service Controller	Status	Normal		
	Status Code	0xE001		
FAN Unit	Error Code	0x0000		
Operation Panel	Part Number	CA07555-D052		
Drives	Serial Number	PP132401W6		
- Cliffed	Hardware Revision	A1		

The following items are displayed in the Main area:

- Location The FRT number is displayed.
- Status The FRT status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The FRT status code is displayed.
- Error Code The FRT error code is displayed.
- Part Number The part number of the FRT is displayed.
- Serial No. The serial number of the FRT is displayed.
- Hardware Revision The hardware version of the FRT is displayed.

Internal Parts

Category	Frontend Router					» Action
ETERNUS Controller Enclosure	Summary Internal Parts	View			~	Target: 0
E Frontend Enclosure	▼ FRT#0 Internal Parts Inform	nation				
Service Controller	Parts	Status	Error Code	Туре		
N Power Supply Unit	O Erontend Cable(CE#0 CM#0)	Normal	0x0000	Cu	^	
🐕 FAN Unit	O Frontend Cable(CE#0 CM#1)	Normal	0x0000	Cu	10	
Operation Panel Drive Enclosure	O Erontend Cable(CE#1 CM#0)	Normal	0x0000	AOC		
I @ Drives	O Erontend Cable(CE#1 CM#1)	Normal	0x0000	AOC	~	
					>	

The following items are displayed in the Main area:

• Parts

Information for the Frontend cable that connects between the CM and FRT is displayed. By clicking this item, the [Frontend Cable Detail] screen is displayed. Refer to "3.22 Frontend Cable Detail" (page 172) for display items.

Status

The Frontend cable status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Error Code The Frontend cable error code is displayed.
- Type

The Frontend cable type is displayed.

- "Cu" is displayed when the connection cable between CM and FRT is a Frontend electric cable.
- "AOC (Active Optical Cable)" is displayed when the connection cable between CM and FRT is a Frontend optical cable.
| | View |
|--|------|
|--|------|

ategory	Frontend	Router			_	Action
ETERNUS	Summa	ry Inter	nal Parts	lew		Target 0
Controller Enclosure	▼ FRT#0	Rear Vier	N			
Service Controller						
FAN Unit Operation Panel	[133]	1				
Crive Enclosure Orives				2000 2000 2000		
	100	100	✓FRT#0			
	(<u>1918)</u>	(FFR		anternette servicente polycomus		
					>	

The following items are displayed in the Main area:

• Storage system image

The rear view of the FE that is installed in the ETERNUS DX/AF is displayed. Components that are not the target FRT are grayed out. The FRT status is displayed with an icon. Refer to "A.5 Component Status" (page 410) for details.

3.12 Service Controller Detail

The detailed information for the SVC is displayed.

Summary

The second se	Service Controller		 » Action
TERNUS Controller Enclosure Frontend Enclosure Frontend Enclosure Frontend Router Foreware Supply Unit FAN Unit Operation Panel Drive Enclosure Fore Drive Enclosure Fore Drives	Service Controller Summary, Internal Parts View Status Status Status Status Code Error Code Part Number Serial Number Hardware Revision Active EC Firmware Version	SVC#0 ✓Normal 0xE001 0x0001 CA07555-D052 PP132401W6 A1 EC#1 EC#2 V10L40-0000	Action Target 0

The following items are displayed in the Main area:

- Location The SVC number is displayed.
- Status The SVC status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The SVC status code is displayed.
- Error Code The SVC error code is displayed.
- Part Number The part number of the SVC is displayed.
- Serial No. The serial number of the SVC is displayed.
- Hardware Revision The hardware version of the SVC is displayed.
- Active EC The EC number of the current controller firmware is displayed.
- Next EC The EC number of the controller firmware that is to be run at the next power-on is displayed.
- Firmware Version The current controller firmware version is displayed.

Internal Parts

Category	Service Controller	Action			
ETERNUS	Summary Internal Parts View	w		~	Target 0
E Frontend Enclosure	▼ SVC#0 Internal Parts Informati	on			
Frontend Router	Parts	Status	Error Code		
Power Supply Unit	 Management Cable(CE#0 CM#0) 	Normal	0x0000	~	
FAN Unit	O Management Cable(CE#0 CM#1)	Normal	0x0000		
Operation Panel Drive Enclosure	O Management Cable(CE#1 CM#0)	Normal	0x0000		
II @ Drives	O Management Cable(CE#1 CM#1)	Normal	0x0000	~	
	<			>	

The following items are displayed in the Main area:

Parts

Information for the Management cable that connects between the CM and SVC is displayed. By clicking this item, the [Management Cable Detail] screen is displayed. Refer to <u>"3.23 Management Cable Detail" (page 173)</u> for display items.

Status

View

The Management cable status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Error Code

The Management cable error code is displayed.



The following items are displayed in the Main area:

Storage system image
 The front view of the FE that is installed in the ETERNUS DX is displayed.
 Components that are not the target SVC are grayed out.
 The SVC status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.13 FE Power Supply Unit Detail

The detailed information for the FPSU is displayed.

Summary

Category	Power Supply Uni	t.	» Action
ETERNUS Controller Enclosure Frontend Enclosure Frontend Router	Summary View ▼ FE FPSU#0 Inform Location Status	FE FPSU#0	Target 0
Image: Weight Power Supply Unit Image: State Sta	Status Code Error Code Part Number Serial Number Hardware Revision	0xE001 0xE001 0xE000 CA07555-D052 PP132401W6 A1	

The following items are displayed in the Main area:

- Location The installation location of the FPSU is displayed.
- Status The FPSU status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The FPSU status code is displayed.
- Error Code The FPSU error code is displayed.
- Part Number The part number of the FPSU is displayed.
- Serial No. The serial number of the FPSU is displayed.
- Hardware Revision The hardware version of the FPSU is displayed.

View

Category	Power St	upply Unit			Action				
ETERNUS	Summa FE FP	Summary View							
Frontend Router Service Controller			nens samt samt						
FAN Unit Operation Panel	[17]	m							
IFI & Drives	PPSU#0		nen nen nen						
	100	1	2222 2222 2222						
0000.0000.0000000	FPSUIIO								
				Y					

The following items are displayed in the Main area:

• Storage system image

The rear view of the FE that is installed in the ETERNUS DX is displayed. Components that are not the target FPSU are grayed out. The FPSU status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.14 FAN Unit Detail

The detailed information for the FANU is displayed.

Summary

Category	FAN Unit	* Action	
ETERNUS	Summary View		A Target 0
Frontend Bouter	Location	FANU#0	1
Service Controller	Status	(Chlormal	
N Power Supply Unit	Status Code	0xE00t	
FAN Unit	Error Code	0x0000	
Dperation Panel	Part Number	CA07555-D052	
Enclosure	Serial Number	PP132401W6	
🖭 🥪 Drives	Harriwara Revision	41	
			÷

The following items are displayed in the Main area:

- Location The FANU number is displayed.
- Status The FANU status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The FANU status code is displayed.
- Error Code The FANU error code is displayed.
- Part Number The part number of the FANU is displayed.
- Serial No. The serial number of the FANU is displayed.
- Hardware Revision The hardware version of the FANU is displayed.

View

Category	FAN Unit	» Action
ETERNUS Controller Enclosure Fontend Enclosure	Summary Mew FANU#0 Front View	Target 0
Frontend Router Service Controller VP Power Supply Unit RANUME Operation Panel		
Drive Enclosure Orives	(FANUR)	
	22222 22222	

The following items are displayed in the Main area:

Storage system image
 The front view of the FE that is installed in the ETERNUS DX is displayed.
 Components that are not the target FANU are grayed out.
 The FANU status is displayed with an icon. Refer to "A.5 Component Status" (page 410) for details.

3.15 Drive Enclosure Detail

The detailed information of the DE is displayed.

Summary

Category	Drive Enclos	ure					» Action
E ETERNUS	Summany	Front View	Rear View	1		-	Target 0
E 🔮 Controller Enclosure	T DE#00 Info	rontion	rtedi view				Turn on locator beacon
E A I/O Module	Serial Number	inación	JWXMP134	70044			Turn off locator beacon
N Power Supply Unit	Other Informat	tion	35DE_12G				
Fan Expander Modu		here and					
Drives	Location	Status	Error Code	Sensor 1	Sensor 2		
	Intake Temp	Normal	0×0000	29 C / 84 F	29 C / 84 F	~	
	Exhaust Temp	Normal	0x0000	-	-	<u> </u>	
	<					>	
< >						~	

The following items are displayed in the Main area:

• Serial Number

The serial number of the DE is displayed.

- Other Information Additional information for the DE is displayed.
- Location

The installation location of the thermal sensor is displayed.

- Intake Temp
- Exhaust Temp
- Status

The thermal sensor status is displayed.

Error Code

The error code for the thermal sensor is displayed.

Sensor 1

For the "Intake Temp" field, temperature of the IOM#0 is displayed in Celsius (C) and in Fahrenheit (F). If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

For the "Exhaust Temp" field, a "-" (hyphen) is usually displayed.

Sensor 2

For the "Intake Temp" field, temperature of the IOM#1 is displayed in Celsius (C) and in Fahrenheit (F). If the thermal information is not available due to problem such as a sensor failure, a "-" (hyphen) is displayed.

For the "Exhaust Temp" field, a "-" (hyphen) is usually displayed.

This item is not displayed when the ETERNUS DX is a 1CM model.

Front View

• For 2.5" DEs

Category	Driv	ve Enclo	sure						» Action
E ETERNUS	5	iummary	Target 0						
Controller Enclosure		DE#00 Fro	Assign Global HS						
II A I/O Module		اماما					0000		Release Global HS
Power Supply Unit							A A A A A		
E @ Drives									
	1000 2	8 (B) (B)	10 10 10 10 10 10			1969	10 10 10 10 10		
		DE#00 Dri	ives Informati	on				-	
		Parts	Status	Capacity	Speed	Туре	Usage	RAID G	
		Drive#0	Available	600.00 GB	15000 rpm	Online	Data	0.F	
		Drive#1	Available	600.00 GB	15000 rpm	Online	Data	0.F	
		Drive#2	Spare	400.00 GB		SSD	Global Hot Spare	-	
		Drive#3	Spare	400.00 GB		SSD	Dedicated Hot Spare	<u>Q:</u> E	
		Drive#4	OPresent	1.00 TB	7200 rpm	Nearline	Data		
		Drive#5	OPresent	1.00 TB	7200 rpm	Nearline	Data	14	
		Drive#6	OPresent	1.00 TB	7200 rpm	Nearline	Data		
		Drive#7	OPresent	1.00 TB	7200 rpm	Nearline	Data		
		Drive#8	OPresent	1.00 TB	7200 rpm	Nearline	Data		
		Drive#9	OPresent	1.00 TB	7200 rpm	Nearline	Data	. v	
		_	-				1		
< >									

• For 3.5" DEs

Category	Drive Er	nclosure						» Action				
ETERNUS	Summ ▼ DE#0	Summary Front New Rear View										
Power Supply Unit	0 1)	0 1		0 1		0 D		Helease Olobal HS				
I I I Drives	01	01		0		01						
	01	01		01		01						
	▼ DE#0	0 Drives Informat	ion				-					
	D Par	ts Status	Capacity	Speed	Туре	Usage	RAID Group					
		e#0 Available	2.00 TB	7200 rpm	Nearline	Data	1 RAID					
		s#1 🛛 Available	2.00 TB	7200 rpm	Nearline	Data	1:RAID					
		e#2 OAvailable	2.00 TB	7200 rpm	Nearline	Data						
		e#3 ØAvailable	2.00 TB	7200 rpm	Nearline	Data						
		e#4 OPresent	2.00 TB	7200 rpm	Nearline	Data						
		0Present	2.00 TB	7200 rpm	Nearline	Data	1					
		Present	2.00 TB	7200 rpm	Nearline	Data						
		EEZ OPresent	2.00 TB	7200 rpm	Nearline	Data	-					
		e#8 OPresent	2.00 TB	7200 rpm	Nearline	Data	-					
		e#9 OPresent	2.00 TB	7200 rpm	Nearline	Data	-					
< >	<						> ~					

• For 3.5" high density DEs

Category	Driv	ve Enclo	sure						» Action
ETERNUS		Summary DE#00 Up	Target 0 Assign Global HS						
WO Module We Power Supply Unit Fan Expander Modul Ø Orives			00	0 0	0	• •	00	1	Herease Global HS
			00	00	0	00	00	•	
		Parts	status	Capacity	Speed	Type	Usage	RAID Grout	
		Drive#0	Available	2.00 TB	7200 rpm	Nearline	Data	2:RAID	
		<u>Rrive#1</u>	Available	2.00 TB	7200 rpm	Nearline	Data	2. RAID	
		Drive#2	Available	2.00 TB	7200 rpm	Nearline	Data		
		Drive#3	Available	2.00 TB	7200 rpm	Nearline	Data		
		Drive#4	OPresent	2.00 TB	7200 rpm	Nearline	Data	4	
		Drive#5	OPresent	2.00 TB	7200 rpm	Nearline	Data	-	
		Drive#6	OPresent	2.00 TB	7200 rpm	Nearline	Data		
< >	~	Distant?	0	9 00 TB	7300 mm	Noorlino	Data	>	~

The following items are displayed in the Main area:

• Storage system image

The front view of the DEs that are installed in the ETERNUS DX/AF is displayed. The number of drives that can be installed for each DE type is as follows:

- 2.5" DEs

24 drives (24drives are lined up horizontally)

- 3.5" DEs

12 drives (3 drives are lined up vertically and 4 drives are lined up horizontally)

- 3.5" high density DEs

60 drives (5 drives are lined up vertically and 12 drives are lined up horizontally)

- When no drives are installed
- Blank

The drive status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details. By clicking this item, the [Drives] screen is displayed. Refer to <u>"3.19 Drive Detail" (page 164)</u> for details.

Parts

The drive number is displayed.

By clicking this item, the [Drives] screen is displayed. Refer to "3.19 Drive Detail" (page 164) for details.

Status

The drive status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Capacity

The capacity of the drive is displayed.

> Caution

The drive capacity that is displayed for the SSD-L differs from the product's actual capacity. For example, the drive capacity of a "1.92TB SSD-L" is displayed as "2.00 TB".

The drive speed is displayed. For SSD or SSD SED, a "-" (hyphen) is displayed.

- 15000 rpm
- 10000 rpm
- 7200 rpm

Speed

• Туре

- The drive type is displayed.
 - Online
 - SAS disks
 - Online AF
 - Advanced Format supported SAS disks
 - Nearline
 - Nearline SAS disks
 - Nearline AF
 - Advanced Format supported Nearline SAS disks
 - SSD-M
 - SSD-Ms (12 Gbit/s) (*1)
- SSD-L
 - SSD-Ls (12 Gbit/s) (*1)
- SSD
- SSDs (6 Gbit/s) (*1)
- Online SED Online SEDs
- Nearline SED Nearline SEDs
- SSD-M SED SSD-M SEDs (*2)
- SSD-L SED
- SSD-L SEDs (*2)
- *1: The displayed item varies depending on the interface speed (bandwidth) or the capacity of the reserved space. Unless otherwise specified, this manual refers to "SSD-M", "SSD-L", and "SSD" collectively as "SSD".
- *2: In this manual, there may be cases when "SSD SED" is used as a collective term for options and drive types.
- Usage

The usage of the drive is displayed.

- For a drive that is used for user data or an unused drive Data
- For a drive that is registered as a Global Hot Spare Global Hot Spare
- For a drive that is registered as a Dedicated Hot Spare Dedicated Hot Spare
- RAID Group

When the drive belongs to a RAID group, the RAID group number and the RAID group name are displayed. However, if the drive usage is "Dedicated Hot Spare", the RAID group number and the RAID group name are displayed even when the drive is not used as a Hot Spare. Click this item to display the [RAID Group Detail] screen.

When the usage is not "Dedicated Hot Spare" and the drive is not registered in a RAID group, a "-" (hyphen) is displayed.

Health

The drive lifetime information is displayed between 0% - 100%. As the lifetime of the drive is reduced, the health level of the drive is decreased.

- A "-" (hyphen) is displayed in the following conditions:
 - The drive is neither "SSD" nor "SSD SED"
 - The lifetime information cannot be obtained

Rear View

Category	Driv	e Enclo	sure				» Action
ETERNUS Controller Enclosure Drive Enclosure	- S	iummary DE#00 R	Target: 0				
Power Supply Unit Fan Expander Modul	010	DM#D		OM#1			
🗄 🔗 Drives	⊘PSU#6		ØPSU#0		♥PSU#1		
	•	DE#00 In	ternal Parts Information				
		Parts	Status				
	0	IOM#D	Normal			^	
	0	LOM#1	Normal			10	
	0	PSU#0	Normal				
	0	PSU#1	Normal			~	
	<					>	
						¥	

The following items are displayed in the Main area:

• Storage system image

The rear view of the DE that is installed in the ETERNUS DX/AF is displayed.

The status of the IOM, the PSU, and the FEM are displayed with icons. Refer to <u>"A.5 Component Status"</u> (page 410) for details.

By clicking the IOM number, the [I/O Module] screen is displayed. Refer to <u>"3.16 I/O Module Detail" (page 157)</u> for display items.

By clicking the PSU number, the [Power Supply Unit] screen is displayed. Refer to <u>"3.17 Power Supply Unit</u> (DE) Detail" (page 159) for display items.

By clicking the FEM number, the [Fan Expander Module] screen is displayed. Refer to <u>"3.18 Fan Expander</u> Module Detail" (page 161) for display items.

• Parts

The IOM number, the PSU number, or the FEM number is displayed.

By clicking the IOM number, the [I/O Module] screen is displayed. Refer to <u>"3.16 I/O Module Detail" (page 157)</u> for display items.

By clicking the PSU number, the [Power Supply Unit] screen is displayed. Refer to <u>"3.17 Power Supply Unit</u> (DE) Detail" (page 159) for display items.

By clicking the FEM number, the [Fan Expander Module] screen is displayed. Refer to <u>"3.18 Fan Expander</u> <u>Module Detail" (page 161)</u> for display items.

Status

The status of IOM, PSU, or FEM is displayed. Refer to "A.5 Component Status" (page 410) for details.

3.16 I/O Module Detail

The detailed information of IOM is displayed.

Summary

Category	I/O Module			Action
ETERNUS	Summary Internal Parts View			Target: 0
E W Drive Enclosure	▼ DE#00 IOM#0 Infor	mation		
E 👗 I/O Module	Status	Normal		
Error Statistics	Status Code	0xE001		
Power Supply Unit	Error Code	0x0000		
Fan Expander Modu	WWN	300000E0DE00E000		
+ 🐓 Drives	Part Number	CA05967-1610+A0		
	Serial Number	JWXBM13020322		
	Firmware Version	V01L32-0000		
II	Hardware Revision			
< >>			~	

The following items are displayed in the Main area:

Status

The IOM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The IOM status code is displayed.
- Error Code The IOM error code is displayed.
- WWN The IOM WWN is displayed.
- Part Number The part number of the IOM is displayed.
- Serial Number The serial number of the IOM is displayed.
- Firmware Version The current controller firmware version is displayed.

Internal Parts

Category	I/O Module	Action
E ETERNUS	Summary Internal Parts View	Target: 0
E A I/O Module	Parts Status Error Code	
Error Statistics	SAS Cable(IN) Normal 0x0000	
Fan Expander Modul	O SAS Cable(OUT) Oxo000	
I I Prives	IOM FEM Port#0 Ox0000	
	IOM FEM Port#1 Ox0000	~
	<	>
		~

The following items are displayed in the Main area:

• Parts

The internal parts of the IOM are displayed. A link is displayed when the part is "SAS Cable". Click this item to display the [SAS Cable Detail] screen. Refer to "3.21 SAS Cable Detail" (page 171) for display items. When the part is a high density DE, "IOM FEM Port#y" (y: 0, 1) is displayed.

Status

View

The internal parts status of the IOM is displayed. Refer to "A.5 Component Status" (page 410) for details.

• Error Code

The error code for the internal parts of the IOM is displayed.

Category	I/O Module		Action			
ETERNUS	Summary Internal Parts View					
Kongolule Kongolule		FIN-				
Fan Expander Modul		<u>m</u>				

The following items are displayed in the Main area:

Storage system image
 The rear view of the DE that is installed in the ETERNUS DX/AF is displayed.
 Components that are not the target IOM are grayed out.
 The IOM status is displayed with an icon. Refer to "A.5 Component Status" (page 410) for details.

3.17 Power Supply Unit (DE) Detail

The detailed information of PSU is displayed.

Summary

Category	Power Supply Uni	t		» Action
E ETERNUS	Summary View		~	Target 0
Drive Enclosure	▼ DE#00 PSU#0 Inf	ormation		
I/O Module	Location	DE#00 PSU#0		
Power Supply Unit	Status	One of the second se		
Fan Expander Modu	Status Code	0xE001		
🗈 🥪 Drives	Error Code	0x0000		
	Part Number	CA05967-1651		
	Serial Number	BBZT1317000233		
	Hardware Revision	01A/S1F		
< >>			~	

The following items are displayed in the Main area:

- Location The installation location of PSU is displayed.
- Status The PSU status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The PSU status code is displayed.
- Error Code The PSU error code is displayed.
- Part Number The part number of the PSU is displayed.
- Serial Number The serial number of the PSU is displayed.
- Hardware Revision The hardware version of the PSU is displayed.

View

ategory	Power Sup	ply Unit			» Action
ETERNUS	Summary	- ^	Target. 0		
I/O Module Power Supply Unit Ean Expander Modul		EE.	17.17.		
E & Drives	OPSU#0	面	m m		
	10				
				4	

The following items are displayed in the Main area:

• Storage system image

The rear view of the DE that is installed in the ETERNUS DX/AF is displayed. Components that are not the target PSU are grayed out. The PSU status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

3.18 Fan Expander Module Detail

The detailed information of Fan Expander Module (FEM) is displayed.

Summary

Category	Fan Expander Module		-	Action	
E ETERNUS	Summary Internal Pa	Summary Internal Parts View			
E Drive Enclosure	▼ DE#02 FEM#0 Informa	ation			
In Expender Modu	Location	DE#02 FEM#0			
	Status	One of the second se			
	Status Code	0xE001	-		
E	Error Code	0x0000			
	Part Number	12345678901234p			
	Serial Number	12345678901234s			
	Hardware Revision	12345678			
	EXP#0 Status	One of the second se			
	EXP#0 Status Code	0xE001			
	EXP#0 Error Code	0x0000			
	EXP#0 WWN	1122334455667700			
	EXP#0 Active EC	EC#1			
	EXP#0 Next EC	EC#2			
	EXP#0 Firmware Version	V10L45-000b			
	EXP#1 Status	Normal			
	EXP#1 Status Code	0xE001			
	EXP#1 Error Code	0x0000			
	EXP#1 WWN	1122334455667701			
	EXP#1 Active EC	EC#1			
	EXP#1 Next EC	EC#2			
	EXP#1 Firmware Version	V10L45-000b			

The following items are displayed in the Main area:

Location

The location information of the FEM is displayed.

• Status

The FEM status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The FEM status code is displayed
- Part Number The part number of the FEM is displayed.
- Serial No. The serial number of the FEM is displayed.
- Hardware Revision The hardware version of the FEM is displayed.
- EXP#n Status The status of FEM Expander#n (n=0,1) is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- EXP#n Status Code The status code of FEM Expander#n (n=0,1) is displayed.
- EXP#n Error Code The error code of FEM Expander#n (n=0,1) is displayed.
- EXP#n WWN The WWN of FEM Expander#n (n=0,1) is displayed.

- EXP#n Active EC The EC number of Expander#n (n=0,1) that is currently running is displayed.
- EXP#n Next EC The EC number of FEM Expander#n (n=0,1) that is to be run after the next power-on is displayed.
- EXP#n Firmware Version The revision number of the firmware that is currently running in FEM Expander#n (n=0,1) is displayed.

Internal Parts



The following items are displayed in the Main area:

Parts

The component information is displayed.

Status

The component status is displayed. Refer to "A.5 Component Status" (page 410) for details.

Error Code

The component error code is displayed.

View

Drive Enclosure DE#02	-Em#u Kear view		-
Power Supply Unit	11.		
Drives		<u>m</u>	
♥FEM#0			

The following items are displayed in the Main area:

• Storage system image

The rear view of the DE that is installed in the ETERNUS DX is displayed. Components that are not the target FEM are grayed out. The FEM status is displayed with an icon. Refer to <u>"A.5 Component Status" (page 410)</u> for details.

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3.19 Drive Detail

The detailed information of the drive is displayed.

Summary

Category	Drive#0				» Action
ETERNUS Controller Enclosure Division Enclosure Performance Error Statistics	Summar	Summary View		~	Target 0
	V Drive E	▼ Drive Enclosure#00 Drive#0 Information			Assign Global HS
	Location		Drive#0		Release Global HS
	Status		Available		Export Performance Info
	Status Code		0xE100		
	Error Code		0x0000		
	Capacity		2.00 TB		
	Type		3.5" Nearline		
	Speed		7200 rpm		
	Usage		Data		
	RAID Grou	p	0 : Raid00		
	Motor Status Rebuild/Copyback Progress		Active		
			21		
		Total completed passes	0 Cycles		
	Patrol	Progress with current - pass			
		Completed passes since last Power On	0 Cycles		
	Vender ID		FUJITSU		
	Product ID		MAU3036FC		
	Serial Num	ber	AUQ4P4A0		
	WWN		300000E0DE00000F	~	
	The second se		and the second sec		

The following items are displayed in the Main area:

Location

The detailed information of the drive is displayed.

Status

The drive status is displayed. Refer to "A.5.1 Drive Status" (page 411) for details.

- Status Code The drive status code is displayed.
- Error Code

The drive error code is displayed.

 Capacity The capacity of the drive is displayed.

Caution

The drive capacity that is displayed for the SSD-L differs from the product's actual capacity. For example, the drive capacity of a "1.92TB SSD-L" is displayed as "2.00 TB".

- Туре
 - The drive type is displayed.
 - 2.5" Online
 - 2.5" Online AF
 - 2.5" Nearline
 - 2.5" Nearline AF
 - 3.5" Online
 - 3.5" Online AF
 - 3.5" Nearline
 - 3.5" Nearline AF
 - 2.5" SSD-M
 - 3.5" SSD-M
 - 2.5" SSD-L
 - 3.5" SSD-L
 - 2.5" SSD
 - 3.5" SSD
 - 2.5" Online SED
 - 3.5" Nearline SED
 - 2.5" SSD-M SED
 - 3.5" SSD-M SED
 - 2.5" SSD-L SED
 - 3.5" SSD-L SED
- Speed

The drive speed is displayed. For SSD or SSD SED, a "-" (hyphen) is displayed.

- 15000 rpm
- 10000 rpm
- 7200 rpm
- Health

The drive lifetime information is displayed between 0% - 100%. As the lifetime of the drive is reduced, the health level of the drive is decreased.

This item is displayed when the drive type is "SSD" and "SSD SED". When the lifetime information cannot be obtained, a "-" (hyphen) is displayed.

• Usage

The usage of the drive is displayed.

- Data
- Global Hot Spare
- Dedicated Hot Spare
- RAID Group

When the drive belongs to a RAID group, the RAID group number and the RAID group name are displayed. However, if the drive usage is "Dedicated Hot Spare", the RAID group number and the RAID group name are displayed even when the drive is not used as a Hot Spare. Click this item to display the [RAID Group Detail] screen.

When the usage is not "Dedicated Hot Spare" and the drive is not registered in a RAID group, a "-" (hyphen) is displayed.

- Motor Status
 - The drive motor status is displayed.
 - Active

The drive motors are activated.

- In the Boot Process

The drive motors are starting up.

- Idle

The drive motors are stopped.

- In the Stop Process The drive motors are being stopped.
- Power off The drive power is being turned off.
- Rebuild/Copyback Progress
 When rebuild or copyback is being performed, the progress rate is displayed.
 When rebuild or copyback is being performed, the progress rate is displayed.
- Patrol
 - Total completed passes

The current total number of completed disk drive patrol cycles is displayed. "Completed passes" indicates the number of times the disk patrol for all of the target drives is complete.

Caution

If the device configuration has been changed using the [Apply Configuration] function, the patrol progress information (total completed passes, progress with current pass, and completed passes since last power on) returns to the default settings.

- Progress with current pass

The progress rate of the currently running disk drive patrol process is displayed. If the patrol is not operating for reasons such as a drive failure or a drive being formatted, a "-" (hyphen) is displayed.

 Completed passes since last Power On The current total number of completed disk drive patrol cycles since the last power on is displayed.

┝ Caution

"Completed passes since last Power On" may be cleared when the Controller Firmware is applied, or due to a CM failure.

Vendor ID

The drive manufacturer name is displayed.

- Product ID The drive manufacturer name is displayed.
- Serial Number The serial number of the drive is displayed.
- WWN The drive WWN is displayed.
- Firmware Version The drive firmware version is displayed.

View

• For 2.5" DEs

Category	Drive#10		Action
ETERNUS	Summary View	~ 3	arget 0
Controller Enclosure Drive Enclosure	▼ Drive Enclosure#00 Drive#10 Front View	-	Assign Global HS
🗉 🧼 Drives		_	Release Global HS
Error Statistics			Export Performance Info
End outlines			
		~	

• For 3.5" DEs

aregory	Drive#0					» Action
ETERNUS Controller Enclosure Drive Enclosure	Summary View	Summary View				
	▼ Drive Enclosure#	▼ Drive Enclosure#00 Drive#0 Front View				
Performance						Export Performance Info
	01					

• For 3.5" high density DEs

Category	Drive#59		» Action
E ETERNUS	Summary View	~	Target 0
Drive Enclosure	▼ Drive Enclosure#02 Drive#59 Upper View		Assign Global HS Release Global HS
Performance	•		Export Performance Info
Error Statistics			
	198 199 200 200 200 200 200 200 200 200		
		~	

The following items are displayed in the Main area:

• Storage system image

The front view of the DEs that are installed in the ETERNUS DX/AF is displayed. The number of drives that can be installed for each DE type is as follows:

- 2.5" DEs

24 drives (24 drives are lined up horizontally)

- 3.5" DEs

12 drives (3 drives are lined up vertically and 4 drives are lined up horizontally)

- 3.5" high density DEs

60 drives (5 drives are lined up vertically and 12 drives are lined up horizontally)

- When no drives are installed

Blank

Drives that are not selected in the [Drives] screen are grayed out.

The drive status is displayed with an icon. Refer to "A.5 Component Status" (page 410) for details.

3.20 Bootup and Utility Device Detail

The detailed information for the BUD is displayed. This function is displayed for the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3.

Summary

The following items are displayed in the Main area:

- Location The BUD number is displayed.
- Status

The BUD status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The BUD status code is displayed.
- Error Code The BUD error code is displayed.
- Part Number The part number of the BUD is displayed.
- Serial No. The serial number of the BUD is displayed.
- Hardware Revision The hardware version of the BUD is displayed.

View

Category	Bootup and Utility Device	Action
ETERNUS	Summary View	A Target 0
Channel Adapter Chane		
Power Supply Unit Battery Frontend Enclosure Drive Enclosure		
🖲 🧼 Drives		
		×

The following items are displayed in the Main area:

• Storage system image

The front view of the CE that is installed in the ETERNUS DX is displayed.

Components that are not the target BUD are grayed out.

The BUD status is displayed with an icon. Refer to "A.5 Component Status" (page 410) for details.

3.21 SAS Cable Detail

The detailed information of the SAS cable is displayed.

Category	SAS Cable			 Action
ETERNUS	Summary		0	Target: 0
Controller Enclosure Drive Enclosure	DE#00 IOM#0 SAS Cable(IN) Information			
🖂 👗 I/O Module	Status	One of the second se		
Error Statistics	Status Code	0xE001		
Power Supply Unit	Error Code	0×0000		
Fan Expander Moou				
C Crives				
			~	
< >				

The following items are displayed in the Main area:

• Status

The SAS cable status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The SAS cable status code is displayed.
- Error Code The SAS cable error code is displayed.

3.22 Frontend Cable Detail

The detailed information of the Frontend cable is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Summary

Hundred, Alexandred, A	Frontend Cable			» Action
ETERNUS	Summary		~	Target 0
Controller Enclosure Sentroller Module	▼ CE#0 CM#0 Frontend Cable(FRT#0) Information			
Performance	Status	Normai	-	
🗉 💕 Channel Adapter	Status Code	0xE001		
PCle Flash Module	Error Code	0x0000		
No Power Supply Unit	Туре	Cu		
Battery	Part Number	CA07555-D052	8	
Frontend Enclosure	Serial Number	PP132401W6		
E Drive Enclosure	Hardware Revision	A1		

The following items are displayed in the Main area:

- Status The Frontend cable status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The Frontend cable status code is displayed.
- Error Code

The Frontend cable error code is displayed.

Type

The Frontend cable type is displayed.

- "Cu" is displayed when the connection cable between the CM-FRT is a Frontend electric cable.
- "AOC" is displayed when the connection cable between the CM-FRT is a Frontend optical cable.
- Part Number The part number of the Frontend cable is displayed.
- Serial Number The serial number of the Frontend cable is displayed.
- Hardware Revision
 The hardware version of the Frontend cable is displayed.
 If the hardware version cannot be obtained, the field is blank.

3.23 Management Cable Detail

The detailed information of the Management cable is displayed. This function is displayed for the ETERNUS DX8700 S3/DX8900 S3.

Summary

Category	Management Cable			» Action
ETERNUS	Summary		~	Target 0
	▼ CE#0 CM#0 Management Cable(SVC#0) Information			
Performance	Status	Normal		
🗉 🖋 Channel Adapter	Status Code	0xED01	3	
PCle Flash Module	Error Code	0x0000		
Rattery				
Frontend Enclosure				
📧 🛲 Drive Enclosure				
🗉 🗬 Drives				
			~	
			8	

The following items are displayed in the Main area:

- Status The Management cable status is displayed. Refer to <u>"A.5 Component Status" (page 410)</u> for details.
- Status Code The Management cable status code is displayed.
- Error Code

The Management cable error code is displayed.

3.24 Port Detail

The detailed information of the port is displayed.

Caution

The ETERNUS DX60 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F do not support "NAS".

Display items vary depending on the port type (<u>"FC port" (page 174)</u>, <u>"iSCSI port" (page 180)</u>, <u>"SAS Port" (page 184)</u>, <u>"FCoE port" (page 186)</u>, or <u>"NAS port" (page 188)</u>).

Summary

🔵 FC port

The detailed FC port information is displayed.

Category	Port					* Action	
ETERNUS Controller Enclosure Sociational Acadeter Controller Module Sociation Module Performance Performance Performance	Summary	Summary			,	Target 0	
	▼ CM#0 CA#0 Port#	CM#0 CA#0 Port#0 Information					
	Location	CM#0 CA#0	Port#0			1	
	Port Mode	CA					
	Status	One of the second se					
M Power Supply Unit	Status Code	0xE001					
Battery	Error Code	0x0000					
Drive Enclosure	Туре	FC					
11 🖌 Drives	Connection	FC-AL					
	Loop ID	0x00					
	Class	Class3					
	Transfer Rate	Auto-negotiation					
	Link Status	-					
	WWN	500000E0DA800020					
	Affinity Mode	ON					
	TFO Transfer Mode	*					
	TFO WWN Mode	Custom					
	TFO Port	Unused					
	FC Frame Size	2048 bytes					
	Part Number	-					
	Serial Number						
	Hardware Revision	A					
	SFP Type	16G SFP+(MMF)					
	▼ Sensor Informati	ensor Information					
		-	Warning		Alarm		
		Present	Low	High	Low	н	

The following items are displayed in the Main area:

- CE#x CM#y CA#z Port#w Information (for the ETERNUS DX8700 S/DX8900 S3) or CM#y CA#z Port#w Information (for the other models)
 - Location

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w

- Port Mode
 - The port mode is displayed.
 - CA
 - RA
 - CA/RA
 - Initiator
- Status

The port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code

The port status code is displayed.

- Error Code

The port error code is displayed.

- Туре

The port type (fixed to "FC") is displayed.

- Connection

The connection type of the port is displayed.

Fabric

A connection type that enables simultaneous communication among multiple nodes through a Fibre Channel switch. This connection type can also be used for a direct connection when "Transfer Rate" is "16 Gbit/s".

• FC-AL

A connection type that connects multiple nodes in a loop.

- Loop ID

If the connection type of the target port is "FC-AL", the Loop ID is displayed.

When the Loop ID is manually specified, the ID that is to be set for the port is displayed in hexadecimal. When the Loop ID is automatically specified, "Ascending" or "Descending" is displayed.

When the "Connection" is "Fabric", a "-" (hyphen) is displayed.

- Class

The service class of the port (fixed to "Class3") is displayed.

- Transfer Rate

The transfer speed of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Auto-negotiation
- 4 Gbit/s
- 8 Gbit/s
- 16 Gbit/s
- Link Status

The link status of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Link Down
- 4 Gbit/s Link Up
- 8 Gbit/s Link Up
- 16 Gbit/s Link Up

- WWN

The WWN of the port is displayed.

"WWN" is displayed when the port mode is "CA", "Remote Adapter (RA)", or "CA/RA".

If the port mode is "Initiator", the display status varies according to the screen. A "-" (hyphen) is displayed for the CM#x CA#y port information in the [Channel Adapter Detail] screen. This item is not displayed in the [Port Detail] screen.

- WWN (Port Name)

The WWPN of the port is displayed.

"WWN (Port Name)" is displayed when the port mode is "Initiator".

If the port mode is not "Initiator", the display status varies according to the screen. A "-" (hyphen) is displayed for the CM#x CA#y port information in the [Channel Adapter Detail] screen. This item is not displayed in the [Port Detail] screen.

- WWN (Node Name)

The WWNN of the port is displayed.

"WWN (Node Name)" is displayed when the port mode is "Initiator".

If the port mode is not "Initiator", the display status varies according to the screen. A "-" (hyphen) is displayed for the CM#x CA#y port information in the [Channel Adapter Detail] screen. This item is not displayed in the [Port Detail] screen.

- Affinity Mode

The affinity mode of the port is displayed.

- ON
- OFF
- TFO Transfer Mode

Whether the TFO transfer mode is enabled or disabled for the target port is displayed.

A "-" (hyphen) is displayed when the port mode is "CA" or "Initiator".

This item is displayed only when "Enable" is selected for the Storage Cluster function.

- TFO WWN Mode

When the port is being used by the Storage Cluster function, "Custom" is displayed if WWN has been changed, and "Default" is displayed if no changes have been made.

A "-" (hyphen) is displayed when the port mode is "RA", "CA/RA", or "Initiator".

This item is displayed only when "Enable" is selected for the Storage Cluster function.

- Custom
- Default
- TFO Port

When the port is being used by the Storage Cluster function, "Used" is displayed, and "Unused" is displayed when the port is not used.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

- Used
- Unused
- FC Frame Size

The frame size of the port is displayed.

- 512 byte
- 1024 byte
- 2048 byte
- Part Number

The part number of the port is displayed.

If the part number cannot be acquired, a "-" (hyphen) is displayed.

- Serial Number
 The serial number of the port is displayed.
 If the serial number cannot be acquired, a "-" (hyphen) is displayed.
- Hardware Revision
 - The hardware version of the port is displayed.

If the hardware version cannot be acquired, a "-" (hyphen) is displayed.

- SFP Type

The SFP type of the port is displayed. If the SFP is not installed, "Unmount" is displayed.

- SFP+(SMF)
 8G LongWave
- SFP+(MMF)
- 8G SFP+
- 16G SFP+(SMF)
 16G LongWave
- 16G SFP+(MMF) 16G SFP+
- Unknown
 - SFP type other than above
- Temperature

The real time temperature of the SFP in the port is displayed in Celsius (C) and in Fahrenheit (F). When the information cannot be obtained, a "-" (hyphen) is displayed.

• x C / y F (x: -128.00 to 128.00, y: -198.40 to 262.40)

- Voltage

The real time voltage of the SFP in the port is displayed.

When the information cannot be obtained, a "-" (hyphen) is displayed.

- x V (x: 0.00 to 6.55)
- Current

The real time current of the SFP in the port is displayed.

When the information cannot be obtained, a "-" (hyphen) is displayed.

- x mA (x: 0.00 to 131.00)
- TX Power

The real time transmission power of the SFP in the port is displayed. When the information cannot be obtained, a "-" (hyphen) is displayed.

- x mW (x: 0.00 to 6.55)
- RX Power

The real time received power of the SFP in the port is displayed. When the information cannot be obtained, a "-" (hyphen) is displayed.

• x mW (x: 0.00 to 6.55)

🔵 Note

"Temperature", "Voltage", "Current", "TX Power", and "RX Power" are displayed as the CM#x CA#y port information in <u>"3.8 Channel Adapter Detail" (page 132)</u>. In this screen, "Sensor Information" is displayed.

Sensor Information

The real time and threshold values (Low/High) for the temperature, voltage, current, transmission power, and received power are displayed in the Sensor Information.

When the information cannot be obtained, a "-" (hyphen) is displayed.

The target components for this information are FC that have SFPs from which information can be obtained.

🔵 Note

- An SFP is regarded as being in Warning status when the real time value is lower than the Warning threshold (Low) and higher than the Alarm threshold (Low).
- An SFP is regarded as being in Warning status when the real time value is higher than the Warning threshold (High) and lower than the Alarm threshold (High).
- An SFP is regarded as being in Alarm status when the real time value is lower than the Alarm threshold (Low) or higher than the Alarm threshold (High).

- Temperature

Present

The real time temperature of the SFP in the port is displayed.

- x C / y F (x: -128.00 to 128.00, y: -198.40 to 262.40)
- Warning
 - Low or High

The Warning threshold (Low/High) for the temperature of the SFP in the port is displayed.

- x C / y F (x: -128.00 to 128.00, y: -198.40 to 262.40)
- Alarm
 - Low or High
 - The Alarm threshold (Low/High) for the temperature of the SFP in the port is displayed. • x C / y F (x: -128.00 to 128.00, y: -198.40 to 262.40)

- Voltage

- Present
 - The real time voltage of the SFP in the port is displayed.
 - x V (x: 0.00 to 6.55)
- Warning
 - Low or High
 - The Warning threshold (Low/High) for the voltage of the SFP in the port is displayed.
 - x V (x: 0.00 to 6.55)
- Alarm
 - Low or High
 - The Alarm threshold (Low/High) for the voltage of the SFP in the port is displayed.
 - x V (x: 0.00 to 6.55)

- Current
 - Present
 - The real time current of the SFP in the port is displayed.
 - x mA (x: 0.00 to 131.00)
 - Warning
 - Low or High
 - The Warning threshold (Low/High) for the current of the SFP in the port is displayed.
 - x mA (x: 0.00 to 131.00)
 - Alarm
 - Low or High
 - The Alarm threshold (Low/High) for the current of the SFP in the port is displayed.
 - x mA (x: 0.00 to 131.00)
- TX Power
 - Present
 - The real time transmission power of the SFP in the port is displayed.
 - x mW (x: 0.00 to 6.55)
 - Warning
 - Low or High
 - The Warning threshold (Low/High) for the transmission power of the SFP in the port is displayed. • x mW (x: 0.00 to 6.55)
 - Alarm
 - Low or High
 - The Alarm threshold (Low/High) for the transmission power of the SFP in the port is displayed. • x mW (x: 0.00 to 6.55)

RX Power

- Present
 - The real time received power of the SFP in the port is displayed.
 - x mW (x: 0.00 to 6.55)
- Warning
 - Low or High
 - The Warning threshold (Low/High) for the received power of the SFP in the port is displayed. • x mW (x: 0.00 to 6.55)
- Alarm
 - Low or High
 - The Alarm threshold (Low/High) for the received power of the SFP in the port is displayed.
 - x mW (x: 0.00 to 6.55)

iSCSI port

The detailed iSCSI port information is displayed.

Category	Port			 Action
E ETERNUS	Summary			Target 0
Controller Enclosure Controller Module	▼ CM#0 CA#0 Port#	▼ CM#0 CA#0 Port#0 Information		
E S Channel Adapter	Location	CM#0 CA#0 Port#0	2	
Performance	Port Mode	CA		
🗉 👹 PCle Flash Module	Status	Normal		
NV Power Supply Unit	Status Code	0×E001		
Battery	Error Code	0x0000		
Drive Enclosure	Туре	10G ISCSI		
🗈 🕹 Drives	Transfer Rate	Auto-negotiation		
	Link Status	10Gbit/s Link Up		
	iSCSI Name	iqn.0.0.com fujitsu storage-system eternus-dx400.00000000		
	ISCSI Alias Name	alias_name0		
	iSCSI IP Address	1 MR. MED		
	iSCSI Subnet Mask	255.255.255.0		
	ISC SI Gateway	10 MR. (001		
	iSCSI IPv6 Link Local Address	fe80::1:0		
	ISCSI IPv6 Connect IP Address	2001::1:0		
	ISCSI IPv6 Gateway	fe80::1:1		
	VLAN ID	4095		
	Affinity Mode	OFF		
	TFO Transfer Mode			
	TFO Port	Used		
	Bandwidth Limit			
	MTU Size	-		
	CHAP	OFF		
	MAC Address	00-00-21-37-00-00	~	
	Part Number		*	

The following items are displayed in the Main area:

 CE#x CM#y CA#z Port#w Information (for the ETERNUS DX8700 S/DX8900 S3) or CM#y CA#z Port#w Information (for the other models)

- Location

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Port Mode

The port mode is displayed.

- CA
- RA
- CA/RA
- Status

The port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The port status code is displayed.
- Error Code

The port error code is displayed.

- Туре

The type of the port is displayed.

- 1G iSCSI
- 10G iSCSI
- 10G Base-T iSCSI
- Multiple VLAN

Whether the Multiple VLAN is enabled or disabled for the port is displayed. A "-" (hyphen) is displayed when the port mode is "RA".

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- Number of IP Addresses

The number of IP addresses that are registered in the port is displayed. In this field, the total number of IP addresses (one basic IP address and the IP addresses that are specified by using Multiple VLAN (up to 15)) is displayed. "1" is displayed when the port mode is "RA" or when "Multiple VLAN" is disabled.

- Transfer Rate

The transfer speed of the port is displayed.

If the status is "② Unknown", a "-" (hyphen) is displayed.

- Auto-negotiation
- 100Mbit/s
- 1Gbit/s
- 10Gbit/s
- Link Status

The link status of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Link Down
- 100Mbit/s Link Up
- 1Gbit/s Link Up
- 10Gbit/s Link Up
- iSCSI Name

The iSCSI name is displayed.

- iSCSI Alias Name The iSCSI Alias name is displayed.
- iSCSI IP Address
 The IPv4 address of the iSCSI is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI Subnet Mask
 The subnet mask of the iSCSI is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI Gateway
 The IPv4 address of the iSCSI gateway is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI IPv6 Link Local Address
 The IPv6 link local address of the iSCSI is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
- iSCSI IPv6 Connect IP Address
 The IPv6 connect IP address of the iSCSI is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 - IPv6 address xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to "IPv6 Address Notation" (page 253) for details.

iSCSI IPv6 Gateway
 The gateway IPv6 address of the target port is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 IPv6 address
 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters)
 Refer to "IPv6 Address Notation" (page 253) for details.

- VLAN ID

The VLAN ID of the port is displayed. If the VLAN ID is not specified, a "-" (hyphen) is displayed.

- Affinity Mode

The affinity mode of the port is displayed.

• ON

OFF

- TFO Transfer Mode

Whether the TFO transfer mode is enabled or disabled for the port is displayed.

- A "-" (hyphen) is displayed when the port mode is "CA".
- This item is displayed only when "Enable" is selected for the Storage Cluster function.
- TFO Port

When the port is being used by the Storage Cluster function, "Used" is displayed, and "Unused" is displayed when the port is not used.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

- Used
- Unused
- Bandwidth Limit

A "-" (hyphen) is displayed for this item.

- MTU Size

The Maximum Transmission Unit size for iSCSI is displayed. When the port mode is "CA", a "-" (hyphen) is displayed.

- CHAP
 - The CHAP authentication status is displayed.
 - When the "Port Mode" is "CA" or "RA": "ON" or "OFF"
 - When the "Port Mode" is "CA/RA": x / y
 - x: CHAP authentication status for the CA port ("ON" or "OFF")
 - y: CHAP authentication status for the RA port ("ON" or "OFF")
- MAC Address

The MAC address of the port is displayed.

- Part Number
 - The part number of the port is displayed.

If the part number cannot be acquired, a "-" (hyphen) is displayed.

- Serial Number

The serial number of the port is displayed.

If the serial number cannot be acquired, a "-" (hyphen) is displayed.

Hardware Revision
 The hardware version of the port is displayed.
 If the hardware version cannot be acquired, a "-" (hyphen) is displayed.

- SFP Type

When the "Type" is "10G iSCSI", the SFP type of the port is displayed. If no SFP is installed, "Unmount" is displayed.

If the "Type" is not "10G iSCSI", the display status varies according to the screen. A "-" (hyphen) is displayed for the CM#x CA#y port information in the [Channel Adapter Detail] screen. This item is not displayed in the [Port Detail] screen.

- SFP+
- SFP+ Copper
- Unknown

🔵 Note

When the "Type" is "10G iSCSI", the temperature, voltage, current, transmission power, and received power for the SFP in the port are displayed.

Refer to <u>"FC port" (page 174)</u> for display items.

Sensor Information

The real time and threshold values (Low/High) for the temperature, voltage, current, transmission power, and received power are displayed in the Sensor Information.

When the information cannot be obtained, a "-" (hyphen) is displayed.

The target components for this information are 10G iSCSI that have SFPs from which information can be obtained.

Refer to <u>"Sensor Information" (page 178)</u> for display items.

■ Additional IP Address Information #x (x: 1 - 15)

When "Multiple VLAN" is enabled, the IP address information (up to 15 IP addresses) that is registered in the port is displayed.

- VLAN ID
 The VLAN ID of the port is displayed between 0 4095.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI IP Address
 The IPv4 address of the iSCSI port is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI Subnet Mask
 The subnet mask of the iSCSI port is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI Gateway
 The gateway IPv4 address of the iSCSI port is displayed.
 If not specified, a "-" (hyphen) is displayed.
- iSCSI IPv6 Link Local Address
 The IPv6 link local address of the iSCSI port is displayed.
 Note that the IPv6 address is displayed as an abbreviation.
 If not specified, a "-" (hyphen) is displayed.
 - IPv6 address fe80::xxxx:xxxx:xxxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to "IPv6 Address Notation" (page 253) for details.

iSCSI IPv6 Connect IP Address
 The IPv6 connect IP address of the iSCSI port is displayed.
 Note that the IPv6 address is displayed as an abbreviation.
 If not specified, a "-" (hyphen) is displayed.

 IPv6 address xxxx:xxxx:xxxx:xxxx:xxxx:xxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

- iSCSI IPv6 Gateway

The gateway IPv6 address of the iSCSI port is displayed. Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.

IPv6 address
 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters)
 Refer to "IPv6 Address Notation" (page 253) for details.

SAS Port

The detailed SAS port information is displayed.

Category	Port		_	» Action
ETERNUS	Summary		~	Target 0
🗉 箳 Controller Module	▼ CM#0 CA#0 Ports	#0 Information		
🗏 💕 Channel Adapter	Location	CM#0 CA#0 Port#0		
Performance	Status	Onormal		
Power Supply Unit	Status Code	0×E001		
🗉 📟 Drive Enclosure	Error Code	0x0010		
🕀 🗬 Drives	Туре	SAS		
	Transfer Rate	Auto-negotiation		
	Link Status	Phy#0:- Phy#1:- Phy#2:- Phy#2:-		
	SAS Address	500000E0D0400880		
	Affinity Mode	OFF		
	Part Number			
	Serial Number	*		
	Hardware Revision			
			C	

The following items are displayed in the Main area:

- CM#x CA#y Port#z Information
 - Location

The location information of the port is displayed.

- CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)
- Status

The port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The port status code is displayed.
- Error Code
 The port error code is displayed.
- Type The type of the port (fixed to "SAS") is displayed.

- Transfer Rate

The transfer speed of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Auto-negotiation
- 1.5Gbit/s
- 3Gbit/s
- 6Gbit/s
- Link Status

The link status for each Phy is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

• Phy#0 - 3:x

"x" indicates one of the following statuses:

- Link Down
- 1.5Gbit/s Link Up
- 3Gbit/s Link Up
- 6Gbit/s Link Up
- SAS Address

The SAS address is displayed.

If the SAS address is not specified, a "-" (hyphen) is displayed.

- Affinity Mode

The affinity mode of the port is displayed.

- ON
- OFF
- Part Number

The part number of the port is displayed.

If the part number cannot be acquired, a "-" (hyphen) is displayed.

- Serial Number
 The serial number of the port is displayed.
 If the serial number cannot be acquired, a "-" (hyphen) is displayed.
- Hardware Revision

The hardware version of the port is displayed.

If the hardware version cannot be acquired, a "-" (hyphen) is displayed.

FCoE port

The detailed FCoE port information is displayed.

Category	Port						
ETERNUS	Summary						~
Controller Enclosure Controller Module	V CM#0 CA#0 Ports	#0 Information					
E S Channel Adapter	Location	CM#0 CA#0 Port	#0				
Performance	Port Mode	CA					
🗉 🞏 PCle Flash Module	Status	Normal					
NV Power Supply Unit	Status Code	0xE001					
Battery	Error Code	0x0000					
Drive Enclosure	Type	FCoE					
11 🚱 Drives	Connection	Fabric					
	Transfer Rate	10Gbit/s					
	Link Status	8Gbit/s Link Up					
	WWN	500000E0DA800	020				
	Affinity Mode	OFF					
	FC Frame Size	2048 bytes					
	VLAN ID	Automatic					
	Fabric Name	Automatic					
	MAC Address	00-00-00-00-00-0	0				
	Part Number						
	Serial Number	-					
	Hardware Revision	-					
	SFP Type	SFP+					
	▼ Sensor Informati	on					
		Descent	Warning		Alarm		
		Present	Low	High	Low	H	
	Temperature	0.00 C / 32.00 F	0	~			
	Voltage	0.00 V	0.00 V	0.00 V	V 00.0		1

The following items are displayed in the Main area:

 CE#x CM#y CA#z Port#w Information (for the ETERNUS DX8700 S/DX8900 S3) or CM#y CA#z Port#w Information (for the other models)

- Location

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Port Mode

The port mode (fixed to "CA") is displayed.

- Status

The port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code
 The port status code is displayed.
- Error Code

The port error code is displayed.

- Туре

The type of the port (fixed to "FCoE") is displayed.

- Connection

The connection type of the port is displayed.

Fabric

A connection type that enables simultaneous communication among multiple nodes through a Fibre Channel switch.

FC-AL

A connection type that connects multiple nodes in a loop.

- Transfer Rate

The transfer speed of the port (fixed to "10 Gbit/s") is displayed. If the status is "
Unknown", a "-" (hyphen) is displayed.

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- Link Status
 The link status of the port is displayed.
 - If the status is " Unknown", a "-" (hyphen) is displayed.
 - Link Down
 - 10Gbit/s Link Up
- WWN
 - The WWN of the port is displayed.
- Affinity Mode
- The affinity mode of the port is displayed.
 - ON
 - OFF
- FC Frame Size
 - The frame size of the port is displayed.
 - 512 byte
 - 1024 byte
 - 2048 byte
- VLAN ID

The VLAN ID is displayed. When the VLAN ID is manually specified, the VLAN ID is displayed between 0 - 4095. When the VLAN ID is automatically specified, "Automatic" is displayed.

- Fabric Name

The fabric name (WWN for FCoE) is displayed.

When the fabric name is manually specified, the specified fabric name is displayed. When the fabric name is automatically specified, "Automatic" is displayed.

- MAC Address The MAC address of the port is displayed.
- Part Number
 The part number of the port is displayed.
 If the part number cannot be acquired, a "-" (hyphen) is displayed.
- Serial Number
 The serial number of the port is displayed.
 If the serial number cannot be acquired, a "-" (hyphen) is displayed.
- Hardware Revision
 - The hardware version of the port is displayed.

If the hardware version cannot be acquired, a "-" (hyphen) is displayed.

- SFP Type

The SFP type of the port is displayed. If the SFP is not installed, "Unmount" is displayed.

- SFP+
- SFP+ Copper
- Unknown

🔵 Note

The temperature, voltage, current, transmission power, and received power for the SFP in the port are displayed. Refer to <u>"FC port" (page 174)</u> for display items.

Sensor Information

The real time and threshold values (Low/High) for the temperature, voltage, current, transmission power, and received power are displayed in the Sensor Information.

When the information cannot be obtained, a "-" (hyphen) is displayed.

The target components for this information are FCoE that have SFPs from which information can be obtained.

Refer to "Sensor Information" (page 178) for display items

NAS port

The detailed NAS port information is displayed.

category	Port			Action
E Bolphin#1	Summary		~	Target 0
Controller Enclosure Section 2017	▼ CM#0 CA#0 Port#	0 Information		
🗉 💉 Channel Adapter	Location	CM#0 CA#0 Port#0		
Performance	Port Mode	CA		
🗉 🞏 PCle Flash Module	Status	ONormal .		
Power Supply Unit	Status Code	0xE001		
Battery	Error Code	0x0000		
Drive Enclosure	Туре	1G NAS		
🗈 🕪 Drives	Redundancy	Active-Active		
	Redundant Port	CMW1 CANO PortW0		
	Failover Status	Normal		
	Port Bonding Mode	*		
	Bonding Master Port	-		
	Bonding Port	4		
	Number of VLAN IP Addresses	1		
	Transfer Rate	1Gbit/s		
	Link Status	*		
	IP Address			
	Subnet Mask	4		
	Gateway Address	x		
	IPv6 Link Local Address			
	IPv6 Connect IP Address			
	IPv6 Gateway Address	-		
	MTU Size	9014		
	MAC Address	00-01-41-C1-04-05	~	

The following items are displayed in the Main area:

- CM#x CA#y Port#z Information
- Location
 - The location information of the port is displayed.
 - CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)
- Port Mode

The port mode (fixed to "CA") is displayed.

- Status

The port status is displayed. Refer to "A.5 Component Status" (page 410) for details.

- Status Code The port status code is displayed.
- Error Code The port error code is displayed.
- Туре

The type of the port is displayed.

- 10G NAS
- 1G NAS

- Redundancy

The connection type of the port is displayed. When the connection type is "Active-Active" or "Active-Standby", the "Redundant Port" information is displayed.

Active-Active

Combine the ports in both of the CMs and configure the redundant ports. For this configuration, the ports of both CMs can be used at any time.

Active-Standby

Combine the ports in both of the CMs and configure the redundant ports. For this configuration, one port remains in standby status.

• Single

Use only for the ports in the CM that are not redundant.

- Redundant Port

The installation locations of the ports that are configured for redundancy with the target port are displayed. When redundancy is configured for each bonding port, all of the related ports are displayed. A "-" (hyphen) is displayed when "Redundancy" is "Single".

- CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)
- Failover Status

The failover status of the multipath is displayed.

A "-" (hyphen) is displayed when the multipath is not set (or when "Redundancy" is "Single").

- Normal
 - The multipath setting between the "Location" port and "Redundant Port" is in a normal state.
- CM#x CA#y Port#z is currently inactive

The multipath between the "Location" port and "Redundant Port" is set, but the "CM#x CA#y Port#z" port is not used.

- Port Bonding Mode

The bonding mode for the port is displayed.

Master

The representative port among the ports that configure the bonding port. The IP address of the bonding port is assigned to the master port.

Member

Ports that configure the bonding port.

- Bonding Master Port

The installation location of the master port, which is a member of the ports that configure the bonding port, is displayed.

If the bonding port is not configured, a "-" (hyphen) is displayed.

• CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)

- Bonding Port

The installation locations of all the member ports that configure the bonding port is displayed. If the bonding port is not configured, a "-" (hyphen) is displayed.

- CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)
- Number of VLAN IP Addresses

The number of VLAN IP addresses for the port is displayed. If VLAN is not set, "0" is displayed.

- Transfer Rate

The transfer speed of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Auto-negotiation
- 100 Mbit/s
- 1 Gbit/s
- 10 Gbit/s
- Link Status

The link status of the port is displayed.

If the status is " Unknown", a "-" (hyphen) is displayed.

- Link Down
- 10Mbit/s Full Duplex Link Up
- 10Mbit/s Half Duplex Link Up
- 100Mbit/s Full Duplex Link Up
- 100Mbit/s Half Duplex Link Up
- 1Gbit/s Full Duplex Link Up
- 1Gbit/s Half Duplex Link Up
- 10Gbit/s Full Duplex Link Up
- 10Gbit/s Half Duplex Link Up
- IP Address

An IPv4 address without VLAN IDs is displayed. If not specified, a "-" (hyphen) is displayed.

- Subnet Mask
 An IPv4 subnet mask without VLAN IDs is displayed.
 If not specified, a "-" (hyphen) is displayed.
- Gateway Address
 An IPv4 address for the gateway without VLAN IDs is displayed.
 If not specified, a "-" (hyphen) is displayed.
- IPv6 Link Local Address
 An IPv6 link local address without VLAN IDs is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 - IPv6 address fe80::xxxx:xxxx:xxxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to "IPv6 Address Notation" (page 253) for details.
- IPv6 Connect IP Address

An IPv6 connect IP address without VLAN IDs is displayed.

Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.

IPv6 address
 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters)
 Refer to "IPv6 Address Notation" (page 253) for details.

 IPv6 Gateway Address An IPv6 address for the gateway without VLAN IDs is displayed. Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed. IPv6 address xxxx:xxxx:xxxx:xxxx:xxx:xxx:xxx:xxxx:xxxx
 MTU Size The MTU size is displayed. A "-" (hyphen) is displayed when the MTU size is "0".
 MAC Address The MAC address of the port is displayed.
 Part Number The part number of the port is displayed. If the part number cannot be acquired, a "-" (hyphen) is displayed.
 Serial Number The serial number of the port is displayed. If the serial number cannot be acquired, a "-" (hyphen) is displayed.
- Hardware Revision The hardware version of the port is displayed. If the hardware version cannot be acquired, a "-" (hyphen) is displayed.
 SFP Type When the port type is "10G NAS", SFP type in the port is displayed. If the SFP is not installed, "Unmount" is displayed. If the "Type" is not "10G NAS", the display status varies according to the screen. This item is not displayed in the [Port Detail] screen. SFP+ SFP+ Copper Unknown Unmount
○ Note

When the "Type" is "10G NAS", the temperature, voltage, current, transmission power, and received power for the SFP in the port are displayed.

Refer to <u>"FC port" (page 174)</u> for display items.

Sensor Information

The real time and threshold values (Low/High) for the temperature, voltage, current, transmission power, and received power are displayed in the Sensor Information.

When the information cannot be obtained, a "-" (hyphen) is displayed.

The target components for this information are 10G NAS that have SFPs from which information can be obtained.

Refer to <u>"Sensor Information" (page 178)</u> for display items.

- Additional VLAN IP Address
- VLAN ID

The VLAN ID of the NAS port is displayed between 1 - 4094.

- IP Address (*1)
 The IPv4 address of the NAS port is displayed.
 If not specified, a "-" (hyphen) is displayed.
- Subnet Mask (*1)
 The subnet mask of the NAS port is displayed.
 If not specified, a "-" (hyphen) is displayed.
- Gateway Address (*1) The gateway IPv4 address of the NAS port is displayed. If not specified, a "-" (hyphen) is displayed.
- IPv6 Link Local Address (*1)
 The IPv6 link local address of the NAS port is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 - IPv6 address fe80::xxxx:xxxx:xxxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to "IPv6 Address Notation" (page 253) for details.
- IPv6 Connect IP Address (*1)
 The IPv6 connect IP address of the NAS port is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 - IPv6 address
 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 ffff (hexadecimal, "a" "f" are lowercase letters)
 Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.
- IPv6 Gateway Address (*1)
 The gateway IPv6 address of the NAS port is displayed.
 Note that the IPv6 address is displayed as an abbreviation. If not specified, a "-" (hyphen) is displayed.
 - IPv6 address
 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 ffff (hexadecimal, "a" "f" are lowercase letters)
 Refer to "IPv6 Address Notation" (page 253) for details.
- *1: This item is displayed for all of the VLAN settings.

Chapter 4 Volume Status

Volume status displays the status information of volumes. Volume status screens can be displayed by clicking the following categories:

Category	Volume status screen
Volume	Volume (Basic Information)
Performance (Host I/O)	Performance (Host I/O)
Performance (QoS)	Performance (QoS)
Performance (Advanced Copy)	Performance (Advanced Copy)
LUN Group	LUN Group
Reservation	Reservation
Pinned Data	Pinned Data
Bad Sector	Bad Sector
Balancing Thin Provisioning Volume	Balancing Thin Provisioning Volume
Snapshot	<u>Snapshot</u>

Detailed information of the volumes can be displayed from the following screens:

- Volume Detail (Basic)
- Volume Detail (Reservation)
- Volume Detail (Pinned Data)
- Volume Detail (Balancing TPV)
- Volume Detail (Used RAID Group)
- Volume Detail (Snapshot)

4.1 Volume (Basic Information)

This function displays the basic information of volumes.

Caution

The display process for the volume list may be delayed for a maximum of two minutes while a meta cache redistribution is being performed for NAS volumes (NAS user volumes or NAS backup volumes).

	VOID	ime							Action
Reformance/blost I/O)	#	ilter s	etting				Filte	r Clear	Target 0
ormance(QoS)		Name	Status:All Type	:All Usage:	All Encry	ption:All	Process:All	Storage	Create
s/Autranceu		Cluste	CAIL VIITUAI VOIUM	e All Allocab	on.All				Rename
				11 items)	(< 1/1 p	ages →	н (🏚 page 🛛 Go	Format
rovision		No.	Name	Status	Туре	Usage	Capacity	RAID Group/TPF	Expand Volume Expand TPV
		0	VolumeName000	Available	Standard	Block	4.00 GB	0	Start RAID Migration
		1	VolumeName001	Available	Standard	Block	4.00 GB	1	Stop RAID Migration
		2	VolumeName002	Available	Standard	Block	1.00 GB	2	Optimize TPV/FTV Capacit
		3	VolumeName003	Available	TPV	File	4.00 GB	1	Cancel Optimizing TPV/F
		4	VolumeName004	Available	FTV	Block	1.00 GB	00	Delete SDPV
		5	VolumeName005	Available	FTV	Block	4.00 GB	0	Force Delete SDPV
		<u>6</u>	VolumeName006	Available	SDPV	Block	1.00 GB	6	Modify TPV Threshold
		Z	VolumeName007	Available	Standard	Block	4.00 GB	7	Encrypt Volume
	0 VolumeName000 Available TPV File 160.00 GB 1 0 2 VolumeName000 Available Standard Block 4.00 GB 9	160.00 GB	1	Forbid Advanced Copy					
		9 🗸	Fermit Advanced Copy						
	Π,	10	VolumeName010	Avaitable	Standard	Block	4 00 GR	10	Reconfigure NAS Volume
		-						/	

The following items are displayed in the Main area:

• No.

The volume number is displayed.

During volume creation, the volume number can be allocated automatically or specified manually. When the volume number is allocated automatically, the volume number is allocated from the smallest unused decimal number in ascending order.

Click this item to display the [Volume Detail] screen. Refer to <u>"4.11 Volume Detail (Basic)" (page 223)</u> for display items.

Name

The volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.11 Volume</u> <u>Detail (Basic)" (page 223)</u> for display items.

• Status

The volume status is displayed. When the volume status is normal, " Available" is displayed. Refer to "A.2 Volume Status" (page 406) for detailed information of volume status.

Type

The volume type is displayed.

- Standard

Standard volumes are the most commonly used volumes that are created in RAID groups.

A standard volume is used for normal usage, such as file systems and databases. The server recognizes it as a single logical unit.

- WSV

WSV is a volume that is created by concatenating distributed areas in from 2 to 64 RAID groups. Processing speed is fast because data access is distributed.

- TPV

Thin Provisioning Volume (TPV) is a virtual volume that is created in a Thin Provisioning Pool area. When data is being written to a TPV from the server, the drives are allocated in specified size units.

- FTV

A Flexible Tier Volume is a virtual volume that is created in an FTRP. This volume is a target volume for layering. Data is automatically redistributed in small block units according to the access frequency. The FTV is created by ETERNUS CLI or ETERNUS SF Storage Cruiser.

- SDV

A Snap Data Volume (SDV) is an area that is used as the copy destination for a SnapOPC/SnapOPC+. For a SnapOPC, SDVs are created for each copy destination. For a SnapOPC+, SDVs are created for each generation of the copy destination.

- SDPV

A Snap Data Pool Volume (SDPV) is a volume that is used to configure SDP areas. The SDP capacity equals the total capacity of the SDPVs. A volume is supplied from a SDP when the amount of updates exceeds the capacity of the SDV.

- Temporary

Temporary is a migration source volume that failed to delete after RAID migration is complete, a work volume that failed to delete after TPV balancing is complete, or a work volume that failed to delete after FTRP balancing is complete.

Usage

The usage of the volume is displayed.

- Block

The volumes that are used for the SAN.

- Block/Dedup

The Deduplication/Compression Volumes.

- File
- The volumes that are used for the NAS.
- System

The volumes that are used for management information.

The system volumes described below. Refer to <u>"Usage Details" (page 228)</u> in <u>"4.11 Volume Detail</u> (Basic)" (page 223) for details.

- System volumes for the NAS system
- System volumes for the Virtual Volume function
- Deduplication/Compression System Volumes
- Capacity

The volume capacity is displayed.

The capacity is displayed in units of "MB", "GB", or "TB". Even when volumes are created in units of "MB", if the volume capacity exceeds 1023.99MB, the capacity is displayed in units of "GB". If the volume capacity exceeds 1023.99GB, the capacity is displayed in units of "TB". The capacity is rounded off to two decimal places.

When the volume type is "SDV", the virtual capacity is displayed. The virtual capacity indicates the capacity that is secured automatically when creating SDVs (24 (MB) + copy source volume capacity x 0.1%).

• RAID Group/TPP/FRTP No.

The following number is displayed:

- If the type is "WSV"
 - The RAID group number to which the representative volume (*1) belongs is displayed.
 - *1: A volume for WSV, which is created by concatenating multiple RAID groups with striping, that belongs to the RAID group that is first in the concatenation order.
- If the type is "TPV"
 - The Thin Provisioning Pool (TPP) number to which the volume belongs is displayed.
- If the type is "FTV" The Flexible Tier Pool (FTRP) number to which the volume belongs is displayed.
- If the type is not one of the types listed above The RAID group number to which the volume belongs is displayed.
- RAID Group/TPP/FTRP Name

The following name is displayed:

- If the type is "WSV"

The RAID group name to which the representative volume belongs is displayed.

- If the type is "TPV"
 - The Thin Provisioning Pool (TPP) name to which the volume belongs is displayed.
- If the type is "FTV" The Flexible Tier Pool (FTRP) name to which the volume belongs is displayed.
- If the type is not one of the types listed above
- The RAID group name to which the volume belongs is displayed.
- Encryption

The encryption status is displayed.

For the ETERNUS DX60 S3, this item is not displayed.

- CM
 - A volume that is encrypted by CM
- "-" (hyphen)
 - A volume that is not encrypted (plain text volume)
- SED
 - A volume that is encrypted by SED
- UID

The Universal Identifier (UID) is displayed.

The UID is an identifier (storage system name) to specify a volume from the open system server. A "-" (hyphen) is displayed for the Deduplication/Compression System Volume.

Process

A process that is being performed for the volume is displayed.

If multiple processes are currently being performed, the processes are separated with a ": (colon)" and displayed using ("xx:yy"). "Encrypting", "Formatting", "Migrating", or "Balancing" is displayed as "xx". "Optimizing Capacity" or "Reserved Optimizing Capacity" is displayed as "yy".

If no process is being performed, a "-" (hyphen) is displayed.

- Encrypting

Volume encryption is being performed.

- Formatting
 - Formatting is being performed.
- Migrating
- RAID migration is being performed.
- Balancing

TPV balancing or FTRP balancing is being performed.

- Optimizing Capacity

Capacity optimization (*1) is being performed in a TPV or an FTV.

- Reserved Optimizing Capacity

Capacity optimization is being reserved (*2) for a TPV or an FTV.

- *1: "Capacity Optimization" is a function that releases the allocated physical area when data in the physical area that is allocated to a TPV or an FTV is filled with zeros.
- *2: If "Start Optimizing TPV/FTV Capacity after migration" is enabled for the RAID migration function, the migration source volume is reserved for capacity optimization.
- Forbid Advanced Copy

The protection status of the volume or the volume attribute (such as mirroring reservation) is displayed. "No" is displayed for the Deduplication/Compression System Volume.

- Yes

The volume is protected. The volume cannot be used as a copy destination volume.

- No
 - The volume is not protected. The volume can be used as a copy destination volume.
- DLM (Dynamic LUN Mirroring)

An attribute that is to be set to a volume being created as the REC copy destination by the Dynamic LUN Mirroring function regardless of whether the volume is protected. If this attribute is displayed, the volume might be the one that is left in the storage system due to unsuccessful creation.

- ODX (Offloaded Data Transfer) An ODX Buffer volume. ODX Buffer volumes cannot be protected.
- Storage Cluster

When the volume is being used by the Storage Cluster function, "Enable" is displayed. When no volumes are used for the Storage Cluster function, "Disable" is displayed.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

Virtual Volume

When the volume is being used by the Virtual Volume function, "Enable" is displayed. When no volumes are used by the Virtual Volume function, "Disable" is displayed.

For \$VVOL_META, "Disable" is displayed even if the relevant volume is being used by the Virtual Volume function. "\$VVOL_META" is a system volume that is used for storing the management information (metadata) of the Virtual Volume function.

This item is displayed only when "Enable" is selected for the Virtual Volume function.

Allocation

The allocation method for the volume is displayed.

- A "-" (hyphen) is displayed when the volume type is other than "TPV" or "FTV".
- Thin
- Physical area is allocated to the target area of the volume when a write I/O is received.
- Thick
- Physical area is allocated to the whole area of the volume when volumes are created.
- Used Capacity

The used capacity (physically allocated capacity) of volume is displayed with "MB", "GB", or "TB". A "-" (hyphen) is displayed in the following conditions:

- The volume type is not "TPV" or "FTV"
- Deduplication/Compression Volumes (*1)
 - *1: The used capacity of the Deduplication/Compression Volumes in the TPP can be determined by checking the used capacity of the DEDUP_SYS Volume that is created in the TPP. The used capacity of the DEDUP_SYS Volume approximately corresponds to the total used capacity of the Deduplication/Compression Volumes in the relevant TPP.
- Used Rate

The volume utilization is displayed between 0% - 100%.

Used Rate = Used Capacity / Capacity

A "-" (hyphen) is displayed in the following conditions:

- The volume type is not "TPV" or "FTV"
- Deduplication/Compression Volumes (*1)
 - *1: The used rate of the Deduplication/Compression Volumes in the TPP can be determined by checking the used rate of the DEDUP_SYS Volume that is created in the TPP. The used rate of the DEDUP_SYS Volume approximately corresponds to the total used rate of the Deduplication/Compression Volumes in the relevant TPP. Note that the capacity reduction rate for the TPP due to the Deduplication/Compression function can be checked in the [Thin Provisioning Pool] screen. Refer to <u>"7.1.1 Thin Provisioning Pool (Basic Information)" (page 325)</u> for details.

Threshold

The threshold for monitoring the volume utilization is displayed between 1% - 100%.

If the "Used Rate" value exceeds the "Threshold", a Host Sense Key Code Qualifier is notified.

- A "-" (hyphen) is displayed in the following conditions:
- The volume type is not "TPV" or "FTV"
- Deduplication/Compression Volumes or Deduplication/Compression System Volumes

🔵 Note

- The threshold for TPPs can be checked in the [Threshold] screen. Refer to <u>"7.1.5 Threshold (Thin Provisioning Pool)</u>" (page 334) for details.
- The threshold for FTRPs can be checked in the [Flexible Tier Pool] screen. Refer to <u>"7.2.1 Flexible Tier Pool (Basic Information)" (page 340)</u> for details.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Status	Select the volume status that is to be displayed.
Туре	Select the volume type that is to be displayed.
Usage	Select the usage of the volume that is to be displayed.
Encryption	Select the encryption status of the volume that is to be displayed. For the ETERNUS DX60 S3, this item is not displayed.
Process	Select which current process for the volume is to be displayed.
Storage Cluster	Select the Storage Cluster function usage status for the volume that is to be displayed. This item is displayed only when "Enable" is selected for the Storage Cluster function.
Virtual Volume	Select the Virtual Volume function usage status for the volume that is to be displayed. This item is displayed only when "Enable" is selected for the Virtual Volume function.
Allocation	Select the allocation method of the volume that is to be displayed.

4.2 Performance (Host I/O)

This function displays the performance information of the volumes for Host I/O.

🔵 Note

- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.
- When the performance monitoring function is stopped, "0" is displayed as the performance information.

ategory	Per	forma	ince(Host I/	0)						Action
🗉 🔷 Volume	#	Filter s	setting					Filter	Clear	Target: 0
Performance(QoS)		Name	Type:All	Usage:All						X Modify Cache Parameters
 Performance(Advanced) LUN Group Reservation Pinned Data 				4 0	terns H	< 1/1 p	ages >	н 13	page Go	Export Cache Parameters Export Performance Info Set ALUA
Bad Sector Balancing Thin Provision		No.	Name	Туре	Usage	Read IOPS	Write IOP5	Read Throughput	Write Throughput	
		Q	Volume000	Standard	Block	0 IOPS	0 IOPS	0 MB/s	0 M	
1		1	Volume001	TPV	Block	DIOPS	0 IOPS	D MB/s	0 M	
1		2	Volume002	TPV	Block	DIOPS	0 IOPS	0 MB/s	0 M	
		3	Volume003	Standard	Block	DIOPS	0 IOPS	0 MB/s	0 M	
	<	9							>	
>										

The following items are displayed in the Main area:

- No.
 - The volume number is displayed. Click this item to display the [Volume Detail] screen.
- Name The vo
 - The volume name is displayed. Click this item to display the [Volume Detail] screen.
- Type

The volume type is displayed.

- Standard
- WSV
- TPV
- FTV
- SDV
- SDPV
- Temporary

- Usage
 - The usage of the volume is displayed.
 - Block
 - The volumes that are used for the SAN.
 - Block/Dedup
 - The Deduplication/Compression Volumes.
 - File
 - The volumes that are used for the NAS.
 - System The volumes that are used for management information. Refer to "Usage Details" (page 228) in "4.11 Volume Detail (Basic)" for details.
- Read IOPS The read count per second is displayed.
- Write IOPS The write count per second is displayed.
- Read Throughput The amount of transferred data that is read per second is displayed.
- Write Throughput The amount of transferred data that is written per second is displayed.
- Read Response Time The average read response time per host I/O is displayed.
- Write Response Time The average write response time per host I/O is displayed.
- Read Processing Time
 The average read processing time per host I/O is displayed.

 This item is displayed only when the controller firmware version V10L4x or later is used.
- Write Processing Time
 The average write processing time per host I/O is displayed.

 This item is displayed only when the controller firmware version V10L4x or later is used.
- Read Cache Hit Rate The cache hit rate (for read) is displayed.
- Write Cache Hit Rate The cache hit rate (for write) is displayed.
- Prefetch Cache Hit Rate The cache hit rate (for prefetch) is displayed.
- Extreme Cache Cache Hit Rate
 The cache hit rate of EXC for read I/O is displayed.
 This item is displayed when EXC or EXCP is enabled for the ETERNUS DX. A "-" (hyphen) is displayed for
 volumes where EXC and EXCP are disabled. Enabling or disabling EXC for the volume can be performed
 with ETERNUS CLI or ETERNUS SF Storage Cruiser. Enabling or disabling EXCP for the volume can be
 performed with ETERNUS Web GUI. Refer to "Modify Cache Parameters" in "ETERNUS Web GUI User's Guide
 (Settings)" for details.

The mode (Extreme Cache or Extreme Cache Pool) that is being used for the ETERNUS DX is displayed in the [System Settings] screen. Refer to "2.12 System Settings" (page 71) for details.

🔵 Note

A "-" (hyphen) is usually displayed for the following volumes:

- Volume type is "SDV" or "SDPV"
- Volumes that are created in a RAID group or a TPP configured with SSDs or SSD SEDs
- ODX Buffer volumes

Cache Page Capacity

The cache page capacity is displayed.

When the cache page capacity is "-" (hyphen), there is no limit for the cache capacity. A "-" (hyphen) is displayed when the volume type is "TPV", "FTV", or "WSV". Note that a "-" (hyphen) is displayed for a "Standard" type volume that is concatenated by the LUN concatenation function.

• PL

The prefetch limit is displayed. If PL is "0", prefetch is not performed.

• FP

The selected usage for the Force Prefetch Mode, which performs forcible prefetching for cache, is displayed. - ON

- Perform prefetch even if the sequential characteristics of the data access is not detected.
- OFF

Perform prefetch only when the sequential characteristics of the data access is detected.

MWC

The value of the Multi Write back Count is displayed.

PSDC

The number of times that sequentiality of data access (Read I/O) is detected (value of the Prefetch Sequential Detect Count) is displayed. If any sequential data is accessed for the number of times specified for PSDC, such access is determined as sequential access and prefetch is performed.

• SDDC

The number of times that sequentiality of data access (Write I/O) is detected (value of the Sequential Dirty Detect Count) is displayed. If any sequential data is accessed for the number of times specified for SDDC, such access is determined as sequential access and prefetch is performed.

• SS

The value of the parameter (Sequential Slope) to determine the sequentiality of data access (Read I/O) is displayed. If the difference in addresses between the end LBA of the previous I/O and the start LBA of the current I/O is within (SS setting + 1), it is determined as sequential data.

SDS

The value of the parameter (Sequential Dirty Slope) to determine the sequentiality of data access (Write I/O) is displayed. If the difference in addresses between the end LBA of the previous I/O and the start LBA of the current I/O is within (SDS setting + 1), it is determined as sequential data.

SPMC

The value of the parameter (Sequential Parallel Multi I/O Count) to determine the sequentiality of data access (Read I/O and Write I/O) is displayed. If the difference in addresses between the start address of the previous I/O and the start address of the received I/O is within (I/O size x Specified value), it is determined as sequential data.

• ALUA

The set state for Asymmetric Logical Unit Access (ALUA) is displayed. A "-" (hyphen) is displayed for volumes that cannot be mapped (*1).

- Follow Host Response
 Use the same "Asymmetric / Symmetric Logical Unit Access" setting as the host response for the host group or the host.
- ACTIVE / ACTIVE

All of the paths to the volume are regarded as being recommended paths. The use of a multipath driver determines which paths are used.

- ACTIVE-ACTIVE / PREFERRED_PATH

There are recommended paths and non-recommended paths for each volume. By using a CA port in the Controlling CM of a RAID group in which the volume belongs for the recommended paths (other ports are regarded as non-recommended paths), data migration between CMs (cross access) can be reduced.

- *1: The following volumes cannot be mapped.
 - "SDPV" or "Temporary" type volumes
 - ODX Buffer volumes
 - "Usage" is "File" or "System"

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Туре	Select the volume type that is to be displayed.
Usage	Select the usage of the volume that is to be displayed.

4.3 Performance (QoS)

This function displays the performance information of the volume QoS for Host I/O. IOPS, throughput, and the bandwidth limit for each volume can be checked.

> Caution

The ETERNUS DX60 S3 does not support this function.

🔵 Note

- The target volume types for this function are Standard, SDV, WSV, TPV (including NAS user volumes and Deduplication/Compression Volumes), and FTV. Note that the performance information is not displayed for ODX Buffer volumes, NAS backup volumes, NAS system volumes, and Deduplication/Compression System Volumes.
- This function displays the performance information of volume QoS regardless of whether the QoS mode is enabled or disabled. If the QoS mode is disabled, the default bandwidth limit ("Unlimited") is displayed for all items.
- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.

Category	Per	forma	nce(QoS)							» Action
Volume	#	liter s	etting					Filter Clear	-	Target 0
Performance(QoS)		Name	Type:All	Usage:All						Set QoS
Performance(Advanced) LUN Group Reservation				4 /	tems 14	< 1/1 pa	iges → H [1 - page	Go	
Pinned Data		No.	Name	Type	Usage	IOPS	Throughput	Bandwidth Limit		
Balancing Thin Provision		0	Volume000	Standard	Block	0 IOPS	0 MB/s	Unlimited	~	
		1	Volume001	TPV	Block	0 IOPS	0 MB/s	Unlimited		
		2	Volume002	TPV	Block	0 IOPS	0 MB/s	Unlimited		
		3	Volume003	Standard	Block	0 IOPS	0 MB/s	Unlimited	*	
1	<								>	
									~	

• The average performance values during the specified interval are displayed.

The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.11 Volume Detail (Basic)" (page 223)</u> for display items. Name The volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.11 Volume Detail (Basic)" (page 223)</u> for display items.

Type

The volume type is displayed.

- Standard
- TPV
- FTV
- WSV
- SDV

Usage

The usage of the volume is displayed.

- Block

The volumes that are used for the SAN.

Block/Dedup

The Deduplication/Compression Volumes.

- File

The volumes that are used for the NAS.

IOPS

IOPS, the total number of reads and writes per second, is displayed.

Throughput

Throughput, the total amount of read data and write data transferred per second, is displayed.

• Bandwidth Limit

The bandwidth limit for the volume is displayed.

If the bandwidth limit has not been configured for the volume, the default value ("Unlimited") is displayed.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Туре	Select the volume type that is to be displayed. "TPV" and "FTV" are displayed as options only when the Thin Provisioning function is enabled.
Usage	Select the usage of the volume that is to be displayed.

4.4 Performance (Advanced Copy)

This function displays the performance information of the volumes for Advanced Copy.

🔵 Note

- The performance information is not displayed for Deduplication/Compression System Volumes.
- Performance information is obtained when performance monitoring is operated from ETERNUS Web GUI, ETERNUS CLI, or any other monitoring software. Refer to "Start/Stop Performance Monitoring" in "ETERNUS Web GUI User's Guide (Settings)" for details on how to start performance monitoring with ETERNUS Web GUI.
- The interval for acquiring performance information can be specified when starting the monitoring. When using ETERNUS Web GUI, the default interval is 30 seconds.
- The average performance values during the specified interval are displayed.
- When the performance monitoring function is stopped, "0" is displayed as the performance information.

Volume Performance(Adsysreed)	Volume Filter Filter Target 0 Performance(Addataced) Name: Type:All Usage:All Name: Type:All Usage:All Standard If page: > H Image: Clear All Performance(Addataced) 4 Items H 1/1 page: > H Image: Clear All Export Performance Infl Performance(Addataced) 4 Items H 1/1 page: > H Image: Clear All Export Performance Infl Performance(Addataced) 4 Items H 1/1 page: > H Image: Clear All Export Performance Infl Performance(Addataced) No. Name Type Usage: Read Write Throughput Throughput Throughput Throughput Throughput Throughput Throughput Export Performance Infl 0 No. Name Type Usage: Read Write Throughput Thr	itegory	Per	forma	nce(Advan	ced Copy)					Action
Performance(OoS) Name: Type:All Usage:All Export Performance(OoS) Performance(OoS) 4/lems H ≤ 1/1 pages > H 1 ⊕ page Go Pinned Data Bad Sector Bad Sector No. No. Name Type Usage Read Write II Yolume000 Standard Block 010PS 010PS 0 MB/s 0 M I Yolume001 TPV Block 010PS 010PS 0 MB/s 0 M I Yolume003 Standard Block 010PS 010PS 0 MB/s 0 M I Yolume003 Standard Block 010PS 0 MB/s 0 M	Performance(c)dos) Name: Type/All Usage/All Performance(c)dos) Reservation 4 items H 1/1 pages H Export Performance inf Pinned Data Bad Sector Bad Sector No. Name: Type Usage Read Write: Nove the formance inf Image: Performance informance informace informance informance informace informance informace i	Volume	#	Filter s	etting	Target 0						
Reservation Write Read Write Read Write Pinned Data Bad Sector No. Name Type Usage Read Write Read Write I No. Name Type Usage Read Write Read Write I Volume000 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M I Volume001 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M I Volume003 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M I Volume003 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M	Participandice/Advanced1 Princed Data Bad Sector Balancing Thin Provision Princed Data Q Vstume2002 Standard Biock 010PS D10PS DMB/s OM Q Vstume2002 TPV Biock 010PS D10PS DMB/s OM Q Vstume2002 TPV Biock 010PS D10PS D MB/s OM Q Vstume2002 TPV Biock 010PS 010PS 0 MB/s 0 M Q Vstume2002 TPV Biock 010PS 0 MB/s 0 M Q Vstume2002 TPV Biock 010PS 0 MB/s 0 M Q Vstume2002 Standard Biock 0 10PS 0 MB/s 0 M Q Vstume2002 Standard Biock 0 10PS 0 MB/s 0 M	Performance(QoS)		Name	Type:All	Usage:All						Export Performance Info
Prinko Usala Bad Sector Balancing Thin Provision Q Volume202 Standard Biock 010PS 010PS 0 MB/s 0 M Q Volume202 TPV Biock 010PS 010PS 0 MB/s 0 M Q Volume202 TPV Biock 010PS 010PS 0 MB/s 0 M	Primo Guar Pad Sector Bad Sector No. Name Type Usage Read IOPS Write IOPS Read Throughput Write Throughput 9 Vslume000 Standard Block 010PS 0 NB/s 0 M 1 Vslume001 TPV Block 010PS 0 NB/s 0 M 2 Vslume002 TPV Block 010PS 0 NB/s 0 M 3 Vslume002 Standard Block 010PS 0 NB/s 0 M	Performance(Advanced) LUN Group Reservation				41	terms 14	< 1/1 pa	ages >	н (1	page Go	
Q Volume000 Standard Block 0 IOPS D IOPS D MB/s 0 M 1 Volume001 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M 2 Volume002 TPV Block 0 IOPS 0 MB/s 0 M 3 Volume003 Standard Block 0 IOPS 0 MB/s 0 M	0 Volume000 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M 1 Volume001 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M 2 Volume002 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M 3 Volume003 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M	Bad Sector Bad Sector Balancing Thin Provision		No.	Name	Туре	Usage	Read IOP\$	Write IOP5	Read Throughput	Write Throughput	
1 Volume001 TPV Block 010PS 010PS 0 MB/s 0 M 2 Volume002 TPV Block 010PS 010PS 0 MB/s 0 M 3 Volume003 Standard Block 010PS 010PS 0 MB/s 0 M	1 Volume001 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M 2 Volume002 TPV Block 0 IOPS 0 IOPS 0 MB/s 0 M 3 Volume003 Standard Block 0 IOPS 0 IOPS 0 MB/s 0 M			Q	Volume000	Standard	Block	0 IOPS	0 IOPS	0 MB/s	0 M	
2 Volume002 TPV Block 0 10PS 0 10PS 0 MB/s 0 M 3 Volume003 Standard Block 0 10PS 0 10PS 0 MB/s 0 M	2 Volume2002 TPV Block 0 IOPS 0 MB/s 0 M 3 Volume2003 Standard Block 0 IOPS 0 MPS 0 MB/s 0 M			1	Volume001	TPV	Block	DIOPS	0 IOPS	D MB/s	0 M	
3 Volume003 Standard Block 010PS 010PS 0 MB/s 0 M	2 <u>Volume003</u> Standard Block 010PS 010PS 01MB/s 0.M			2	Volume002	TPV	Block	0 IOPS	0 IOPS	0 MB/s	OM	
				3	Volume003	Standard	Block	0 IOPS	0 IOPS	0 MB/s	0 M	
< >>			<								>	
		>										

The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display the [Volume Detail] screen.

Name

The volume name is displayed. Click this item to display the [Volume Detail] screen.

• Type

The volume type is displayed.

- Standard
- WSV
- TPV
- FTV
- SDV
- SDPV
- Temporary

- Usage
 - The usage of the volume is displayed.
 - Block
 - The volumes that are used for the SAN.
 - Block/Dedup
 - The Deduplication/Compression Volumes.
 - File
 - The volumes that are used for the NAS.
 - System
 - The volumes that are used for management information. Refer to <u>"Usage Details" (page 228)</u> in <u>"4.11 Volume Detail (Basic)" (page 223)</u> for details.
- Read IOPS The read count per second is displayed.
- Write IOPS The write count per second is displayed.
- Read Throughput The amount of transferred data that is read per second is displayed.
- Write Throughput The amount of transferred data that is written per second is displayed.
- Read Cache Hit Rate The cache hit rate (for read) is displayed.
- Write Cache Hit Rate The cache hit rate (for write) is displayed.
- Prefetch Cache Hit Rate The cache hit rate (for prefetch) is displayed.
- Extreme Cache Cache Hit Rate
 - The cache hit rate of EXC for read I/O is displayed.

This item is displayed when EXC or EXCP is enabled for the ETERNUS DX. A "-" (hyphen) is displayed for volumes where EXC and EXCP are disabled. Enabling or disabling EXC for the volume can be performed with ETERNUS CLI or ETERNUS SF Storage Cruiser. Enabling or disabling EXCP for the volume can be performed with ETERNUS Web GUI. Refer to "Modify Cache Parameters" in "ETERNUS Web GUI User's Guide (Settings)" for details.

The mode (Extreme Cache or Extreme Cache Pool) that is being used for the ETERNUS DX is displayed in the [System Settings] screen. Refer to "2.12 System Settings" (page 71) for details.



A "-" (hyphen) is usually displayed for the following volumes:

- Volume type is "SDV" or "SDPV"
- Volumes that are created in a RAID group or a TPP configured with SSDs or SSD SEDs
- ODX Buffer volumes

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Туре	Select the volume type that is to be displayed.
Usage	Select the usage of the volume that is to be displayed.

4.5 LUN Group

This function displays the LUN groups of each volume.

A LUN group is a group of Logical Unit Numbers (LUNs), which can be recognized by the host. The allocation information of LUNs and volumes in the ETERNUS DX/AF are configured to the LUN group.

Category	LUN	Group		» Action			
Volume Performance(Host I/O) Performance(Advanced UN Group Performance(Advanced UN Group Personance, Advanced Performance, Advanced UN Group Personance, Advanced Pinned Data	₩Fii N	Iter setting Name: LUN Group	Target: 0				
	No.	Name	LUN Group Count	LUN Group	Storage Cluster		
Balancing Thin Provision	0	VolumeName000	1	LUNG00	Enable	^	
	1	VolumeName001	1	LUNG01	Disable	~	
	<					>	
< >						~	

The following items are displayed in the Main area:

• No.

The volume number is displayed.

- Name
 - The volume name is displayed.
- LUN Group Count

The total number of LUN groups for the volume and the number of ports to which the volume is allocated is displayed.

LUN Group

The LUN group names of the volume are displayed. If the host, ports, and LUNs are allocated without specifying a host group or port group, the location information (x: CE number, y: CM number, z: CA number, w: Port number) of the ports is displayed.

If the volume is registered in multiple LUN groups or the volume is allocated to multiple ports, the multiple LUN group names and port locations are displayed.

When the volume does not belong to any LUN groups, or the volume is not allocated to any ports, a "-" (hyphen) is displayed.

- LUN group name
- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Storage Cluster

When the volume is being used by the Storage Cluster function, "Enable" is displayed. When no volumes are used for the Storage Cluster function, "Disable" is displayed.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
LUN Group	Input the LUN group name that is to be displayed. When not using the LUN group name for filtering, leave this item blank.
Storage Cluster	Select the Storage Cluster function usage status for the volume that is to be displayed. This item is displayed only when "Enable" is selected for the Storage Cluster function.

4.6 Reservation

This function displays the reservation status of the volumes that are specified by a host.

🔵 Note

The reservation status for volumes where the usage is "Block" and "Block/Dedup" is displayed. Refer to <u>"4.1</u> <u>Volume (Basic Information)</u>" (page 194) for details.

egory	Res	ervati	on		_		_		- Action
Volume Performance(Host I/O) Performance(CoS) Performance(Advanced LUN Group Reservation Pinned Data	##Filter setting								Target 0
	Name: LUN Group: Minimum Registrant Count. Reservation Type All Reservation Status All APTPL All								Release Raservation
				2 items H	< 1/1 pages	> H 1	page Go		
Bad Sector		No.	Name	LUN Group	Host LUN	Registrant Count	Reservation	n Tr	
		0	VolumeName000	LUNG00	0	64	WE	^	
		1	VolumeName001	LUNG01		64	EA	~	
	<)	6	

The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.12 Volume Detail (Reservation)" (page 232)</u> for display items.

• Name

The volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to "4.12 Volume Detail (Reservation)" (page 232) for display items.

LUN Group

When the host affinity setting is specified for a host that reserves the volume, the LUN group name is displayed. If the host, ports, and LUNs are directly allocated (mapped), the location information (x: CE number, y: CM number, z: CA number, w: Port number) of the ports is displayed. When the volume is not reserved, a "-" (hyphen) is displayed.

- LUN group name
- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Host LUN

The host LUN, which is allocated to the volume, is displayed. When the volume is not reserved, a "-" (hyphen) is displayed.

Registrant Count

The number of reservation keys registered in the volume is displayed.

• Reservation Type

When the volume is in persistent reservation status, one of the following persistent reservation types is displayed. When the volume is in reservation status other than persistent reservation status, or when the volume is not reserved, a "-" (hyphen) is displayed.

- WE (Write Exclusive)
- EA (Exclusive Access)
- WE_RO (Write Exclusive-Registrants Only)
- EA_RO (Exclusive Access-Registrants Only)
- WE_AR (Write Exclusive-All Registrants)
- EA_AR (Exclusive Access-All Registrants)
- Reservation Status
 - The volume reservation status is displayed.
 - Yes
 - In persistent reservation status
 - No

In reservation status, but not in persistent reservation status

- "-" (hyphen) Not in reservation status
- APTPL (*1)

Whether or not persistent reservation information is kept after the ETERNUS DX/AF has been shutdown/ rebooted is displayed. When the volume is in reservation status other than persistent reservation status, "No" is displayed. When the volume is not reserved, a "-" (hyphen) is displayed.

- *1: Activate Persist Through Power Loss
 - Yes

The persistent reservation information is kept.

No

-

The persistent reservation information is not kept.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
LUN Group	Input the LUN group name or the port location information that is to be displayed. When not using the LUN group name or port location information for filtering, leave this item blank.
Bottom of Registrant Count	Input the minimum number of reservation keys for the volume that is to be displayed. When not using the bottom of the registrant count, leave this item blank.
Reservation Type	Select the reservation type that is to be displayed.
Reservation Status	Select the status of reservations that is to be displayed.
APTPL	Select the APTPL that is to be displayed.

4.7 Pinned Data

Volumes including pinned data are displayed.

"Pinned data" is the data left in the cache memory due to unsuccessful write-back to the volume from the cache memory.



• When a system message that indicates the detection of pinned data is displayed in the [Overview] screen, or when a "Pinned data" event is notified by Host Sense Key Code Qualifier or SNMP Trap, use this function to check the detected pinned data.

Use the [Setup Event Notification] function to specify whether to perform event notification when pinned data is detected. Refer to "Setup Event Notification" in "ETERNUS Web GUI User's Guide (Settings)" for details. Note that writing back, deleting, and saving pinned data can be performed by a maintenance engineer who has the "Maintenance Operation" policy.

• Deduplication/Compression Volumes are not displayed in the pinned data list.



The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display the [Volume Detail] screen. Refer to "4.13 Volume Detail (Pinned Data)" (page 233) for display items.

Name

The volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to "4.13 Volume Detail (Pinned Data)" (page 233) for display items.

• Pinned Data Count The number of pinned data is displayed.

- Туре
 - The volume type is displayed.
 - Standard
 - WSV
 - TPV
 - FTV
 - SDV
 - SDPV
 - Temporary
- Usage

The usage of the volume is displayed.

- Block

The volumes that are used for the SAN.

- File
- The volumes that are used for the NAS.
- System

The volumes that are used for management information. Refer to <u>"Usage Details" (page 228)</u> in <u>"4.11 Volume Detail (Basic)" (page 223)</u> for details.

• RAID Group/TPP/FRTP No.

The following number is displayed:

- If the type is "WSV"
 - The RAID group number to which the representative volume (*1) belongs is displayed.
 - *1: A volume for WSV, which is created by concatenating multiple RAID groups with striping, that belongs to the RAID group that is first in the concatenation order.
- If the type is "TPV" The Thin Provisioning Pool (TPP) number to which the volume belongs is displayed.
- If the type is "FTV"
 - The Flexible Tier Pool (FTRP) number to which the volume belongs is displayed.
- If the type is not one of the types listed above
- The RAID group number to which the volume belongs is displayed.
- RAID Group/TPP/FTRP Name

The following name is displayed:

- If the type is "WSV"
 - The RAID group name to which the representative volume belongs is displayed.
- If the type is "TPV"
- The Thin Provisioning Pool (TPP) name to which the volume belongs is displayed.
- If the type is "FTV"
- The Flexible Tier Pool (FTRP) name to which the volume belongs is displayed.
- If the type is not one of the types listed above
- The RAID group name to which the volume belongs is displayed.
- Controlling CM

The Controlling CM of the RAID group to which the volume belongs is displayed.

4.8 Bad Sector

The bad sector information is displayed.

🔵 Note

- When data for rebuild, copyback, or redundant copy is not read normally, bad sector information is recorded.
- When a system message that indicates the detection of bad sector is displayed in the [Overview] screen or when a "Bad data" event is notified by Host Sense Key Code Qualifier or an SNMP Trap, use this screen to check the detected bad sector.

Use the [Setup Event Notification] function to specify whether to perform event notification when a bad sector is detected. Refer to "Setup Event Notification" in "ETERNUS Web GUI User's Guide (Settings)" for details. Note that the deletion of bad sector can be performed by a maintenance engineer who has the "Maintenance Operation" policy.

• Deduplication/Compression Volumes are not displayed in the bad sector list.

Category	Bad Sector								» Action
Volume	4 items H								Target. 0
Performance(QoS)		No.	Name	Туре	Usage	Error LBA	Error LBA Count	Error	
LUN Group Reservation		0	Volume000	Standard	Block	0x00000000000000000	0x0000000000000000000	Cc	
		1	Volume001	TPV	Block	0x00000000000000000	0x000000000000000000	Cc	
Pinned Data		2	Volume002	TPV	Block	0x000000000000000000	0×00000000000000000	Cc	
Balancing Thin Provision		3	Volume003	Standard	Block	0x00000000000000000	0x000000000000000000	Ct	
	<							>	
									~

The following items are displayed in the Main area:

• No.

The volume number is displayed.

• Name

The volume name is displayed.

When the volume type is WSV or when the volume is concatenated by LUN concatenation, "Volume name (n/m)" (n: nth volume in the concatenation order, m: number of concatenated volumes) is displayed.

- Туре
 - The volume type is displayed.
 - Standard
 - WSV
 - TPV
 - FTV
 - SDV
 - SDPV
 - Temporary
- Usage

The usage of the volume is displayed.

- Block

The volumes that are used for the SAN.

- File

The volumes that are used for the NAS.

- System

The volumes that are used for management information. Refer to <u>"Usage Details" (page 228)</u> in <u>"4.11 Volume Detail (Basic)"</u> for details.

• Error LBA

The start position of the bad sector information in the volume is displayed using the Logical Block Address (LBA).

When the volume type is WSV or when the volume is concatenated by LUN concatenation, the LBA for each volume that is concatenated (*1) is displayed.

A "-" (hyphen) is displayed when the "Error Type" is "Dispersion".

• Error LBA Count

The number of LBAs from Error LBA of the bad sector information in the volume is displayed. When the volume type is WSV or when the volume is concatenated by LUN concatenation, the LBA Count for each volume that is concatenated (*1) is displayed.

A "-" (hyphen) is displayed when the "Error Type" is "Dispersion".

Error Type

The number of bad sector information in the volume is displayed.

- When one bad sector information exists in the volume: "Contiguity"
- When multiple number of bad sector information exist in the volume: "Dispersion"
- *1: Each volume is displayed in "volume name (n/m)" format (n: nth volume in the concatenation order, m: number of concatenated volumes). Refer to <u>"4.1 Volume (Basic Information)" (page 194)</u> for details.
4.9 Balancing Thin Provisioning Volume

This function displays the information of balancing Thin Provisioning Volumes (TPVs).

┝ Caution

When using the Thin Provisioning function, "Enable" the Thin Provisioning. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

- Deduplication/Compression Volumes and Deduplication/Compression System Volumes are not displayed in the TPV list because they are not targets for balancing.
- To check whether the Thin Provisioning function is enabled or disabled, refer to the <u>"7.3 Settings (Thin Provisioning)" (page 355)</u>.



The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.14 Volume Detail (Balancing TPV)" (page 234)</u> for display items.

Name

The volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.14 Volume Detail (Balancing TPV)" (page 234)</u> for display items.

Status

The volume status is displayed. Refer to <u>"A.2 Volume Status" (page 406)</u> for detailed information of volume status.

• Type

The volume type (fixed to "TPV") is displayed.

- Usage
 - The usage of the volume is displayed.
 - Block
 - The volumes that are used for the SAN.
 - File
 - The volumes that are used for the NAS.
 - System

The volumes that are used for management information. Refer to "Usage Details" (page 228) in "4.11 Volume Detail (Basic)" (page 223) for details.

Capacity

The total volume capacity is displayed.

• Balancing Level

The balancing level of the volume is displayed.

- When the volume is balanced
- High
- When the volume is almost balanced Middle
- When the volume is not balancing well Low
- When the ETERNUS DX/AF is abnormal "-" (hyphen)
- Process

A process that is being performed for the volume is displayed.

If multiple processes are being performed, the processes are separated with a ": (colon)" and displayed using ("xx:yy"). "Balancing", "Formatting", or "Migrating" is displayed as "xx". "Optimizing Capacity" or "Reserved Optimizing Capacity" is displayed as "yy".

If no process is being performed, a "-" (hyphen) is displayed.

- Balancing
 - TPV balancing is being performed
- Formatting
- Formatting is being performed
- Migrating RAID migration is being performed
- Optimizing Capacity

Capacity optimization (*1) is being performed in a TPV or an FTV.

- Reserved Optimizing Capacity Capacity optimization is being reserved (*2) for a TPV or an FTV.
 - *1: "Capacity Optimization" is a function that releases the allocated physical area when data in the physical area that is allocated to a TPV or an FTV is filled with zeros.
 - *2: If "Start Optimizing TPV/FTV Capacity after migration" is enabled for the RAID migration function, the migration source volume is reserved for capacity optimization.

- Balancing Process
 - When "Process" is not "Balancing", a "-" (hyphen) is displayed.
 - Status
 - The status of TPV balancing is displayed.
 - Active
 - Running normally
 - Error

Stopped due to an error

- Progress

The progress of TPV balancing is displayed.

- Work Vol. No.
- The volume number undergoing TPV balancing is displayed.
- Work Vol. Name The volume name undergoing TPV balancing is displayed.
- Error Code The error code of TPV balancing is displayed when an error occurs.
- Elapsed Time
 The elapsed time of TPV balancing is displayed.
 The displayed time is the elapsed time at the point when this screen is displayed.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Status	Select the volume status that is to be displayed.
Usage	Select the usage of the volume that is to be displayed.
Balancing Level	Select the volume type that is to be displayed.
Process	Select which current process for the volume is to be displayed.

4.10 Snapshot

This function displays the Snapshot configuration information of the NAS user volume. This function is displayed in a Unified Storage environment.

┝ Caution

The ETERNUS DX60 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F do not support this function.

CONTRACTOR OF TAXABLE PARTY OF TAXABLE P	Snap	shot							_	Action
E 🔤 Volume	#FI	ilter se	tting					Filter	1	Target: 0
Performance(Host I/O) Performance(DoS) Performance(Advanced)	,	Name:	Status:A	NI Mode:All	Schedule:A	II Session	Status All			X Set Snapshol Delete Snapshol
LUN Group				31	tems 14 4	1/1 pages	⊢н)[1 page (Go	Start Snapshot Stop Snapshot
Bad Sector	n	No.	Name	Status	Capacity	Snapshot				
Balancing Thin Provision					- and a start of the start of t	Mode	Schedule	Session Status	St	
Snapshot		73	nasvol1	Available	512.00 GB	Automatic	Active	Normal	~	
		86	nasvol2	Available	512.00 GB	Automatic	Active	Normal		
		112	nasvol3	Available	512.00 GB	Automatic	Active	Normal	~	
1	<								>	

The following items are displayed in the Main area:

• No.

The NAS user volume number is displayed. Click this item to display the [Volume Detail] screen. Refer to "4.16 Volume Detail (Snapshot)" (page 236) for display items.

Name

The NAS user volume name is displayed. Click this item to display the [Volume Detail] screen. Refer to <u>"4.16 Volume Detail (Snapshot)" (page 236)</u> for display items.

Status

The NAS user volume status is displayed.

When the volume status is normal, " 🔗 Available" is displayed.

Refer to "A.2 Volume Status" (page 406) for detailed information of volume status.

Capacity

The NAS user volume capacity is displayed.

- Snapshot
 - The Snapshot information is displayed.
 - Mode

The collection mode for the Snapshot is displayed.

- If the Snapshot is not set, a "-" (hyphen) is displayed.
- Automatic

The Snapshot is set from ETERNUS Web GUI, ETERNUS CLI, or ETERNUS SF Storage Cruiser.

Manual

The Snapshot is set from VMware vSphere Web Client.

Refer to "ETERNUS vCenter Plug-in 3.0.0 User's Guide" for details.

- Schedule

Status of the scheduled operation for Snapshot is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Active
- Inactive
- Session Status

The session status for the Snapshot is displayed.

If the Snapshot is not set, a "-" (hyphen) is displayed.

- Normal
 Spanshot porfe
 - Snapshot performs normally.
- Error

Some Snapshots cannot be referenced due to an error.

If the session status of even one generation is error in the [Volume Detail] screen, "Error" is displayed for this item. Refer to <u>"4.16 Volume Detail (Snapshot)" (page 236)</u> for details.

- Schedule Day

The Snapshot acquisition schedule (set day) is displayed.

If the Snapshot schedule is specified for all the days of the week, "Every Day" is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Schedule Time

The Snapshot acquisition schedule (set time) is displayed.

If the Snapshot schedule is specified for all hours, "Every Hour" is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Number of Generations

The number of generations for the Snapshot is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

- ETERNUS DX100 S3
- 1 16 (*1) or 1 64 (*2)
- ETERNUS DX200 S3
 - 1 64 (*1) or 1 128 (*2)
- ETERNUS DX500 S3
- 1 128
- ETERNUS DX600 S3

1 - 128

- *1: The maximum number of generations when "Memory Extension" described below is installed. "Memory Extension" is used in a Unified Storage environment or for the Deduplication/Compression function.
 - ETERNUS DX100 S3
 8GB/CM
 - ETERNUS DX200 S3
 - 16GB/CM
- *2: The maximum number of generations when "Memory Extension" described below is installed.
 - ETERNUS DX100 S3
 - 16GB/CM (the controller firmware version is V10L53 or later)
 - ETERNUS DX200 S3

32GB/CM (the controller firmware version is V10L33 or later)

- RAID Group No.

The RAID group number that the Snapshot destination SDV belongs to is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

- RAID Group Name

The RAID group name that the Snapshot destination SDV belongs to is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

Filter setting

Filter	Description
Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Status	Select the volume status that is to be displayed.
Mode	Select the Snapshot collection mode of the volume that is to be displayed. To display volumes without the Snapshot setting, select "-" (hyphen).
Schedule	Select the scheduled Snapshot operation status of the volume that is to be displayed. To display volumes without the Snapshot setting, select "-" (hyphen).
Session Status	Select the Snapshot session status of the volume that is to be displayed. To display volumes without the Snapshot setting, select "-" (hyphen).

4.11 Volume Detail (Basic)

The detail information of the volume is displayed.

Standard volume

Category	Volume		Action
Category Performance(Host I/O) Performance(OoS) Performance(Advanced Pinned Data Balancing Thin Provision Snapshot	Volume Volume Detail No.: 0 No.: 0 Type: Standard Usage: Block Basic Used RAID Group Reservation Printed Data Volume Information Status Capacity Capacity on RAID Group No. RAID GROUP RAID RAID RAID RAID RAID RAID RAID RAID	Performance(Host I/O) Performance(Advanced Copy) Balancing TPV Available 4 00 GB 4 00 GB	Action Target: 0 Rename Format Expand Volume Expand TPV Start RAID Migration Step RAIB Migration Step RAIB Migration Set Allocation Optimize TPV/FTV Capac Cancel Optimizing TPV/F Delete SDPV Force Delete SDPV Modity TPV: Threshold
	RAID Group Name Encryption Data Integrity Wide Stripe Size Reserved Deletion UID Storage Cluster Virtual Volume Allocation Lisee Details	RADNameou0 Default - 2283C3D3E3F36003839616283640000 Enable Disable - - - - - - - - - - - - -	Modily TPV Threshold Initialize SDV Encrypt Volume Release Reservation Modify Cache Parameters Forbid Advanced Copy Permit Advanced Copy
	Process Progress Optimizing Capacity Progress	5 IUGA • •	Reconfigure NAS Volume

TPV

Category	Volume		 Action
🗉 🤐 Volume	Volume Detail		Target 0
Performance(Host I/O)	No.: 5		Rename
Performance(QoS)	Name: VolumeName005		Format
Performance(Advanced	Type: TPV		Ernord Volume
Reservation	Usage: Block		Experie Venime
Pinned Data			Expand IPV
Bad Sector	Basic Performance(Host U	D) Performance(Advanced Copy) Reservation	Start RAID Migration
Balancing Thin Provision	Pinned Data Balancing TPV	/	Stop RAID Migration
Snapshot	▼ Volume Information		Set Allocation
	Status	Available	Optimize TPV/FTV Capacit
	Capacity	4.00 GB	Cancel Optimizing TPV/F
	Used Capacity	0.00 MB	Delete SDPV
	Used Rate	0 %	
	Threshold	80 %	Force Devela SUPV
	Thin Provisioning Pool No.	1	Modify TPV Threshold
	Thin Provisioning Pool Name	PoolName001	Initialize SDV
	Encryption	*	Encrypt Volume
	Data Integrity	Default	Release Reconvision
	Wide Stripe Size	*	
	Reserved Deletion	*	Moony Cache Parameters
	UID	823B3C3D3E3F36003839616263640005	Forbid Advanced Copy
	Storage Cluster	Disable	Permit Advanced Copy
	Virtual Volume	Disable	Reconfigure NAS Volume
	Allocation	Thin	
	Usage Details	Block	
	Process	÷	r
	Progress		

NAS user volume

Category	Volume			» Action	
🗉 🤐 Volume	Volume Detail		Target 0		
Performance(Host I/O)	No.: 86		Rename		
Performance(QoS)	Name: nasvol2			Format	
Performance(Advanced	Type: TPV			Expand Valuma	
Reservation	Usage: File			Expand vuluine	
Pinned Data	1000 - 10 10 TO			Expand TPV	
Bad Sector	Basic Performance(Host I	O) Performance(Advanced Copy) Pinned Data		Start RAID Migration	
Balancing Thin Provision	Balancing TPV Snapshot			Stop RAID Migration Set Allocation	
Snapshot	▼ Volume Information				
	Status	Available		Optimize TPV/FTV Capacity	
	Capacity		Cancel Optimizing TPV/F		
	Used Capacity		Delate SOPV		
	Used Rate	d Rate 1%			
	Threshold	80 %		Force Denile SDPV	
	NAS FS Block Size	e 256 KB 5		Modify TPV Threshold Initialize SDV	
	NAS FS Version				
	Thin Provisioning Pool No.	1		Encrypt Volume	
	Thin Provisioning Pool Name	Thin Provisioning Pool Name PoolName001		Release Recorvation	
	Encryption				
	Data Integrity	Default		X Moony Cache Parameters	
	Wide Stripe Size			Forbid Advanced Copy	
	Reserved Deletion	*		Fermit Advanced Copy	
	UID	82383C3D3E3F36003839616263640056		Reconfigure NAS Volume	
	Storage Cluster	Enable			
	Virtual Volume	Disable			
	Allocation	Thin			
	Usage Details	NAS Data			
	Process	41			

Deduplication/Compression Volume

Category	Volume			» Action	
Volume Performance(Host I/O) Performance(OoS) Performance(Advanced + LIN Group Reservation Primed Data Balancing Thin Provision	Volume Detail No.: 2 Name: VolumeName002 Type: TPV Usage: Bioci/Dedup Basic: Performance(Host II Pinned Data Batancing TP	O) Performance(Advanced Copy) Reservation	~	Target: 0 Rename Format Expand Volume Expand TVV Start RAID Migration Stop RAID Migration	
Shapshot	 Volume Information 			Set Allocation	
	Status	Available	- 11	Optimize TPV/FTV Capacity	
	Capacity		Cancel Optimizing TPV/F		
	Used Capacity		Delate SDPV		
	Used Rate		Force Delete SDPV		
	Threshold				
	Thin Provisioning Pool No.	Thin Provisioning Pool No. 1 Thin Provisioning Pool Name PoolName001			
	Thin Provisioning Pool Name				
	Encryption	+		Encrypt Volume	
	Data Integrity	Default		Release Reservation	
	Wide Stripe Size	*		SE LINE CARL DAMAGE	
	Reserved Deletion	•		24 Moory Cache Parameters	
	UID	82383C3D3E3F36003839616263640002		Forbid Advanced Copy	
	Storage Cluster	Disable		Permit Advanced Copy	
	Virtual Volume	Disable		Reconfigure NAS Volume	
	Allocation	Thin	_		
	Usage Details	Block Dedup			
	Process	*	~		

The following items are displayed in the Main area:

Status

The volume status is displayed.

When the volume status is normal, "

Refer to "A.2 Volume Status" (page 406) for detailed information of RAID group status.

Capacity

The volume capacity is displayed with "MB", "GB", or "TB". The unit of measurement for the capacity is determined according to the actual volume size.

• Capacity on RAID Group

The volume capacity is displayed with "MB", "GB", or "TB". The unit of measurement for the capacity is determined according to the actual volume size. The capacity is also displayed with "KB".

While the capacity that is specified by the user when creating the volume is displayed in the "Capacity" field described above, the volume capacity that is actually secured in units of the basic volume size in the RAID group is displayed in this field. This item is displayed when the volume type is "Standard", "WSV", "SDV", or "Temporary".

Used Capacity

The used capacity (physically allocated capacity) of volume is displayed.

A "-" (hyphen) is displayed for the Deduplication/Compression Volume (*1).

This item is displayed when the volume type is "TPV" or "FTV".

*1: The used capacity of the Deduplication/Compression Volumes in the TPP can be determined by checking the used capacity of the DEDUP_SYS Volume that is created in the TPP. The used capacity of the DEDUP_SYS Volume approximately corresponds to the total used capacity of the Deduplication/Compression Volumes in the relevant TPP.

Used Rate

The volume utilization is displayed between 0% - 100%.

Used Rate = Used Capacity / Capacity

A "-" (hyphen) is displayed for the Deduplication/Compression Volume (*1).

This item is displayed when the volume type is "TPV" or "FTV".

*1: The used rate of the Deduplication/Compression Volumes in the TPP can be determined by checking the used rate of the DEDUP_SYS Volume that is created in the TPP. The used rate of the DEDUP_SYS Volume approximately corresponds to the total used rate of the Deduplication/Compression Volumes in the relevant TPP. Note that the capacity reduction rate for the TPP due to the Deduplication/Compression function can be checked in the [Thin Provisioning Pool] screen. Refer to "7.1.1 Thin Provisioning Pool (Basic Information)" (page 325) for details.

Threshold

The threshold for monitoring the volume utilization is displayed between 1% - 100%.

If the "Used Rate" value exceeds the "Threshold", a Host Sense Key Code Qualifier is notified.

A "-" (hyphen) is displayed for the Deduplication/Compression Volume or the Deduplication/Compression System Volume.

This item is displayed when the volume type is "TPV" or "FTV".

🔵 Note

- The threshold for TPPs can be checked in the [Threshold] screen. Refer to <u>"7.1.5 Threshold (Thin Provisioning Pool)" (page 334)</u> for details.
- The threshold for FTRPs can be checked in the [Flexible Tier Pool] screen. Refer to <u>"7.2.1 Flexible Tier Pool (Basic Information)" (page 340)</u> for details.
- NAS FS Block Size

The block size of the NAS file system (NAS user volume) is displayed.

This item is displayed only when the usage details of the volume is "NAS Data".

The maximum NAS user volume capacity and the maximum file size vary depending on the block size of the NAS file system. For details, refer to the following table.

The maximum NAS user volume capacity and the maximum file size of each "NAS FS Block Size"

	NAS FS Version (*1)	NAS FS Block Size		
		8KB	32KB	256KB
The maximum NAS user volume capacity	1 or 2	-	-	128TB
	3	4TB	16TB	-
	4 or 5	32TB	128TB	128TB
The maximum file size (*2)	1 or 2	-	-	32TB
	3, 4, or 5	1TB	4TB	32TB

*1: The version of the NAS file system (NAS user volume). For the details, refer to "NAS FS Version" (page 226).

*2: The "file size" indicates the size of the user data that is created in the shared folder.

NAS FS Version

The NAS file system (NAS user volume) version is displayed.

This item is displayed only when the usage details of the volume is "NAS Data". For the maximum NAS user volume capacity for each "NAS FS Version", refer to <u>"The maximum NAS user volume capacity and the maximum file size of each "NAS FS Block Size"</u> (page 225).

NAS FS Version	Volume capacity expansion	Description
1	N/A	The NAS user volumes that are created with the controller firmware version earlier than V10L21. "NAS FS Block Size" is fixed to "256KB".
2	Available (*1)	The NAS user volumes that are created with the controller firmware version V10L21. "NAS FS Block Size" is fixed to "256KB".
3	Available (*1)	The NAS user volumes that are created with the controller firmware version V10L31. "NAS FS Block Size" is "8KB" or "32KB". When creating a NAS user volume where the block size is "256KB", "2" is displayed for this item.
4	Available (*1)	The NAS user volumes that are created with the controller firmware version V10L33. "NAS FS Block Size" is "8KB", "32KB", or "256KB". The maximum NAS user volume capacity varies depending on whether the version is "3" or "4" or later.
5	Available (*1)	The NAS user volumes that are created with the controller firmware versions V10L51 and later. "NAS FS Block Size" is "8KB", "32KB", or "256KB". When the version is "5" or later, the quota information can be configured for each shared folder.

*1: Refer to "Reconfigure NAS Volume" and "Expand Thin Provisioning Volume" in "ETERNUS Web GUI User's Guide (Settings)" for details.

> Caution

- If the file system format for the NAS user volume where the "NAS FS Version" is "1", "2", "3", or "4" is converted, the "NAS FS Version" is changed to "5". Refer to "Reconfigure NAS Volume" in "ETERNUS Web GUI User's Guide (Settings) for details. Note that the "NAS FS Block Size" for the relevant NAS user volume is not changed.
- To configure the quota information for each shared folder to which the NAS user volume belongs when the "NAS FS Version" is "2", "3", or "4", the file system must be changed. Use the [Reconfigure NAS Volume] function for Web GUI and execute the "start nas-fsck" ETERNUS CLI command to change the file system for the relevant NAS user volume. Refer to "Add Quota Setting" in "ETERNUS Web GUI User's Guide (Settings) for details.

🔵 Note

If the "NAS FS Block Size" is "8KB" or "32KB" and the file system format for the NAS user volume where the "NAS FS Version" is "3" is converted, the maximum capacity of the NAS user volume that can be created is expanded.

- RAID Group No. The RAID group number to which the volume belongs is displayed. If the type is "WSV", the RAID group number to which the representative volume belongs is displayed. This item is not displayed when the volume type is "TPV" or "FTV".
 RAID Group Name The RAID group name to which the volume belongs is displayed. If the type is "WSV", the RAID group name to which the representative volume belongs is displayed. This item is not displayed when the volume belongs is displayed.
 Fither type is "WSV", the RAID group name to which the representative volume belongs is displayed. This item is not displayed when the volume type is "TPV" or "FTV".
 Thin Provisioning Pool No.
- The TPP number to which the volume belongs is displayed. This item is displayed only when the volume type is "TPV".
- Thin Provisioning Pool Name The TPP name to which the volume belongs is displayed. This item is displayed only when the volume type is "TPV".
- FTRP No. The FTRP name to which the volume belongs is displayed.
- This item is displayed only when the volume type is "FTV".
- FTRP Name

The FTRP name to which the volume belongs is displayed. This item is displayed only when the volume type is "FTV".

Encryption

The encryption status of the volume is displayed.

For the ETERNUS DX60 S3, this item is not displayed.

- CM

The volume that is encrypted by CM.

- "-" (hyphen)
 - The volume that is not encrypted.
- SED

The volume that is encrypted by SED.

• Data Integrity

The volume protection method is displayed.

- Default
- Data is protected within the ETERNUS DX/AF.
- T10-DIF

Data is protected with a T10-DIF (Data Integrity Field) compatible method in the ETERNUS DX/AF and the host paths. This method is available only when the host interface is FC.

• Wide Stripe Size

The Wide Stripe Size is displayed.

"Wide Stripe Size" is the size of the WSV Unit that is allocated to each RAID group in series. A "-" (hyphen) is displayed when the volume type is other than "WSV".

- Normal

An integral multiple of the basic size for each RAID level (*1). The maximum size is 16MB or smaller. - Small

An integral multiple of the basic size for each RAID level (*1). The maximum size is 2MB or smaller. Note that when the basic size for a RAID group is larger than 2MB, the basic size is specified.

*1: The basic size (stripe size) when creating a volume. Refer to "Basic Size for each RAID Group" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Reserved Deletion

The "Reserved Deletion" state of the SDPV is displayed.

If the SDPV is currently being used, the target SDPV status is changed to "Reserved Deletion". Refer to "Delete Snap Data Pool Volume" in "ETERNUS Web GUI User's Guide (Settings)" for details.

A "-" (hyphen) is displayed when the volume type is other than "SDPV".

- Yes

SDPVs are in the "Reserved Deletion" state.

- No

SDPVs are not in the "Reserved Deletion" state.

• UID

The UID is displayed.

A "-" (hyphen) is displayed for the Deduplication/Compression System Volume.

• Storage Cluster

When the volume is being used by the Storage Cluster function, "Enable" is displayed. When no volumes are used for the Storage Cluster function, "Disable" is displayed.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

Virtual Volume

When the volume is being used by the Virtual Volume function, "Enable" is displayed. When no volumes are used by the Virtual Volume function, "Disable" is displayed.

For \$VVOL_META, "Disable" is displayed even if the relevant volume is being used by the Virtual Volume function.

This item is displayed only when "Enable" is selected for the Virtual Volume function.

Allocation

The allocation method for the volume is displayed.

- A "-" (hyphen) is displayed when the volume type is other than "TPV" or "FTV".
- Thin
- Thick
- Usage Details

The detailed usage of the volume is displayed.

- When the usage is "Block"
- "Block" is displayed. The volumes that are used for the SAN.
- When the usage is "Block/Dedup"

"Block Dedup" is displayed. The Deduplication/Compression Volumes.

Volumes that have the Deduplication/Compression setting (or the Deduplication/Compression function) enabled during volume creation.

- When the usage is "File"
 - NAS Data

The user volumes that are used for the NAS.

The NAS Data type volumes can be created by ETERNUS Web GUI.

NAS Backup

The backup volumes that are used for the NAS.

The NAS Backup type volumes are created by ETERNUS CLI or ETERNUS SF Storage Cruiser.

• NAS Snapshot

The Snapshot destination SDVs that are used for NAS.

NAS Snapshots are automatically created when performing the [Set Snapshot] function.

- When the usage is "System"
 - NAS CM#0 System (*1) The system volumes that are used for CM#0 in the NAS system.
 - NAS CM#1 System (*1)

The system volumes that are used for CM#1 in the NAS system.

• NAS FS Management (*1)

The system volumes that are used for NAS system file management.

 NAS CM#0 EX System (*2) The NAS expanded system volume that is used to store NAS monitoring logs for CM#0 in the NAS system.

 NAS CM#1 EX System (*2) The NAS expanded system volume that is used to store NAS monitoring logs for CM#1 in the NAS system.

• VVOL Metadata

The system volumes that are used for storing the management information (metadata) of the Virtual Volume function.

This volume is automatically created when the Virtual Volume function is set to "Enable" and when VVOL is created from ETERNUS SF Storage Cruiser for the first time.

Dedup System (*3)

The Deduplication/Compression System Volumes (or DEDUP_SYS Volumes).

This volume is used to store data and meta data after the Deduplication/Compression process is complete.

• Dedup Map (*3)

The Deduplication/Compression System Volumes (or DEDUP_MAP Volumes).

This volume is used to store the mapping tables for obtaining the physical location information of DEDUP_SYS Volumes from Deduplication/Compression Volumes.

- *1: The volume is created automatically when NAS Data volumes are created.
- *2: The volume is created by executing the "create volume" ETERNUS CLI command. Web GUI cannot be used to create these volumes. NAS volumes of which the usage is "System" is collectively referred to as "NAS system volumes" in this manual.
- *3: The volume is created automatically when Deduplication/Compression (or the Deduplication/Compression function) for TPP is enabled.
- Process

A process that is being performed for the volume is displayed.

If no process is being performed, a "-" (hyphen) is displayed.

If multiple processes are currently being performed, the processes are separated with a ": (colon)" and displayed using ("xx:yy"). "Encrypting", "Formatting", "Migrating", or "Balancing" is displayed as "xx". "Optimizing Capacity" or "Reserved Optimizing Capacity" is displayed as "yy". If no process is being performed, a "-" (hyphen) is displayed.

- Encrypting
- Formatting
- Migrating
- Balancing
- Optimizing Capacity
- Reserved Optimizing Capacity

Migration Status

The RAID migration status is displayed.

This item is only displayed when using controller firmware version V10L4x or later, and when the process is "Migrating".

- Reserved

The RAID migration is in a reserved state.

- Active

The RAID migration is operating normally.

- Error

The RAID migration has been suspended due to an error.

- "-" (hyphen)

A status other than the ones listed above.

Progress

The progress of a process that is being performed is displayed with a bar and a rate (%). To display the latest progress, refresh the screen. If no process is being performed, or if the migration status is "Reserved", a "-" (hyphen) is displayed.

• Estimated Time Left

The estimated remaining time before formatting is complete is displayed. To display the latest estimated remaining time, refresh the screen. This item is not displayed when the process is other than "Formatting".

- Calculating The ETERNUS DX/AF is calculating the estimated remaining time.
- 30 days or more

The estimated remaining time is 30 days or more.

- x days y h z min. (x: 1 - 29, y: 0 - 23, z: 0 - 59)

The estimated remaining time is more than one minute and less than 30 days. When the estimated remaining time is less than one day, the "days" value is omitted. When the estimated remaining time is less than one hour, the "days" and "hours" values are omitted.

- Less than 1 min.

The estimated remaining time is less than one minute.

Caution

The "Estimated Time Left" value may increase or decrease due to the I/O load when displaying this item.

• Remaining Size

The remaining size of the unformatted volume is displayed. To display the latest size, refresh the screen. This item is not displayed when the process is other than "Formatting".

Optimizing Capacity Progress

The progress of capacity optimization processes that are being performed is displayed with a bar and a ratio value. To display the latest progress for the capacity optimization, refresh the screen. When capacity optimization is not being performed, a "-" (hyphen) is displayed.

When the storage system status is "Not Ready", the field is blank.

Total Device Space

The total space of the file system is displayed.

The "Total Device Space" indicates the NAS user volume capacity that is available for the user.

This item is displayed only when the usage details of the volume is "NAS Data".

• Used Device Space

The used space in the file system is displayed.

The "Used Device Space" indicates the NAS user volume capacity that has already been used by the user. This item is displayed only when the usage details of the volume is "NAS Data".

- Free Device Space The free space in the file system is displayed. The "Free Device Space" indicates the NAS user volume capacity that will be available for the user. This item is displayed only when the usage details of the volume is "NAS Data".
- File System Information The mount state of the file system is displayed. This item is displayed only when the usage details of the volume is "NAS Data".

4.12 Volume Detail (Reservation)

The detailed information of reservation volume is displayed.

Category	Volume		Action			
🗉 🧰 Volume	Volume Detail				~	Target 0
 Performance(Host I/O) Performance(OoS) Performance(Advanced i LUN Group Reservation Pinned Data Bad Sector 	No.: 0 Name: VolumeName000 Type: Standard Basic Used RAID 0 Reservation Pinner	Release Reservation				
Balancing Thin Provision	 Volume Information 				-	
	Host WWN/ISCSI Name	CA Port	Reservation Key	Hold Reservation		
	500000E0D2000000	CM#0 CA#0 Port#1	4141414100000000	Yes	0	
					÷	

The following items are displayed in the Main area:

Host WWN/iSCSI Name

The WWN or the iSCSI name of the host that can access the volume is displayed.

CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the CA port that connects to the host is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Reservation Key

The reservation key that is used for persistent reservation of the volume is displayed. When no reservation keys exist, a "-" (hyphen) is displayed.

Hold Reservation

Whether the target reservation key is used for persistent reservation is displayed.

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

- Yes

In persistent reservation status

- No

Not in persistent reservation status

4.13 Volume Detail (Pinned Data)

The detailed information of pinned data is displayed.

Category	Volume	» Action
Category Constance(Host I/O) Performance(Host I/O) Performance(Advanced + Performance(Advanced + Performanced + Performance(Advanced + Performanced + Performance(Advanced + Performanced + Performance(Advanced + Performanced + Performance(Advanced + Performanced +	Volume Detail ∧ No.: 1 Name: VolumeName001 Type: Standard Basic Used RAID Group Performance(Host I/O) Performance(Advanced Copy) Reservation Pinned Data Basic Used RAID Group Performance(Host I/O) Performance(Advanced Copy) Reservation Pinned Data Basic Idems Filter Clear LBA RC SK ASC ASC Idems Items H 1 Tope	Target 0
	LBA RC SK ASC ASCQ	
	0x000000000000000000000000000000000000	
< >		

The following items are displayed in the Main area:

- LBA
 - The location of the pinned data in the volume is displayed using the Logical Block Address (LBA).
- RC

The reason (Reason Code) that created the pinned data is displayed.

• SK

The Sense Key (SK) part is displayed from the sense information that is output when the pinned data is created.

ASC

Additional Sense Code (ASC) part is displayed from the sense information that is output when the pinned data is created.

ASCQ

Additional Sense Code Qualifier (ASCQ) part is displayed from the sense information that is output when the pinned data is created.

Filter setting

Filter	Description
LBA	Input the LBA that is to be displayed. When not using the LBA for filtering, leave this item blank.
RC	Input the RC that is to be displayed. When not using the RC for filtering, leave this item blank.
SK	Input the SK that is to be displayed. When not using the SK for filtering, leave this item blank.
ASC	Input the ASC that is to be displayed. When not using the ASC for filtering, leave this item blank.
ASCQ	Input the ASCQ that is to be displayed. When not using the ASCQ for filtering, leave this item blank.

4.14 Volume Detail (Balancing TPV)

The detailed information of TPV balancing is displayed.

Category	Volume	Action
🖻 🧰 Volume	Volume Detail	Target 0
Performance(Host VO) Performance(QoS) Performance(Advanced + LON Group Reservation Primed Data	No.: 3 Name: VolumeName003 Type: TPV Basic Performance(Host I/O) Performance(Advanced Copy) Reservation	Stop Balancing
Bad Sector	Pinned Data Balancing IPV	
	Inin Provisioning Volume KAID Group Balance Information	
	Theme is a mineager is in the bega	
	No. RAID Group Used Capacity	
	1 RAIDName001 1.00 TB	
< >	ų	

The following items are displayed in the Main area:

- No.
 - The number of the RAID group that allocates the physical capacity to the target TPV is displayed.
- RAID Group
 - The name of the RAID group that allocates the physical capacity to the target TPV is displayed.
- Used Capacity

The capacity for each RAID group that allocates the physical capacity to the target TPV is displayed. This is the capacity that is available when balancing of the target TPV is started.

Note that it is not the capacity after re-allocating the physical capacity in the relevant TPV to the RAID groups in the TPP.

4.15 Volume Detail (Used RAID Group)

The detailed information of LUN concatenation or WSV is displayed. This screen is not displayed when the volume type is "TPV" and "FTV".

The information for a RAID group that is being used is displayed in the following order. Note that sorting of the display contents is not available.

- When the volume type is "Standard", volumes are displayed in concatenation order with LUN Concatenation
- When the volume type is "WSV", volumes are displayed according to the concatenation number of the WSV Unit (the order of allocating the WSV unit to the RAID group)



The following items are displayed in the Main area:

• RAID Group No.

The RAID group number to which the concatenated volume or WSV Unit belongs is displayed.

- RAID Group Name The RAID group name to which the concatenated volume or WSV Unit belongs is displayed.
- Capacity

The capacity of the concatenated volume or the WSV Unit is displayed. The volume capacity is displayed with "MB", "GB", or "TB". The unit of measurement for the capacity is determined according to the actual volume size. The capacity is also displayed with "KB".

• Capacity on RAID Group

The capacity that is secured in the RAID group by the concatenated volume or the WSV Unit is displayed. The volume capacity is displayed with "MB", "GB", or "TB". The unit of measurement for the capacity is determined according to the actual volume size. The capacity is also displayed with "KB".

4.16 Volume Detail (Snapshot)

The detailed information of the Snapshot is displayed.

This screen is displayed only for NAS user volumes (volumes of which the "Usage Details" are "NAS Data").

Category	Volume			» Action
Volume Performance(Host VO) Performance(OoS) Performance(Advanced + LUN Group Reservation	Volume Deta No.: 73 Name: nasv Type: TPV Usage: File	nil ol1	▲ Target: 0 ★ Set Snapshot ★ Delete Snapshot Start Snapshot Stop Snapshot	
Bad Sector	Basic	Performance(Host IV	0) Performance(Advanced Copy) Pinned Data	
Balancing Thin Provision	Balancing	TPV Snapshot		
Service Service	▼ Volume	Information		
	Status		Available	
	Capacity		512.00 GB	
	Usage Detai	ls	NAS Data	
		Mode	Automatic	
		Schedule	Active	
		Session Status	Normal	
		Schedule Day	Monday, Thursday	
	Snapshot	Schedule Time	Every Hour	
		Number of Generations	10	
		RAID Group No.	0	
		RAID Group Name	RaidGroup0	
	• Snapsho	t Information		
	Snapshot Da	ate Session S	tatus Volume No. Volume Name	~
< >				

The following items are displayed in the Main area:

- Volume Information
- Status

The NAS user volume status is displayed. Refer to "A.2 Volume Status" (page 406) for detailed information of volume status.

Capacity

The NAS user volume capacity is displayed.

Usage Details

The usage details of the NAS user volume are displayed.

Snapshot

The Snapshot information is displayed.

- Mode

The collection mode for the Snapshot is displayed.

If the Snapshot is not set, a "-" (hyphen) is displayed.

• Automatic

The Snapshot is set from ETERNUS Web GUI, ETERNUS CLI, or ETERNUS SF Storage Cruiser.

Manual

The Snapshot is set from VMware vSphere Web Client.

Refer to "ETERNUS vCenter Plug-in 3.0.0 User's Guide" for details.

- Schedule

Status of the scheduled operation for Snapshot is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Active
- Inactive

- Session Status

The session status for the Snapshot is displayed.

If the Snapshot is not set, a "-" (hyphen) is displayed.

- Normal
- Snapshot performs normally.

• Error

Some Snapshots cannot be referenced due to an error.

If the session status of even one generation is error in the "Snapshot Information" field, "Error" is displayed for this item.

- Schedule Day

The Snapshot acquisition schedule (set day) is displayed.

If the Snapshot schedule is specified for all the days of the week, "Every Day" is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Schedule Time

The Snapshot acquisition schedule (set time) is displayed.

If the Snapshot schedule is specified for all hours, "Every Hour" is displayed.

If the Snapshot is not set or if the collection mode (or the "Mode" setting) for Snapshot is set to "Manual", a "-" (hyphen) is displayed.

- Number of Generations

The number of generations for the Snapshot is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

- ETERNUS DX100 S3
 - 1 16 (*1) or 1 64 (*2)
- ETERNUS DX200 S3
 - 1 64 (*1) or 1 128 (*2)
- ETERNUS DX500 S3
- 1 128
- ETERNUS DX600 S3
- 1 128
- *1: The maximum number of generations when "Memory Extension" described below is installed. "Memory Extension" is used in a Unified Storage environment or for the Deduplication/Compression function.
 - ETERNUS DX100 S3
 - 8GB/CM
 - ETERNUS DX200 S3
 - 16GB/CM
- *2: The maximum number of generations when "Memory Extension" described below is installed.
 - ETERNUS DX100 S3

16GB/CM (the controller firmware version is V10L53 or later)

- ETERNUS DX200 S3
- 32GB/CM (the controller firmware version is V10L33 or later)
- RAID Group No.

The RAID group number that the Snapshot destination SDV belongs to is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

RAID Group Name

The RAID group name that the Snapshot destination SDV belongs to is displayed. If the Snapshot is not set, a "-" (hyphen) is displayed.

- Snapshot Information
- Snapshot Date

The date and time of when the Snapshot was acquired is displayed in descending order. If the Snapshot is not set, a "-" (hyphen) is displayed.

- YYYY-MM-DD hh:mm:ss (YYYY: Year (2001-2037), MM: Month (01 12), DD: Date (01 31), hh: Hour (00 23), mm: Minute (00 59), ss: Second (00 59))
- Session Status

The session status for the Snapshot is displayed.

If the Snapshot is not set, a "-" (hyphen) is displayed.

- Normal Snapshot performs normally.
- Еггог

The Snapshot is stopped due to an error.

Volume No.

The volume number for the Snapshot destination SDV is displayed.

Volume Name

The volume name for the Snapshot destination SDV is displayed.

Chapter 5 Connectivity Status

Connectivity status displays the status information of volumes. Connectivity status screens can be displayed by clicking the following categories:

Category	Connectivity status screen
Connectivity	Connectivity (Basic Information)
Host Group	Host Group
FC	FC/FCoE Host
iSCSI	iSCSI Host
SAS	SAS Host
Port Group	CA Port Group
FC	FC Port
iSCSI	iSCSI Port
SAS	SAS Port
FCoE	FCoE Port
LUN Group	LUN Group
Host Response	Host Response
CA Reset Group	CA Reset Group
Host-LU QoS	Host-LU QoS
Host QoS	Host QoS (Basic)
FC/FCoE	FC/FCoE Host QoS
iSCSI	iSCSI Host QoS
SAS	SAS Host QoS
Port QoS	Port QoS (Basic)
FC	FC Port QoS
iSCSI	iSCSI Port QoS
SAS	SAS Port QoS
FCoE	FCoE Port QoS
LU QoS Group	LU QoS Group
NAS	NAS
NAS Interface	NAS Interface
Environment Settings	Environment Settings
Quota Management	Quota Management
Meta Cache Distribution	Meta Cache Distribution

Detailed information of the current settings can be displayed from the following screens:

- Host Affinity Detail (Host Group CA Port Group LUN Group Setting)
- Host Affinity Detail (Host CA Port LUN Group Setting)
- Host Group Detail
- LUN Group Detail
- Host-LU QoS Performance Information
- LUN Group : LU QoS Group Detail

5.1 Connectivity (Basic Information)

A list of the host affinity groups is displayed.

When the target connection is "Host Group - CA Port Group", a host affinity is a group that defines an association between a "Host Group", a "CA Port Group", and a "LUN Group". When the target connection is "Host - CA Port", a host affinity is a group that defines an association between a "Host", a "CA Port", and a "LUN Group".

Category	Con	nectivity						» Action
Domnactivity Domnactivity Denta Group Denta Group LUN Group Host Response CA Reset Group Denta Response CA Reset Group	#1	Host Group: Virtual Volume	Target: 0 Add FC/FCoE Host Group Add ISCSI Host Group					
		_	Add FC/FC0E Host Add ISCSI Host Create FC Port Group					
		Host Group	HOST_000	CA Port Group PortG00	CA Port CM#0 CA#0 Port#0 Show	LUN Group	F C	Create ISCSI Port Group Create FCoE Port Group
	HostG01	ISCSI-HOST_000	PortG01	CM#0 CA#1 Port#0	LUNG01	c	Add LUN Group Create Host Affinity	
								A most cost square.

The following items are displayed in the Main area:

Host Group

The "Host Group Name" with the host affinity setting is displayed.

If all of the hosts are to be connected, instead of specific host groups, "All" is displayed.

By clicking "Host Group Name" or "All", the [Host Affinity Detail (Host Group - CA Port Group - LUN Group Setting)] screen is displayed. Refer to <u>"5.7.2 LUN Group : LU QoS Group Detail" (page 280)</u> for display items. Regardless of whether the host belongs to a host group, a "-" (hyphen) is displayed if the host affinity setting is specified when selecting a host.

By clicking "-" (hyphen), the [Host Affinity Detail (Host - CA Port - LUN Group Setting)] screen is displayed. Refer to <u>"5.1.2 Host Affinity Detail (Host - CA Port - LUN Group Setting)</u>" (page 246) for display items.

Host

The "Host Name" with the host affinity setting is displayed.

If all of the hosts are to be connected, instead of specific hosts, "All" is displayed. When setting the host affinity with the host group specification, the host name that configures the host

group is displayed. If "All" has been selected for the host group, "All" is displayed for the host.

CA Port Group

The CA port group names for which the host affinity setting is configured are displayed. Regardless of whether the CA port belongs to a CA port group, a "-" (hyphen) is displayed if the host affinity setting is specified for a CA port.

• CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the CA port with the host affinity setting is displayed.

When setting the host affinity with the CA port group specifications, the location information of the CA port that configures the CA port group is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3

CE#x CM#y CA#z Port#w

- For the other models CM#y CA#z Port#w
- LUN Group

The names of the LUN groups with host affinity settings are displayed.

When LUNs are directly allocated to the CA port (when LUN mapping is created) by an application other than ETERNUS Web GUI, a "-" (hyphen) is displayed.

Host Response

One of the following host responses is displayed.

- Host response that is allocated to the host group
- Host response that is allocated to the host
- If all of the hosts are to be connected ("All" is displayed in the "Host" field), the host response that was selected when setting the host affinity
 - Solaris MPxIO
 - HP-UX
 - AIX
 - AIX VxVM
 - VS850/SVC
 - BS2000
 - Host responses registered in the ETERNUS DX/AF
 - Default
- Virtual Volume

When the host affinity is being used by the Virtual Volume function, "Enable" is displayed. When the host affinity is not used for the Virtual Volume function, "Disable" is displayed.

This item is displayed only when "Enable" is selected for the Virtual Volume function.

Caution

Host affinities of which the Virtual Volume function is enabled cannot be modified by using ETERNUS Web GUI.

To change host affinities, use the ETERNUS SF Storage Cruiser.

Display Examples of Host Affinities

Example			Displa		Description		
No.	Host Group	Host	CA Port Group	CA Port	LUN Group	Host Response	
Example 1	Host_ Group_ xxx	Host_1 Show	Port_ Group_ xxx	CM#0 CA#0 Port#0 Show	LUN_ Group_ xxx	Host_ Response1	The host affinity setting has been configured in "Host_Group_xxx", "Port_Group_xxx" and "LUN_Group_xxx". The server recognizes the LUN group, "LUN_Group_xxx", which has been specified for each member host (HBA) in "Host_Group_xxx". In the host field, the name of the host that configures "Host_Group_xxx" is displayed. In the CA port field, the location information of the CA port that configures "Port_Group_xxx" is displayed. Refer to "Example 6" for display example when clicking the [Show] link in the "Host" field or the "CA Port" field.
Example 2	All	All	Port_ Group_ YYY	CM#0 CA#1 Port#1	LUN_ Group_ YYY	Host_ Response2	All servers will be covered. The server recognizes the specified LUN group, "LUN_Group_yyy", from every member port in "Port_Group_yyy". In the CA port field, the location information of the CA port that configures "Port_Group_yyy" is displayed.
Example 3	-	Host_z	-	CM#0 CA#0 Port#0	LUN_ Group_ zzz	Host_ Response3	The host affinity setting of "Host_z (HBA)" and "LUN Group_zzz" has been configured to the device side CA port, "CM#0 CA#0 Port#0". Hosts, CA ports, and LUN groups are allocated without specifying a host group or CA port group.
Example 4		All		CM#1 CA#1 Port#1	LUN_ Group_ www	Host_ Response4	The LUN mapping of "LUN_Group_www" has been configured to the device side CA port, "CM#1 CA#1 Port#1". Hosts, CA ports, and LUN groups are allocated without specifying a host group or CA port group.

Display examples of host affinities are shown in the following table.

Example			Displa	y contents			Description
No.	Host Group	Host	CA Port Group	CA Port	LUN Group	Host Response	
Example 5	-	All	-	CM#0 CA#1 Port#1	-	Host_ Response5	The LUN is directly allocated to CA port "CM#0 CA#1 Port#1" by an application other than ETERNUS Web GUI (LUN mapping is created).
Example 6	Host_ Group_ xxx	Host_1 Host_2 Host_3 Hide	Port_ Group_ xxx	CM#0 CA#0 Port#0 CM#1 CA#0 Port#0 Hide	LUN_ Group_ xxx	Host_ Response1	Display example when the [Show] link for the "Host" field or the "CA Port" field is clicked in Example 1. In the host field, the names of all the hosts that configure "Host_Group_xxx" are displayed. In the CA port field, the location information of all the CA ports that configure "Port_Group_xxx" is displayed. Refer to "Example 1" for display example when clicking the [Hide] link in the "Host" field or the "CA Port" field.

Filter setting

Filter	Description
Host Group	Input the host group name that is to be displayed. When not using the host group name for filtering, leave this item blank.
Host	Input the host name that is to be displayed. When not using the host name for filtering, leave this item blank.
CA Port Group	Input the CA port group name that is to be displayed. When not using the CA port group name for filtering, leave this item blank.
CA Port	Select the CA port name that is to be displayed.
LUN Group	Input the LUN group name that is to be displayed. When not using the LUN group name for filtering, leave this item blank.
Host Response	Select the host response name that is to be displayed.
Virtual Volume	Select the set state of the Virtual Volume function that is to be displayed. This item is only displayed when "Enable" is selected for the Virtual Volume function.

5.1.1 Host Affinity Detail (Host Group - CA Port Group - LUN Group Setting)

Category Connectivity » Action Host Gro Target: 0 Host Group - CA Port Group - LUN Group Setting
 Host Group HostG00 X Modify Host Affinity Host Group CA Port Group LUN Group Port Group HostG00 PortG00 LUNG00 Modify Host Group LUN Group Host Response Modify Port Group CA Reset Group Modify LUN Group ▼ Host - CA Port Connection Host-LU QoS Host CA Port CM#0 CA#0 Port#0 CM#0 CA#0 Port#1 HOST_000 <

The details of the host affinity are displayed.

The following items are displayed in the Main area:

- Host Group CA Port Group LUN Group Setting
- Host Group The selected host group name or "All" is displayed.
- CA Port Group The CA port group that is allocated to the selected host group is displayed.
- LUN Group The LUN group that is allocated to the selected host group is displayed.
- Host CA Port Connection
- Host Member hosts in the selected host group is displayed.
 If "All" has been selected for the host group, "All" is also displayed for the host.
- CA Port

The location information of the CA port which has the host affinity setting with the relevant host is displayed.

5.1.2 Host Affinity Detail (Host - CA Port - LUN Group Setting)

Category	Connectivity		Action	
E 🚔 Connectivity	▼ Host - CA Port - L	UN Group Setting	A T	arget 0
 ⇒ Pornectivity ⇒ Host Group ⇒ Post Group ⇒ LUN Group ⇒ LUN Group ⇒ Host Response ⇒ CA Resel Group ⇒ Host-UU QoS ⇒ NAS 	▼ Host - CA Port - L Host CA Port LUN Group	UN Group Setting ISCSI-HOST_000 CMIR CANT PortIRO LUNGOT		arget: 0 Modify Hoat Affinity Modify Hoat Group Modify LUN Group
			J	

The detailed information of host affinities is displayed.

The following items are displayed in the Main area:

- Host CA Port LUN Group Setting
- Host The selected host name or "All" is displayed.
- CA Port

The location information of the CA port, which is allocated with the selected host, is displayed.

• LUN Group The LUN group that is allocated with the selected host, or a "-" (hyphen) is displayed.

5.2 Host Group

The list of the host groups is displayed.

A host group uses the same interface type, and groups the hosts (HBAs), which access the same LUN group.



The following items are displayed in the Main area:

Name

The host group name is displayed. By clicking this item, the [Host Group Detail] screen is displayed. Refer to <u>"5.7.2 LUN Group : LU QoS Group</u> Detail" (page 280) for display items.

Type

The interface type of the host registered in the host group is displayed.

Status

Whether the host group is used ("Active") or not ("Inactive") for the host affinity settings is displayed. "Host affinity setting" is to specify association between "Host Group", "CA Port Group", and "LUN Group".

- Active

The host group is used for the host affinity settings. The LUN group can be accessed from the member host of the host group.

- Inactive The host group is not used for the host affinity settings.
- Host Response

The host response name that has been assigned to a host group is displayed.

Number of Hosts

The number of hosts that have been registered in the host group is displayed.

Filter	Description
Name	Input the host group name that is to be displayed. When not using the name for filtering, leave this item blank.
Туре	Select the interface type of the host group that is to be displayed.
Status	Select the set state of the host affinity for the host group that is to be displayed.
Host Response	Select the name of the host response that is assigned to the host group that is to be displayed.

Filter setting

5.2.1 Host Group Detail

The details of the host group are displayed.

ategory	Host Grou	ip Detail				Action
Connectivity	▼ Host Gr	oup Inform	nation			Target 0
= 📹 Host Group	Name HostG00					X Modify Host Group
FC/FG0E	Host Respo	onse	Default		2	
	Status		Active			
Port Group	Number of I	Hosts	2		5	
Host Response						
📔 CA Reset Group	Name	WWN		Other Host Group		
Host-LU QoS	HOST_000	61626364	30303030		^	
NAS	HOST 001	61626364	30303031		~	
	Line and the second					
	1					
					-	

The following items are displayed in the Main area:

- Host Group Information
- Name The host group name is displayed.
- Host Response The host response, which has been assigned to a host group, is displayed.
- Status
 - Whether the host group is "Active" or "Inactive" in the host affinity setting is displayed.
- Number of Hosts The number of hosts, which have been registered in the host group, is displayed.

- Host List
- Name The host name is displayed.
- WWN
- When the host interface type is "FC/FCoE", the WWN of the host is displayed.
- iSCSI Name When the host interface type is "iSCSI", the iSCSI name of the host is displayed.
- SAS Address When the host interface type is "SAS", the SAS address of the host is displayed.
- Other Host Group The other host group names to which the host belongs are displayed. If the host belongs to only one host group, the field is blank.

5.2.2 FC/FCoE Host

In this screen, registered FC hosts in the ETERNUS DX/AF are displayed.

🔵 Note

The interface types "FC" and "FCoE" are both regarded as "FC". Both "FC host" and "FCoE host" are abbreviated as "FC host" in this section.

tegory	FC/FC	DE Host	_	» Action			
Connectivity	#Filte	r setting	Target 0				
Host Group Host Group ISCSI Port Group	Na	me: WWN: F dus:All	Host Group: CA Port	Group CA I	Port.All Host Re	sponse All	Add FC/FCoE Host Group Add FC/FCoE Host Delete FC/FCoE Host
Host Response			X Modify FC/FCoE Host				
CA Reset Group		Name	WWN	Host Group	CA Port Group	CA Port	
H ANS-LO GOS	0	HOST_000	6162636430303030	HostG00	PortG00	CM#0 CA#0 Por	
	1	HOST_001	6162636430303031	÷.	-	*	
	□ 2	HOST_002	6162636430303032	÷	-		
	3	HOST_003	6162636430303033	-	-	*	
		HOST_004	6162636430303034	æ	-	-	
	5	HOST_005	6162636430303035	-	-	+	
	□ 6	HOST_006	6162636430303036	(m)	-	-	
	7	HOST_007	6162636430303037	e:	*	*	
	8	HOST_008	6162636430303038	8	÷.	*	
	9	HOST_009	6162636430303039	(1)	e	*	
	10	HOST_010	6162636430303130	÷.	÷.	*	
	11	HOST_011	6162636430303131	8	8-1 -	*.	
	12	HOST_012	6162636430303132	÷.	-	*	
	13	HOST_013	6162636430303133	÷		· v	
	- ··	UDST NU	C4C2C2C320202424				

The following items are displayed in the Main area:

• No.

The FC host number is displayed.

- Name The FC host name is displayed.
- WWN

The FC host WWN is displayed.

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• Host Group

The host group name, to which the FC host belongs, is displayed. If the FC host does not belong to a host group, a "-" (hyphen) is displayed.

• CA Port Group

The name of the CA port group that has the host affinity setting with the FC host is displayed. If no CA port group with the host affinity setting exists, a "-" (hyphen) is displayed.

CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the CA port that has the host affinity setting with the FC host is displayed.

If no CA port with the host affinity setting exists, a "-" (hyphen) is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models
- CM#y CA#z Port#w
- Host Response

The host response that is assigned to the FC host or to the host group of the FC host is displayed.

Status

Whether the host affinity setting is applied to the FC host is displayed.

"Host Affinity Setting" is to specify association between "Host Group", "CA Port Group", and "LUN Group" or association between "Host", "CA Port", "and "LUN Group". The host affinity setting specifies the path between each host and port.

- Active

The host affinity setting is applied to the FC host. The LUN group can be accessed from the FC host.

- Inactive

The host affinity setting is not applied to the FC host.

Filter setting

Filter	Description
Name	Input the FC host name that is to be displayed. When not using the name for filtering, leave this item blank.
WWN	Input the WWN for the FC host that is to be displayed. When not using the WWN for filtering, leave this item blank.
Host Group	Input the name of the host group to which the FC host that is to be displayed belongs. When not using the host group for filtering, leave this item blank.
CA Port Group	Input the name of the CA port group that has the host affinity setting with the FC host that is to be displayed. When not using the CA port group for filtering, leave this item blank.
CA Port	Select the CA port that has the host affinity setting with the FC host that is to be displayed.
Host Response	Select the name of the host response that is assigned to the FC host that is to be displayed.
Status	Select the set state of the host affinity for the FC host that is to be displayed.

5.2.3 iSCSI Host

In this screen, registered iSCSI hosts in the ETERNUS DX/AF are displayed.

curagoi	iSCSI Ho	st			Action
Connectivity Gonnectivity Host Group Gong LUN Group LUN Group CA Reset Group CA Reset Group Host Host Mass Kost	#Filter	setting	Filter	r ^	Target. 0
	Name: ISCSI Name: Host Group: CA Port Group: CA Port All Host Response:All Status:All IP Version:All IP Address: Allas Name:				Add ISCSI Host Group Add ISCSI Host X Delete ISCSI Host
			10 items H < 1/1 pages >> H 1 - 1 - page	Go	X Modity ISCSI Host
	No.	Name	iSCSI Name	Host	
	0	ISCSI-HOST_000	iqn.2000-09.com.fujitsu:storage-system.dxl:000000000000000	HostC	
	1	ISCSI-HOST_001	iqn.2000-09.com.fujitsu:storage-system.dxl:00000000000001	-	
	□ 2	ISCSI-HOST_002	ign.2000-09.com.fujitsu:storage-system.dxl:00000000000002	-	
	3	ISCSI-HOST_003	ign.2000-09.com.fujitsu:storage-system.dxl:000000000000000	-	
		ISCSI-HOST_004	ign.2000-09.com.fujitsu:storage-system.dxl:00000000000004	÷	
	5	ISCSI-HOST_005	ign.2000-09.com.fujitsu:storage-system.dxl:00000000000005	-	
	6	ISCSI-HOST_006	ign.2000-09.com.fujitsu:storage-system.dxl:00000000000006	÷	
	7	ISCSI-HOST_007	ign 2000-09.com fujitsu:storage-system.dxt.000000000000007		
	8	ISCSI-HOST_008	iqn.2000-09.com.fujitsu:storage-system.dxl:000000000000008		
	9	ISCSI-HOST_009	ign 2000-09.com fujitsu:storage-system.dxl:00000000000000	*	
	<			>	

The following items are displayed in the Main area:

- No. The iSCSI host number is displayed.
- Name The iSCSI host name is displayed.
- iSCSI Name The iSCSI name of the iSCSI host is displayed.
- Host Group

The host group name, to which the iSCSI host belongs, is displayed. If the iSCSI host does not belong to a host group, a "-" (hyphen) is displayed.

• CA Port Group

The name of the CA port group that has the host affinity setting with the iSCSI host is displayed. If no CA port group with the host affinity setting exists, a "-" (hyphen) is displayed.

• CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the CA port that has the host affinity setting with the iSCSI host is displayed.

If no CA port with the host affinity setting exists, a "-" (hyphen) is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3
- CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Host Response

The host response that is assigned to the iSCSI host or to the host group of the iSCSI host is displayed.

Status

Whether the host affinity setting is applied to the iSCSI host is displayed.

"Host Affinity Setting" is to specify association between "Host Group", "CA Port Group", and "LUN Group" or association between "Host", "CA Port", "and "LUN Group". The host affinity setting specifies the path between each host and port.

- Active

The host affinity setting is applied to the iSCSI host. The LUN group can be accessed from the iSCSI host. - Inactive

The host affinity setting is not applied to the iSCSI host.

IP Version

The IP version when the IP address was registered for the iSCSI host is displayed.

• IP Address

The IP address of the iSCSI host is displayed.

Note that the IPv6 address is displayed as an abbreviation. Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

If the IP address is not specified, the field is blank.

Alias Name

The iSCSI host Alias Name is displayed. If the Alias Name is not set, the field is blank.

• CHAP User ID

The CHAP user name of the iSCSI host is displayed. If the CHAP user ID is not specified, the field is blank.

Filter	Description
Name	Input the iSCSI host name that is to be displayed. When not using the name for filtering, leave this item blank.
iSCSI Name	Input the iSCSI name of the iSCSI host that is to be displayed. When not using the iSCSI name for filtering, leave this item blank.
Host Group	Input the name of the host group to which the iSCSI host that is to be displayed belongs. When not using the host group for filtering, leave this item blank.
CA Port Group	Input the name of the CA port group that has the host affinity setting with the iSCSI host that is to be displayed. When not using the CA port group for filtering, leave this item blank.
CA Port	Select the CA port that has the host affinity setting with the iSCSI host that is to be displayed.
Host Response	Select the name of the host response that is assigned to the iSCSI host that is to be displayed.
Status	Select the set state of the host affinity for the iSCSI host that is to be displayed.
IP Version	Select the IP version for the iSCSI host that is to be displayed.
IP Address	Input the IP address for the iSCSI host that is to be displayed. The iSCSI hosts that match the beginning of the entered IP address are displayed. When not using the IP address for filtering, leave this item blank.
Alias Name	Input the Alias name of the iSCSI host that is to be displayed. When not using the Alias name for filtering, leave this item blank.

Filter setting
IPv6 Address Notation

Since the IPv6 address is 128-bit and extremely long, this address is displayed using "xxxx", which describes 16-bit in hexadecimals as being one block that is separated by colons (":").

xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx

- Use 0 ffff (FFFF) (hexadecimal, alphanumeric characters) for inputting an IPv6 address.
- The current setting is displayed with 0 ffff (hexadecimal, "a" "f" are lowercase letters)
- Up to 128-bit
- The first 64-bit (prefix) of the link local address is fixed to "fe80::".

The following three abbreviation methods are available for IPv6 addresses:

(1) Omission of the first "0" of a block that follows consecutive zeros.

[Example] 2001:1000:0120:0000:0000:0123:0000:0000



- (2) Replacement of "0000" blocks with "0". [Example] 2001:1000:120:0000:0000:123:0000:0000 2001:1000:120:0:0:0:123:0:0
- (3) Replacement of a block with consecutive zeros by "::" is performed only once.

[Example] 2001:1000:120:0:0:123:0:0

5.2.4 SAS Host

In this screen, registered SAS hosts in the ETERNUS DX are displayed.

Caution

The ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/ AF650, and the ETERNUS DX200F do not support this function.

ategory	SAS Hos						» Action	
Connectivity Host Group SKS Fort Group LUN Group	#Filter s	#Filter setting						
	Name Status	Add SAS Host Group Add SAS Host Delete SAS Host						
CA Reset Group		JC modily SAS Hote						
	No.	Name	SAS Address	Host Group	CA Port Group	CA Port		
	1	HOST_001	6162636430303031	HostGroup_0002	PortG00	CMIO CANO P		
	3	HOST_003	6162636430303033	HostGroup_0005	+);	1. C		
	5	HOST_005	6162636430303035	HostGroup_0008	43	A		
	7	HOST_007	6162636430303037	HostGroup_0002	PortG00	CM#0 CA#0 P		
	9	HOST_009	6162636430303039	-2	-	2		
	11	HOST_011	6162636430303131	-	40	÷		
	13	HOST_013	6162636430303133	-2	+1			
	15	HOST_015	6162636430303135	-	÷1	÷.		
	17	HOST_017	6162636430303137	2	2			
	19	HOST_019	6162636430303139	2	10	a		
	21	HOST_021	6162636430303231	23	21	-		
	23	HOST_023	6162636430303233	23	1	-		
	25	HOST_025	6162636430303235	23	2			
	27	HOST_027	6162636430303237		2	-		
	29	HOST_029	6162636430303239	÷	2	÷		
	31	HOST_031	6162636430303331		2	-		
	33	HOST_033	6162636430303333		2	÷		
	35	HOST_035	6162636430303335		20 20			
	1 37	HOST 017	6162636430303337	0	25			

The following items are displayed in the Main area:

• No.

The SAS host number is displayed.

Name

The SAS host name is displayed.

- SAS Address The SAS address of the SAS host is displayed.
- Host Group

The host group name, to which the SAS host belongs, is displayed. If the SAS host does not belong to a host group, a "-" (hyphen) is displayed.

• CA Port Group

The name of the CA port group that has the host affinity setting with the SAS host is displayed. If no CA port group with the host affinity setting exists, a "-" (hyphen) is displayed.

• CA Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the CA port that has the host affinity setting with the SAS host is displayed.

If no CA port with the host affinity setting exists, a "-" (hyphen) is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w

• Host Response

The host response that is assigned to the SAS host or to the host group of the SAS host is displayed.

- Status
 - Whether the host affinity setting is applied to the SAS host is displayed.
 - Active
 - The host affinity setting is applied to the SAS host. The LUN group can be accessed from the SAS host. - Inactive
 - The host affinity setting is not applied to the SAS host.

Filter setting

Filter	Description
Name	Input the SAS host name that is to be displayed. When not using the name for filtering, leave this item blank.
SAS Address	Input the SAS address for the SAS host that is to be displayed. When not using the SAS address for filtering, leave this item blank.
Host Group	Input the name of the host group to which the SAS host that is to be displayed belongs. When not using the host group for filtering, leave this item blank.
CA Port Group	Input the name of the CA port group that has the host affinity setting with the SAS host that is to be displayed. When not using the CA port group for filtering, leave this item blank.
CA Port	Select the CA port that has the host affinity setting with the SAS host that is to be displayed.
Host Response	Select the name of the host response that is assigned to the SAS host that is to be displayed.
Status	Select the set state of the host affinity for the SAS host that is to be displayed.

5.3 CA Port Group

A list of the CA port groups is displayed.

A CA port group is a group of the same CA type ports that are connected to the specified host group.

CA Port Gro	oup		» Action
#Filter sett	ing	Filter	A Target 0
Name:	Type:All CA Port Group Member:All State	s Al	Create FC Port Group Create ISCSI Port Group
	4 items 14 → 1/1 pag	es > > > I 1 page Go	Create FCoE Port Group
Name Name	Type CA Port Group Member	Status	X Modify Port Group
PortG00	FC CM#0 CA#0 Port#0, CM#0 CA#0 P	ort#1 Active	1967)
PortG01	ISCSI CM#0 CA#1 Port#0, CM#0 CA#1 P	ort#1 Active	
PortG02	FC CM#0 CA#0 Port#2	Active	
PortG00	FC CM#0 CA#0 Port#0, CM#0 CA#0 P	ort#1 Active	
<		>	
	CA Port Gri Filter sett Name Port300 PortG01 PortG02 PortG02 C	CA Port Group Filter setting Name: Type:All CA Port Group Member:All Statu 4flems kl < 1/1 page Port000 FC CAPOrtGroup Member Port000 FC CM#0 CA#0 Port#0, CM#0 CA#1 P Port002 FC CM#0 CA#0 Port#2 Port000 FC CM#0 CA#0 Port#0, CM#0 CA#0 P C	CA Port Group

The following items are displayed in the Main area:

Name

The port group name is displayed.

• Type

The type of the CA port group is displayed.

- FC
- iSCSI
- SAS
- FCoE
- CA Port Group Member

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the port, which is a CA port group member, is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models
- CM#y CA#z Port#w
- Status

Whether the CA port group is used ("Active") or not ("Inactive") for the host affinity settings is displayed. "Host affinity setting" is to specify association between "Host Group", "CA Port Group" and "LUN Group".

- Active

The CA port group is used for the host affinity settings. The LUN group can be accessed from the host group via the CA port group.

- Inactive

The CA port group is not used for the host affinity settings.

- Fil	ltor	CO	FFi	nc
	itei	30	ιu	ΠU

Filter	Description
Name	Input the CA port group name that is to be displayed. When not using the name for filtering, leave this item blank.
Туре	Select the type of the CA port group that is to be displayed.
CA Port Group Member	Select the location information of the member port for the CA port group that is to be displayed.
Status	Select the set state of the host affinity for the CA port group that is to be displayed.

5.3.1 FC Port

Parameters of the FC ports that are registered in the ETERNUS DX/AF are displayed.

Category	FC Port						* Action
Connectivity	#Filter setting				Filter Clea		Target. 0
Port Group	Port All Type All	I Status:All Host Grou	ip: Port Gro	up: WWN:			Modify Port Mode
E ISCSI		2 items 14	< 1/1 pages	> N □	1 🔹 page	Go	
Host Response	D Port	Type SFP Type	Status	Port Mode	Connection	Loop	
🗉 🧰 Host-LU QoS	CM#0 CA#0 Port#	FC SFP+(MMF)	Normal	CA	FC-AL	0x7E	
🕂 🔛 NAS	CM#0 CA#0 Port#	FC SFP+(MMF)	Normal	CA	FC-AL	0x70	
	<					>	
						~	

The following items are displayed in the Main area:

• Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the target port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w
- Type

The CA type of the target port is displayed.

• SFP Type

The SFP type of the target port is displayed. If an SFP is not installed, "Unmount" is displayed.

- SFP+(SMF)

An SFP (8G LongWave) that is installed in an 8Gbit/s (maximum) FC port.

- SFP+(MMF)

An SFP (8G SFP+) that is installed in an 8Gbit/s (maximum) FC port.

- 16G SFP+(SMF)

An SFP (16G LongWave) that is installed in a 16Gbit/s (maximum) FC port.

- 16G SFP+(MMF)
- An SFP (16G SFP+) that is installed in a 16Gbit/s (maximum) FC port.
- Unknown

Other than the above SFPs.

Status

The status of the target port is displayed.

• Port Mode

The mode of the target port is displayed.

- CA
- RA
- CA/RA
- Initiator
- Connection

The connection type of the target port is displayed.

- Fabric

A connection type that enables simultaneous communication among multiple nodes through a Fibre Channel switch. This connection type can also be used for a direct connection when "Transfer Rate" is "16 Gbit/s".

- FC-AL

A connection type that connects multiple nodes in a loop.

• Loop ID

If the connection type of the target port is "FC-AL", the Loop ID is displayed.

"Loop ID" is an identification number of a node in a loop.

When the connection type of the target port is "Fabric", a "-" (hyphen) is displayed.

Transfer Rate

The transfer speed of the target port is displayed.

- Auto-negotiation
- 4 Gbit/s
- 8 Gbit/s
- 16 Gbit/s
- FC Frame Size

The frame size of the target port is displayed.

"FC Frame Size" specifies the length of the communication information.

- 512 bytes
- 1024 bytes
- 2048 bytes

Reset Scope

The reset scope of the target port is displayed.

Reset scope is the range where the command reset from the server is performed, when the target port is connected to multiple servers.

A "-" (hyphen) is displayed when the port mode is "RA" or "Initiator".

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN)

Reset (cancels) the command request from all of the servers that are connected to the port.

- Release Reservation if Chip is Reset
 Whether the function to release the reservation status of the volume when the target port (chip) is reset is
 enabled or disabled is displayed.
 A "-" (hyphen) is displayed when the port mode is "RA" or "Initiator".
- REC Line No.

The REC line number of the target port is displayed.

The REC line number is used to switch the communication path when a line fails.

A "-" (hyphen) is displayed when the port mode is "CA" or "Initiator".

This item is displayed only when the Advanced Copy license has been registered.

• REC Transfer Mode

Whether the REC synchronous transfer mode, the REC asynchronous stack mode, the REC asynchronous consistency mode, or the REC asynchronous through mode is enabled or disabled for the target port is displayed.

A "-" (hyphen) is displayed when the port mode is "CA" or "Initiator".

This item is displayed only when the Advanced Copy license has been registered.

- Sync

When the REC synchronous transfer mode is enabled, the target port can be used as an REC synchronous transfer mode path.

- Async Stack

When the REC asynchronous stack mode is enabled, the target port can be used as an REC asynchronous stack mode path.

- Async Consistency

When the REC asynchronous consistency mode is enabled, the target port can be used as an REC asynchronous consistency mode path.

- Async Through

When the REC asynchronous through mode is enabled, the target port can be used as an REC asynchronous through mode path.

• TFO Transfer Mode

Whether the TFO transfer mode is enabled or disabled for the target port is displayed.

A "-" (hyphen) is displayed when the port mode is "CA" or "Initiator".

This item is displayed only when "Enable" is selected for the Storage Cluster function.

• TFO WWN Mode

When the target port is being used by the Storage Cluster function, "Custom" is displayed if WWN has been changed, and "Default" is displayed if no changes have been made.

A "-" (hyphen) is displayed when the port mode is "RA", "CA/RA", or "Initiator".

This item is displayed only when "Enable" is selected for the Storage Cluster function.

TFO Port

When the target port is being used by the Storage Cluster function, "Used" is displayed, and "Unused" is displayed when the target port is not used.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

Host Group

The name of the host group that has the host affinity setting with the target port is displayed. If no host group with the host affinity setting exists, a "-" (hyphen) is displayed.

• Port Group

The name of the port group to which the target port belongs is displayed. If the target port does not belong to a port group, a "-" (hyphen) is displayed.

• WWN

WWNs of all FC/FCoE hosts that have the host affinity setting with the target port are displayed. If the host affinity setting is not configured, the field is blank.

Filter setting

Filter	Description
Port	Select the location information of the port that is to be displayed.
Туре	Select the CA type of the port that is to be displayed.
Status	Select the status of the port that is to be displayed.
Host Group	Input the name of the host group that has the host affinity setting with the port that is to be displayed. When not using the host group name for filtering, leave this item blank.
Port Group	Input the name of the port group to which the port that is to be displayed belongs. When not using the port group name for filtering, leave this item blank.
WWN	Input the WWN of the FC/FCoE host that has the host affinity setting with the port that is to be displayed. When not using the WWN for filtering, leave this item blank.

5.3.2 iSCSI Port

Parameters of the iSCSI ports that are registered in the ETERNUS DX/AF are displayed.

Category	iSCSI Port						» Action
🗉 🧰 Connectivity	#Filter setting				Filter	Clear	Target. 0
Host Group Group Group FC	Port:All Type:All	Status:All	Host Group	Port Group	Host ISCSI Nam	ne:	Configure ISCSI Port Modify Port Mode
FCoE		2 ite	xms 14 - 4	1/1 pages >	н 1	page Go	
Host Response	Port	Туре	Status	Port Mode	Multiple VLAN	Number of IP	
🗄 🤐 Host-LU QoS	CM#0 CA#0 Port#0	10G ISCSI	Normal	CA	Enable		
III 🔜 NAS	CM#0 CA#0 Port#1	10G iSCSI	Normal	CA	Enable		
	<					>	

The following items are displayed in the Main area:

• Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the target port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3
- CE#x CM#y CA#z Port#w
- For the other models CM#y CA#z Port#w

• Туре

The type of the target port is displayed.

- 1G iSCSI
 - 1Gbit/s iSCSI. The port mode can be changed (CA, RA, or CA/RA).
- 10G iSCSI

10Gbit/s iSCSI. The port mode can be changed (CA, RA, or CA/RA).

- 10G Base-T iSCSI

10Gbit/s iSCSI. The port mode can be changed (CA, RA, or CA/RA). This port can be installed in the ETERNUS DX60 S3, the ETERNUS DX100 S3/DX200 S3, and the ETERNUS AF250.

Status

The status of the target port is displayed.

Port Mode

The mode of the target port is displayed.

- CA
- RA
- CA/RA
- Multiple VLAN

Whether the Multiple VLAN is enabled or disabled for the target port is displayed. "Multiple VLAN" is a function that enables up to 16 pieces of VLAN information (IP address information) to be registered for each port.

A "-" (hyphen) is displayed when the port mode is "RA".

Number of IP Addresses

The number of IP addresses that are used for the relevant port is displayed. When "Multiple VLAN" is enabled, the number of IP addresses that are registered in the port is displayed. When "Multiple VLAN" is disabled or "-" is displayed in the "Multiple VLAN" field, "1" is displayed.

Transfer Rate

The transfer speed of the target port is displayed. All transfers are full-duplex.

- Auto-negotiation
- 1Gbit/s
- 10Gbit/s
- 100Mbit/s
- Reset Scope

The reset scope of the target port is displayed.

Reset scope is the range where the command reset from the server is performed, when the target port is connected to multiple servers. A "-" (hyphen) is displayed when the port mode is "RA".

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN)

Reset (cancels) the command request from all of the servers that are connected to the port.

• Release Reservation if Chip is Reset

Whether the function to release the reservation status of the volume when the target port (chip) is reset is enabled or disabled is displayed.

A "-" (hyphen) is displayed when the port mode is "RA".

iSCSI Name

The iSCSI name of the target port is displayed.

- Alias Name The Alias Name of the target port is displayed. If the Alias Name is not specified, the field is blank.
- Bandwidth Limit A "-" (hyphen) is displayed for this item.
- MTU

The MTU size of the target port is displayed.

"Maximum Transmission Unit (MTU)" is the maximum amount of data that can be transmitted at the one time over the communication network.

A "-" (hyphen) is displayed when the port mode is "CA".

• CHAP

When CHAP authentication for the target port is enabled, "ON" is displayed. If the authentication is disabled, "OFF" is displayed.

When the "Port Mode" is "CA/RA", this item is displayed in "x / y" format.

x: The CHAP authentication status of the CA port ("ON" or "OFF")

y: The CHAP authentication status of the RA port ("ON" or "OFF")

• REC Line No.

The REC line number of the target port is displayed.

The REC line number is used to switch the communication path when a line fails.

A "-" (hyphen) is displayed when the port mode is "CA".

This item is displayed only when the Advanced Copy license has been registered.

REC Transfer Mode

Whether the REC synchronous transfer mode, the REC asynchronous stack mode, the REC asynchronous consistency mode, or the REC asynchronous through mode is enabled or disabled for the target port is displayed.

A "-" (hyphen) is displayed when the port mode is "CA".

This item is displayed only when the Advanced Copy license has been registered.

- Sync

When the REC synchronous transfer mode is enabled, the target port can be used as an REC synchronous transfer mode path.

- Async Stack

When the REC asynchronous stack mode is enabled, the target port can be used as an REC asynchronous stack mode path.

- Async Consistency

When the REC asynchronous consistency mode is enabled, the target port can be used as an REC asynchronous consistency mode path.

- Async Through

When the REC asynchronous through mode is enabled, the target port can be used as an REC asynchronous through mode path.

TFO Transfer Mode

Whether the TFO transfer mode is enabled or disabled for the target port is displayed.

A "-" (hyphen) is displayed when the port mode is "CA".

This item is displayed only when "Enable" is selected for the Storage Cluster function.

TFO Port

When the target port is being used by the Storage Cluster function, "Used" is displayed, and "Unused" is displayed when the target port is not used.

This item is only displayed when "Enable" is selected for the Storage Cluster function.

• Host Group

The name of the host group that has the host affinity setting with the target port is displayed. If no host group with the host affinity setting exists, a "-" (hyphen) is displayed.

• Port Group

The name of the port group to which the target port belongs is displayed. If the target port does not belong to a port group, a "-" (hyphen) is displayed.

Host iSCSI Name

iSCSI names of all iSCSI hosts that have the host affinity setting with the target port are displayed. If the host affinity setting is not configured, a "-" (hyphen) is displayed.

Filter setting

Filter	Description
Port	Select the location information of the port that is to be displayed.
Туре	Select the type of the port that is to be displayed.
Status	Select the status of the port that is to be displayed.
Host Group	Input the name of the host group that has the host affinity setting with the port that is to be displayed. When not using the host group name for filtering, leave this item blank.
Port Group	Input the name of the port group to which the port that is to be displayed belongs. When not using the port group name for filtering, leave this item blank.
Host iSCSI Name	Input the host iSCSI name of the iSCSI host that has the host affinity setting with the port that is to be displayed. When not using the host iSCSI name for filtering, leave this item blank.

5.3.3 SAS Port

Parameters of the SAS ports that are registered in the ETERNUS DX are displayed.

Caution

The ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/ AF650, and the ETERNUS DX200F do not support this function.

AAAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	SAS Port						» Action
Connectivity	##Filter setting				Filte	Clear	Target 0
Host Group Port Group	Port All Type	All Status:	All Host Gr	up: Port Group	SAS Address		X Configure SAS Port
FC	Contract (China			office of the second se			
			2 items 14	< 1/1 pages >	н 1	🚔 page 🛛 Go	
FCoE	Port	Type	Status	Transfer Rate	Reset Scope	Release Reser	
Host Response	CM#1 CA#0 Po	1#0 SAS	Normal	Auto-negotiation	T_L	Disable	
CA Reset Group	CM#1 CA#0 Po	1#1 SAS	Normal	Auto-negotiation	LTL	Enable	
Host-LU QoS	<					>	

The following items are displayed in the Main area:

- Port
 - The location information of the target port is displayed.
 - CM#x CA#y Port#z (x: CM number, y: CA number, z: Port number)
- Type

The CA type (fixed at "SAS") of the target port is displayed.

Status

The status of the target port is displayed.

• Transfer Rate

The transfer speed of the target port is displayed.

- Auto-negotiation
- 1.5 Gbit/s
- 3 Gbit/s
- 6 Gbit/s
- Reset Scope

The reset scope of the target port is displayed.

Reset scope is the range where the command reset request from the server is performed, when the target port is connected to multiple servers.

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN) Reset (cancel) the command request from all of the servers that are connected to the port.
- Release Reservation if Chip is Reset Whether the function to release the reservation status of the volume when the target port (chip) is reset is enabled or disabled is displayed.
- Host Group

The name of the host group that has the host affinity setting with the target port is displayed. If no host group with the host affinity setting exists, a "-" (hyphen) is displayed.

• Port Group

The name of the port group to which the target port belongs is displayed. If the target port does not belong to a port group, a "-" (hyphen) is displayed.

SAS Host Address

SAS host addresses of all SAS hosts that have the host affinity setting with the target port are displayed. If the host affinity setting is not configured, a "-" (hyphen) is displayed.

Filter setting

Filter	Description
Port	Select the location information of the port that is to be displayed.
Туре	Select the type of the port that is to be displayed.
Status	Select the status of the port that is to be displayed.
Host Group	Input the name of the host group that has the host affinity setting with the port that is to be displayed. When not using the host group name for filtering, leave this item blank.
Port Group	Input the name of the port group to which the port that is to be displayed belongs. When not using the port group name for filtering, leave this item blank.
SAS Address	Input the SAS Address of the SAS host that has the host affinity setting with the port that is to be displayed. When not using the SAS address for filtering, leave this item blank.

5.3.4 FCoE Port

Parameters of the FCoE ports that are registered in the ETERNUS DX are displayed.

Caution

The ETERNUS DX60 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F do not support this function.

aregory	FCoE Port						» Action
Connectivity	##Filter setting				E	ter Clear	Target 0
Host Group	Port-All Type-All	Status:All	Host Gro	up: Port Gro	up: WWN:		X Configure FCoE Port
FCoE		2 its	ems 14	< 1/1 pages	> H [1 page Go	
LUN Group	Port	Type S	Status	Port Mode	Transfer Rate	FC Frame Size	
CA Reset Group	CM#0 CA#3 Port#0	FCoE	Normal	CA	10Gbit/s	2048 bytes	
E C Host-LU QoS	CM#0 CA#3 Port#1	FCoE	Normal	CA	10Gbit/s	2048 bytes	
NAS	<					>	

The following items are displayed in the Main area:

• Port

The location information (x: CE number, y: CM number, z: CA number, w: Port number) of the target port is displayed.

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
- For the other models
- CM#y CA#z Port#w
- Type

The CA type (fixed at "FCoE") of the target port is displayed.

• Status

The status of the target port is displayed.

Port Mode

The mode (fixed at "CA") of the target port is displayed.

• Transfer Rate

The transfer speed (fixed at "10 Gbit/s") of the target port is displayed.

• FC Frame Size

The frame size of the target port is displayed.

"FC Frame Size" specifies the length of the communication information.

- 512 bytes
- 1024 bytes
- 2048 bytes
- VLAN ID

The VLAN ID of the target port is displayed.

• Fabric Name

The fabric name of the target port is displayed.

Reset Scope

The reset scope of the target port is displayed.

Reset scope is the range where the command reset from the server is performed, when the target port is connected to multiple servers.

- I_T_L (I: Initiator, T: Target, L: LUN) Reset (cancel) the command request from the server that sent the command reset request.
- T_L (T: Target, L: LUN)
 Reset (cancels) the command request from all of the servers that are connected to the port.
- Release Reservation if Chip is Reset Whether the function to release the reservation status of the volume when the target port (chip) is reset is enabled or disabled is displayed.
- Host Group

The name of the host group that has the host affinity setting with the target port is displayed. If no host group with the host affinity setting exists, a "-" (hyphen) is displayed.

• Port Group

The name of the port group to which the target port belongs is displayed. If the target port does not belong to a port group, a "-" (hyphen) is displayed.

• WWN

WWNs of all FC/FCoE hosts that have the host affinity setting with the target port are displayed. If the host affinity setting is not configured, the field is blank.

Filter setting

Filter	Description
Port	Select the location information of the port that is to be displayed.
Туре	Select the CA type of the port that is to be displayed.
Status	Select the status of the port that is to be displayed.
Host Group	Input the name of the host group that has the host affinity setting with the port that is to be displayed. When not using the host group name for filtering, leave this item blank.
Port Group	Input the name of the port group to which the port that is to be displayed belongs. When not using the port group name for filtering, leave this item blank.
WWN	Input the WWN of the FC/FCoE host that has the host affinity setting with the port that is to be displayed. When not using the WWN for filtering, leave this item blank.

5.4 LUN Group

A list of the LUN groups is displayed.

A LUN group is a group of LUNs, which can be recognized by the host. The allocation information of LUNs and volumes in the ETERNUS DX/AF are configured to the LUN group.

Category	LUN Gro	up						Action
E Gonnectivity	#Filter	setting				Filter Clea		Target 0
Host Group Port Group UN Group	Name	e: Status A	II Numb	er of LUNs:All Stora	ge Cluster All			Add LUN Group Delete LUN Group
Host Response				3 items 14 4 1/1	pages > >	1 page	Go	X Modity LUN Group
Host-LU QoS	No.	Name	Status	Number of LUNs	LUN Overlap	Storage Cluster		
NAS	D	LUNG00	Active	2		Enable		
		LUNG01	Active	4		Enable		
	2	LUNG02	Active	2		Enable		
	<						>	
							0	
							-	

The following items are displayed in the Main area:

• No.

The LUN group number is displayed. By clicking this item, the [LUN Group Detail] screen is displayed. Refer to <u>"5.4.1 LUN Group Detail" (page 269)</u> for display items.

• Name

The LUN group name is displayed. By clicking this item, the [LUN Group Detail] screen is displayed. Refer to "5.4.1 LUN Group Detail" (page 269) for display items.

Status

Whether the LUN group is used ("Active") or not ("Inactive") for the host affinity settings is displayed. "Host Affinity Setting" is to specify association between "Host Group", "CA Port Group", and "LUN Group" or association between "Host", "CA Port", "and "LUN Group".

- Active

The LUN group is used for the host affinity settings. The LUN group can be accessed from the host.

- Inactive

The LUN group is not used for the host affinity settings.

• Number of LUNs

The number of LUNs, which have been allocated to volumes in the LUN group, is displayed.

• LUN Overlap

If volumes in the LUN group satisfy one or both of the following conditions, "Yes" is displayed. For any other conditions, the field is blank.

- The volumes are allocated to different LUN groups.
- The volumes are included in the mapping information, which is directly allocated to the CA port without specifying the host group or the CA port group.
- Storage Cluster

If volumes in the LUN group are used for the Storage Cluster function, "Enable" is displayed. When no volumes are used for the Storage Cluster function, "Disable" is displayed. This item is displayed only when "Enable" is colored for the Storage Cluster function.

This item is displayed only when "Enable" is selected for the Storage Cluster function.

2	
Filter	Description
Name	Input the LUN group name that is to be displayed. When not using the LUN group name for filtering, leave this item blank.
Status	Select the LUN group status that is to be displayed.
Number of LUNs	Select the number of LUNs that is to be displayed. Using "512LUN" as the standard, ">512" or "<=512" can be selected.
Storage Cluster	Select "Enable" when displaying LUN groups with volumes that are used by the Storage Cluster function exists. Select "Disable" when displaying LUN groups without volumes used by the Storage Cluster function. This item is displayed only when "Enable" is selected for the Storage Cluster function.

Filter setting

5.4.1 LUN Group Detail

Connectivity → Port Croup → Port Croup → Port Croup → Port Croup → Port Croup → Port Croup → Name → LUN Group → LUN Group → Name → LUNG00 → LUNG000 → LUNG00 →
Host Group 0 ● Pot Group 0 ● Pot Group 0 ■ Most Group 0 ● Address onse CA Reset Group ⊂ A Rest Group Adive Name LUNG00 Number of LUNS 2 LUN Overlap Storage Cluster Storage Cluster Disable ## Filter setting Filter Name: Type All 21tems H < 1/1 pages > H 1 * page Host LUN Volume No. Name Type Capacity Host LUN Volume No. Name Type Capacity
Host Response CA Reset Group Host Response CA Reset Group Host LU GoS Filter setting Name: Type All 21tems H < 1/1 pages > H 1 + page Go Host LUN Volume No. Name Type Capacity LUN Group UID
■ CA Keset Group Number of LUNS 2 ■ Host LUN Overlap 1 Storage Cluster Disable ## Filter setting Filter Name Type All 2flems H < 1/1 pages > H 1 ⊕ page Host LUN Volume No. Name Type Capacity LUN Group
Korage Cluster Disable Storage Cluster Disable Filter setting Name: Type.All Zitems ⊨ < 1/1 pages ⇒ ⊢ ⊨ □ ⊕ page Go Host LUN Volume No. Name Type Capacity LUN Group UID
##Filter setting Filter Clear Name: Type All 2/tems H 1(m) Host LUN Volume No. Name Type Capacity LUN Group UID
Name: Type All 2ftems H 1/1 pages H 1/1 mage Host LUN Volume No. Name Type Capacity LUN Group UID
2 Items H ← 1/1 pages → H [page Host LUN Volume No. Name Type Capacity LUN Group UID
Host LUN Volume No. Name Type Capacity LUN Group UID
0 0 VolumeName000 Standard 4.00 GB 823B3C3D
1 1 VolumeName001 Standard 4.00 GB 823B3C3C
C

The detailed information of a LUN group is displayed.

The following items are displayed in the Main area:

Host LUN

The host LUN is displayed.

Volume No.

The volume number, which is allocated to the LUN, is displayed.

• Name

The volume name is displayed.

Type

The volume type is displayed.

- Standard
- WSV
- TPV
- FTV
- SDV

Capacity

The volume capacity is displayed. When the "Type" is "SDV", the logical capacity, which can be accessed from the host, is displayed.

LUN Group

If the volume is allocated to different LUN groups, the LUN group name is displayed. If the host, ports, and LUNs are allocated without specifying a host group or CA port group, the location information of the ports is displayed.

When a volume is not allocated to different LUN groups, the field is blank.

• UID

The volume UID is displayed.

The UID is an identifier (storage system name) to specify a volume from the open system server.

A "-" (hyphen) is displayed for the Deduplication/Compression System Volume.

This item is displayed only when the controller firmware version V10L4x or later is used.

5.5 Host Response

The registered host responses are displayed.

The host response configures the appropriate operation mode on which the host makes connection. The usual host connection uses a recommended pattern or the default setting which have been arranged in advance in accordance with each OS type.

When customizing the host response in accordance with the OS type or the operating environment, refer to "Add Host Response" in "ETERNUS Web GUI User's Guide (Settings)".

Category	Host Response	» Action
Connectivity	7 Items H (1/1 pages) H 1 * page Go A	Target 0
Host Group	Name Status	+ Add Host Response
LUN Group Host Response	Detautt Active	X Modity Host Response
CA Reset Group	Solaris MPxIQ Inactive	
Host-LU Qos NAS	E HP-UX Inactive	
	AIX Inactive	
	AIX VXVM Inactive	
	VS850/SVC Inactive	
	BS2000 Inactive	

The following items are displayed in the Main area:

• Name

All of the host responses, which have been registered in the ETERNUS DX/AF, are displayed.

- Solaris MPxIO
- HP-UX
- AIX
- AIX VxVM
- VS850/SVC
- BS2000
- Host responses registered in the ETERNUS DX/AF
- Default
- Status

The usage of the host response ("Active" or "Inactive") is displayed.

- Active
 - A host response which is being used on host, host group, or host affinity.
- Inactive

A host response which is not being used on host, host group, or host affinity.

5.6 CA Reset Group

A list of the registered CA reset groups is displayed.

A "CA reset group" is a group of ports which are released simultaneously under the instruction of a server.

Category	CA Reset Group	* Action
Category Connectivity Connectiv	CA Reset Group 2/tems H 1/1 pages H 1/1 page Go A CA Reset Group Member CM40 CA40 Port#0, CM40 CA40 Port#1, Show.	Action Target 0 Modily Reset Group

The following items are displayed in the Main area:

- CA Reset Group Member The location information (x: CE number, y: CM number, z: CA number, w: Port number) of member ports of each CA reset group is displayed.
 - For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y CA#z Port#w
 - For the other models CM#y CA#z Port#w

5.7 Host-LU QoS

A list of the registered Host-LU QoS groups is displayed.

The Host-LU QoS list shows the association between "Host", "CA Port", and "LUN Group", bandwidth limit (performance limits), and performance information.

📐 Caution

- The ETERNUS DX60 S3 does not support this function.
- When using ETERNUS Web GUI, schedule settings for QoS parameters and displaying scheduled QoS parameters are not available. Use ETERNUS CLI to check the scheduled QoS parameters that are specified using ETERNUS CLI. ETERNUS Web GUI displays the bandwidth limit and the performance information that are specified by using ETERNUS Web GUI.
- Host-LU QoS does not support from LUN#1024 onward. If volumes are mapped from LUN#1024 onward, only the first 1024 LUNs (LUN#0 LUN#1023) are displayed.

🔵 Note

- Whether the QoS mode is enabled or disabled can be checked in the action field. Refer to "Enable/Disable QoS" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- Host-LU QoS starts its operation by configuring the bandwidth limit on a "hosts", "CA ports", or "LUNs", and enabling the QoS mode.
- This function displays the performance information that is obtained during performance monitoring regardless of whether the QoS mode is enabled or disabled. When the performance information is displayed before stopping performance monitoring, the performance information that is obtained from the start time until the time when displaying the performance information is requested is displayed. This function displays the total performance information for the host and the performance information for each host LUN.
- The performance information of each CA port can also be displayed. Refer to <u>"5.7.7 Port QoS (Basic)"</u> (page 284) for details.

Category	Host-LU QoS				» Action
Connectivity	▼ Host - CA Port - LUN Group	: LU QoS Gr	oup Connection		Target 0
Host Group Port Group		4 items 14	< 1/1 pages → H	page Go	Enable QoS
LUN Group	Host : Bandwidth Limit	Host Group	CA Port : Bandwidth Limit	CA Port Group	Initialize OnS
CA Reset Group	HOST 000 : Unlimited	HostG00	CM#0 CA#0 Port#0 : Unlimited	PortG00	Set Hoth LU Cos
E 😝 Host-LU CoS	HOST 000 : Unlimited	HostG00	CM#0 CA#0 Port#1 : Unlimited	PortG00	X Release Host-LU QoS
Port QoS	ISCSI-HOST_000 : Unlimited	HostG01	CM#0 CA#1 Port#0 : Unlimited	PortG01	Start Perfmon
LU QoS Group	ISCSI-HOST 000 : Unlimited	HostG01	CM#0 CA#1 Port#1 : Unlimited	PortG01	Stop Perfmon
🕀 🚞 NAS	<			>	

The following items are displayed in the Main area:

- Host : Bandwidth Limit
 - Host

The host name for which the host affinity setting is configured is displayed.

- If "All" is displayed, all of the hosts can access the ETERNUS DX/AF.
- Bandwidth Limit

The maximum performance is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

If "All" has been selected for hosts, a "-" (hyphen) is displayed.

Click the [Host : Bandwidth Limit] link to display the total performance information for the host and the performance information of each LUN. Refer to <u>"5.7.1 Host-LU QoS Performance Information" (page 275)</u> for details.

• Host Group

If a host belongs to a host group, the host group name is displayed. If a host does not belongs to the host group, a "-" (hyphen) is displayed.

If "All" is displayed, all of the hosts can access the ETERNUS DX/AF.

- CA Port : Bandwidth Limit
 - CA Port
 - The location information of the CA port with the host affinity setting is displayed.
 - Bandwidth Limit

The maximum performance is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

• CA Port Group

If a CA port belongs to a CA port group, the CA port group name is displayed. If a host does not belong to a CA port group, a "-" (hyphen) is displayed.

LUN Group : LU QoS Group

- LUN Group

The LUN group name is displayed. If the ETERNUS CLI command ("set mapping") is used for LUN mapping, a "- " (hyphen) is displayed.

 LU QoS Group The LU QoS group number is displayed between 0 and 1055. If a LU QoS group number is not configured, a "- " (hyphen) is displayed.

Click the [LUN Group : LU QoS Group] link to display a bandwidth limit on each LUN. Refer to <u>"5.7.2 LUN</u> Group : LU QoS Group Detail" (page 280) for details.

5.7.1 Host-LU QoS Performance Information

When a host affinity setting with a specific host group is already configured, the total performance information for the host and the performance information of each LUN are displayed. If a host affinity setting with all of the host groups is configured ("All" is specified as the target host group), the performance information of each host LUN is displayed.

Caution

The monitoring status of the performance information and obtained performance information are cleared in the following conditions:

- The port mode is changed (CA, CA/RA → RA or Initiator)
- The ETERNUS DX/AF is rebooted
- An error is detected in the ETERNUS DX/AF
- Hot maintenance of the CM is performed
- Hot controller firmware upgrade is performed

Category	Host-LU Qo	Host-LU QoS							
🗉 🧰 Connectivity	T Host - CA	Port - LUN G		Target 0					
Host Group Port Group	Host : Bandw	idth Limit	HOST_000:	Unlimited		Set Host QoS			
LUN Group	Host Group		HostG00					Modify LU QoS Group	
Host Response	WWN		61626364303	03030					
CA Reset Group	CA Port : Ban	dwidth Limit	CM#0 CA#0 Port#0 : Unlimited						
🖻 🧰 Host-LU QoS	CA Port Grou	p	PortG00						
Host QoS Port QoS	LUN Group : I Group	LU QoS	LUNG00 : 0						
EU GOS Group	▼ Performa	▼ Performance Information							
	▼ Performa	▼ Performance Monitoring							
	State Star	State Start Time Stop / Collect Time							
	Active 201	Active 2012-04-19 15:28:29 2012-04-19 16:29:30							
	6		3						
	Concerner of	Energy and the set							
	Host Tot	al Performan							
	IOPS			Throughput Del			Delay Tir		
	Ave	Min	Max	Ave	Min	Max	Total		
	20000 IOPS	10000 IOPS	30000 IOPS	100.25 MB/s	100.24 MB/s	100.26 MB/s	5000 🔿		
	<						>		
	▼ Host LU	▼ Host LUN Performance							
			2 items	H 4 1/1 pag	es > H [1 🖨 pag	ge Go		
	HartIIIN	Volume Name	IOPS			Throughput			
	HOSTLUN	volume Name	Ave	Min	Max	Ave	Min		

The following items are displayed in the Main area:

- Host CA Port LUN Group Information
- Host : Bandwidth Limit

The host name and the bandwidth limit of the selected host is displayed in "Host : Bandwidth Limit" format.

If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed as the "Bandwidth Limit". If "All" has been selected for the host, a "-" (hyphen) is displayed as the "Bandwidth Limit".

Host Group

The host group name, to which the selected host belongs, is displayed.

If all of the hosts are to be connected, "All" is displayed.

If the host does not belong to a host group, a "-" (hyphen) is displayed.

• WWN

The WWN for the selected host is displayed. This item is displayed when the host affinity setting is configured and the selected host is "FC" or "FCoE".

• iSCSI Name

The iSCSI name for the selected host is displayed.

This item is displayed when the host affinity setting is configured and the selected host is "iSCSI".

IP Version

The IP version of the iSCSI host is displayed. This item is displayed when the host affinity setting is configured and the selected host is "iSCSI".

- IPv4
- IPv6
- IP Address

The IP address of the selected iSCSI host is displayed.

Note that the IPv6 address is displayed as an abbreviation. If the IP address is not specified, the field is blank.

This item is displayed when the host affinity setting is configured and the selected host is "iSCSI".

- For IPv4 address
 - XXX.XXX.XXX.XXX

xxx: 0 - 255 for other fields (decimal)

- For IPv6 address
 - xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 ffff (hexadecimal, "a" "f" are lowercase letters) Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.
- SAS Address

The SAS address of the selected host is displayed. This item is displayed when the host affinity setting is configured and the selected host is "SAS".

• CA Port : Bandwidth Limit

The location information and the bandwidth limit of the selected CA port is displayed in "CA Port : Bandwidth Limit" format.

If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed as the "Bandwidth Limit".

• CA Port Group

If a CA port that is connected to the selected host belongs to a CA port group as a member, the CA port group name is displayed. If a host does not belong as a member, a "-" (hyphen) is displayed.

• LUN Group : LU QoS Group

The LUN group name and LU QoS group number (between 0 and 1055) are displayed in "LUN Group : LU QoS Group" format.

If the ETERNUS CLI command ("set mapping") is used for LUN mapping, a "-" (hyphen) is displayed as "LUN Group".

If a LUN QoS group number has not been configured, a "- " (hyphen) is displayed as "LU QoS Group".

Performance information

Login IP Address

IP address that is logged in is displayed.

The performance information is displayed for each specified IP address. Note that the IPv6 address is displayed as an abbreviation. If there is no IP address, a "-" (hyphen) is displayed.

This item is displayed for the iSCSI host when the host affinity setting is configured, the iSCSI name is specified, and the IP address is not specified.

- For IPv4 address
 - xxx.xxx.xxx.xxx
 - xxx: 0 255 for other fields (decimal)
- For IPv6 address
 - xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx xxxx: 0 - ffff (hexadecimal, "a" - "f" are lowercase letters) Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

Performance Monitoring

• State

The status of performance monitoring for the host is displayed.

- Active
- Stopped
- Start Time
- Stop / Collect Time

The start time and the end time for performance monitoring are displayed.

The displayed time varies depending on how the performance monitoring is started or ended.

Before monitoring is started (*1)

"State" for performance monitoring is "Stopped". "-" (hyphens) are displayed for "Start Time" and "Stop Collect Time".

- Monitoring is started

"State" for performance monitoring is changed from "Stopped" to "Active". The time when performance monitoring was started is displayed for "Start Time". The time when the performance information is obtained is displayed for "Stop / Collect Time".

- Monitoring is started while the monitoring session has already been started

"State" for performance monitoring is "Active". The last time when performance monitoring was started is displayed for "Start Time". The time when the performance information is obtained is displayed for "Stop / Collect Time".

- Monitoring is stopped

"State" for performance monitoring is changed from "Active" to "Stopped". The last time when performance monitoring was started is displayed for "Start Time". The time when performance monitoring is stopped is displayed for "Stop / Collect Time".

- Monitoring is stopped while the monitoring session has already been stopped "State" for performance monitoring is "Stopped". The last time when performance monitoring was started is displayed for "Start Time". The first time when performance monitoring was stopped is displayed for "Stop / Collect Time".
 - *1: When performance monitoring is not being performed after the ETERNUS DX/AF is started.

In the following conditions, "-" (hyphens) are displayed for "Start Time" and "Stop / Collect Time".

- When no iSCSI host with the host affinity setting is connected
- When no IP address for an iSCSI host with the host affinity setting is logged in
- When the start time is "0"

> Caution

If performance monitoring is restarted during an active performance monitoring session, the performance information that is already obtained is deleted and the collection of performance information starts again.

Host Total Performance

When the host affinity setting is configured by a port and a specific host group, the total performance information for the specific host that is connected to the port is displayed.

If an IP address is not specified and multiple IP addresses are logged in with the iSCSI host that is connected to the target port, the performance information of each IP address is displayed.

IOPS

The performance information from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave
 - The average I/O count per second is displayed.
- Min

The minimum I/O count per second is displayed.

- Max

The maximum I/O count per second is displayed.

Throughput

The transfer data size from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave
 - The average data transfer size per second is displayed.
- Min
 - The minimum data transfer size per second is displayed.
- Max
 - The maximum data transfer size per second is displayed.
- Delay Time
 - Total

The total delay time for executing a command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed. If the total delay time exceeds the maximum value, "Overflow" is displayed.

- Ave

The average delay time per command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

Host LUN Performance

The performance information of each LUN is displayed for the specific host (when "All" is specified for the host, all of the hosts) that is connected to the port.

 Host LUN The host LUN is displayed.

- 0 - 1023

• Volume Name

The volume name is displayed.

IOPS

The performance information from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave

The average I/O count per second is displayed.

- Min

The minimum I/O count per second is displayed.

- Max

The maximum I/O count per second is displayed.

Throughput

The transfer data size from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave

The average data transfer size per second is displayed.

- Min
 - The minimum data transfer size per second is displayed.
- Max

The maximum data transfer size per second is displayed.

- Delay Time
 - Total

The total delay time for executing a command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed. If the total delay time exceeds the maximum value, "Overflow" is displayed.

- Ave

The average delay time per command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

5.7.2 LUN Group : LU QoS Group Detail

The bandwidth limit for each LUN is displayed.

Connectivity	LUN Group UN Group U QoS Group	ap : LU QoS Gro LUNG ap No. 0	2items 14 (1/1 pages))()	, in the second se	Target 0
Construction Construction	UN Group U QoS Group	LUNG Ip No. 0	2 items + + 1/1 pages > ++		
LUN Group Host Response CA Resel Group Bost LUOQS Host LUOQS Host LUOQS	U QoS Group	p No. 0	2items H → 1/1 pages → H		
Host Response CA Reset Group Host-LU Cos Host-LU Cos Host Cos Host Cos	lost LUN N		2 items + + 1/1 pages >>+		
Host-LU QoS	lost LUN N			1 page Go	
Those and a		lame	Bandwidth Limit		
Port QoS	V	/olumeName000	15000 IOPS (800 MB/s)	^	
LU QoS Group	V	/olumeName001	12600 IOPS (700 MB/s)	~	
🖲 🔛 NAS	<			2	

The following items are displayed in the Main area:

• LUN Group

The LUN group name is displayed. If the ETERNUS CLI command ("set mapping") is used for LUN mapping, a "-" (hyphen) is displayed.

• LU QoS Group No.

The LU QoS group number is displayed between 0 and 1055. If a LU QoS group number is not configured, a "-" (hyphen) is displayed.

• Host LUN

The host LUN number is displayed.

• Name

The volume name is displayed.

Bandwidth Limit

The maximum performance is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

5.7.3 Host QoS (Basic)

Follow the message in the Information area to configure a bandwidth limit on each host.

Category	Host QoS	» Action
Connectivity	▼ Information	Target: 0
 Prost Group Proft Group LUN Group Host Response CA Reset Group CA Reset Group CA Reset Group CA Reset Group COS Cost COST Cost COST	Please click host type on the category tree and then select hosts to set Host QoS.	~

5.7.4 FC/FCoE Host QoS

The bandwidth limit of the FC/FCoE hosts that are registered in the ETERNUS DX/AF is displayed.

🔵 Note

This function displays all the hosts that are registered in the ETERNUS DX/AF regardless of whether the hosts belong to host groups or not.

Category	FC/FCoE Host	QoS			» Action
E 🤐 Connectivity		50 iten	15 I< < 1/1 pages >> >I	1 page Go A	Target 0
Host Group Port Group	Name	WWN	Bandwidth Limit		X Set FC/FCoE Host GoS
LUN Group	HOST 000	6162636430303030	Unlimited	10	
CA Reset Group	HOST_001	6162636430303031	Unlimited	^	
E Host-LU QoS	HOST_002	6162636430303032	Unlimited		
FC/FCoE	HOST_003	6162636430303033	Unlimited		
SCSI	HOST_004	6162636430303034	Unlimited		
Port QoS DI UL DoS Group	HOST_005	6162636430303035	Unlimited		
I NAS	HOST_006	6162636430303036	Unlimited		
	HOST_007	6162636430303037	Unlimited		
	HOST_008	6162636430303038	Unlimited		
	HOST_009	6162636430303039	Unlimited		
	HOST_010	6162636430303130	Unlimited		
	HOST_011	6162636430303131	Unlimited		
	HOST_012	6162636430303132	Unlimited		
	HOST_013	6162636430303133	Unlimited		
	HOST_014	6162636430303134	Unlimited		
	HOST_015	6162636430303135	Unlimited		
	HOST_016	6162636430303136	Unlimited		
	HOST_017	6162636430303137	Unlimited	Y	
	-<			>	

The following items are displayed in the Main area:

- Name The FC/FCoE host name is displayed.
- WWN The FC/FCoE host WWN is displayed.
- Bandwidth Limit

The maximum performance of the FC/FCoE host is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

5.7.5 iSCSI Host QoS

The bandwidth limit of the iSCSI hosts that are registered in the ETERNUS DX/AF is displayed.

🔵 Note

This function displays all the hosts that are registered in the ETERNUS DX/AF regardless of whether the hosts belong to host groups or not.

Category	iSCSI Host QoS	iSCSI Host QoS								
🗉 🧰 Connectivity		10 ite	ems i e e 1	1 pages > >i	1 page Go A	Target 0				
Host Group Port Group	Name	IP Version	IP Address	Bandwidth Limit		X Set ISCSI Host QoS				
Host Response	ISCSI-HOST_000	IPv4	192.168.0.0	Unlimited	1					
CA Reset Group	ISCSI-HOST_001	IPv4	192.168.0.1	Unlimited	-					
	SCSI-HOST_002	IPv4	192.168.0.2	Unlimited						
FC/FCoE	ISCSI-HOST_003	IPv4	192.168.0.3	Unimited						
SC51	iscsi-Host_004	IPv4	192.168.0.4	Unlimited						
+ Port QoS	ISCSI-HOST_005	IPv4	192.168.0.5	Unlimited						
I AS	iscsi-HOST_006	IPv4	192.168.0.6	Unlimited						
	iscsi-Host_007	IPv4	192.168.0.7	Unimited						
	iscsi-HOST_008	IPv4	192.168.0.8	Unimited	~					
	IT ISCSLHOST 009	IPv4	197 168 0 9	Unimited						
					4					

The following items are displayed in the Main area:

• Name

The iSCSI host name is displayed.

IP Version

The IP version of the iSCSI host is displayed.

• IP Address

The IP address of the iSCSI host is displayed.

Note that the IPv6 address is displayed as an abbreviation. Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.

If the IP address is not set, the field is blank.

Bandwidth Limit

The maximum performance of the iSCSI host is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

5.7.6 SAS Host QoS

The bandwidth limit of the SAS hosts that are registered in the ETERNUS DX is displayed.

┝ Caution

The ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/ AF650, and the ETERNUS DX200F do not support this function.

🔵 Note

This function displays all the hosts that are registered in the ETERNUS DX regardless of whether the hosts belong to host groups or not.

Category	SAS Host Qo	» Action			
Connectivity		Target 0			
E Port Group	Name	SAS Address	Bandwidth Limit		X Set SAS Host QoS
Host Response	HOST_001	6162636430303031	Unlimited		
CA Reset Group	HOST_003	6162636430303033	Unlimited	-	
Host-LU QoS	HOST_005	6162636430303035	Unlimited		
FC/FCoE	HOST_007	6162636430303037	Unlimited		
ISCSI	HOST_009	6162636430303039	Unlimited	_	
Port QoS	HOST_011	6162636430303131	Unlimited		
LU QoS Group	HOST_013	6162636430303133	Unlimited		
🗉 🧰 NAS	HOST_015	6162636430303135	Unlimited		
	HOST_017	6162636430303137	Unlimited		
	HOST_019	6162636430303139	Unlimited		
	HOST_021	6162636430303231	Unlimited		
	HOST_023	6162636430303233	Unlimited		
	HOST_025	6162636430303235	Unlimited		
	HOST_027	6162636430303237	Unlimited		
	HOST_029	6162636430303239	Unlimited		
	HOST_031	6162636430303331	Unlimited		
	HOST_033	6162636430303333	Unlimited		
	HOST_035	6162636430303335	Unlimited	~	
	<			>	

The following items are displayed in the Main area:

Name

The SAS host name is displayed.

SAS Address

The SAS address of the SAS host is displayed.

• Bandwidth Limit

The maximum performance of the SAS host is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

5.7.7 Port QoS (Basic)

Follow the message in the Information area to configure a bandwidth limit on each port.

Category	Port Qo5		Action	
Connectivity	▼ Information	~	Target 0	
 Host Group Host Group LUN Group Host Response CA Reset Group Host LODS Host LODS Host Coss Host Coss SCSI FCoE SCSI COE LU GoS Group NAS 	Please click port type on the category tree and then select ports to set Port QoS.			

5.7.8 FC Port QoS

This function displays the bandwidth limit and the performance information of the FC ports that are registered in the ETERNUS DX/AF.

Note

- The ports with "CA" or "CA/RA" as the port mode that are registered by the ETERNUS DX/AF are displayed regardless of whether the ports belong to CA port groups or not.
- This function displays the performance information that is obtained during performance monitoring regardless of whether the QoS mode is enabled or disabled. When the performance information is displayed before stopping performance monitoring, the performance information that is obtained from the start time until the time when displaying the performance information is requested is displayed. This function displays the performance information of each port.

Category	* Action							
🗉 🤐 Connectivity			Target 0					
Host Group Port Group					Performance Monitoring			Set FC Port QoS
Host Response		Port	Type	Bandwidth Limit	State	Start Time	Stop / Ca	Stop Perfmon
CA Reset Group		CM#0 CA#0 Port#0	FC	Unlimited	Stopped	2012-02-03 04:05:06	2012- 🔨	
Host-LU QoS		CM#0 CA#0 Port#1	FC	Unlimited	Active	2012-02-03 04:05:06	2012- V	
E C Port QoS	<						>	
FCoE								
LU QoS Group								
🗉 🧰 NAS								
							2	

The following items are displayed in the Main area:

• Port

The location information of the target port is displayed.

Type

The port type (fixed to "FC") is displayed.

• Bandwidth Limit

The maximum performance of the target port is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

- Performance Monitoring
 - State

The status of performance monitoring for the host is displayed.

- Active
- Stopped
- Start Time
- Stop / Collect Time

The start time and the end time for performance monitoring are displayed.

• YYYY-MM-DD hh:mm:ss (YYYY: Year (AD), MM: Month (01 - 12), DD: Date (01 - 31), hh: Hour (00 - 23), mm: Minute (00 - 59), ss: Second (00 - 59))

The displayed time varies depending on how the performance monitoring is started or ended.

- Before monitoring is started (*1) "State" for performance monitoring is "Stopped". "-" (hyphens) are displayed for "Start Time" and "Stop Collect Time".
- Monitoring is started

"State" for performance monitoring is changed from "Stopped" to "Active". The time when performance monitoring was started is displayed for "Start Time". The time when the performance information is obtained is displayed for "Stop / Collect Time".

- Monitoring is started while the monitoring session has already been started "State" for performance monitoring is "Active". The last time when performance monitoring was started is displayed for "Start Time". The time when the performance information is obtained is displayed for "Stop / Collect Time".
- Monitoring is stopped
 "State" for performance monitoring is changed from "Active" to "Stopped". The last time when
 performance monitoring was started is displayed for "Start Time". The time when performance
 monitoring is stopped is displayed for "Stop / Collect Time".
- Monitoring is stopped while the monitoring session has already been stopped "State" for performance monitoring is "Stopped". The last time when performance monitoring was started is displayed for "Start Time". The first time when performance monitoring was stopped is displayed for "Stop / Collect Time".
- *1: When performance monitoring is not being performed after the ETERNUS DX/AF is started.

When the start time is "0", "-" is displayed for "Start Time" and "Stop / Collect Time".

> Caution

If performance monitoring is restarted during an active performance monitoring session, the performance information that is already obtained is deleted and the collection of performance information starts again.

IOPS

The performance information from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave
 - The average I/O count per second is displayed.
- Min
 - The minimum I/O count per second is displayed.
- Max
 - The maximum I/O count per second is displayed.
- Throughput

The transfer data size from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

- Ave
 - The average data transfer size per second is displayed.
- Min
 - The minimum data transfer size per second is displayed.
- Max
 - The maximum data transfer size per second is displayed.
- Delay Time
 - Total

The total delay time for executing a command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed. If the total delay time exceeds the maximum value, "Overflow" is displayed.

- Ave

The average delay time per command from when performance monitoring is started until performance monitoring is ended (or performance information is displayed) is displayed.

5.7.9 iSCSI Port QoS

This function displays the bandwidth limit and the performance information of the iSCSI ports that are registered in the ETERNUS DX/AF.



- The ports with "CA" or "CA/RA" as the port mode that are registered by the ETERNUS DX/AF are displayed regardless of whether the ports belong to CA port groups or not.
- This function displays the performance information that is obtained during performance monitoring regardless of whether the QoS mode is enabled or disabled. When the performance information is displayed before stopping performance monitoring, the performance information that is obtained from the start time until the time when displaying the performance information is requested is displayed. This function displays the performance information of each port.

Category	iSCSI Port Qo	s					» Action
Connectivity		Target 0					
Host Group				Performance Monitoring		-	Start Partmon
Host Response	D Port	Type	Bandwidth Limit	State	Start Time	Stop	Stop Perfmon
CA Reset Group	CM#1 CA#1	Port#0 10G iSCSI	Unlimited	Stopped	2012-02-03 04:05:06	20 🔨	
Host-LU QoS	CM#1 CA#1	Port#1 10G iSCSI	Unlimited	Active	2012-02-03 04:05:06	20~	
E 🔂 Port QoS	<		and the second se			>	
FCoE							
E NAS							
						3	

The following items are displayed in the Main area:

• Port

The location information of the target port is displayed.

• Туре

The type of the target port is displayed.

- 1G iSCSI
 1Gbit/s iSCSI.
- 10G iSCSI
 10Gbit/s iSCSI.
- Bandwidth Limit

The maximum performance of the target port is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

- Performance Monitoring Refer to "Performance Monitoring" (page 285) for details.
- IOPS Refer to <u>"Performance Monitoring" (page 285)</u> for details.
- Throughput Refer to "Performance Monitoring" (page 285) for details.
- Delay Time Refer to "Performance Monitoring" (page 285) for details.

5.7.10 SAS Port QoS

This function displays the bandwidth limit and the performance information of the SAS ports that are registered in the ETERNUS DX.

┝ Caution

The ETERNUS DX500 S3/DX600 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/ AF650, and the ETERNUS DX200F do not support this function.

🔵 Note

- The ports that are registered by the ETERNUS DX are displayed regardless of whether the ports belong to CA port groups or not.
- This function displays the performance information that is obtained during performance monitoring regardless of whether the QoS mode is enabled or disabled. When the performance information is displayed before stopping performance monitoring, the performance information that is obtained from the start time until the time when displaying the performance information is requested is displayed. This function displays the performance information of each port.

Category	* Action							
Connectivity				4 items 14 (1/1	pages)	н 1 💭 рас	e Go A	Target 0
Host Group Port Group LUN Group Host Response		1200			Performance Monitoring			Set SAS Port QoS
		Port	Type	Bandwidth Limit	State	Start Time	Stop / Ce	Stop Perfmon
CA Reset Group		CM#0 CA#0 Port#0	SAS	Unlimited	Stopped	2012-02-03 04:05:06	2012-	
Host-LU QoS		CM#0 CA#0 Port#1	SAS	Unlimited	Active	2012-02-03 04:05:06	2012-	
E Port QoS		CM#1 CA#0 Port#0	SAS	Unlimited	Stopped	2012-02-03 04:05:06	2012-	
FC		CM#1 CA#0 Port#1	SAS	Unlimited	Active	2012-02-03 04:05:06	2012-	
	<						>	
							-	

The following items are displayed in the Main area:

Port

The location information of the target port is displayed.

Type

The type of the target port is displayed.

Bandwidth Limit

The maximum performance of the target port is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

- Performance Monitoring Refer to <u>"Performance Monitoring" (page 285)</u> for details.
- IOPS Refer to "Performance Monitoring" (page 285) for details.
- Throughput Refer to "Performance Monitoring" (page 285) for details.
- Delay Time Refer to "Performance Monitoring" (page 285) for details.

5.7.11 FCoE Port QoS

This function displays the bandwidth limit and the performance information of the FCoE ports that are registered in the ETERNUS DX.

┝ Caution

The ETERNUS DX60 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F do not support this function.

Note

- The ports that are registered by the ETERNUS DX are displayed regardless of whether the ports belong to CA port groups or not.
- This function displays the performance information that is obtained during performance monitoring regardless of whether the QoS mode is enabled or disabled. When the performance information is displayed before stopping performance monitoring, the performance information that is obtained from the start time until the time when displaying the performance information is requested is displayed. This function displays the performance information of each port.

Category	FCo	E Port QoS						» Action
E 🤷 Connectivity				2 items 14 (1/1	pages >	н 1 рас	e Go A	Target 0
Host Group Port Group	+ Host Group + Port Group		22		Performa	ance Monitoring		Set FCoE Port QoS Start Partmon
Host Response		Port	Type	Bandwidth Limit	State	Start Time	Stop / Ca	Stop Perfmon
CA Reset Group		CM#0 CA#0 Port#0	FCoE	Unlimited	Stopped	2012-02-03 04:05:06	2012- 🔨	
Host-LU QoS		CM#0 CA#0 Port#1	FCoE	Unlimited	Active	2012-02-03 04:05:06	2012- ¥	
E Port QoS	<			-			>	
FC FC								
FCOE								
LU QoS Group								
🗉 🚞 NAS								
							~	

The following items are displayed in the Main area:

• Port

The location information of the target port is displayed.

Type

The type of the target port is displayed.

Bandwidth Limit

The maximum performance of the target port is displayed in IOPS (throughput value). If the bandwidth limit has not been configured (the bandwidth has not been limited), "Unlimited" is displayed.

- Performance Monitoring Refer to <u>"Performance Monitoring" (page 285)</u> for details.
- IOPS Refer to <u>"Performance Monitoring" (page 285)</u> for details.
- Throughput Refer to "Performance Monitoring" (page 285) for details.
- Delay Time Refer to <u>"Performance Monitoring" (page 285)</u> for details.

5.7.12 LU QoS Group

A list of the registered LU QoS groups is displayed.

An LU QoS group is a group of the bandwidth limit (the maximum performance) configured for each Host LUN.

🔵 Note

By assigning a LU QoS group to a LUN group with the host affinity setting, the bandwidth limit can be configured for each LUN. Refer to "Set Host-LU QoS" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Connectivity Target:	Category	LU QoS Group			» Action
+ Hold Croup + Hold Croup - Port Group - LU QoS Group No. Status	Connectivity		7 items)((1/1 s	ages > > 1 = page Go	Target 0
ILUN Group □ 0 Active □ 0 Active ▲ □ CA Reset Group 1 Active ▲ □ Host LU CoS 2 Active ▲ □ Port CoS 3 Active ▲ □ NAS 5 Active ▲ □ Inactive ■ ■ Inactive ■	Host Group Port Group	10 005 Group No.	Status		+ Add LU QoS Group
■ Add Response ■ ■ ▲	LUN Group		Active	10	X Delete LU QoS Group
Image: Apple of the constraint of the const	CA Reset Group	0 1	Active	^	A moosy co dos croup
Image: Constraint of the second sec	Host-LU QoS	2	Active		
	Port QoS	3	Active		
NAS S Active 6 Inactive	LU QoS Group	4	Active		
6 Inactive	It NAS	5	Active		
		6	Inactive		
5 S		<		>	

The following items are displayed in the Main area:

- LU QoS Group No.
 - The LU QoS group number is displayed between 0 and 1055.
- Status

Whether a LU QoS group is assigned to a LUN group with the host affinity setting is displayed. "Host affinity setting" is to specify association between "Host", "CA Port" and "LUN Group".

- Active

The LU QoS group is assigned to a LUN group.

- Inactive

The LU QoS group is not assigned to a LUN group.

5.8 NAS

This function displays a list of shared folders that are used in a NAS environment. This function is displayed in a Unified Storage environment.

🕨 Caution

- The ETERNUS DX60 S3, the ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, the ETERNUS AF250/AF650, and the ETERNUS DX200F do not support this function.
- The display process for the shared folder list may be delayed for a maximum of two minutes while a meta cache redistribution is being performed for NAS volumes (NAS user volumes or NAS backup volumes).

🔵 Note

- A unified upgrade is necessary for an ETERNUS DX S3 series that will be used in a Unified Storage environment if it was previously used in a SAN environment. Note that "Maintenance Operation" policy is required to perform the unified upgrade. This function is added in the category after the unified upgrade is complete.
- Shared folders include home directories.
 "Home directory" is created for each user and is used as a dedicated folder that can be used freely by the user. Users that are authenticated by the Active Directory authentication server or the local user authentication use home directories with a CIFS connection.

Category	NAS								Action
E Gonnectivity			64 items	1/1 pa	ges > >	1	page G	0	Target 0
Host Group Port Group	No.	Shared Folder Name	Protocol	Shared Status	Process	Oplocks	Writable	v	+ Create Shared Folder
LUN Group		NasShare7300	CIFS	Online		Enable	Yes		Modify Shared Folder
CA Reset Group	1	homes	CIFS	Online	4	Enable	Yes	î	Clear NAS Data
Host-LU QoS	□ 2	NasShare7302	CIFS	Online	4	Enable	Yes		
NAS interface	3	NasShare7303	CIFS/NFS	Offline		Enable	Yes		
Quota Management	4	NasShare8600	NFS	O Offline		÷.	Yes		
E Meta Cache Distribut	5	NasShare8601	NFS	Online		-	Yes		
	6	NasShare8602	NFS	Online	4	1	Yes		
	□ 7	NasShare8603	NFS	Online	-	20	Yes		
	8	NasShare8604	CIFS	Online	đ	Enable	Yes		
	9	NasShare8605	CIFS	Online		Enable	Yes		
	10	NasShare8606	CIFS	Online	-	Enable	Yes		
	11	NasShare8607	CIFS/NFS	🥝 Online	-	Enable	Yes		
	12	NasShare8608	NFS	🥝 Online			Yes		
	13	NasShare8609	NFS	Online	-	-	Yes		
	14	NasShare0000	NFS	Online	÷	÷2	Yes		
	15	NasShare0001	NFS	Online	4	10	Yes	~	
< >	<	and the second se		-			;	> ~	

The following items are displayed in the Main area:

• No.

The shared folder number is displayed between 0 - 255.

Caution

When a NAS backup volume is restored, shared folder numbers that belong to the NAS backup volume targeted for restoration, may be changed. Use this function to check the shared folder number after restoration. Note that a shared folder number is not changed when the folder has not been restored.

• Shared Folder Name

The shared folder name is displayed.

For the home directory, "homes" is displayed in this item. User dedicated folders are created under the "homes" folder. For home directories, the following display items are fixed.

- Shared Folder Name

homes

- Protocol

- CIFS
- Writable

Yes

- Access Based Enumeration Disable
- NFS Allowed Hosts Blank
- CIFS Permissions Blank
- Protocol

The protocol for the shared folder is displayed.

- When the Windows CIFS protocol is used, "CIFS" is displayed
- When the UNIX NFS protocol is used, "NFS" is displayed
- When the Windows CIFS or the UNIX NFS protocol is used, "CIFS/NFS" is displayed
- Shared Status

The shared status is displayed.

- Online
 The folder is shared.
- Offline
 The folder is not shared.
- Other than above status.
- Process

A process that is being performed for the shared folder is displayed. If the NAS data is being deleted, "Clearing Data" is displayed. If no process is being performed, a "-" (hyphen) is displayed. Oplocks

When using the Opportunistic locking (Oplocks) function to avoid conflicts between files by locking the files in the shared folder, "Enable" is displayed. When this function is not used, "Disable" is displayed. A "-" (hyphen) is displayed when the protocol is "NFS".

Writable

When the write permission is specified for the shared folder, "Yes" is displayed. When the write permission is not specified, "No" is displayed.

Volume No.

The NAS user volume number (decimal) to which the shared folder belongs is displayed.

- Volume Name The NAS user volume name to which the shared folder belongs is displayed.
- Volume Total Capacity The total capacity of the NAS user volume to which the shared folder belongs is displayed between 400.00 GB - 128.00 TB.
- Volume Total Free Space The total free space in the NAS user volume to which the shared folder belongs is displayed between 0.00 MB - 128.00 TB.
- Owner

The owner of the shared folder is displayed.

- Group The group of the shared folder is displayed.
- SMB Encryption of Data Access

The current SMB encryption setting (enabled or disabled) for the data access is displayed. When SMB encryption is performed for data while accessing the shared folder, "Enable" is displayed. When data is not encrypted, "Disable" is displayed.

A "-" (hyphen) is displayed when the protocol is "NFS".

Access Based Enumeration

The current setting (enabled or disabled) for the enumeration based on the access permission is displayed. When shared folders and directories that cannot be accessed are hidden according to the access control list (ACL function), "Enable" is displayed. When inaccessible shared folders and directories are not hidden, "Disable" is displayed.

A "-" (hyphen) is displayed when the protocol is "NFS".

- CIFS Allowed Hosts A list of CIFS Allowed Hosts is displayed.
- CIFS Denied Hosts A list of CIFS Denied Hosts is displayed.
- NFS Allowed Hosts A list of NFS Allowed Hosts is displayed.

CIFS Permissions

The CIFS access permissions that are set for the shared folder is displayed. A "-" (hyphen) is displayed when the protocol is "NFS".

The CIFS access permissions are displayed in the following format.

- User name or group name [Type, Authority]

- Type
 - This item shows whether the displayed name is for user or group (u: User, g: Group).
- Authority

This item shows the access permission (r: Read Only, rw: Read/Write) for the displayed name. "Read/Write" indicates that reading from and writing to the shared folder is allowed. "Read Only" indicates that the shared folder is read only.

• If "Everyone" is displayed as the group name, the specified authority is applied to all users and groups. In this case, "Type" is omitted.

[Example]

- aaa000 [u, rw]

Type is "User", name is "aaa000", and authority is "Read/Write".

- group0 [g, r]

Type is "Group", name is "group0", and authority is "Read Only".

- Everyone [rw]

Type is "Everyone" and authority is "Read/Write".

🔵 Note

- User and group are user information that is managed in the Active Directory authentication server.
- "Read/Write" is given priority over "Read Only".
 - If "Read Only" is specified for UserA and "Read/Write" is specified for GroupA in which UserA is a part of, "Read/Write" is set for all users in GroupA including UserA.
 - If "Read/Write" is specified for UserA and "Read Only" is specified for GroupA in which UserA is a part of, "Read/Write" is set for UserA and "Read Only" is set for other users in GroupA excluding UserA.
 - If "Everyone" is selected for the CIFS access permission type, the authority is set with the same conditions as when "Read/Write" or "Read Only" is set to all groups in the ETERNUS DX.

5.8.1 NAS Interface

This function displays a list of the NAS interfaces. This function is displayed in a Unified Storage environment.

Category	NAS	i Inte	erface				» Action
Connectivity				6 Items 14	(1/1 pages)	H I 1 page Go A	Target 0
E Port Group		No.	IP Address	Subnet Mask	Gateway	IPv6 Link Local Address	+ Create
Host Response		0	-	-	-	fe80::100:220:300:321	> Modify
CA Reset Group		1	192.168.0.100	255.255.255.250	192.168.110.101	-	
Host-LU QoS		2	192.168.10.102	255.255.255.0	192.168.0.20		
NAS Interface		3	192.168.110.103	255.255.255.0	192.168.0.30		
Environment Setting		4	192.168.0.14	255 255 255 0	192.168.0.40	fe80::100:220:300:322	
		5	192.168.0.4	255.255.255.0	192.168.0.50	1234 6789 1234 6789 1234 6	
	<	-				>	
						~	
< >							

The following items are displayed in the Main area:

- No. The NAS interface number is displayed 0 - 159.
- IP Address The IPv4 address of the target port is displayed.
- Subnet Mask The subnet mask of the target port is displayed.
- Gateway The IPv4 gateway address of the target port is displayed.
- IPv6 Link Local Address The IPv6 link local address of the target port is displayed.
- IPv6 Connect IP Address The IPv6 connect IP address of the target port is displayed.
- IPv6 Prefix length Whether the Routing Information Protocol (RIP) setting is enabled or disabled is displayed. When this setting is enabled, the network settings are simplified.
- IPv6 Gateway The IPv6 gateway address of the target port is displayed.
- RIP Setting Whether the Routing Information Protocol (RIP) setting is enabled or disabled is displayed.
- VLAN ID The VLAN ID of the target port is displayed.
 If the VLAN ID is not specified, a "-" (hyphen) is displayed.
- Port

The location information of the port with the NAS interface setting is displayed.

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The location information of the pair port, which configure multipath setting with the target port, is displayed.

If the redundant port is not specified, a "-" (hyphen) is displayed.

Failover Status

The failover status of the multipath is displayed.

- A "-" (hyphen) is displayed when the multipath is not set (or when "Redundancy" is "Single").
- Normal
 - The multipath setting between the "Port" and "Redundant Port" is in a normal state.
- CM#x CA#y Port#z is currently inactive

The multipath between the "Port" and "Redundant Port" is set, but the "CM#x CA#y Port#z" port is not used.

Redundancy

The connection type of the target port is displayed.

When the connection type is "Active-Active" or "Active-Standby", the "Redundant Port" information is displayed.

- Active-Active

Combine the ports in both of the CMs and configure the redundant ports. For this configuration, the ports of both CMs can be used at any time.

- Active - Standby

Combine the ports in both of the CMs and configure the redundant ports. For this configuration, one port remains in standby status.

- Single

Use only for the ports in the CM that are not redundant.

5.8.2 Environment Settings

This function displays the setup information of the servers (NAS servers, DNS servers, and authentication servers) and the local user authentication that is used for the NAS system. This function is displayed in a Unified Storage environment.

🔵 Note

- The local user authentication cannot be used when an Active Directory authentication server or an LDAP authentication server is used. In this case, the setting item names are displayed in the [Local User] tab and the [Local Group] tab, but all contents are blank.
- If the local user authentication is used, an Active Directory authentication server and an LDAP authentication server cannot be used. In this case, the setting item names are displayed for the Active Directory authentication server and the LDAP authentication server, but all contents are blank.

When an Active Directory authentication server or an LDAP authentication server is used

Category	Environment Settings			» Action
🗉 🤷 Connectivity	▼ NAS Server		~	Target 0
Host Group Port Group	Name	NASSERVER012345		Change NAS Server Name
LUN Group	▼ DNS Server			Set DNS Server
CA Reset Group	Primary IP Address	192.168.100.100		di Add Local Liner
I Gal Host-LU QoS	Secondary IP Address	192.168.100.101		- Print Local Contr
🗏 🤤 NAS	IPv6 Primary IP Address	2001:0123:4567:89ab.cdef.0123:4567:89ab		X Delete Local User
NAS Interface	IPv6 Secondary IP Address	2001:0123:4567:89ab:cdet:0123:4567:cdef		Modify Local User
Quota Management	Aberta Ar and			- Add Local Group
Meta Cache Distribu	 Active Directory Auth 	entication Server		X Delete Local Group
2006/01/2	Domain Name	ADDomainName		
	Domain Administrator	ADAdminName		
	Authentication Server (1)	192.168.100.101		
	Authentication Server (2)	ADServerName2		
	Authentication Server (3)	ADServerName3		
	▼ LDAP Authentication	Server		
	Domain Name	LDAPDomain		
	Domain Administrator	LDAPAdminName		
	Authentication Server (1)	192.168.100.102		
	Authentication Server (2)	LDAPServerName2		
	Authentication Server (3)	LDAPServerName3		
	Local User Local Gro	up		
	ID Name Primary Gr	oup Secondary Group(s)		
	<	Sent on sonn t	>	
			~	

When a local user authentication is used (Add Local User)

Category	Environment Set	tings			Action
Connectivity	▼ NAS Server			,	Target 0
+ Bost Group	Name	NASS	ERVER012345		Change NAS Server Name
LUN Group	▼ DNS Server				Set DNS Server
CA Reset Group	Primary IP Address	192.1	58.100.100		Sei Aurienacason Server
E Host-LU QoS	Secondary IP Addre	192.1	58.100.101		Add Local User
🗏 🔤 NAS	IPv6 Primary IP Add	Iress 2001:	0123:4567:89ab:cdef:0123:4567:89ab		X Delete Local User
NAS Interface	IPv6 Secondary IP Address	2001:	0123:4567:89ab:cdef.0123:4567:cdef		Modify Local User
Quota Management Meta Cache Distribut	 Active Director 	y Authenticati	on Server		X Delete Local Group
2000	Domain Name				
	Domain Administra	tor			
	Authentication Serv	er (1)			
	Authentication Serv	rer (2)			
	Authentication Serv	er (3)			
	▼ LDAP Authenti	cation Server			
	Domain Name				
	Domain Administrat	tor			
	Authentication Serv	er (1)			
	Authentication Serv	ver (2)			
	Authentication Serv	er (3)			
	Local User Lo	cal Group			
	D ID Name	Primary Group	Secondary Group(s)		
	500 userA	groupA	14) (10) (10) (10) (10) (10) (10) (10) (10	^	
	501 userB	groupB	2	~ ~	/
(

When a local group authentication is used (Add Local Group)

Category	Env	ironm	ent Settings				» Action
E Gonnectivity	IPv	6 Drima	rv ID Address 2001	0123 4567 80ah rdef 0123 4567 89ah		~	Target 0
Host Group Port Group	IPv Ade	6 Secondress	ndary IP 2001	0123:4567:8Bab:cdef.0123:4567:cdef			Change NAS Server Name Set DNS Server
Host Response	•	Active	Directory Authenticat	ion Server			Set Authentication Server
CA Reset Group	Do	main Na	ume				+ Add Local User
E ANAS	Do	main Ac	Iministrator				X Delete Local User
NAS Interface	Aut	thentica	ition Server (1)				Modify Local User
Environment Setting	Aut	thentica	ition Server (2)				Add Local Group
Cuota Management	Aut	thentica	tion Server (3)				
Meta Cache Distribut		LDAP	Authentication Server				X Delete Local Group
	Do	main Na	ume				
	Do	main Ac	Iministrator				
	Aut	thentica	tion Server (1)				
	Aut	thentica	tion Server (2)				
	Aut	thentica	tion Server (3)				
	1	ocal U	er Local Group				
		ID	Name	User(s) who belongs to a Primary Group	User(s) who t		
		600	groupA	userA			
		601	groupB	userB			
		602	groupC	*)			
		1002	BUILTIN_Administrator	1 +			
		1003	BUILTIN_Users	-	-		
		1004	BUILTIN_BackupOpera	tors +	-		
	<	1			>	Y	

The following items are displayed in the Main area:

- NAS Server
- Name The NAS server name is displayed.
- DNS Server
- Primary IP Address
 The IPv4 primary IP address of the DNS server is displayed.

 If the relevant IP address is not specified, the field is blank.
- Secondary IP Address
 The IPv4 secondary IP address of the DNS server is displayed.

 If the relevant IP address is not specified, the field is blank.
- IPv6 Primary IP Address The IPv6 primary IP address of the DNS server is displayed. If the relevant IP address is not specified, the field is blank.
- IPv6 Secondary IP Address The IPv6 secondary IP address of the DNS server is displayed. If the relevant IP address is not specified, the field is blank.
- Active Directory Authentication Server
- Domain Name The domain name of the Active Directory authentication server is displayed. If the authentication server is not specified, the field is blank.
- Domain Administrator
 - The administrator name of the Active Directory authentication server is displayed. If the authentication server is not specified, the field is blank.

- Authentication Server (1) The IPv4 address, IPv6 address, or the FQDN of the Active Directory authentication server is displayed. If the Authentication Server (1) is not specified, the field is blank.
- Authentication Server (2) The IPv4 address, IPv6 address, or the FQDN of the Active Directory authentication server is displayed. If the Authentication Server (2) is not specified, the field is blank.
- Authentication Server (3)

The IPv4 address, IPv6 address, or the FQDN of the Active Directory authentication server is displayed. If the Authentication Server (3) is not specified, the field is blank.

LDAP Authentication Server

- Domain Name The domain name of the LDAP authentication server is displayed. If the authentication server is not specified, the field is blank.
- Domain Administrator The administrator name of the LDAP authentication server is displayed. If the authentication server is not specified, the field is blank.
- Authentication Server (1)

The IPv4 address, IPv6 address, or the FQDN of the LDAP authentication server is displayed. If the Authentication Server (1) is not specified, the field is blank.

- Authentication Server (2) The IPv4 address, IPv6 address, or the FQDN of the LDAP authentication server is displayed. If the Authentication Server (2) is not specified, the field is blank.
- Authentication Server (3) The IPv4 address, IPv6 address, or the FQDN of the LDAP authentication server is displayed. If the Authentication Server (3) is not specified, the field is blank.
- Local User
- ID

The user ID of the local user is displayed.

If the local user authentication that has been supported by controller firmware versions V10L51 and earlier is used, "450" is displayed.

If the local user is not registered in the ETERNUS DX, the field is blank.

Name

The local user name is displayed.

If the local user authentication that has been supported by controller firmware versions V10L51 and earlier is used, "shareuser\$" is displayed.

If the local user is not registered in the ETERNUS DX, the field is blank.

Primary Group

The primary group name to which the local user belongs is displayed. If the local user is not registered in the ETERNUS DX, the field is blank.

Secondary Group(s)

The secondary group names to which the local user belongs are displayed. If multiple secondary groups exist, all factors are separated with a "," (comma) and displayed. If no secondary group name exists, a "-" (hyphen) is displayed.

If the local user is not registered in the ETERNUS DX, the field is blank.

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🔵 Local Group

• ID

The group ID for the local group is displayed. For details about group IDs for local groups that are automatically created in the ETERNUS DX, refer to "Special group" (page 300).

Name

The local group name is displayed.

For details about group names for local groups that are automatically created in the ETERNUS DX, refer to "Special group" (page 300).

- User(s) who belongs to a Primary Group
 The local user names that belong to the primary group are displayed.
 If multiple local user names exist, all factors are separated with a "," (comma) and displayed. If no local user name exists, a "-" (hyphen) is displayed.
 If the local user is not registered in the ETERNUS DX, the field is blank.
- User(s) who belongs to a Secondary Group
 The local user names that belong to the secondary group are displayed.
 If multiple local user names exist, all factors are separated with a "," (comma) and displayed. If no local user name exists, a "-" (hyphen) is displayed.
 If the local user is not registered in the ETERNUS DX, the field is blank.

Special group

Local group ID	Local group name	Description
450	shareuser\$	The local user "shareuser\$" belongs to this group. This group is automatically created when the controller firmware is updated from controller firmware version V10L51 or earlier while the authentication server is not being used (or all users share the same fixed user account) to V10L53 or later. Regular local users can also belong to this group.
451	sharegroup\$	The initial primary group to which the created local users belong. This group is automatically created when local users are created. If all local users that belong to this group are deleted, this group is automatically deleted. If the local user "shareuser\$" is deleted and then added again, the recreated "shareuser\$" belongs to this group.
1002	BUILTIN_Administrators	One of the BUILTIN groups (*1). Users who belong to this group can execute all operations for all domain controllers within the domain.
1003	BUILTIN_Users	One of the BUILTIN groups (*1). Users who belong to this group can execute most of the general operations.
1004	BUILTIN_BackupOperators	One of the BUILTIN groups (*1). Users who belong to this group can perform file backups and file recoveries regardless of the access permissions for all the files of domain controllers within the domain.

*1: "BUILTIN groups" are groups that are included in the ETERNUS DX as standard. If local users belong to these groups, the backup software "Arcserve Backup" can be used to back up or restore files by using the ETERNUS DX as a backup device.

5.8.3 Quota Management

The list of quota setting information is displayed.

Quota is a function that limits drive space or the number of files used on a NAS user volume or a shared folder to prevent the depletion of resources in the ETERNUS DX. There are two types of thresholds ("Warning" and "Limit").

This function is displayed in a Unified Storage environment.

Caution

- Quotas for NAS user volumes are set for users or groups that are registered in the authentication server. When using this function, registering the users or groups in the authentication server in advance is necessary.
- Quotas for shared folders are set for shared folders that are registered in the ETERNUS DX. Create the shared folders in advance. Refer to "Create Shared Folder" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

Shared folders include home directories.

🗉 📔 Host Group	1000	#Eilter setting										
Port Group LUN Group Host Response		Add Quota Setting Add Quota Setting Modify Quota Setting										
CA Reset Group Host-LU QoS				5 item	ts ∺ ∢ 1/1 p	ages ≻ H [1 🗢 pa	ge Go				
 NAS NAS Interface Environment Setting: Otoga Management Meta Cache Distribut 		Volume No.	Volume Name	Type	Name	Used Status	Drive Space					
	100						Used Size	Used Rat				
		73	VolumeName073	User	user1	Normal	1.00 MB	~				
		73	VolumeName073	Group	group1	Normal	3.00 MB					
1		73	VolumeName073	Share	homes	Normal	5.00 MB					
1		73	VolumeName073	Share	NasShare7301	Normal	3.00 MB					
		86	VolumeName086	User	user1	Normal	5.00 MB	~				
	<							>				

The following items are displayed in the Main area:

• Volume No.

The volume number of the quota setting target volume is displayed.

Volume Name

The name of the quota setting target volume is displayed.

• Type

The quota target type is displayed.

- User
- Group
- Share

Name

The quota target user name, group name, or shared folder name is displayed. For the home directory, "homes" is displayed for this item.

Used Status

The use state for the quota target drive space or file count is displayed.

If the drive space use state and the file count use state do not match, the use state is displayed according to the priority.

- 🧭 Normal

Normal status (The usage is below the warning value. If the warning value is not specified, the usage is below the limit value.)

- 📥 Warning

The usage has exceeded the warning value but is below the limit value.

- Exceeded
 The usage has exceeded the limit value.
- Unknown
 Other than above.

The priority for the use state is "② Unknown" > "ऄ Exceeded" > "▲ Warning" > "◇ Normal".

• Drive Space

The usage amount of the drive is displayed.

- Used Size

The current drive usage amount is displayed.

If no quota target user or group is registered in the authentication server, or if the usage amount cannot be obtained, a "-" (hyphen") is displayed.

🔵 Note

The usage amount is displayed with the largest unit (TB/GB/MB) after rounding off to two decimal places. For example, if the usage amount in the ETERNUS DX is "1572864000 KB", "1.46 TB" is displayed.

```
- Used Rate
```

The usage rate of the drive usage limit value is displayed between 0 - 100%. Used Rate = Used Size / Limit

A "-" (hyphen) is displayed in the following conditions:

- The limit value is not specified
- No quota target user or group is registered in the authentication server
- The used size cannot be obtained

Note

For the used rate, the result of the division is rounded up to two decimal places. If the used rate is larger than "0" but smaller than or equal to "1", "1 %" is displayed.

- Warning

The drive usage warning value is displayed.

If not specified, "Not Specified" is displayed. If the warning value cannot be obtained, a "-" (hyphen) is displayed.

🔵 Note

The warning value is displayed with the largest unit (TB/GB/MB) after rounding off to two decimal places. Refer to the Note of <u>"Used Size" (page 302)</u> for details.

- Limit

The drive usage limit value is displayed.

If not specified, "Not Specified" is displayed. If the limit value cannot be obtained, a "-" (hyphen) is displayed.

Note

The limit value is displayed with the largest unit (TB/GB/MB) after rounding off to two decimal places. Refer to the Note of <u>"Used Size" (page 302)</u> for details.

File Count

The number of used files is displayed.

- Used Count

The current file count is displayed.

If no quota target user or group is registered in the authentication server, or if the used count cannot be obtained, a "-" (hyphen") is displayed.

Used Rate

The usage rate of the file count limit value is displayed between 0 - 100%. Used Rate = Used Count / Limit

A "-" (hyphen) is displayed in the following conditions:

- The limit value is not specified
- No quota target user or group is registered in the authentication server
- The used count cannot be obtained

🔵 Note

For the used rate, the result of the division is rounded up to two decimal places. If the used rate is larger than "0" but smaller than or equal to "1", "1 %" is displayed.

- Warning

The file count warning value is displayed.

If not specified, "Not Specified" is displayed. If the warning value cannot be obtained, a "-" (hyphen) is displayed.

- Limit

The file count limit value is displayed.

If not specified, "Not Specified" is displayed. If the limit value cannot be obtained, a "-" (hyphen) is displayed.

Filter setting

Filter	Description
Volume Name	Input the volume name that is to be displayed. When not using the volume name for filtering, leave this item blank.
Name	Input the user name, group name, or shared folder name of the quota target that is to be displayed. When not using the name for filtering, leave this item blank.
Used Status	Select the used state that is to be displayed.
Drive Used Size	Input the used size of the drive that is to be displayed. The quota setting information is displayed if the drive used size is larger than or equal to the specified value. When not using the drive used size for filtering, leave this item blank.
Drive Used Rate	Input the used rate of the drive that is to be displayed. The quota setting information is displayed if the drive used rate is larger than or equal to the specified value. When not using the drive used rate for filtering, leave this item blank.
File Used Count	Input the number of used files that is to be displayed. The quota setting information is displayed if the number of used files is greater than or equal to the specified value. When not using the file used count for filtering, leave this item blank.
File Used Rate	Input the used rate for the file that is to be displayed. The quota setting information is displayed if the file used rate is larger than or equal to the specified value. When not using the file used rate for filtering, leave this item blank.

5.8.4 Meta Cache Distribution

This function displays the setting state of the automatic meta cache distribution and the location of the meta cache.

"Meta cache" is a cache area in NAS for storing the management information of the file system. If the meta cache distribution is different from the initial location when the NAS volumes (NAS user volumes and the NAS backup volumes) are created, the meta cache is concentrated in one controller. In this case, the CM memory where the meta cache exists may become insufficient or the access performance to the NAS volumes from the CM without meta cache may be reduced.

This function is displayed in a Unified Storage environment.

Note

- To distribute the meta cache, using the [Initialize Meta Cache Distribution] function is recommended.
- The meta cache distribution can be initialized manually. Refer to "Initialize Meta Cache Distribution" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- The meta cache distribution can be initialized automatically. Refer to "Enable Automatic Meta Cache Distribution" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- Automatic meta cache distribution can be disabled. Refer to "Disable Automatic Meta Cache Distribution" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Category	Meta Cache	Distribution				Action
🗉 🧰 Connectivity	▼ Automatic	Meta Cache Dist	ribution		~	Target 0
Host Group Port Group	Automatic Met Distribution	Automatic Meta Cache Disable Disable				
Host Response	▼ Meta Cach	e Distribution Inf	ormation		-	Initialize Distribution
E Host-LU QoS	Volume N	o. Volume Name	Current Location	Initial Location		
🗏 🚰 NAS	3	NASVOLD	CM#1	CM#0	0	
NAS Interface	<				>	
< >					~	

The following items are displayed in the Main area:

- Automatic Meta Cache Distribution
- Automatic Meta Cache Distribution Whether the automatic meta ache distribution is enabled or not is displayed.
- Meta Cache Distribution Information
- Volume No. The NAS volume number is displayed.
- Volume Name The NAS volume name is displayed.
- Current Location
 The current meta cache distribution is displayed.
 When the distribution information cannot be obtained, a "-" (hyphen) is displayed.
- Initial Location
 The location of the meta cache when the NAS volume was created is displayed.
 When the distribution information cannot be obtained, a "-" (hyphen) is displayed.

Chapter 6 RAID Group Status

RAID group status displays the status information of volumes.

RAID group status screens can be displayed by clicking the following categories:

Category	RAID group status screen
RAID Group	RAID Group (Basic Information)
Tuning	Tuning
Eco-mode Schedule	Eco-mode Schedule (RAID Group)
SED Key Group	SED Key Group

Detailed information of the RAID groups can be displayed from the following screens:

- RAID Group Detail (Basic)
- RAID Group Detail (Volume Layout)
- RAID Group Detail (Drives)

6.1 RAID Group (Basic Information)

This function displays the basic information of RAID groups.

Image: Status: All Catoxis Image: Status: Status: Image: Status: Usage Image: Analizable Image: Status: Image: <td< th=""><th>Image: Status: All Catols: Turing Common Schedule Filter: Clear SED Key Group Name: Status: All RAID Level: All Minimum Total Free Space: Process.All SED Key Group Sitems H < 1/1 pages > H []] page Go Name: Status: All RAID Level: All Minimum Total Free Space: Process.All B ALDName000 Available 2 RAIDName001 Available 3 RAIDName001 Available 4 RAIDName001 Available Available TPP Mirroring (RAID0) 64 50 Gi 4 RAIDName001 Available Available TPP Mirroring (RAID1) 10.01 Gi</th><th>Category</th><th>RAID Grou</th><th>Action</th></td<>	Image: Status: All Catols: Turing Common Schedule Filter: Clear SED Key Group Name: Status: All RAID Level: All Minimum Total Free Space: Process.All SED Key Group Sitems H < 1/1 pages > H []] page Go Name: Status: All RAID Level: All Minimum Total Free Space: Process.All B ALDName000 Available 2 RAIDName001 Available 3 RAIDName001 Available 4 RAIDName001 Available Available TPP Mirroring (RAID0) 64 50 Gi 4 RAIDName001 Available Available TPP Mirroring (RAID1) 10.01 Gi	Category	RAID Grou	Action					
I runng Ecomode Schedule Ecomode Schedule Status: All RAID Level All Minimum Total Free Space: Process.All SED Key Group Status: All RAID Level All Minimum Total Free Space: Process.All No. Name: Status: Usege RAID Level Total Capacity Q RAIDName000 Q RAIDName000 Q RAIDName000 Q RAIDName000 Q RAIDName001 Q RAIDName002 Q RAIDName003 Q-valiable WSV Striping (RAID0) 64.50 G	Image Name: Status: All RAID Level All Minimum Total Free Space: Process.All SED Key Group Sitems M 4 1/1 pages M Total Capacity 0 BAIDName000 Available TPP High Capacity (RAID) 10.01 Gi 1 RAIDName001 Available WSV Striping (RAID) 64.50 Gi 2 RAIDName003 Available WSV Striping (RAID0) 64.50 Gi 4 RAIDName003 Available TPP Mirroring (RAID) 10.01 Gi	🗏 🤐 RAID Group	#Filter se	Target 0					
No. Name Status Usage RAID Level Total Capacity □ 0 BAIDName000 Available TPP High Capacity (RAID5) 10.01 Gi □ 1 BAIDName001 Available Standard Mirroring (RAID1) 32.25 Gi □ 2 BAIDName002 Available WSV Striping (RAID0) 64.50 Gi □ 3 BAIDName003 Available WSV Striping (RAID0) 64.50 Gi	Sitems I ≤ 4 11 pages M ≤ 1 € page Go No. Name Status Usage RAID Level Total Capacity Q BAIDName002 Available TPP High Capacity (RAID5) 10.01 Gl 1 RAIDName001 Available Standard Mirroring (RAID1) 32.25 Gl 2 RAIDName002 Available VSV Striping (RAID0) 64.50 Gl 3 RAIDName003 Available VSV Striping (RAID0) 64.50 Gl 4 RAIDName004 Available TPP Mirroring (RAID1) 10.01 Gl	Eco-mode Schedule SED Key Group	Name:	+ Create					
No. Name Status Usage RAID Level Total Capacity Q RAIDName000 Available TPP High Capacity (RAID5) 10.01 Gl Create Volume 1 RAIDName001 Available Standard Mirroring (RAID1) 32.25 Gl 2 RAIDName002 Available WSV Striping (RAID0) 64.50 Gl 3 RAIDName003 Available WSV Striping (RAID0) 64.50 Gl	No. Name Status Usage RAID Level Total Capacity 0 BAIDName000 QAvailable TPP High Capacity (RAID5) 10.01 Gi 1 RAIDName001 QAvailable Standard Mirroring (RAID1) 32.25 Gi 2 RAIDName002 QAvailable WSV Striping (RAID0) 64.50 Gi 3 RAIDName001 QAvailable WSV Striping (RAID0) 64.50 Gi 4 RAIDName001 QAvailable TPP Mirroring (RAID1) 10.01 Gi				5 items	11 4 17	1 pages > > >	1 page Go	Rename
Q RAIDName000 Available TPP High Capacity (RAID5) 10.01 GI Create Volume 1 RAIDName001 Available Standard Mirroring (RAID1) 32.25 GI 2 RAIDName002 Available WSV Striping (RAID0) 64.50 GI 3 RAIDName003 Available WSV Striping (RAID0) 64.50 GI	Q BÁIDXame020 Available TPP High Capacity (RAID5) 10.01 Gives Create Volume 1 BAIDName021 Available Standard Minoring (RAID1) 32.25 Gives Create Volume 2 RAIDName021 Available WSV Striping (RAID0) 64.50 Gives Gives Gives 4 BAIDName024 Available WSV Striping (RAID1) 10.01 Gives Gives		No.	Name	Status	Usage	RAID Level	Total Capacity	Expand
1 BAIDName001 QAvailable Standard Mirroring (RAID1) .32.25 Gi 2 BAIDName002 QAvailable WSV Striping (RAID0) .64.50 Gi 3 BAIDName002 QAvailable WSV Striping (RAID0) .64.50 Gi	1 RAIDName001 Available Standard Mirroring (RAID1) 32.25 Gill 2 RAIDName002 Available WSV Striping (RAID0) 64.50 Gill 3 RAIDName003 Available WSV Striping (RAID0) 64.50 Gill 4 RAIDName004 Available TPP Mirroring (RAID1) 10.01 Gill			BAIDName000	Available	TPP	High Capacity (RAID5)	10.01 GI	Create Volume
2 RAIDName002 QAvailable WSV Striping (RAID0) 64:50 G 3 RAIDName003 QAvailable WSV Striping (RAID0) 64:50 G	2 RAIDName002 Available WSV Striping (RAID0) 64 50 Git 3 RAIDName003 Available WSV Striping (RAID0) 64 50 Git 4 RAIDName004 Available TPP Mirroring (RAID1) 10.01 Git			RAIDName001	Available	Standard	Mirroring (RAID1)	32.25 G	
3 RAIDName003 🖉 Available WSV Striping (RAID0) 64.50 G	2 RAIDName003 Available WSV Stripling (RAID0) 64.50 Gill 4 RAIDName004 Available TPP Mirroring (RAID1) 10.01 Gill		2	RAIDName002	Available	WSV	Striping (RAID0)	64.50 GI	
	A RAIDName004 Available TPP Mirroring (RAID1) 10.01 Gi		2	RAIDName003	Available	WSV	Striping (RAID0)	64.50 G	
4 RAIDName004 Ovailable TPP Mirroring (RAID1) 10.01 G				RAIDName004	Available	TPP	Mirroring (RAID1)	10.01 GI	
			<					>	
								~	·

The following items are displayed in the Main area:

• No.

The RAID group number is displayed. Click this item to display <u>"6.5 RAID Group Detail (Basic)" (page 318)</u>. The RAID group number is allocated when a volume is created from the smallest unused decimal number in ascending order.

Name

The RAID group name is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

Usage

The usage of the RAID group is displayed.

- Standard

A RAID group that is used for creating "Standard", "SDV", or "SDPV" type volumes

- Standard / WSV

A RAID group that is used for creating the following volumes:

- "WSV" and "Standard"
- "WSV" and "SDV"
- "WSV" and "SDPV"
- WSV
- A RAID group that is used for creating "WSV" type volumes
- TPP
 - A RAID group that belongs to a TPP
- FTRP
 - A RAID group that belongs to a Flexible Tier Pool (FTRP)
- RDB
 - A RAID group that is registered as an REC Disk Buffer
- Extreme Cache Pool A RAID group that is registered as an Extreme Cache Pool

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- Temporary
 - A RAID group that is temporarily created while LDE is being performed
- "-" (hyphen)
 - A RAID group that is not used
- RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Reliability (RAID5+0)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity

The total capacity of the RAID groups is displayed.

The capacity is displayed in units of "GB" or "TB". Even when volumes are created in units of "GB", if the volume capacity exceeds 1023.99GB, the capacity is displayed in units of "TB". The capacity is rounded off to two decimal places.

Total Free Space

The total free space in the RAID group is displayed.

If the total free capacity exceeds 1023.99MB, the capacity is displayed in units of "GB". If the total free capacity exceeds 1023.99GB, the capacity is displayed in units of "TB". The capacity is rounded off to two decimal places.

"Free space" means an area in the RAID group where no volume is created, and dispersed areas which became free by creating and deleting a volume.

• Controlling CM

The Controlling CM of the RAID group is displayed (x: CE number, y: CM number).

- For the ETERNUS DX8700 S3/DX8900 S3
- CE#x CM#y
- For the other models CM#y
- Process

A process that is being performed for the RAID group is displayed. If no process is being performed, a "-" (hyphen) is displayed.

- Recovering

Rebuild, copyback, redundant copy, or RAID group recovery is being performed.

- Expanding

Expansion of the RAID group by LDE is being performed.

- Formatting Formatting of the RAID group is being performed.

Filter setting

Filter	Description
Name	Input the RAID group name that is to be displayed. When not using the RAID group name for filtering, leave this item blank.
Status	Select the RAID group status that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.
Bottom of Total Free Space	Input the minimum capacity of unused free space for the RAID groups that are to be displayed and select the units of capacity. When the minimum free space of the RAID group is not used for filtering, specify "OMB".
Process	Select which current process for the RAID group is to be displayed.

6.2 Tuning

Category	Tun	ing	» Action						
🗉 🧰 RAID Group		Filter s	etting	Target 0					
Eco-mode Schedule		Name	X Modify RAID Group Para.						
				5 items	14 4 17	1 pages > H	1 page Go		
		No.	Name	Status	Usage	RAID Level	Total Capacity		
		0	BAIDName000	Available	TPP	High Capacity (RAID5)	10.01 GI		
		1	RAIDName001	Available	Standard	Mirroring (RAID1)	32.25 GI		
		2	RAIDName002	Available	WSV	Striping (RAID0)	64.50 GI		
	3 RAIDName003 Available WSV Striping (RAID0) 64.50 G						64.50 G		
	4		RAIDName004	Available	TPP	Mirroring (RAID1)	10.01 GI		
	<								

The RAID group tuning information is displayed.

The following items are displayed in the Main area:

• No.

The RAID group number is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

• Name

The RAID group name is displayed. Click this item to display <u>"6.5 RAID Group Detail (Basic)" (page 318)</u>.

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

• Usage

The usage of the RAID group is displayed.

- Standard
 - A RAID group that is used for creating "Standard", "SDV", or "SDPV" type volumes
- Standard / WSV

A RAID group that is used for creating the following volumes:

- "WSV" and "Standard"
- "WSV" and "SDV"
- "WSV" and "SDPV"
- WSV

A RAID group that is used for creating "WSV" type volumes

- TPP
- A RAID group that belongs to a TPP
- FTRP
 - A RAID group that belongs to an FTRP
- RDB

A RAID group that is registered as an REC Disk Buffer

- Extreme Cache Pool
 - A RAID group that is registered as an Extreme Cache Pool

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- "-" (hyphen)
 - A RAID group that is not used
- RAID Level
 - The RAID level is displayed.
 - High Performance (RAID1+0)
 - High Capacity (RAID5)
 - High Reliability (RAID6)
 - High Reliability (RAID6-FR)
 - Reliability (RAID5+0)
 - Mirroring (RAID1)
 - Striping (RAIDO)
- Total Capacity

The total capacity of the RAID groups is displayed.

Rebuild Priority

The rebuild priority of the RAID group is displayed.

When the Rebuild Priority is "Low", give priority to host access.

When the Rebuild Priority is "Middle", give the same priority as the host access to rebuild, copyback, and redundant copy.

When the Rebuild Priority is "High", give priority to rebuild, copyback, and redundant copy.

A "-" (hyphen) is displayed for the RAID group that is registered as an EXCP.

DCMF

The Drive Command Multiplying Factor (DCMF) is displayed.

If the DCMF is changed, the number of commands issued to the drive is increased in multiples of the DCMF set value (if DCMF is "2", it is double).

• Drive Access Priority

The drive access priority is displayed.

When "Response" is specified, responses to host I/O are given priority over throughput. When "Throughput" is specified, throughput is given priority over responses to host I/O. When the drives that configure the target RAID group are SSDs or SSD SEDs, a "-" (hyphen) is displayed.

Throttle

The throttle value is displayed.

Throttle is the proportion of the number of commands that are issued to a drive at the same time to the maximum number of commands that can be issued. When the throttle value is "100%", the maximum number of commands specified for each drive (the default number of commands) are issued. When "Drive Tuning Parameter Setting" of the [Modify RAID Group Parameters] function is disabled a "-"

When "Drive Tuning Parameter Setting" of the [Modify RAID Group Parameters] function is disabled, a "-" (hyphen) is displayed.

When logged in with a user account that has a default "Monitor" role, this item is not displayed.

Ordered Cut

Ordered Cut is displayed between 0 and 65535.

Ordered Cut is the number of commands for optimizing drive access processing (priority control). When Ordered Cut is "x", the command to perform the priority control is issued for every x commands issued, and priority control is performed for the command issued before this command.

When Ordered Cut is "0", the interval for priority control (priority control at every "x" commands) cannot be specified. All of the commands issued to the drive are processed according to their priority settings.

When "Drive Tuning Parameter Setting" of the [Modify RAID Group Parameters] function is disabled, or the configuration drive of the RAID group is SSD or SSD SED, a "-" (hyphen) is displayed.

When logged in with a user account that has a default "Monitor" role, this item is not displayed.

Caution

RAID groups in which LDE is being performed are not displayed in the list.

Filter setting

Filter	Description
Name	Input the RAID group name that is to be displayed. When not using the RAID group name for filtering, leave this item blank.
Status	Select the RAID group status that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.

6.3 Eco-mode Schedule (RAID Group)

This function displays the set state of the Eco-mode that is applied for the RAID group.

┝ Caution

The ETERNUS AF250/AF650 and the ETERNUS DX200F do not support this function.

Note

- To use the Eco-mode, follow the procedure in "Modify Eco-mode General Setting" and "Create Eco-mode Schedule" in "ETERNUS Web GUI User's Guide (Settings)" to perform the general Eco-mode setup and create an Eco-mode schedule.
- To assign the Eco-mode to a RAID group, refer to "Assign Eco-mode Schedule (RAID Group)" in "ETERNUS Web GUI User's Guide (Settings)".

Category	Eco	-mode	e Schedule						Action
E 🖴 RAID Group		liter s	etting				Filter Clear	-	Target: 0
Eco-mode Schedule		Name	Status:All R	AID Level All	Eco-mode	Schedule: Eco-m	ode Action:All		Assign Eco-mode
ED Key Group									
				3 items	14 4 17	1 pages → →	1 🖨 page	Go	
		No.	Name	Status	Usage	RAID Level	Total Capacity	Eco	
		0	RAIDName001	Available	Standard	Mirroring (RAID1)	32.25 GB	5	
		1	RAIDName002	Available	WSV	Striping (RAID0)	64.50 GB	s	
		2	RAIDName003	Available	WSV	Striping (RAID0)	64.50 GB	s	
	<								
								4	

The following items are displayed in the Main area:

• No.

The RAID group number is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Name

The RAID group name is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

Usage

The usage of the RAID group is displayed.

- Standard

A RAID group that is used for creating "Standard", "SDV", or "SDPV" type volumes

- Standard / WSV
 - A RAID group that is used for creating the following volumes:
 - "WSV" and "Standard"
 - "WSV" and "SDV"
 - "WSV" and "SDPV"
- WSV
 - A RAID group that is used for creating "WSV" type volumes
- RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Reliability (RAID5+0)
- Mirroring (RAID1)
- Striping (RAIDO)

• Total Capacity

The total capacity of the RAID groups is displayed.

• Eco-mode Schedule

The Eco-mode schedule name that is assigned to the RAID group is displayed. If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed. When no Eco-mode schedule has been assigned, the field is blank.

Eco-mode Action

The Eco-mode schedule action status is displayed.

When no Eco-mode schedule has been assigned, a "-" (hyphen) is displayed.

- Drive power off
 - The power for the drive is turned off during Eco-mode operation.
- Drive motor off The drive motor is stopped during Eco-mode operation.
- Drive always on
 Disable Eco-mode and the drive is always active.
- Motor Status

The drive motor status is displayed.

- Active
 - The drive motors are activated.
- In the Boot Process
- The drive motors are starting up.
- Idle
 - The drive motors are stopped.
- In the Stop Process
 - The drive motors are being stopped.
- Power off The drive power is being turned off.

Filter setting

Filter	Description
Name	Input the RAID group name that is to be displayed. When not using the RAID group name for filtering, leave this item blank.
Status	Select the RAID group status that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.
Eco-mode Schedule	Input the Eco-mode schedule that is to be displayed. When not using the Eco-mode schedule name for filtering, leave this item blank.
Eco-mode Action	Select the Eco-mode action that is to be displayed.

6.4 SED Key Group

This function displays the key group settings for the RAID groups that are configured with SEDs. The key group combines all of the RAID groups that use the same SED authentication key.

Caution

The ETERNUS DX60 S3 does not support this function.

🔵 Note

- One key group can be created in the ETERNUS DX/AF.
- Use the [Key Group] screen to check the SED authentication key information and the SSL/KMIP certificate information that is used for the key group. Refer to <u>"2.4.1 Key Group" (page 54)</u> for details.
- There are two types of SED keys: an SED authentication key that is managed by the key server and a common key that is stored in the ETERNUS DX/AF. If a RAID group that is configured with SEDs is registered in the key group, the relevant RAID group is managed by the SED authentication key. If the RAID group is not registered in the key group, the relevant RAID group is managed by the common key.
- RAID groups that are configured with SEDs can be added in the key group or deleted from the key group. Refer to "Set Key Group (RAID Group)" in "ETERNUS Web GUI User's Guide (Settings)" for details.

aregory	SED K	ey Group					» Action
AID Group	#Filte	r setting			Filter	Clear	Target 0
Eco-mode Schedule	Na	me: Status:All R	Set Key Group Recovery SED				
			2 items	10 4 1/	pages > > 1	page Go	
		. Name	Status	Usage	RAID Level	Total Capacity	
	12	BAIDName012	Available	Standard	Mirroring (RAID1)	33.:	
	0 13	RAIDName013	Available	Standard	High Reliability (RAID6-FR)	897.7~	
	<					>	

The following items are displayed in the Main area:

• No.

The RAID group number is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Name

The RAID group name is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

Usage

The usage of the RAID group is displayed.

- Standard
- A RAID group that is used for creating "Standard", "SDV", or "SDPV" type volumes
- Standard / WSV
- A RAID group that is used for creating the following volumes:
 - "WSV" and "Standard"
 - "WSV" and "SDV"
 - "WSV" and "SDPV"
- WSV
- A RAID group that is used for creating "WSV" type volumes
- TPP
- A RAID group that belongs to a TPP
- FTRP
- A RAID group that belongs to an FTRP
- RDB
- A RAID group that is registered as an REC Disk Buffer
- Temporary
- A RAID group that is temporarily created while LDE is being performed
- "-" (hyphen)
- A RAID group that is not used
- RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Reliability (RAID5+0)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity

The total capacity of the RAID groups is displayed.

• Key Group

The set state of the key group for the RAID groups is displayed.

- If the relevant RAID group is registered in the key group: "Enable"
- If one of the following conditions applies to the relevant RAID group: "Disable"
 - No common key for SEDs is registered
 - The relevant RAID group is not registered in the key group

Filter setting

Filter	Description
Name	Input the RAID group name that is to be displayed. When not using the RAID group name for filtering, leave this item blank.
Status	Select the RAID group status that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.

6.5 RAID Group Detail (Basic)

Click the [No.] link or the [Name] link in the <u>"6.1 RAID Group (Basic Information)</u> (page 307) to display the detailed information of the target RAID group.

Category	RAID Group			» Action
🖻 🧰 RAID Group	RAID Group Detail		~	Target: 0
Eco-mode Schedule	No.: 1 Name: RAIDName001 Basic Votume Li TRAID Group Infor	yout Drives		Rename Change Controlling CM Expand Assign Eco-mode
	Status	Augilable		X Modify RAID Group Para
	RAID Level	Mirroring (RAID1)		🔶 Create Volume
	Total Capacity	32.25 GB		
	Total Free Space	31.25 GB		
	Controlling CM	CM#1		
	Eco-mode Schedule	Schedule1		
	Eco-mode Action	Drive power off		
	Motor Status	Power Off		
	Process	-		
	Progress	÷		
	Stripe Depth			
			~	

The following items are displayed in the Main area:

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Reliability (RAID5+0)
- Mirroring (RAID1)
- Striping (RAIDO)

• Fast Recovery Configuration

The drive configuration in the Fast Recovery RAID group is displayed.

This item is displayed only when the RAID level is "High Reliability (RAID6-FR)".

- (3D+2P)x2+1HS
- (4D+2P)x2+1HS
- (6D+2P)x2+1HS
- (9D+2P)x2+1HS
- (12D+2P)x2+1HS
- (5D+2P)x4+1HS
- (13D+2P)x2+1HS
- (8D+2P)x3+1HS
- (4D+2P)x5+1HS
- (3D+2P)x6+1HS

D: Data drives, P: Parity drives, HS: Hot Spares

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- Total Capacity The total capacity of the RAID groups is displayed.
- Total Free Space The total free space in the RAID group is displayed.
- Controlling CM

The Controlling CM of the RAID group is displayed (x: CE number, y: CM number).

- For the ETERNUS DX8700 S3/DX8900 S3
- CE#x CM#y
- For the other models CM#y
- Eco-mode Schedule

The Eco-mode schedule name that is assigned to the RAID group is displayed. If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed. When no Eco-mode schedule has been assigned, the field is blank.

Eco-mode Action

The Eco-mode schedule action status is displayed.

When no Eco-mode schedule has been assigned, a "-" (hyphen) is displayed.

- Drive power off
 - The power for the drive is turned off during Eco-mode operation.
- Drive motor off

The drive motor is stopped during Eco-mode operation.

- Drive always on Disable Eco-mode and the drive is always active.
- Motor Status

The drive motor status is displayed.

- Active
 - The drive motors are activated.
- In the Boot Process
- The drive motors are starting up.
- Idle
 - The drive motors are stopped.
- In the Stop Process The drive motors are being stopped.
- Power Off The drive power is being turned off.
- Fast Recovery Drive

When the hot spare area in the Fast Recovery RAID group is used (*1), the drive number for the data recovery source drive is displayed. If Fast Recovery (*2) is not used, the field is blank.

This item is displayed only when the RAID level is "High Reliability (RAID6-FR)".

- *1: The hot spare area is used from the beginning of high-speed rebuilding up until the copyback process (from the hot spare area to the replaced normal drive) completes successfully.
- *2: High-speed rebuilding when one drive fails in the Fast Recovery RAID group.
 - CE Drive#yy (for the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F)
 - DE#xx Drive#yy (xx: DE number, yy: Drive number)
- Process

A process that is being performed for the RAID group is displayed. If no process is being performed, a "-" (hyphen) is displayed.

Progress

The progress of a process that is being performed is displayed with a bar and a rate (%). To display the latest progress, refresh the screen. If no process is being performed, a "-" (hyphen) is displayed.

• Estimated Time Left

The estimated remaining time before recovering is complete is displayed. To display the latest estimated remaining time, refresh the screen. This item is not displayed when the process is other than "Recovering".

- Calculating The ETERNUS DX/AF is calculating the estimated remaining time.
- 30 days or more The estimated remaining time is 30 days or more.
- x days y h z min. (x: 1 29, y: 0 23, z: 0 59)

The estimated remaining time is more than one minute and less than 30 days. When the estimated remaining time is less than one day, the "days" value is omitted. When the estimated remaining time is less than one hour, the "days" and "hours" values are omitted.

- Less than 1 min.

The estimated remaining time is less than one minute.

┝ Caution

The "Estimated Time Left" value may increase or decrease due to the I/O load when displaying this item.

• Remaining Size

The remaining size of the unrecovered RAID group is displayed. To display the latest size, refresh the screen. This item is not displayed when the process is other than "Recovering".

Caution

The remaining physical capacity in the drive that is being recovered is displayed. Note that the remaining capacity may be larger than the capacity that is currently being used by users.

• Stripe Depth

The Stripe Depth (*1) of the RAID group is displayed.

If the RAID level is "Mirroring (RAID1)", a "-" (hyphen) is displayed.

- *1: The number of logical blocks that are assigned to a drive for each stripe when configuring a stripe volume in a RAID group. Normally, it is 64KB.
- 64 KB
- 128 KB
- 256 KB
- 512 KB
- 1024 KB

6.6 RAID Group Detail (Volume Layout)

Detailed information of the volume layout is displayed. Note that the [Volume Layout] tab is not displayed for RAID groups that are registered as EXCPs.

Category	RAID Group							» Action
ALIDISTON ALIDISTON Tuning Eco-mode Schedule SED Key Group	RAID Group Detail No.: 1 Name: RAIDName001 Basic Volume La ▼ RAID Group Used	yout Dri Summary	ves 2items 14	(1/1 pages)-	н []	page Go		Target 0
	Start LBA	Capacity	Volume No.	Volume Name	Volume Status	Volume Ty	pe	
	0x00000000000000000	1.00 GB	0	Volume001	Available	Standard	^	
	0x000000000200000	31.25 GB	Free				~	

The following items are displayed in the Main area:

Start LBA

The first Logical Block Address (LBA) of the volume is displayed.

• Capacity

The volume capacity is displayed.

If the volume capacity exceeds 1023.99MB, the capacity is displayed in units of "GB". If the volume capacity exceeds 1023.99GB, the capacity is displayed in units of "TB". The capacity is rounded off to two decimal places. To check the volume capacity in units of "MB", use ETERNUS CLI.

• Volume No.

The volume number is displayed. Unused space is displayed as "Free".

- Volume Name The volume name is displayed.
- Volume Status

The volume status is displayed. Refer to <u>"A.2 Volume Status" (page 406)</u> for detailed information of volume status.

• Volume Type

The volume type is displayed.

- Standard
- WSV
- SDV
- SDPV

6.7 RAID Group Detail (Drives)

Detailed information of drives that configure the RAID group is displayed.

RAI	D Group								* Action
RA No.: Nam	UD Group Det 1 10: RAIDNam	ail we001							Target: 0 Expand Release Dedicated HS
100	lasic Volu	me Lavout	Drives						
-	RAID Groun	Drives In	formation						
	and broop		2 items	H + 1/1 p	ages > >		1 🗢 page	Go	
	Enclosure	Slot No.	Status	Туре	Capacity	Speed	Usage		
-	DE#00	4	Available	3.5" Nearline	36.00 GB	7200 rpm	Data	^	
DE#00 5 OAvailable 3.5" Nearline 36.0						7200 rpm	Data	~	
<								>	
	RAA No.: Nam	RAID Group RAID Group Del No.: 1 Name: RAIDNan Basic Volu V RAID Group Enclosure DE#00 CE#00	RAID Group RAID Group Detail No.: 1 Mame: RAIDName001 Basic Volume Layou VRAID Group Drives In Enclosure Slot No. DE#00 4 DE#00 5	RAID Group Detail RAID Group Detail No.: 1 Basic Volume Layout Drives RAID Group Drives Information 2 items Enclosure Stot No. Status DE#00 4 Available 0E#00 5 Available	RAID Group Detail No:: 1 Basic Volume Layout Drives * RAID Group Drives Information 2/terms Marcial Constraints 2/terms DE#00 4 ØAvaitable 3.5' Nearline	RAID Group Detail No:: 1 Basic Volume Layout Otrees ▼ RAID Group Drives Information 2 items Mathematical Constraints DE#00 4 Available 3.5" Nearline 36.00 GB 0 E#00 5 Available 3.5" Nearline 36.00 GB	RAID Group Detail No.: 1 Name: RAIDName001 Basic Volume Layout 2 Items H Image: Provide the state of the st	RAID Group Detail No:: 1 Basic Volume Layout 2 Items H ≤ 1/1 pages > H 1 Page Enclosure Stot No. 10 Enclosure 10 Available 3.5" Nearline 36.00 GB 7200 rpm Data 0 E#00 5 Available 3.5" Nearline 36.00 GB 7200 rpm Data	RAID Group Detail No:: 1 Name: RAIDName001 Basic Votume Layout 2 Items H 12 Items H 13 DE#00 4 Available 3.5" Nearline 36.00 GB 7200 rpm DE#00 5 Available 3.5" Nearline 36.00 GB 7200 rpm 0 S

The following items are displayed in the Main area:

• Enclosure

The number of the enclosure where the drive is installed is displayed.

Slot No.

The number of the slot where the drive is installed is displayed.

Status

The drive status is displayed. Refer to "A.5.1 Drive Status" (page 411) for details.

Type

The drive type is displayed.

- 2.5" Online
- 2.5-inch SAS disk
- 2.5" Online AF
- 2.5-inch SAS disk (Advanced Format supported)
- 2.5" Nearline
 2.5-inch Nearline SAS disk
- 2.5" Nearline AF
- 2.5-inch Nearline SAS disk (Advanced Format supported)
- 3.5" Online
- 3.5-inch SAS disk
- 3.5" Online AF
- 3.5-inch SAS disk (Advanced Format supported)
- 3.5" Nearline
 3.5-inch Nearline SAS disk
- 3.5" Nearline AF
- 3.5-inch Nearline SAS disk (Advanced Format supported)
- 2.5" SSD-M
 - 2.5-inch SSD-M (12 Gbit/s) (*1)
- 3.5" SSD-M
 - 3.5-inch SSD-M (12 Gbit/s) (*1)

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- 2.5" SSD-L
 2.5-inch SSD-L (12 Gbit/s) (*1)
 3.5" SSD-L
 3.5-inch SSD-L (12 Gbit/s) (*1)
 2.5" SSD
 2.5-inch SSD (6 Gbit/s) (*1)
 3.5" SSD
 3.5-inch SSD (6 Gbit/s) (*1)
 2.5" Online SED
- 2.5-inch Online SED
- 3.5" Nearline SED
 3.5-inch Nearline SED
- 2.5" SSD-M SED
- 2.5-inch SSD-M SED (*2)
- 3.5" SSD-M SED
- 3.5-inch SSD-M SED (*2)
- 2.5" SSD-L SED
 - 2.5-inch SSD-L SED (*2)
- 3.5" SSD-L SED
 - 3.5-inch SSD-L SED (*2)
- *1: The displayed item varies depending on the interface speed (bandwidth) or the capacity of the reserved space. Unless otherwise specified, this manual refers to "SSD-M", "SSD-L", and "SSD" collectively as "SSD".
- *2: In this manual, there may be cases when "SSD SED" is used as a collective term for options and drive types.

Capacity

The capacity of the drive is displayed.

Caution

The drive capacity that is displayed for the SSD-L differs from the product's actual capacity. For example, the drive capacity of a "1.92TB SSD-L" is displayed as "2.00 TB".

Speed

The drive speed is displayed. For SSD or SSD SED, a "-" (hyphen) is displayed.

Usage

The usage of the drive is displayed.

- Data
 - A drive that is used for user data or an unused drives
- Global Hot Spare
- A drive that is registered as a Global Hot Spare
- Dedicated Hot Spare
- A drive that is registered as a Dedicated Hot Spare

Chapter 7 Thin Provisioning Pool Status

This chapter describes Thin Provisioning Pool status.

Thin Provisioning Pool status displays the status information of Thin Provisioning Pools. Thin Provisioning Pool status screens can be displayed by clicking the following categories:

Category	Thin Provisioning Pool status screen
Thin Provisioning Pools	Thin Provisioning Pools
Threshold	Threshold (Thin Provisioning Pool)
Eco-mode Schedule	Eco-mode Schedule (Thin Provisioning Pool)
Flexible Tier Pools	Flexible Tier Pools
Settings	Settings (Thin Provisioning)

Detailed information of the Thin Provisioning Pools can be displayed from the following screen:

- Thin Provisioning Pool Detail (Basic)
- Thin Provisioning Pool Detail (RAID Group)
- Thin Provisioning Pool Detail (Volume)
- Flexible Tier Pool Detail (Basic)
- Flexible Tier Pool Detail (Flexible Tier Sub Pool)
- Flexible Tier Pool Detail (Volume)
- Flexible Tier Sub Pool Detail (Basic)
- Flexible Tier Sub Pool Detail (RAID Group)
- Flexible Tier Sub Pool Detail (RAID Group Detail)
7.1 Thin Provisioning Pools

The Thin Provisioning Pools category provides the setting information for Thin Provisioning Pools.

7.1.1 Thin Provisioning Pool (Basic Information)

This function shows the list of TPPs.

┝ Caution

- When creating TPP type volumes, "Enable" the Thin Provisioning function. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- When the used status of the Thin Provisioning Pool is "A Attention" or " Warning" in the TPP list, the TPP used capacity exceeds the threshold. Add drives immediately to expand the TPP capacity.

🔵 Note

- This function displays the TPP basic information, a list of the RAID groups that configure the TPP, and a list of the TPVs that are registered in the TPP.
- To check whether the Thin Provisioning function is enabled or disabled, refer to <u>"7.3 Settings (Thin Provisioning)" (page 355)</u>.
- To check the threshold for monitoring the used capacity of a TPP, refer to <u>"7.1.5 Threshold (Thin Provisioning Pool)" (page 334)</u>.
- To check the Eco-mode settings of a TPP, refer to <u>"7.1.6 Eco-mode Schedule (Thin Provisioning Pool)"</u> (page 337).

Category	Thi	Prov	isioning Poo	1				» Action
Thin Provisioning Pools Threshold Eco-mode Schedule Fixible Tire Pools	#	liter s	etting	lear	Target: 0			
		Name	+ Create					
Settings			Rename					
		No.	Name	Drive Type	RAID Level	Status	Used Sta	Format All Area
		0	PoolName000	Online	High Performance (RAID1+0)	Avaitable	ONOI _	Format Unformatted Area
		1	PoolName001	Online	High Capacity (RAJD5)	Available	No	Create Volume
		2	PoolName002	Undefined	High Performance (RAID1+0)	Available	No	Set Deduplication/Compr
		3	PoolName003	Undefined	High Capacity (RAID5)	Available	ONOI	
		4	PoolName004	Undefined	High Performance (RAID1+0)	Available	Nor	
		5	PoolName005	Undefined	High Capacity (RAJD5)	Available	ONO	
		6	PoolName006	Undefined	Mirroring (RAID1)	Available	ONO	
		Z	PoolName007	Undefined	High Reliability (RAID6)	Avaitable	ONO	
		8	PoolName008	Undefined	High Performance (RAID1+0)	Available	ONO	
		9	PoolName009	Undefined	High Capacity (RAID5)	Available	ONO	
		19	PoolName010	Undefined	Mirroring (RAID1)	Available	No	
		11	PoolName011	Undefined	High Capacity (RAID5)	Available	ONOI~	
	~	+7	Doelblomo012	Hedefined	Linh Deformance (DAID1+A)	A	~;	

The following items are displayed in the Main area:

• No.

The TPP number is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> Detail (Basic)" (page 328).

• Name

The TPP name is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> <u>Detail (Basic)" (page 328)</u>.

• Drive Type

The type of drive that is used to configure the TPP is displayed.

- Online
- SAS disks
- Nearline

Nearline SAS disks

- SSD

- SSDs (*1)
- Online SED Online SEDs
- Nearline SED
- Nearline SEDs
- SSD SED
- SSD SEDs
- *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).
- RAID Level

The level of RAID group that configures the TPP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Status

The TPP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of TPP status.

Used Status

The usage of TPP is displayed.

- 🧭 Normal

TPP usage does not exceed the "Attention" threshold.

- Attention
 TPP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.
- 😂 Warning TPP usage exceeds the "Warning" threshold.

- Encryption The TPP encryption status is displayed. For the ETERNUS DX60 S3, this item is not displayed.
 - CM
 - The TPP that is encrypted by CM.
 - "-" (hyphen)
 - The TPP that is not encrypted.
 - SED
 - The TPP that is encrypted by SED.
- Deduplication/Compression

The Deduplication/Compression status (whether the setting is enabled and the state of the Deduplication/ Compression) of the TPP is displayed.

This item is displayed only when Deduplication/Compression for the ETERNUS DX/AF is enabled.

- Enable

Deduplication/Compression for the TPP is enabled and Deduplication/Compression is in the normal state.

- Disable

Deduplication/Compression for the TPP is disabled.

- Еггог

Deduplication/Compression for the TPP is enabled and Deduplication/Compression is in the error state. "-" (hyphen)

Deduplication/Compression for the TPP is enabled and the information cannot be obtained.

• Capacity Reduction Rate

The capacity reduction rate of Deduplication/Compression for the TPP is displayed.

If 10TB of data is written to 3TB after deduplicated and compressed, "70%" is displayed.

This item is displayed only when Deduplication/Compression for the ETERNUS DX/AF is enabled.

- A "-" (hyphen) is displayed in the following conditions:
- Deduplication/Compression for TPP is "Disable"
- The DEDUP_SYS Volumes cannot be accessed

Filter setting

Filter	Description
Name	Input the TPP name that is to be displayed. When not using the TPP name for filtering, leave this item blank.
Drive Type	Select the drive type that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.
Deduplication/ Compression	Select the Deduplication/Compression set state that is to be displayed. This item is displayed only when Deduplication/Compression for the ETERNUS DX/AF is enabled.

7.1.2 Thin Provisioning Pool Detail (Basic)

Click the [No.] link or the [Name] link on the <u>"7.1 Thin Provisioning Pools" (page 325)</u> to display the corresponding Thin Provisioning Pool Details screen.

Category	Thin Provisioning Pool			Action	
E 🔤 Thin Provisioning Pools	Name: PoolName001		~	Target: 0	
Eco-mode Schedule Flexible Tier Pools Settings	Basic RAID Group Vol	ume		X Delete Rename	
	Thin Provisioning Pool In	formation		Export	
	Drive Type	Online		Coperio	
	RAID Level	High Capacity (RAID5)		Format All Area	
	Status	Available		Format Unformatted Area	
	Provisioned Capacity	1GB		X Modify Threshold	
	Provisioned Rate	9%		+ Assign Eco-mode	
	Total Capacity	10.01 GB		Create Volume	
	Used Capacity	1.00 GB		Modify Cache Parameters	
	Used Status	Normal		Ret Deduction/Compro	
	Warning	9.01 GB (90%)		Set Dedupication/Compre	
	Attention	75.1 GB (75%)			
	Encryption	•			
	MWC	0			
	Usage				
	Eco-mode Schedule				
	Eco-mode Action				
	Motor Status	Active			
	Process	*			
	Progress	•			
	Stripe Depth	64 KB			
	Deduplication/Compression	Disable			
	Capacity Reduction Rate	*	~		

The following items are displayed in the Main area:

• Drive Type

The type of drive that configures the TPP is displayed.

- Online
- SAS disks
- Nearline
- Nearline SAS disks
- SSD
- SSDs (*1)
- Online SED
 Online SEDs
- Nearline SED Nearline SEDs
- SSD SED
- SSD SED
- *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).
- RAID Level

The level of RAID group that configures the TPP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)

• Fast Recovery Configuration

The Fast Recovery configuration of the RAID group that configures TPPs is displayed. This item is displayed only when the RAID level is "RAID6-FR".

- (4D+2P)x2+1HS
- (6D+2P)x2+1HS
- (8D+2P)x3+1HS
- (4D+2P)x5+1HS

D: Data drives, P: Parity drives, HS: Hot Spares

Status

The TPP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of TPP status.

- Provisioned Capacity The total logical capacity of the TPVs in the TPP is displayed.
- Provisioned Rate

The ratio (%) of the total logical capacity of TPVs in the TPP and the total capacity of the TPP is displayed. Capacity ratio (Provisioned Rate) = Total logical capacity of TPVs in the relevant TPP (Provisioned Capacity) / Total capacity of the relevant TPP (Total Capacity)

- Total Capacity The total capacity of TPP is displayed.
- Used Capacity The used capacity of TPP is displayed.
 "Used Capacity" indicates the total for the physically allocated capacities of the TPVs in the TPP.
- Used Status

The usage of TPP is displayed.

- Vormal TPP usage does not exceed the "Attention" threshold.

Attention
 TPP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.

- Warning TPP usage exceeds the "Warning" threshold.
- Warning

The TPP physical capacity "xxx", which is converted based on the TPP warning threshold, and the threshold (yy%) are displayed.

Attention

The TPP physical capacity "xxx", which is converted based on the TPP attention threshold, and the threshold (yy%) are displayed.

When the attention threshold is omitted, a "-" (hyphen) is displayed.

- Encryption The TPP encryption status is displayed.
 For the ETERNUS DX60 S3, this item is not displayed.
 - CM
 - The TPP that is encrypted by CM.
 - "-" (hyphen)
 - The TPP that is not encrypted.
 - SED
 - The TPP that is encrypted by SED.
- MWC
 - Multi Writeback Count (MWC) of the TPP is displayed.
- Usage
 - "TPV" is displayed when a TPV is registered in the TPP. If there are no TPVs in the Thin Provisioning Pool, a "-" (hyphen) is displayed.
- Eco-mode Schedule

The Eco-mode schedule name that is assigned to the TPP is displayed. If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed. When no Eco-mode schedule has been assigned, the field is blank.

• Eco-mode Action

The Eco-mode schedule action status is displayed.

When no Eco-mode schedule has been assigned, a "-" (hyphen) is displayed.

- Drive power off

The power for the drive is turned off during Eco-mode operation.

- Drive motor off The drive motor is stopped during Eco-mode operation.
- Drive always on
 Disable Eco-mode and the drive is always active.
- Motor Status

The drive motor status is displayed.

- Active
 - The drive motors are activated.
- In the Boot Process

The drive motors are starting up.

- Idle
 - The drive motors are stopped.
- In the Stop Process

The drive motors are being stopped.

- Power Off The drive power is being turned off.
- Process

A process that is being performed for the TPP is displayed. If no process is being performed, a "-" (hyphen) is displayed.

• Progress

The progress of a process that is being performed is displayed with a bar and a rate (%). To display the latest progress, refresh the screen.

If no process is being performed, a "-" (hyphen) is displayed.

• Estimated Time Left

The estimated remaining time before formatting is complete is displayed. To display the latest estimated remaining time, refresh the screen. This item is not displayed when the process is other than "Formatting".

- Calculating
- The ETERNUS DX/AF is calculating the estimated remaining time.
- 30 days or more The estimated remaining time is 30 days or more.
- x days y h z min. (x: 1 29, y: 0 23, z: 0 59)

The estimated remaining time is more than one minute and less than 30 days. When the estimated remaining time is less than one day, the "days" value is omitted. When the estimated remaining time is less than one hour, the "days" and "hours" values are omitted.

- Less than 1 min. The estimated remaining time is less than one minute.

Caution

The "Estimated Time Left" value may increase or decrease due to the I/O load when displaying this item.

• Remaining Size

The remaining size of the unformatted volume is displayed. To display the latest size, refresh the screen. This item is not displayed when the process is other than "Formatting".

• Stripe Depth

The Stripe Depth value (*1) for the RAID groups that configure the TPP is displayed.

If the RAID level is "Mirroring (RAID1)", a "-" (hyphen) is displayed.

- *1: The number of logical blocks that are assigned to a drive for each stripe when configuring a stripe volume in a RAID group. Normally, it is 64KB.
- Deduplication/Compression

The Deduplication/Compression status (whether the setting is enabled and the state of the Deduplication/ Compression) of the TPP is displayed.

This item is displayed only when Deduplication/Compression for the ETERNUS DX/AF is enabled.

- Enable

Deduplication/Compression for the TPP is enabled and Deduplication/Compression is in the normal state.

- Disable

Deduplication/Compression for the TPP is disabled.

- Error

Deduplication/Compression for the TPP is enabled and Deduplication/Compression is in the error state.

- "-" (hyphen)

Deduplication/Compression for the TPP is enabled and the information cannot be obtained.

- Capacity Reduction Rate
 - The capacity reduction rate of Deduplication/Compression for the TPP is displayed.

If 10TB of data is written to 3TB after deduplicated and compressed, "70%" is displayed.

This item is displayed only when Deduplication/Compression for the ETERNUS DX/AF is enabled.

A "-" (hyphen) is displayed in the following conditions:

- Deduplication/Compression for TPP is "Disable"
- The DEDUP_SYS Volumes cannot be accessed

7.1.3 Thin Provisioning Pool Detail (RAID Group)

In this screen, a list of the RAID groups that configure the relevant TPP is displayed. When no RAID groups are registered in the TPP, only the item name is displayed.

Category	Thin Provisioning Pool	» Action		
🖻 🧰 Thin Provisioning Pools	Thin Provisioning Pool Detail	Target 0		
Threshold Threshold Eco-mode Schedule Flexible Ther Pools Settings	No.: 4 Name: PoolName004 Basic RAID Group Volume ▼ Thin Provisioning Pool Information 1// page 5 m 1 1 m page 5 m	Celete Rename Expand Format All Area Format Unformatted Area		
	No Name Stelus BAID Loud Tetal Capacity Head Capacity	X Modify Threshold		
	No. Name Status RAID Level Total Capacity Used Capacity 4 RAIDName004 Avaitable High Reliability (RAID6-FR) 32.25 GB 0.00 f ()	Create Volume		

The following items are displayed in the Main area:

• No.

The RAID group number is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

• Name

The RAID group name is displayed. Click this item to display "6.5 RAID Group Detail (Basic)" (page 318).

Status

The RAID group status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for detailed information of RAID group status.

RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity

The total capacity of the RAID groups is displayed.

Used Capacity

The used capacity of the RAID groups is displayed.

"Used Capacity" indicates the total for the physically allocated capacities of the TPVs in the RAID group.

7.1.4 Thin Provisioning Pool Detail (Volume)

In this screen, the volumes that are registered in the TPP can be checked. When no volumes are registered in the TPP, only the item name is displayed.

Category	Thin Provisioning Pool	* Action
E 💼 Thin Provisioning Pools	Thin Provisioning Pool Detail	Target 0
Threshold Eco-mode Schedule Flexible Tier Pools Settings	No.: 1 Name: PoolName001 Basic RAID Group Volume ▼ Thin Provisioning Pool Information 2/Items H < 1/1 pages > H 1 ⊕ page Go	Celete Rename Expand Format All Area Format Unformatted Area
	No. Name Status Type Usage Allocation Capacity Used Capacity L	Modify Threshold
	1 Volume001 Available TPV Block Thin 4.00 GB 0.00 MB	Delete Volume
	2 Volume002 Available TPV Block Thin 4.00 GB 0.00 MB V	Modify TPV Threshold

The following items are displayed in the Main area:

• No.

The volume number is displayed. Click this item to display <u>"4.11 Volume Detail (Basic)" (page 223)</u>.

• Name

The volume name is displayed. Click this item to display <u>"4.11 Volume Detail (Basic)" (page 223)</u>.

• Status

The volume status is displayed. Refer to <u>"A.2 Volume Status" (page 406)</u> for detailed information of volume status.

• Type

The volume type is displayed. This volume list displays only the volumes whose type is "TPV".

Usage

The usage of the volume is displayed.

- Block

The volumes that are used for the SAN.

- Block/Dedup

The Deduplication/Compression Volumes.

- File
- The volumes that are used for the NAS.
- System

The volumes that are used for management information. Refer to "<u>Usage Details</u>" (page 228) in "4.11 Volume Detail (Basic)" (page 223) for details.

- Allocation The allocation method for the volume is displayed.
 - Thin
 - Physical area is allocated to the target area of the volume when a write I/O is received. - Thick
 - Physical area is allocated to the whole area of the volume when volumes are created.
- Capacity

The volume capacity is displayed.

- Used Capacity The used capacity (physically allocated capacity) of volume is displayed.
- Used Rate
 The volume utilization is displayed between 0% 100%.
 Used Rate = Used Capacity / Capacity
- Threshold

The threshold for monitoring the volume utilization is displayed between 1% - 100%. If the "Used Rate" value exceeds the "Threshold", a Host Sense Key Code Qualifier is reported.

Process

A process that is being performed for the TPP is displayed. If no process is being performed, a "-" (hyphen) is displayed.

- Balancing
- TPV balancing is being performed.
- Formatting
 Formatting is being performed.
- Migrating RAID migration is being performed.

7.1.5 Threshold (Thin Provisioning Pool)

This function shows the threshold for monitoring the used capacity of a Thin Provisioning Pool.

🕨 Caution

When changing threshold for TPP monitoring, "Enable" the Thin Provisioning function. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Note

- To check whether the Thin Provisioning function is enabled or disabled, refer to <u>"7.3 Settings (Thin Provisioning)" (page 355)</u>.
- If the TPP used capacity exceeds the threshold, notification is sent to the destination that was specified using the [Setup Event Notification] function. Refer to "Setup Event Notification" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- To change the threshold of a TPP, follow the procedure that is provided in "Modify Threshold Thin Provisioning Pool" in "ETERNUS Web GUI User's Guide (Settings)".

Category	Thr	eshol	d					» Action
Thin Provisioning Pools Threshold Eco-mode Schedule	#	Filter s	Target 0					
		Name	X Modify Threshold Modify Cache Parameter					
Settings								
		No.	Name	Drive Type	RAID Level	Status	Used Status	
		0	PoolName000	Nearline	High Capacity (RAID5)	Available	Normal	
		1	PoolName001	1 Nearline	Mirroring (RAID1)	Available	Normal	
		2	PoolName002	Nearline	Striping (RAID0)	Available	Normal	
		3	PoolName003	Nearline	Mirroring (RAID1)	Available	Normal	
	<						>	
		-					,	

The following items are displayed in the Main area:

• No.

The TPP number is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> <u>Detail (Basic)</u>" (page 328).

• Name

The TPP name is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> <u>Detail (Basic)" (page 328)</u>.

• Drive Type

The type of drive that is used to configure the TPP is displayed.

- Online
- SAS disks
- Nearline
 Nearline SAS disks
- SSD
- SSDs (*1)
- Online SED
- Online SEDs
- Nearline SED Nearline SEDs
- SSD SED SSD SEDs
- *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).
- RAID Level

The level of RAID group that configures the TPP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)

• Status

The TPP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of TPP status.

Used Status

The usage of TPP is displayed.

- 🧭 Normal

TPP usage does not exceed the "Attention" threshold.

- Attention TPP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.
- 😂 Warning TPP usage exceeds the "Warning" threshold.
- Total Capacity The total capacity of TPP is displayed.
- Used Capacity

The used capacity of TPP is displayed. "Used Capacity" indicates the total for the physically allocated capacities of the TPVs in the TPP.

Warning

The warning threshold (%) for monitoring the TPP used capacity is displayed.

Attention

The attention threshold (%) for monitoring the TPP used capacity is displayed. When the "Attention" threshold is omitted, "0%" is displayed.

• MWC

Multi Writeback Count (MWC) of the TPP is displayed.

Filter setting

Filter	Description
Name	Input the TPP name that is to be displayed. When not using the TPP name for filtering, leave this item blank.
Drive Type	Select the drive type that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.

7.1.6 Eco-mode Schedule (Thin Provisioning Pool)

This function displays the Eco-mode setting state of the Thin Provisioning Pool.

Caution

- The ETERNUS AF250/AF650 and the ETERNUS DX200F do not support this function.
- When assigning Eco-mode schedule to the Thin Provisioning Pool, "Enable" the Thin Provisioning function. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.

🔵 Note

- To check whether the Thin Provisioning function is enabled or disabled, refer to <u>"7.3 Settings (Thin Provisioning)" (page 355)</u>.
- To use the Eco-mode, follow the procedure in "Modify Eco-mode General Setting" in "ETERNUS Web GUI User's Guide (Settings)" and "Create Eco-mode Schedule" in "ETERNUS Web GUI User's Guide (Settings)" to perform the general Eco-mode setup and create an Eco-mode schedule.
- To assign the Eco-mode schedule to a TPP, refer to "Assign Eco-mode Schedule (Thin Provisioning Pool)" in "ETERNUS Web GUI User's Guide (Settings)".

gory	Eco	-mode	Schedule					-	» Action	
Thin Provisioning Pools	#	#Filter setting								
Eco-mode Schedule		Name:	Drive Type:All	RAID Level	All Eco-mode Schedule	E Eco-mode	Action:All		🕂 Annign Eco-mode	
Settings				4 items	li(→ 1/1 pages →	1	🖨 page 🛛 G	0		
		No.	Name	Drive Type	RAID Level	Status	Used Status	i i		
		Q	PoolName000	Nearline	High Capacity (RAID5)	Available	Normal	~		
		1	PoolName001	Nearline	Mirroring (RAID1)	Available	Normal			
		2	PoolName002	Nearline	Striping (RAID0)	Available	Normal			
		2	PoolName003	Nearline	Mirroring (RAID1)	Available	Normal	~		
	<						3	6		
								10		

The following items are displayed in the Main area:

• No.

The TPP number is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> <u>Detail (Basic)" (page 328)</u>.

Name

The TPP name is displayed. Click this item to display the screen shown in <u>"7.1.2 Thin Provisioning Pool</u> Detail (Basic)" (page 328).

Drive Type

The type of drive that configures the TPP is displayed.

- Online
- SAS disks
- Nearline
- Nearline SAS disks
- SSD
- SSDs (*1)
- Online SED **Online SEDs**
- Nearline SED
- **Nearline SEDs**
- SSD SED
- SSD SEDs
- *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).
- RAID Level

The level of RAID group that configures the TPP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Status

The TPP status is displayed. Refer to "A.4 Thin Provisioning Pool Status" (page 409) for detailed information of TPP status.

Used Status

The usage of TPP is displayed.

Sormal 💙

TPP usage does not exceed the "Attention" threshold.

- 🔔 Attention

TPP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.

😂 Warning

TPP usage exceeds the "Warning" threshold.

- Total Capacity The total capacity of TPP is displayed.
- Eco-mode Schedule

The Eco-mode schedule name that is assigned to the TPP is displayed. If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed.

When no Eco-mode schedule has been assigned, the field is blank.

• Eco-mode Action

The Eco-mode schedule action status is displayed.

When no Eco-mode schedule has been assigned, a "-" (hyphen) is displayed.

- Drive power off
- The power for the drive is turned off during Eco-mode operation.
- Drive motor off The drive motor is stopped during Eco-mode operation.
- Drive always on Disable Eco-mode and the drive is always active.
- Motor Status
 - The drive motor status is displayed.
 - Active
 - The drive motors are activated.
 - In the Boot Process
 - The drive motors are starting up.
 - Idle
 - The drive motors are stopped.
 - In the Stop Process
 - The drive motors are being stopped.
 - Power Off

The drive power is being turned off.

Filter setting

Filter	Description
Name	Input the TPP name that is to be displayed. When not using the TPP name for filtering, leave this item blank.
Drive Type	Select the drive type that is to be displayed.
RAID Level	Select the RAID level that is to be displayed.
Eco-mode Schedule	Select the Eco-mode schedule that is to be displayed.
Eco-mode Action	Select the Eco-mode action that is to be displayed.

7.2 Flexible Tier Pools

The Flexible Tier Pools category provides the setting information for Flexible Tier Pools.

┝ Caution

The ETERNUS DX60 S3 does not support the Flexible Tier Pool related functions.

7.2.1 Flexible Tier Pool (Basic Information)

This function shows the list of Flexible Tier Pools (FTRPs).

Caution

- To use the Flexible Tier function (Automated Storage Tiering), the following operations are required:
 - Select "Enable" for the Thin Provisioning function. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.
 - To use Automated Storage Tiering with multiple layers, register the Optimization option license for ETERNUS SF Storage Cruiser.
 - Use ETERNUS SF Storage Cruiser to perform the following procedure.
 - Enable "Automated Storage Tiering"
 - Create FTRPs, Flexible Tier Sub Pools (FTSPs), and FTVs
- When "
 Attention" or "
 Warning" is displayed in the "Used Status" field for the FTRP list, the used capacity of the relevant FTRP has exceeded the threshold. Immediately add drives and use ETERNUS SF Storage Cruiser to expand the capacity of the appropriate FTSP (for which expansion is determined to be necessary based upon the performance and used capacity).
- If the target FTRP does not exist when displaying the details screen, a message, "1 Target is Not Found." is displayed.

🔵 Note

- This function displays a basic FTRP information, a list of FTSPs which belong to the FTRP, a list of RAID groups which configure the FTSP, and a list of FTVs which have been registered to the FTRP.
- To check whether the Thin Provisioning function is enabled or disabled, refer to <u>"7.3 Settings (Thin Provisioning)" (page 355)</u>.

Thin Provisioning Pools Image: Constraint of the Pools Image: Constraint of t	gory	Flex	Action							
Image: Section Secting Secting Section Section Section Section Section Section Sectio	Thin Provisioning Pools									Target: 0
Q FTRP_Q Available Phormal 4.00 GB 49% 1 FTRP_Q Available Phormal 4.00 GB 49% 2 FTRP_Q Available Phormal 4.00 GB 49% 3 FTRP_Q Available Phormal 4.00 GB 49% • • • • • •	Flexible Tier Pools Settings		No.	Name	Status	Used Status	Provisioned Capacity	Provisioned Rate	Tot	Start Balancing FTR
1 FIRP_1 Available Normal 4.00 GB 49% 2 FIRP_2 Available Normal 4.00 GB 49% 3 FIRP_3 Available Normal 4.00 GB 49%			0	FTRP 0	Available	Normal	4.00 GB	49%		Stop Balancing F 110
2 FTRP_2 Available Phormal 4.00 GB 49% 3 FTRP_3 Available Normal 4.00 GB 49%			1	FTRP_1	Available	Normal	4.00 GB	49%		
C 3 FTRP.3 Available Phormal 4.00 GB 49%			2	FTRP 2	Available	Normal	4.00 GB	49%		
			3	FTRP 3	Available	Normal	4.00 GB	49%		
		<							>	

The following items are displayed in the Main area:

• No.

The FTRP number is displayed. Click this item to display the screen shown in <u>"7.2.2 Flexible Tier Pool Detail</u> (Basic)" (page 343).

Name

The FTRP name is displayed. Click this item to display the screen shown in <u>"7.2.2 Flexible Tier Pool Detail</u> (Basic)" (page 343).

Status

The FTRP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of FTRP status.

• Used Status

The usage of FTRP is displayed.

- 🤝 Normal

FTRP usage does not exceed the "Attention" threshold.

- Attention FTRP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.
- 😣 Warning FTRP usage exceeds the "Warning" threshold.
- Provisioned Capacity The total logical capacity of FTVs in the FTRP is displayed.
- Provisioned Rate

The ratio (%) of the total logical capacity of FTVs in the FTRP and the total capacity of the FTRP is displayed. Capacity ratio (Provisioned Rate) = Total logical capacity of FTVs in the relevant FTRP (Provisioned Capacity) / Total capacity of the relevant FTRP (Total Capacity)

- Total Capacity The total capacity of FTRP is displayed.
- Used Capacity

The used capacity of the FTRP is displayed. "Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the FTRP.

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Warning

The warning threshold (%) for monitoring the FTRP used capacity is displayed.

Attention

The attention threshold (%) for monitoring the FTRP used capacity is displayed. When the "Attention" threshold is omitted, "0%" is displayed.

Encryption

The FTRP encryption status is displayed.

- CM
 - The FTRP that is encrypted by CM.
- "-" (hyphen)

The FTRP that is not encrypted.

• Balancing Level

The balancing level of the FTRP is displayed.

If multiple FTSPs exist in the FTRP, the lowest balancing level among the FTSPs is displayed. A "-" (hyphen) is displayed when the physically allocated capacity cannot be checked due to the storage system status or when the balancing level cannot be obtained due to the FTRP status (*1).

- High

- The physically allocated capacity among the RAID groups in the FTSP is equalized.
- Middle

The physically allocated capacity among the RAID groups in the FTSP is slightly unequal.

- Low

The physically allocated capacity among the RAID groups in the FTSP is significantly unequal.

Balancing Process

A "-" (hyphen) is displayed when FTRP balancing is not being performed, when the physically allocated capacity cannot be checked due to the storage system status, or when the balancing level cannot be obtained due to the FTRP status (*1).

- Status

The balancing status of the FTRP is displayed.

Active

All of the FTVs in the FTRP are either reserved or operating normally.

• Error

An FTV in error status exists in the FTRP.

- Error Code

The error code of FTRP balancing is displayed when an error occurs.

A "-" (hyphen) is displayed if no errors occur.

- *1: The status of the FTRP is not "🌏 Available", "🚫 Partially Readying", or " 🔥 Exposed"
- Shrinking

The shrinking status is displayed.

Shrinking is a function that deletes specific RAID groups in the FTRP to reduce the physical capacity of the FTRP.

If the shrinking is not being performed, a "-" (hyphen) is displayed.

- Executing

- The FTRP capacity is being reduced.
- Еггог
- Reducing the FTRP capacity failed.

7.2.2 Flexible Tier Pool Detail (Basic)

Click the [No.] link or the [Name] link on the <u>"7.2.1 Flexible Tier Pool (Basic Information)" (page 340)</u> to display the detailed information of the corresponding FTRP.

Click the [Basic] tab on the [Flexible Tier Pool Detail] screen to display the basic information of the corresponding FTRP.

Category	Flexible Ti	* Action		
🗄 🧰 Thin Provisioning Pools	Flexible Tier	Pool Detail		Target: 0
Flexible Tier Pools Settings	No.: 0 Name: FTRP	0 Flexible Tier Su	b Pool Volume	Start Balancing FTRP Stop Balancing FTRP
	* Flexible	Tier Pool Info	rmation	
	Status		QAvailable	
	Provisioned	Capacity	4.00 GB	
	Provisioned	Rate	49%	
	Total Capaci	ity	8.00 GB	
	Used Capac	ity	0.00 MB	
	Used Status		Normal	
	Warning		7.20 GB (90%)	
	Attention		6.40 GB (80%)	
	Encryption		CM	
	Process			
	Progress		*	
	Balancing L	evel	High	
	Balancing	Status	2	
	Process	Progress		
	Shrinking	Error Code	•	
	Comming			

The following items are displayed in the Main area:

Status

The FTRP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of FTRP status.

- Provisioned Capacity The total logical capacity of FTVs in the FTRP is displayed.
- Provisioned Rate The ratio (%) of the total logical capacity of FTVs in the FTRP and the total capacity of the FTRP is displayed.
- Total Capacity The total capacity of FTRP is displayed.
- Used Capacity The used capacity of the FTRP is displayed.
 "Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the FTRP.
- Used Status The usage of FTRP is displayed.
 - Vormal FTRP usage does not exceed the "Attention" threshold.
 - Attention FTRP usage exceeds the "Attention" threshold but does not exceed the "Warning" threshold.
 - 😂 Warning FTRP usage exceeds the "Warning" threshold.

Warning

The FTRP physical capacity "xxx", which is converted based on the FTRP warning threshold, and the threshold (yy%) are displayed.

Attention

The FTRP physical capacity "xxx", which is converted based on the FTRP attention threshold, and the threshold (yy%) are displayed.

When the attention threshold is omitted, a "-" (hyphen) is displayed.

Encryption

The FTRP encryption status is displayed.

- CM
- The FTRP that is encrypted by CM.
- "-" (hyphen)

The FTRP that is not encrypted.

Process

A process that is being performed for the FTRP is displayed. If no process is being performed, a "-" (hyphen) is displayed.

Progress

The progress of a process that is being performed is displayed with a bar and a rate (%). To display the latest progress, refresh the screen.

If no process is being performed, a "-" (hyphen) is displayed.

• Estimated Time Left

The estimated remaining time before formatting is complete is displayed. To display the latest estimated remaining time, refresh the screen. This item is not displayed when the process is other than "Formatting".

- Calculating
 - The ETERNUS DX/AF is calculating the estimated remaining time.
- 30 days or more The estimated remaining time is 30 days or more.
- x days y h z min. (x: 1 29, y: 0 23, z: 0 59)

The estimated remaining time is more than one minute and less than 30 days. When the estimated remaining time is less than one day, the "days" value is omitted. When the estimated remaining time is less than one hour, the "days" and "hours" values are omitted.

Less than 1 min.
 The estimated remaining time is less than one minute.

Caution

The "Estimated Time Left" value may increase or decrease due to the I/O load when displaying this item.

Remaining Size

The remaining size of the unformatted volume is displayed. To display the latest size, refresh the screen. This item is not displayed when the process is other than "Formatting".

Balancing Level

The balancing level of the FTRP is displayed.

If multiple FTSPs exist in the FTRP, the lowest balancing level among the FTSPs is displayed. A "-" (hyphen) is displayed when the physically allocated capacity cannot be checked due to the storage system status or when the balancing level cannot be obtained due to the FTRP status (*1).

- High

The physically allocated capacity among the RAID groups in the FTSP is equalized.

- Middle

The physically allocated capacity among the RAID groups in the FTSP is slightly unequal.

- Low

The physically allocated capacity among the RAID groups in the FTSP is significantly unequal.

Balancing Process

A "-" (hyphen) is displayed when FTRP balancing is not being performed, when the physically allocated capacity cannot be checked due to the storage system status, or when the balancing level cannot be obtained due to the FTRP status (*1).

- Status

The balancing status of the FTRP is displayed.

Active

All of the FTVs in the FTRP are either reserved or operating normally

• Error

An FTV in error status exists in the FTRP

- Progress

The lowest progress rate among the FTV balancing sessions that are being performed in the FTRP is displayed.

- Error Code

The error code of FTRP balancing is displayed when an error occurs.

A "-" (hyphen) is displayed if no errors occur.

- *1: The status of the FTRP is not "🔗 Available", "🚫 Partially Readying", or " 🛕 Exposed"
- Shrinking

The shrinking status is displayed.

Shrinking is a function that deletes specific RAID groups in the FTRP to reduce the physical capacity of the FTRP.

If the shrinking is not being performed, a "-" (hyphen) is displayed.

- Executing

The FTRP capacity is being reduced.

- Error

Reducing the FTRP capacity failed.

7.2.3 Flexible Tier Pool Detail (Flexible Tier Sub Pool)

Click the [No.] link or the [Name] link on the <u>"7.2 Flexible Tier Pools" (page 340)</u> to display the corresponding Flexible Tier Pool Details screen.

Click the [Flexible Tier Sub Pool] tab on the [Flexible Tier Pool Detail] screen to display a list of FTSPs that are registered in the corresponding FTRP.



The following items are displayed in the Main area:

• No.

The FTSP number is displayed. Click this item to display the screen shown in <u>"7.2.5 Flexible Tier Sub Pool</u> Detail (Basic)" (page 349).

Name

The FTSP name is displayed. Click this item to display the screen shown in <u>"7.2.5 Flexible Tier Sub Pool</u> Detail (Basic)" (page 349).

Status

The FTSP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of FTSP status.

• Drive Type

The type of drive that is used to configure the FTSP is displayed.

- Online
- SAS disks
- Nearline
- Nearline SAS disks
- SSD
- SSDs (*1)
- Online SED
 Online SEDs
- Nearline SED
- Nearline SEDs
- SSD SED
- SSD SEDs
- *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).

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RAID Level

The level of RAID group that configures the FTSP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity The total capacity of FTSP is displayed.
- Used Capacity

The used capacity of the FTSP is displayed. "Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the FTSP.

Balancing Level

The balancing level of the FTSP is displayed.

A "-" (hyphen) is displayed when the physically allocated capacity cannot be checked due to the storage system status or when the balancing level cannot be obtained due to the FTRP status (*1).

- High
- The physically allocated capacity among the RAID groups is equalized.
- Middle

The physically allocated capacity among the RAID groups is slightly unequal.

- Low

The physically allocated capacity among the RAID groups is significantly unequal.

- *1: The status of the FTRP is not "🜏 Available", "🚫 Partially Readying", or " 🛕 Exposed"
- Shrinking

The shrinking status of the RAID groups in the FTSP is displayed.

Shrinking is a function that deletes specific RAID groups in the FTRP to reduce the physical capacity of the FTRP.

If the shrinking is not being performed, a "-" (hyphen) is displayed.

- Executing
 - The FTRP capacity is being reduced.
- Еггог

Reducing the FTRP capacity failed.

7.2.4 Flexible Tier Pool Detail (Volume)

Click the [No.] link or the [Name] link on the <u>"7.2 Flexible Tier Pools" (page 340)</u> to display the corresponding Flexible Tier Pool Details screen.

Click the [Volume] tab on the [Flexible Tier Pool Detail] screen to display a list of volumes that are registered in the corresponding FTRP. When no volumes are registered in the FTRP, only the item name is displayed.

Category F	lex	ible	Tier Pool							* Action
II 📴 Thin Provisioning Pools	Fier	kible	Tier Pool Detail	Target: 0						
Flexible Tier Pools	10.:	0			Format Volume					
N N	lam	e: Fl	TRP 0							
	B	asic	Flexible Tier Sub							
	₹ F	lexit	ble Tier Pool Infor							
				2 items	H A	1/1 page	\$ > H [1 🔤 pag	e Go	
1		No.	Name	Status	Туре	Usage	FTSP Priority	Allocation	Capacit	
1		4	VolumeName004	Available	FTV	Block	4	Thin	1.0(~	
1		5	VolumeName005	Available	FTV	Block	5	Thin	4.0(~	
1 B	<								>	
										 Image: A set of the set of the

The following items are displayed in the Main area:

• No.

The volume number is displayed.

Name

The volume name is displayed.

• Status

The volume status is displayed. Refer to <u>"A.2 Volume Status" (page 406)</u> for detailed information of volume status.

• Type

The volume type is displayed.

This volume list displays only the volumes whose type is "FTV".

Usage

The usage of the volume is displayed.

- Block
 - The volumes that are used for the SAN.
- File

The volumes that are used for the NAS.

- System

The volumes that are used for management information. Refer to <u>"Usage Details" (page 228)</u> in <u>"4.11 Volume Detail (Basic)" (page 223)</u> for details.

• FTSP Priority

The FTSP number, to which a volume is assigned on a priority basis in the FTRP, is displayed. When the setting is omitted, "-" (hyphen) is displayed.

Allocation

The allocation method for the volume is displayed.

- Thin

Physical area is allocated to the target area of the volume when a write I/O is received. - Thick

Physical area is allocated to the whole area of the volume when volumes are created.

Capacity

The total volume capacity is displayed.

- Used Capacity The used capacity (physically allocated capacity) of volume is displayed.
- Used Rate The volume utilization is displayed. Used Rate = Used Capacity / Capacity
- Threshold
 The threshold for monitoring the volume utilization is displayed.
 If the "Used Rate" value exceeds the "Threshold", a Host Sense Key Code Qualifier is reported.

7.2.5 Flexible Tier Sub Pool Detail (Basic)

Click the [No.] link or the [Name] link on the <u>"7.2.3 Flexible Tier Pool Detail (Flexible Tier Sub Pool)" (page 346)</u> to display the corresponding Flexible Tier Sub Pool Detail screen.

Click the [Basic] tab on the [Flexible Tier Sub Pool Detail] screen to display the basic information of the corresponding FTSP.

Category	Flexible Tier Sul	b Pool		Action
Thin Provisioning Pools Fexible Tier Pools Settings	Flexible Tier Sub Po No.: 1 Name: PoolName00 Basic RAID G	ool Detail 1 roup	^	Target 0
	tegory Flexible Tier Sub Pool ■ Action Thin Provisioning Pools Flexible Tier Sub Pool Detail No:: 1 Name: PoolName001 ■ Basic RAID Group ▼ Flexible Tier Sub Pool Information Settings Settings QAvailable Drive Type Onine RAID Level High Capacity (RAIDS) Total Capacity 9.77 GB Shrinking -			
	Drive Type	Online		
	RAID Level	High Capacity (RAID5)		Action Target 0
	Total Capacity	97 66 GB		
	Used Capacity	9.77 GB		
	Shrinking			

The following items are displayed in the Main area:

Status

The FTSP status is displayed. Refer to <u>"A.4 Thin Provisioning Pool Status" (page 409)</u> for detailed information of FTSP status.

- Drive Type
 - The type of drive that configures the FTSP is displayed.
 - Online
 - SAS disks
 - Nearline
 - Nearline SAS disks
 - SSD
 - SSDs (*1)
 - Online SED Online SEDs
 - Nearline SED
 - Nearline SEDs
 - SSD SED
 - SSD SEDs
 - *1: "SSD" is displayed regardless of the actual SSD type (SSD-M/SSD-L/SSD).
- RAID Level

The level of RAID group that configures the FTSP is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity

The total capacity of FTSP is displayed.

• Used Capacity

The used capacity of the FTSP is displayed.

"Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the FTSP.

Shrinking

The shrinking status of the RAID groups in the FTSP is displayed.

Shrinking is a function that deletes specific RAID groups in the FTRP to reduce the physical capacity of the FTRP.

If the shrinking is not being performed, a "-" (hyphen) is displayed.

- Executing
 - The FTRP capacity is being reduced.
- Error

Reducing the FTRP capacity failed.

7.2.6 Flexible Tier Sub Pool Detail (RAID Group)

Click the [No.] link or the [Name] link on the <u>"7.2.3 Flexible Tier Pool Detail (Flexible Tier Sub Pool)" (page 346)</u> to display the detailed information of the corresponding Flexible Tier Sub Pool. Click the [RAID Group] tab on the [Flexible Tier Sub Pool Detail] screen to display the drive list that configures the relevant RAID group.

Category	Flex	ible Tier Sub	Pool					Action
Thin Provisioning Pools Footberring Pools Footberring Pools Settings	Flexible Tier Sub Pool Detail No:: 1 Name: PoolName001 Basic RAID Group ▼ Flexible Tier Sub Pool Information						Target: 0	
	No.	Name	Status	RAID Level	Total Capacity	Used Capacity	Deletin	
	15	RAIDName015	Available	Mirroring (RAID1)	95.41 GB	9.54 GB	-	
	<						>	
							~	

The following items are displayed in the Main area:

• No.

The number of the RAID group that belongs to the FTSP is displayed. Click this item to display the [RAID Group Detail] screen.

Name

The RAID group name is displayed. Click this item to display the [RAID Group Detail] screen.

• Status

The RAID group status is displayed. Refer to "A.3 RAID Group Status" (page 407) for details.

RAID Level

The RAID level is displayed.

- High Performance (RAID1+0)
- High Capacity (RAID5)
- High Reliability (RAID6)
- High Reliability (RAID6-FR)
- Mirroring (RAID1)
- Striping (RAIDO)
- Total Capacity

The total capacity of the RAID groups is displayed.

Used Capacity

The used capacity of the RAID groups is displayed.

"Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the RAID group.

Deleting

The RAID group deletion status is displayed.

- If a RAID group deletion process is not being performed, a "-" (hyphen) is displayed.
 - Executing
 - A RAID group deletion process is being performed or a data migration related to the deletion process is being performed.
- Еггог
- Deletion of the RAID group failed.

7.2.7 Flexible Tier Sub Pool Detail (RAID Group Detail)

Click the [No.] link or the [Name] link on the "7.2.6 Flexible Tier Sub Pool Detail (RAID Group)" (page 351) to display the detailed information of the corresponding RAID group.

Category	RAID Group	- Action	
E Thin Provisioning Pools	RAID Group Detail No.: 15 Name: RAIDName015 Basic Drives	-	Target: 0
	Statue		
	Status	Available	
	RAID Level	Mirroning (HAID1)	
	Hand Capacity	95,41 GB	
	Castalling CM	9 04 GB	
	Controlling CM	CWHI	
	Eco-mode Action		
	Motor Status	Active	
	Decessor	Acave	
	Process		
	Strine Depth		
	Deleting		
	Detering	5.	

The following items are displayed in the Main area:

Status

The RAID group status is displayed. Refer to "A.3 RAID Group Status" (page 407) for details.

- RAID Level
 - The RAID level is displayed.
 - High Performance (RAID1+0)
 - High Capacity (RAID5)
 - High Reliability (RAID6)
 - High Reliability (RAID6-FR)
 - Mirroring (RAID1)
 - Striping (RAIDO)

• Fast Recovery Configuration

The drive configuration in the Fast Recovery RAID group (*1) is displayed.

This item is displayed only when the RAID level is "High Reliability (RAID6-FR)".

- (4D+2P)x2+1HS
- (6D+2P)x2+1HS
- (8D+2P)x3+1HS
- (4D+2P)x5+1HS

D: Data drives, P: Parity drives, HS: Hot Spares

*1: "RAID6-FR" groups that configure FTSPs are called "Fast Recovery RAID groups".

• Total Capacity

The total capacity of the RAID groups is displayed.

Used Capacity

The used capacity of the RAID groups is displayed.

"Used Capacity" indicates the total for the physically allocated capacities of the FTVs in the RAID group.

• Controlling CM

The Controlling CM of the RAID group is displayed (x: CE number, y: CM number).

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#v
- For the other models CM#y
- Eco-mode Schedule

The Eco-mode schedule name that is assigned to the RAID group is displayed. If the Eco-mode is controlled with Storage Foundation Software ETERNUS SF, "External" is displayed. When no Eco-mode schedule has been assigned, the field is blank.

• Eco-mode Action

The Eco-mode schedule action status is displayed.

When no Eco-mode schedule has been assigned, a "-" (hyphen) is displayed.

- Drive power off
 - The power for the drive is turned off during Eco-mode operation.
- Drive motor off The drive motor is stopped during Eco-mode operation.
- Drive always on
 Disable Eco-mode and the drive is always active.
- Motor Status

The drive motor status is displayed.

- Active
 - The drive motors are activated.
- In the Boot Process
 - The drive motors are starting up.
- Idle
 - The drive motors are stopped.
- In the Stop Process The drive motors are being stopped.
- Power Off The drive power is being turned off.

• Fast Recovery Drive

When the hot spare area in the Fast Recovery RAID group is used, the drive number for the data recovery source drive is displayed. If Fast Recovery (*1) is not used, the field is blank.

- This item is displayed only when the RAID level is "High Reliability (RAID6-FR)".
- *1: High-speed rebuilding when one drive fails in the Fast Recovery RAID group.
 - CE Drive#yy (for the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F)
 - DE#xx Drive#yy (xx: DE number, yy: Drive number)
- Process

A process that is being performed is displayed. If no process is being performed, a "-" (hyphen) is displayed.

Progress

The progress of a process that is being performed is displayed with a bar and a rate (%). To display the latest progress, refresh the screen. If no process is being performed, a "-" (hyphen) is displayed.

• Stripe Depth

The Stripe Depth (*1) of the RAID group is displayed.

If the RAID level is "Mirroring (RAID1)", a "-" (hyphen) is displayed.

- 64 KB
- 128 KB
- 256 KB
- 512 KB
- 1024 KB
- *1: The number of logical blocks that are assigned to a drive for each stripe when configuring a stripe volume in a RAID group. Normally, it is 64KB.
- Deleting

The RAID group deletion status is displayed.

If a RAID group deletion process is not being performed, a "-" (hyphen) is displayed.

- Executing

A RAID group deletion process is being performed or a data migration related to the deletion process is being performed.

- Error

Deletion of the RAID group failed.

7.3 Settings (Thin Provisioning)

This function displays information on the Thin Provisioning function settings.

🔵 Note

The parameters that are described below can be changed. Refer to "Set Thin Provisioning" in "ETERNUS Web GUI User's Guide (Settings)" for details.

- Whether to enable or disable the Thin Provisioning function
- Maximum Pool Capacity

Category	Settings	Settings		
Contract Provisioning Pools Flexible Tier Pools Sections	Thin Provisioning Information			Target 0
	Thin Provisioning Enable			Set Thin Provisioning
	Maximum Pool Capacity	128.00 TB		
	Total Physical Capacity	40.03 GB		
			~	

The following items are displayed in the Main area:

- Thin Provisioning Whether the Thin Provisioning function is enabled or disabled is displayed.
- Maximum Pool Capacity

The maximum pool capacity that is specified for the ETERNUS DX/AF is displayed. The maximum pool capacity is the maximum total capacity for TPPs and FTRPs that can be created in the ETERNUS DX/AF. This item is displayed only when "Enable" is selected for the Thin Provisioning function.

- ETERNUS DX60 S3
 - 32.00 TB, 64.00 TB, 128.00 TB
- ETERNUS DX100 S3/DX200 S3
 32.00 TB, 64.00 TB, 128.00, 256.00 TB
- ETERNUS DX500 S3
 64.00 TB, 128.00 TB, 256.00 TB, 384.00 TB
- ETERNUS DX600 S3 128.00 TB, 256.00 TB, 512.00 TB, 768.00 TB, 1024.00 TB
- ETERNUS DX8100 S3 64.00 TB, 128.00 TB
- ETERNUS DX8700 S3/DX8900 S3 256.00 TB, 512.00 TB, 768.00 TB, 1024.00 TB, 1536.00 TB, 2048.00 TB
- ETERNUS AF250 32.00 TB, 64.00 TB, 128.00 TB, 256.00 TB

┝ Caution

The maximum pool capacity is used as a virtual logical capacity in the ETERNUS DX/AF. When the Thin Provisioning function is enabled, the ETERNUS DX/AF allocates capacity to the physical drives proportionate to the amount of data that is written to the virtual volume. Therefore, the actual available capacity is limited depending on the maximum physical capacity of the drives that can be installed in the storage system or the maximum pool capacity, whichever is smaller. For example, when using an ETERNUS DX200F that is configured only with 800GB SSDs, the actual capacity that can be used is approximately 16TB even if the maximum pool capacity is "32.00TB".

• Total Physical Capacity

The total physical capacity [PB/TB/GB/MB] of the TPPs in the ETERNUS DX/AF is displayed. This item is displayed only when "Enable" is selected for the Thin Provisioning function.

Chapter 8 Advanced Copy Status

Advanced Copy status displays the status information of volumes. Advanced Copy status screens can be displayed by clicking the following categories:

Category	Advanced Copy status screen
Advanced Copy	Advanced Copy (Basic Information)
Local Copy	Advanced Copy (All Local Sessions)
EC	EC
OPC	<u>OPC</u>
QuickOPC	QuickOPC
SnapOPC	<u>SnapOPC</u>
SnapOPC+	SnapOPC+
Monitor	Monitor
Remote Copy	Advanced Copy (All Remote Sessions)
REC	REC
ODX	ODX Sessions
ХСору	XCOPY Sessions
Virtual Volume	Virtual Volume Sessions
Settings	Settings (Advanced Copy)
Snap Data Pool	Snap Data Pool
Copy Path	Copy Path
REC Buffer	REC Buffer
REC Disk Buffer	REC Disk Buffer

Detailed information of the Advanced Copy functions can be displayed from the following screens:

- Advanced Copy (Property)
- Advanced Copy (Extent information)
- Copy Path Detail

8.1 Advanced Copy (Basic Information)

This function displays the status of all the Advanced Copy sessions.

🔵 Note

- To display the local/remote copy session information and the Advanced Copy information, register the Advanced Copy license. Note that the Remote Copy Sessions Information and Remote Copy related categories (copy path, REC Buffer, and REC Disk Buffer) are displayed only when using an ETERNUS DX/AF model that supports REC.
- In the Unified Storage environment, the following items are displayed even if the Advanced Copy function license is not registered.
 - Local Copy Sessions Information (SnapOPC+ Session)
 - Advanced Copy Information (Usable Advanced Copy Size for SnapOPC+)
- Registering an Advanced Copy license is not required to display the Advanced Copy session information for ODX sessions, Extended Copy (XCOPY) sessions, or Virtual Volume sessions.

Category	Advanced Copy				» Action	
E 🙆 Advanced Copy	▼ Local / Remote Copy Sessio	▼ Local / Remote Copy Sessions Information				
+ Local Copy		Session Count	Status	7	+ Start SnapOPC+	
DDX	EC Sessions	10	Normal			
XCOPY	OPC Sessions	4	Normal			
Virtual Volume Settings	QuickOPC Sessions	1	Normal			
	SnapOPC Sessions	1	Normal			
	SnapOPC+ Sessions	1	Normal			
	Monitor Sessions	1	Normal			
	REC Sessions	1	Normal			
	▼ ODX Sessions Information					
		Session Count	Status			
	ODX Sessions	0	Normal			
	▼ XCOPY Sessions Information					
		Session Count	Status			
	XCOPY Sessions	Q	Normal			
	▼ Virtual Volume Sessions Inf	▼ Virtual Volume Sessions Information				
		Session Count	Status	1		
	Virtual Volume Sessions	3	Normal			
	▼ Advanced Copy Information					
	Usable Advanced Copy Size 1.00 GB					
				~		

The following items are displayed in the Main area:

Local / Remote Copy Sessions Information

Session Count

The number of Advanced Copy sessions that are currently being performed for each type (EC, OPC, QuickOPC, SnapOPC, SnapOPC+, Monitor, and REC) is displayed.

The "Session Count" is a total of copy sessions in all the statuses including " Reserved". Click the [Session Count] link to display the list of sessions for each type.

- ETERNUS DX60 S3
- 0 1024
- ETERNUS DX100 S3
- 0 1024 (2048) (*1)
- ETERNUS DX200 S3
- 0 2048 (4096) (*1)
- ETERNUS DX500 S3/DX600 S3
- 0 8192

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- ETERNUS DX8100 S3
- 0 8192
- ETERNUS DX8700 S3/DX8900 S3
- 0 32768
- ETERNUS AF250
- 0 2048
- ETERNUS AF650
- 0 8192
- ETERNUS DX200F
- 0 2048
- *1: Values in parentheses indicate the number of sessions when "Expand Volume Mode" is "Enable". Refer to "Setup Subsystem Parameters" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Status

The status for each Advanced Copy session is displayed.

- 🧭 Normal

All the copy sessions are in the normal state.

- 😂 Error

At least one copy session is not in the normal state.

ODX Copy Sessions Information

An ODX session is created when the ODX function of Windows server 2012 is used.

Session Count

The number of ODX sessions (0 - 4096) that are currently being performed is displayed. The "Session Count" is a total of copy sessions in all the statuses including "

Count] link to display the list of sessions.

Status

The status for ODX sessions are displayed.

- Normal All the copy sessions are in the normal state.
- Error
 At least one copy session is not in the normal state.
- XCOPY Sessions Information

An XCOPY session is created when the Full Copy function of VMware VAAI is used.

Session Count

The number of XCOPY (Extended Copy) sessions (0 - 4096) (*1) that are currently being performed is displayed.

The "Session Count" is a total of copy sessions in all the statuses including " Reserved". Click the [Session Count] link to display the list of sessions.

*1: An XCOPY session is created when the Full Copy function of VMware vStorage APIs for Array Integration (VAAI) is used.

Status

The status for XCOPY sessions are displayed.

 Normal All the copy sessions are in the normal state.

- 😂 Error

At least one copy session is not in the normal state.

Virtual Volume Sessions Information

🕨 Caution

For the ETERNUS DX60 S3, this session information is not displayed.

Session Count

The number of Virtual Volume sessions that are currently running is displayed.

The "Session Count" is a total of copy sessions in all the statuses including " Reserved". Click the [Session Count] link to display the list of sessions.

- ETERNUS DX100 S3
- 0 4096
- ETERNUS DX200 S3
 0 4096 (8192) (*1)
- ETERNUS DX500 S3/DX600 S3
- 0 16384
- ETERNUS DX8100 S3
- 0 16384
- ETERNUS DX8700 S3/DX8900 S3
- 0 65535
- ETERNUS AF250
 0 1536
- ETERNUS AF650
 0 6144
- ETERNUS DX200F
- 0 1536
- *1: Values in parentheses indicate the number of sessions when "Expand Volume Mode" is "Enable". Refer to "Setup Subsystem Parameters" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- Status

The Virtual Volume session status is displayed.

- 🧭 Normal

All the copy sessions are in the normal state.

- 😂 Error

At least one copy session is not in the normal state.

- Advanced Copy Information
- Usable Advanced Copy Size The Advanced Copy capacity that can be added to the session is displayed.

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8.2 Advanced Copy (All Local Sessions)

This function displays status for local copy sessions.

The following session types are available: Equivalent Copy (EC), One Point Copy (OPC), QuickOPC, SnapOPC, SnapOPC+, and Monitor.

🔵 Note

- Local Copy Sessions Information is displayed only when the Advanced Copy function license has been registered.
- When an ETERNUS DX is used in a Unified Storage environment, the SnapOPC+ session list and SnapOPC+ session details are displayed even if the Advanced Copy function license has not been registered.

egory	Adv	» Action										
Advanced Copy	#	#Filter setting Filter										
EC		Status All Phase All Session ID:										
OPC QuickOPC SnapOPC SnapOPC+				12 items H	< 1/1 pag	es → H	1	page (Go	X stop session		
Monitor		Session ID	Source Volume No.	Destination Volume No.	Туре	Status	Phase	Error Code	Time Stan			
CDX COPY ★ COPY ★ Copy		0x0061	1	17	OPC	Active	Copying	0x00	2			
		0x0062	2	18	QOPC	Active	Copying	0x00	2			
		0x0063	3	19	SOPC	Active	Copying	0x00	2			
		0x0064	4	20	SOPC+	Active	Copying	0x00	1			
		0x0065	5	21	EC	Active	Copying	0x00	2			
		0x0067	7		MON	Active	Equivalent	0x00	2			
		0x0068	8		MON	Active	Equivalent	0x00	2			
		0x0069	9	25	OPC	Active	Copying	0x00	2			
		0x006C	12	28	QOPC	Active	Copying	0x00	2			
		0x006D	13	29	SOPC	Active	Readying	0x00	2			
		0x006E	14	30	SOPC+	Active	Readying	0x00	1			
	~	NYNNE	14	31	FC	Cartina	Convine	nvnn	3			

The following items are displayed in the Main area:

Session ID

The session ID is displayed. Click this item to display the screen shown in "8.8 Advanced Copy (Property)" (page 393) or "8.9 Advanced

- Copy (Extent information)" (page 400).
- Source Volume No.

The copy source volume number is displayed.

If the status is "

 Destination Volume No. The copy destination volume number is displayed.

If the "Status" is " Reserved" or when the copy session type is "MON", a "-" (hyphen) is displayed.

Type

The copy session type is displayed using an abbreviation.

- For Equivalent Copy: EC
- For One Point Copy: OPC
- For QuickOPC: QOPC
- For SnapOPC: SOPC
- For SnapOPC+: SOPC+
- For Monitor: MON

• Status The copy session status is displayed.

Active
Operating normally

Reserve
Session ID reserved

Suspend
 Suspended by an instruction from the host

- 😂 Error Suspend Copy canceled due to an error
- O Unknown
 A status other than the ones listed above
- Phase

The copy session phase is displayed. If the status is "

- Copying

For OPC, EC, SnapOPC, and SnapOPC+: Copying

For QuickOPC: Copying the updated areas after recording of updated areas is stopped For Monitor: Recording the updated areas

- Equivalent

Maintaining equivalent status of the copy source and copy destination that are duplicated after copy is complete

- Tracking

Recording only the updated area after copy is complete

- Tracking & Copy Recording the area updated during copy processing and after copy starts
- Readying

Readying to start multiple copy using the Concurrent OPC.

Error Code

The error code is displayed when an error occurs. If the status is " \heartsuit Reserved", a "-" (hyphen) is displayed. Refer to <u>"Appendix B Error Code" (page 414)</u> for details.

• Time Stamp

The time when backup is complete and the time when an error occurred are displayed. If the status is "

The time stamp is updated in the following conditions:

- OPC, QuickOPC, SnapOPC, and SnapOPC+

The time stamp is updated when copy starts and when an error occurs. The following information is displayed:

- When "Status" is "🥑 Active", the backup time when the copy started is displayed.
- When "Status" is "😵 Error Suspend", the time when the error occurred is displayed.
- QuickOPC

The time stamp is updated when copy starts, restarts, and when an error occurs. The following information is displayed:

- When "Status" is "
- When "Status" is "😵 Error Suspend", the time when the error occurred is displayed.

- EC

The time stamp is updated at Suspend and when an error occurs. The following information is displayed:

- When "Status" is " Active" and the copy session is not suspended yet, "0" is displayed for all of the display items. When suspend is requested and "Status" is " Active", the backup time of the previous suspend that was requested is displayed.
- When "Status" is " Suspend", the backup time when the copy was suspended is displayed.
- When "Status" is "🔀 Error Suspend", the time when an error occurred is displayed.
- Monitor

When "Status" is "

Elapsed Time

The elapsed time after a copy session has started is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Copied Data Size

The size of a copy that has been completed is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

When the copy type is "SOPC" or "SOPC+", only the original data (or previous data) before update in the copy target area is copied.

When the copy type is "MON", the updated data in the area for monitoring updates is copied. This copy type performs a pseudo copy to measure the updated amount of data.

Total Data Size

The data size of the copy target area is displayed. If the status is " Reserved", a "-" (hyphen) is displayed. When the copy type is "MON", the data size of the area for monitoring updates is displayed.

Resolution

The copy session resolution is displayed. If the status is " 💙 Reserved", a "-" (hyphen) is displayed.

Requestor

The information of the client that started the copy session is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

- SCSI

Copy session requested by the copy management software (via SCSI).

- LAN

Copy session requested by the copy management software (via LAN).

- GUI

Copy session requested by ETERNUS Web GUI.

- CLI

Copy session requested by ETERNUS CLI.

- SMI-S

Copy session requested by SMI-S.

- Unknown

Other than the above clients.

License

The registration status of the Advanced Copy license when the copy session is started is displayed.

- Regular

The copy session is started with a paid license or a free license (for the ETERNUS DX60 S3/DX100 S3/DX200 S3, the ETERNUS AF250, and the ETERNUS DX200F).

- Trial

The copy session is started with a trial license. Copy sessions that use a trial license are deleted automatically after the expiration of the trial license.

Filter setting

Filter	Description
Status	Select the copy session status that is to be displayed.
Phase	Select the copy session phase to be displayed.
Session ID	Input the session ID of the copy session that is to be displayed. When not using the session ID for filtering, leave this item blank.

8.2.1 EC

This function displays detailed information for EC sessions.

Category	Adv	anced Co	opy (EC Sess	ions)						» Action
Advanced Copy	#1	Filter settir Status:All	^	Target: 0 X Stop Session						
CPC CulckOPC SnapOPC				2 items H	< 1/1 page	s≻⊨	Î	1 🔹 page 🛛 Go		
Advanced Copy Advanced Copy Better OPC OutektOPC SnapOPC SnapOPC Monitor Revealed Copy OX Societary OX Societary Societary Societary Societary Societary Societary		Session ID	Source Volume No.	Destination Volume No.	Status	Phase	Error Code	Time Stamp		
COPY		0x0065	5	21	Active	Copying	0x00	2000-12-01 0(
🗈 🧮 Settings		0x006F	15	31	Active	Copying	0x00	2000-12-01 0(~		
	<							>		
									~	



8.2.2 OPC

This function displays detailed information for OPC sessions.

Category	Adv	anced Co	opy (OPC Set	ssions)						Action
Advanced Copy G	#1	Filter settir	ng				Fill	er Clear	~ 3	arget: 0
		Status All	Phase All S	ession ID:						
GuickOPC SnapOPC				2 items H	< 1/1 page	s → H		1 page Go		
Monitor		Session ID	Source Volume No.	Destination Volume No.	Status	Phase	Error Code	Time Stamp		
COPY		0x0061	1	17	Active	Copying	0x00	2011-01-31 2:		
Settings		<u>0x0069</u>	9	25	Active	Copying	0x00	2011-01-31 2:		
	<							>		
									~	
🔵 Note										
Refer to "8.2 Ad	lvar	iced (Cody (A	ll Local :	Sessio	ons)"	(pa	ge 361) fo	or d	lisplay items.

8.2.3 QuickOPC

Category	Adv	anced Co	py (QuickOF	PC Sessions)					Action
Advanced Copy Advanced Copy EC EC EC	#1	ilter settin Status All	A Target 0						
SnapOPC									
Monitor		Session ID	Source Volume No.	Destination Volume No.	Status	Phase	Error Code	Time Stamp	
XCOPY		0x0062	2	18	Active	Tracking	0x00	2000-12-01 0()	
E Settings	<							>	
									, ,

This function displays detailed information for QuickOPC sessions.

The following items are displayed in the Main area:

Modified Data Size

The differential data size when QuickOPC is executed is displayed.

The modified data size is updated in the "Tracking & Copy" and "Tracking" phases. When recopy starts, the modified data size is once changed to "0" and then the differential data size from the time when recopy started is displayed. When tracking stops, the modified data size is changed to "0". If the status is "

🔵 Note

Refer to <u>"8.2 Advanced Copy (All Local Sessions)</u>" (page 361) for the display items that are not described in this section.

8.2.4 SnapOPC

This function displays detailed information for SnapOPC sessions.

Category	Adv	anced Co	py (SnapOP	C Sessions)					Action
Advanced Copy Local Copy EC DPC	#	Filter settir Status:All	9 Phase:All Si	ession ID:			Filte	or Clear	A Target 0
GuickOPC ShapOPC ShapOPC+									
Monitor Remote Copy ODX		Session ID	Source Volume No.	Destination Volume No.	Status	Phase	Error Code	Time Stamp	
XCOPY		0x0063	3	19	Active	Copying	0x00	2009-01-01 (
Seamga		<u>0x006D</u>	13	29	CActive	Readying	0×00	2009-01-01 (♥	
									~

The following items are displayed in the Main area:

• SDP No.

The Snap Data Pool number, which is used when the copy destination SDV capacity is insufficient, is displayed. If the status is " Reserved" or when the copy destination is not an SDP, a "-" (hyphen) is displayed.

SDP Used Capacity

The used capacity of Snap Data Pool is displayed. If the status is " Reserved" or when the copy destination is not an SDP, a "-" (hyphen) is displayed.

🔵 Note

Refer to <u>"8.2 Advanced Copy (All Local Sessions)</u>" (page 361) for the display items that are not described in this section.

8.2.5 SnapOPC+

This function displays detailed information for SnapOPC+ sessions.

Category	Adv	anced Co	py (SnapOP	C+ Sessions)4					Action
E 🤷 Advanced Copy	#	ilter settin	g			1	Filter	Clear	~	Target: 0
EC OPC		Status: All	Start SnapOPC+ Stop Session							
QuickOPC										
SnapOPC* Monitor E Remote Copy ODX	•	Session ID	Source Volume No.	Destination Volume No.	Generation	Status	Phase	Error Code		
COPY		<u>0x0064</u>	4	20	1/1	Active	Copying	0x00	^	
🗈 🧮 Settings		<u>0x006E</u>	14	30	121	Active	Readying	0x00	~	
				_					>	
									~	

The following items are displayed in the Main area:

• Generation

The generation and total number of generations of the copy session are displayed.

• SDP No.

The Snap Data Pool number, which is used when the copy destination SDV capacity is insufficient, is displayed. If the status is " Reserved" or when the copy destination is not an SDP, a "-" (hyphen) is displayed.

SDP Used Capacity

The used capacity of Snap Data Pool is displayed. If the status is "SRESERVED" or when the copy destination is not an SDP, a "-" (hyphen) is displayed.

Note

Refer to <u>"8.2 Advanced Copy (All Local Sessions)</u>" (page 361) for the display items that are not described in this section.

8.2.6 Monitor

This function displays detailed information for Monitor sessions.

Category	Adv	anced Co	py (Monitor	Sessions)				Action
Advanced Copy Ec EC OPC	#	ilter settin Status All	Target: 0						
QuickOPC									
COPY Settings		Session ID	Source Volume No.	Status	Phase	Error Code	Time Stamp	Elapsed Time	
		0x0067	7	Active	Equivalent	0x00	2000-12-01 00:00:07	5 hou	
		<u>0x0068</u>	8	Active	Equivalent	0x00	2000-12-01 00:00:07	5 hol V	

O Note

Refer to <u>"8.2 Advanced Copy (All Local Sessions)</u>" (page 361) for display items.

8.3 Advanced Copy (All Remote Sessions)

This function displays the status for remote copy sessions.

┝ Caution

The ETERNUS DX60 S3 does not support the remote copy sessions.

Note

Remote Copy Sessions Information is displayed only when the Advanced Copy function license has been registered, and when using an ETERNUS DX/AF model that supports REC.

Category	Adv	vanced Co	opy (All Rem	ote Sessions)					» Action		
Advanced Copy	#	Filter settir	ng				FB	ter Cle	ar	Target 0		
E Cocal Copy		Status: All	X Stop Session									
C ODX												
XCOPY		3items H 4 1/1 page > H 11 + page Go										
 Virtual Volume Ettings 		Session Source Volume No.	Destination Volume No.	Remote Session ID	Туре	Status	Phase	Error Code				
		0×0066	6	22	0×0006	REC	Active	Copying	0×00			
		0x006B	11	27	0×0008	REC	Active	Copying	0x00			
		0x0074	20	35	0x0014	REC	Active	Copying	0x00			
	<	4							>			

The following items are displayed in the Main area:

- Session ID
- The session ID is displayed.

Click this item to display the screen shown in <u>"8.8 Advanced Copy (Property)" (page 393)</u> or <u>"8.9 Advanced Copy (Extent information)" (page 400)</u>.

• Source Volume No.

The copy source volume number is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

• Destination Volume No.

The copy destination volume number is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Remote Session ID

The session ID for the remote storage system is displayed.

• Type

The copy session type is displayed using an abbreviation (REC).

- Status The copy session status is displayed.
 - Active
 Operating normally
 - Reserve
 Session ID reserved
 - Suspend
 Suspended by an instruction from the host
 - 😵 Halt Remote copy disabled due to an error
 - Error Suspend
 Copy canceled due to an error
 - O Unknown
 A status other than the ones listed above
- Phase

The copy session phase is displayed. If the status is "🤣 Reserved", a "-" (hyphen) is displayed.

- Copying
 Copying
- Equivalent

Maintaining equivalent status of the copy source and copy destination that are duplicated after copy is complete

Error Code

The error code is displayed when an error occurs. If the status is " Reserved", a "-" (hyphen) is displayed. Refer to "Appendix B Error Code" (page 414) for details.

Direction

The copy direction of the applicable session is displayed. If the status is " \heartsuit Reserved", a "-" (hyphen) is displayed.

- From Local/To Remote
- Session from the local storage system (copy source) to the remote storage system (copy destination) - From Remote/To Local

Session from the remote storage system (copy source) to the local storage system (copy destination)

• Time Stamp

The time when backup has been completed, and the time when an error occurred, are displayed. The time stamp is updated when the process is suspended, when an error occurs, and when the status is changed.

The following information is displayed for "Time Stamp".

- When "Status" is "
- When "Status" is " Active" and the copy session is not suspended yet, "0" is displayed for all of the display items. When suspend is requested and "Status" is " Active", the backup time of the previous suspend that was requested is displayed.
- When "Status" is " Zuspend", the backup time when the copy was suspended is displayed.
- When "Status" is "😰 Error Suspend", the time when an error occurred is displayed.
- When "Status" is "🔀 Halt", the time when an error occurred is displayed.

When the status is changed from "😵 Halt" to "🥑 Active" or when the copy session is forcibly suspended, the time stamp information is cleared and "0" is displayed for all of the display items.

Elapsed Time

The elapsed time after a copy session starts is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Copied Data Size

The size of copy that has been completed is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Total Data Size

The total copy size is displayed. If the status is "🕑 Reserved", a "-" (hyphen) is displayed.

Resolution

The copy session resolution is displayed. If the status is "🜏 Reserved", a "-" (hyphen) is displayed.

Requestor

The information of the client that started the copy session is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

- SCSI

Copy session requested by the copy management software (via SCSI).

- LAN

Copy session requested by the copy management software (via LAN).

- SMI-S

- Unknown

Copy session requested by SMI-S.

- Other than the above clients.
- License

The registration status of the Advanced Copy license when the copy session is started is displayed. If the license information for the connection target storage system cannot be obtained due to a copy path error, "Unknown" is displayed.

- Regular

The copy session is started with a paid license.

- Trial

The copy session is started with a trial license. Copy sessions that use a trial license are deleted automatically after the expiration of the trial license.

• Remote Box ID The remote Box ID is displayed.

Filter setting

Filter	Description
Status	Select the copy session status that is to be displayed.
Phase	Select the copy session phase that is to be displayed.
Session ID	Input the session ID of the copy session that is to be displayed. When not using the session ID for filtering, leave this item blank.
Remote Box ID	Input the remote Box ID of the copy session that is to be displayed. When not using the remote BOX ID for filtering, leave this item blank.

8.3.1 REC

This function displays detailed information for REC sessions.

egory	Adv	anced Co	opy (REC Ses	ssions)						» Action
Advanced Copy	#	Filter settir	ng				Filte	er Ck	ear	Target 0
Remote Copy		X Stop Session								
							0		(77)	
XCOPY	II			3 1001015	< i tripa	ges i i i		page	9 90	
 Virtual Volume 		Session ID	Source Volume No.	Destination Volume No.	Remote Session ID	Status	Phase	Error Code	Directi	
		0x0066	6	22	0x0006	Active	Copying	0x00	From L	
		<u>0x006B</u>	11	27	0×0008	Active	Copying	0×00	From F	
		0x0074	20	35	0x0014	Active	Copying	0×00	From F	
	<								>	

🔵 Note

Refer to <u>"8.3 Advanced Copy (All Remote Sessions)" (page 369)</u> for display items.

8.4 ODX Sessions

This function displays the status for ODX sessions.

ODX sessions are created when the ODX function is used for a server with "Windows Server 2012". The ODX function offloads the workload for copying or migrating data from the server to the ETERNUS DX/AF.

Category	ODX S	essions	Action						
E 🖴 Advanced Copy E 📴 Local Copy	₩Filt	Target 0							
Remote Copy Set Settings	St	atus All	Go						
		ession D	Source Volume No.	Destination Volume No.	Status	Error Code	Time Stamp	Elap Time	
		x0077	1	11	Active	0 ×00	2011-01-31 23 59 06	50	
								×.	

The following items are displayed in the Main area:

Session ID

The session ID is displayed.

Click this item to display the screen shown in <u>"8.8 Advanced Copy (Property)" (page 393)</u> or <u>"8.9 Advanced Copy (Extent information)" (page 400)</u>.

• Source Volume No.

The copy source volume number is displayed. If the status is "🜏 Reserved", a "-" (hyphen) is displayed.

Destination Volume No.

The copy destination volume number is displayed. If the status is "🔗 Reserved", a "-" (hyphen) is displayed.

• Status

The copy session status is displayed.

- Active
 Operating normally
- Reserve
 Session ID reserved
- Error Suspend
 Copy canceled due to an error
- 🕜 Unknown A status other than the ones listed above

• Error Code

The error code is displayed when an error occurs. If the status is " \bigcirc Reserved", a "-" (hyphen) is displayed. Refer to "Appendix B Error Code" (page 414) for details.

Time Stamp

The time when backup is complete and the time when an error occurred are displayed. The time stamp is updated when starting a copy session or an error occurs. The following information are displayed for this item:

- If the status is "
- If the status is " Z Active", the backup time when the copy started is displayed.
- If the status is "🔀 Error Suspend", the time when an error occurred is displayed.
- Elapsed Time

The elapsed time after a session starts is displayed. If the status is " \bigcirc Reserved", a "-" (hyphen) is displayed.

Copied Data Size

The size of copy that has been completed is displayed. If the status is "SREST Reserved", a "-" (hyphen) is displayed.

Total Data Size

The total copy size is displayed. If the status is "

Filter setting

Filter	Description
Status	Select the copy session status that is to be displayed.
Session ID	Input the session ID of the copy session that is to be displayed. When not using the session ID for filtering, leave this item blank.

8.5 XCOPY Sessions

This function displays the status for XCOPY sessions.

An XCOPY (Extended Copy) session is created when the Full Copy function of VMware vStorage APIs for Array Integration (VAAI) is used.

aregory	XCO	DPY Sess	ions						Action
Advanced Copy	#	Filter settir	g				Filter Clear	-	Target: 0
Remote Copy		Status All	Session ID						X Stop Session
E Settings				1 items 14	< 1/1 page	s > H	1 page	Go	
		Session ID	Source Volume No.	Destination Volume No.	Status	Error Code	Time Stamp	Elap Time	
		<u>0x0078</u>	1	11	Active	0 ×00	2011-01-31 23 59 06	50	

The following items are displayed in the Main area:

Session ID

The session ID is displayed.

Click this item to display the screen shown in <u>"8.8 Advanced Copy (Property)" (page 393)</u> or <u>"8.9 Advanced</u> Copy (Extent information)" (page 400).

• Source Volume No.

The copy source volume number is displayed. If the status is "🜏 Reserved", a "-" (hyphen) is displayed.

• Destination Volume No.

The copy destination volume number is displayed. If the status is "🔗 Reserved", a "-" (hyphen) is displayed.

Status

The copy session status is displayed.

- 🕏 Active Operating normally
- Reserve
 Session ID reserved
- Error Suspend
 Copy canceled due to an error
- 🕜 Unknown A status other than the ones listed above
- Error Code

The error code is displayed when an error occurs. If the status is " \heartsuit Reserved", a "-" (hyphen) is displayed. Refer to "Appendix B Error Code" (page 414) for details.

Time Stamp

The time when backup has been completed, and the time when an error occurred, are displayed. The time stamp is updated when starting a copy session or an error occurs. The following information is displayed:

- If the status is " 📀 Reserved", a "-" (hyphen) is displayed.
- If the status is " Active", the backup time when the copy started is displayed.
- If the status is "😵 Error Suspend", the time when the error occurred is displayed.
- Elapsed Time

The elapsed time after a session starts is displayed. If the status is " \heartsuit Reserved", a "-" (hyphen) is displayed.

Copied Data Size

The size of copy that has been completed is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Total Data Size

The total copy size is displayed. If the status is "

Filter setting

Filter	Description
Status	Select the copy session status that is to be displayed.
Session ID	Input the session ID of the copy session that is to be displayed. When not using the session ID for filtering, leave this item blank.

8.6 Virtual Volume Sessions

This function displays the status for the Virtual Volume session. Virtual Volume sessions are created by VMware vSphere 6.0.

┝ Caution

The ETERNUS DX60 S3 does not support the Virtual Volume function.

Vranced Copy Local Copy Remote Copy ODX Scopy Visiting Kolume Setting Settin
Local Copy Session ID: Type:All Status:All Panole Copy ODX Session ID: Type:All Status:All Volume I Settings Session Session Image: Session Settings Session Session Session Settings Session Session Session I Mathematical Section Source ID Destination Volume No. Type Status Merging Generation Error Code Status I 000001 1 17 Snapshot Snapshot Snapshot Snapshot
ODX XCCPY XCCPY Virtual Volume Settings Source ID Destination Volume No. Type Status Merging Generation Generation Error Code Ti Status 0x0001 1 17 Snapshot Qr/A Qr/A Qr/A
XCDPY 3/6ms I/I ages I/I a
Settings Session Source Destination Type Status Merging Generation Error Ti 0 0x0091 1 17 Snapshot QA2tive No 2/3 0x04
Session Source Desination Type Status Merging Generation Error II ID Volume No. Volume No. Type Status Merging Generation Code Status ID 0x0001 1 17 Snapshot QActive No 2/3 0x04
0x0091 1 17 Snapshot QActive No 2/3 0x04
0x0001 1 17 Snapshot Active No 2/3 0x04
0x0082 16 18 Fastclone CActive 0x00
□ 0x0083 19 35 CopyDiffs QActive 0x00

The following items are displayed in the Main area:

Session ID

The session ID is displayed. Click this item to display the screen shown in <u>"8.8 Advanced Copy (Property)" (page 393)</u>.

Source Volume No.

The copy source volume number is displayed. If the status is "🜏 Reserved", a "-" (hyphen) is displayed.

• Destination Volume No.

The copy destination volume number is displayed. If the status is " 🕜 Reserved", a "-" (hyphen) is displayed.

Type

The session type is displayed.

- Snapshot
 VVOLs are being copied with the Copy-on-Write method (equivalent to SnapOPC+).
 Write I/O for the copy destination VVOL is not allowed.
- Fastclone
 VVOLs are being copied with the Copy-on-Write method (equivalent to SnapOPC).
 Write I/O for the copy destination VVOL is allowed, but restoring data is not allowed.
- Clone

VVOLs are being copied with the Background copy method (equivalent to OPC).

- Revert

Data is being restored from the Snapshot destination WOL to the Snapshot source WOL.

- CopyDiffs

Comparison result (the difference of a data) between two VVOLs during a Snapshot session is being copied to the third VVOL.

Status

The copy session status is displayed.

- Active
 Operating normally
- Reserved
 Session ID reserved
- Error Suspend
 Copy canceled due to an error
 - Unknown A status other than the ones listed above
- Merging

When the data merge process for a Snapshot is being performed, "Yes" is displayed.

If not, "No" is displayed. The "merge process" targets deleted data of a specific generation (except the oldest generation) and copies the difference in data to the previous generation.

When the session type is not "Snapshot" or when the copy status is " \bigcirc Reserved", a "-" (hyphen) is displayed.

Generation

The generation and total number of generations of the Snapshot session are displayed.

When the session type is not "Snapshot" or when the copy status is " Reserved", a "-" (hyphen) is displayed.

Error Code

The error code is displayed when an error occurs. If the status is " Reserved", a "-" (hyphen) is displayed. Refer to <u>"Appendix B Error Code" (page 414)</u> for details.

Time Stamp

The time when backup has been completed, and the time when an error occurred, are displayed. The time stamp is updated when starting a copy session or an error occurs. The following information is displayed:

- If the status is "
- If the status is " Active", the backup time when the copy started is displayed.
- If the status is "😵 Error Suspend", the time when the error occurred is displayed.
- Elapsed Time

The elapsed time after a session starts is displayed. If the status is " \checkmark Reserved", a "-" (hyphen) is displayed.

Copied Data Size

The size of copy that has been completed is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

Total Data Size

The total copy size is displayed. If the status is "

• Destination FTRP No.

The FTRP No. to which the copy destination FTV belongs is displayed.

When the copy session type is not "Snapshot" or "Fastclone", or when the copy status is " Reserved", a "-" (hyphen) is displayed.

Used Session Capacity

The used capacity of FTRP area is displayed.

When the copy session type is not "Snapshot" or "Fastclone", or when the copy status is " Reserved", a "-" (hyphen) is displayed.

Filter setting

Filter	Description
Session ID	Input the session ID of the copy session that is to be displayed. When not using the session ID for filtering, leave this item blank.
Туре	Select the type of the copy session that is to be displayed.
Status	Select the copy session status that is to be displayed.

8.7 Settings (Advanced Copy)

This function displays the current Advanced Copy license registration status and the Advanced Copy setting state.

🔵 Note

- When the trial license is registered, the registration date and the expiration date is displayed.
- Registering an Advanced Copy license and registering the copy table size are not required when using the ODX or XCOPY function, or when using copy functions with VVOLs.

Category	Settings	Settings					
🗉 🤐 Advanced Copy	T License Inform	▼ License Information					
Local Copy Demote Copy	Cicenae mon	State	State Registration Date		+ Register License		
ODX XCOPY Stant Stant Cory Path	Local Copy	Full	+	21	X Delete License		
	Remote Copy	Full	4/	4.5	Modify EC/OPC Priority		
	▼ Advanced Co	Advanced Copy Settings					
REC Buffer	Copy Table Size	12 12 10	32 MB	32 MB			
REC Disk Buffer	EC/OPC Priority		Automatic Priority	Automatic Priority			
	Current EC/OPC P	riority	High Priority				
	ODX Buffer Volum	e	Not Registered				

The following items are displayed in the Main area:

- License Information
- State

Registration status of the Advanced Copy license is displayed. "Remote Copy" is displayed only for models that support REC.

- Not Registered

No license is registered.

- Free

The free license is registered. Up to eight local copy sessions can be created as an Advanced Copy. This item is only displayed for the local copy functions of an ETERNUS DX60 S3/DX100 S3/DX200 S3, an ETER-NUS AF250, and an ETERNUS DX200F.

- Trial

A trial license is registered. All of the Advanced Copy functions can be used for a limited time.

Trial Expiration

The trial license is expired. The Advanced Copy function is not available. This item is displayed for the local copy functions of an ETERNUS DX500 S3/DX600 S3, an ETERNUS DX8100 S3/DX8700 S3/DX8900 S3, and an ETERNUS AF650.

- Full

A paid license is registered. All of the Advanced Copy functions can be used.

Registration Date

The date when the trial license was registered is displayed. A "-" (hyphen) is displayed in the following conditions:

- Trial license has never been registered.
- A paid license or a free license is registered.

• Expiration Date

The expiration date for the trial license is displayed. A "-" (hyphen) is displayed in the following conditions:

- Trial license has never been registered.
- A paid license or a free license is registered.

Advanced Copy Settings

• Copy Table Size

A copy table size is displayed.

This item is displayed only when the Advanced Copy function license has been registered or when the Unified Storage function is enabled.

EC/OPC Priority

The EC/OPC priority is displayed.

This item is displayed only when the Advanced Copy function license or the Storage Cluster function license has been registered.

- Automatic Priority

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

- High Priority This mode operates by making maximum use of internal resources.
- Middle Priority

This mode operates slightly slower than the High Priority mode.

- Low Priority This mode reduces the effect on host access.
- Very Low Priority

This mode operates slower than the Low Priority mode.

Current EC/OPC Priority

The current EC/OPC priority is displayed.

This item is displayed only when the Advanced Copy function license or the Storage Cluster function license has been registered.

- High Priority
- Middle Priority
- Low Priority
- Very Low Priority
- ODX Buffer Volume

The registration status of the ODX Buffer volume is displayed.

- Registered
- Not Registered

8.7.1 Snap Data Pool

This function displays the usage of SDP.

SDP is the area used when in case executing SnapOPC and SnapOPC+ increases the amount of copy data and exceeds the SDV capacity.

SDP becomes available when creating an SDPV. Created SDPV is automatically added to the SDP.

🔵 Note

- This function is displayed only when the Advanced Copy function license has been registered or when the Unified Storage function is enabled.
- Because the ETERNUS DX60 S3 does not support the encryption function, display items that follow "Total Capacity" are displayed without the "Encrypted/Unencrypted" table heading.

For the ETERNUS DX60 S3

Category	Snap	Data Poo	ol –								·· Action
Advanced Copy	SDP No.	Total Capacity	Total Free Space	SDPE	Total Capacity	Total Used Capacity	Total Used Capacity (%)	Used Host Capacity	Used Copy Capacity	~	Target: 0 X Modify Copy Parameters
Settings Smap Data Pool	0 < 1	4 GB	4 GB	1 GB	4 GB	0 GB	0%	0 GB	0 GB () >	< A statement of the st	

For the other models

The following items are displayed in the Main area:

- SDP No. The SDP number (fixed as "0") is displayed.
- Total Capacity The total capacity of the SDP is displayed.
- Total Free Space The total free space of the SDP is displayed.
- SDPE
 - Snap Data Pool Element (SDPE), the allocation unit for SDV, is displayed with 1GB, 2GB, or 4GB.
- Unencrypted
 - Total Capacity

The total capacity of unencrypted SDP is displayed.

- Total Used Capacity

The total used capacity of unencrypted SDP is displayed.

Total Used Capacity (%)

The usage rate of unencrypted SDP is displayed.

- Used Host Capacity

The total capacity of the SDPE that is allocated for an unencrypted SDV where a capacity shortage caused by data writing from the host has occurred is displayed.

- Used Copy Capacity

The total capacity of the SDPE that is allocated for an unencrypted SDV where a capacity shortage caused by SnapOPC or SnapOPC+ has occurred is displayed.

- Encrypted
 - Total Capacity

The total capacity of encrypted SDP is displayed.

- Total Used Capacity

The total used capacity of encrypted SDP is displayed.

- Total Used Capacity (%)

The usage rate of encrypted SDP is displayed.

- Used Host Capacity

The total capacity of the SDPE that is allocated for an encrypted SDV where a capacity shortage caused by data writing from the host has occurred is displayed.

- Used Copy Capacity

The total capacity of the SDPE that is allocated for an encrypted SDV where a capacity shortage caused by SnapOPC or SnapOPC+ has occurred is displayed.

8.7.2 Copy Path

This function displays the REC path status between the local and remote storage systems. It shows whether the copy path created with the function in "Set Copy Path" is operating properly. Refer to "Set Copy Path" in "ETERNUS Web GUI User's Guide (Settings)".

Select the target remote storage system. (Up to 16 storage systems can be registered.) The following items are displayed.

- Storage System
- Advanced Copy Path Status

Caution

- The ETERNUS DX60 S3 does not support this function.
- After creating the copy paths, make sure to check the copy path status with this function.

Note

- This function is displayed only when the Advanced Copy function license or the Storage Cluster function license has been registered, and when using an ETERNUS DX/AF model that supports REC.
- The "Priority Level" and the "Multiplicity" settings can be specified for each remote Box ID. Refer to "Modify REC Multiplicity" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- To change the "Link Speed" setting, create a copy path with a new link speed by using the [Set Copy Path] function, and apply the created copy path to the related storage systems. Refer to "Set Copy Path" in "ETERNUS Web GUI User's Guide (Settings)" for details.

Category	Copy Path			» Action
E 🙆 Advanced Copy	▼ Local Storage Information	Target 0		
Local Copy Remote Copy	Box ID 00ETERNUSDXMS2ET00000A####EI000000##	Set Copy Path		
DDX DDX	▼ Remote Storage Information			X Delete All Copy Path
Virtual Volume	Box ID	Connection Prio	nity Multiplicity	Export All Copy Path Export Storage Info
Snap Data Pool	00ETERNUSDXMS2ET00000A####EI000001######	Remote -	5	Set Hound The Time
REC Buffer	00ETERNUSDXMS2ET00000A####EI000002######	Remote -	2	Set REC Bandwidth Limit
REC Disk Buffer	00ETERNUSDXMS2ET00000A####EI000003######	Direct Auto	matic -	
	¢		>	

The following items are displayed in the Main area:

- Local Storage System Information
- Box ID

The Box ID for the local storage system is displayed.

"Box ID" is an identifier used to identify individual storage systems. This ID is a unique name in the user system and consists of 40-digit code.

The initial Box ID is a device ID consisting of device information (such as series name, model name, and serial number).

Remote Storage System Information

Box ID

This is the Box ID of the remote storage system that has a path to the local storage system. Click this item to display the [Copy Path] screen. Refer to <u>"8.10 Copy Path Detail" (page 401)</u> for details.

• Connection Type

The type of connection to the remote storage system that has a path to the local storage system is displayed.

- Direct
- Remote
- Priority Level

REC is performed using the priority level (Automatic Priority/High Priority/Middle Priority/Low Priority/Very Low Priority) that is specified with the [Modify EC/OPC Priority] function (*1).

- Automatic

REC is performed using the priority level (Automatic Priority/High Priority/Middle Priority/Low Priority/ Very Low Priority) that is specified using the "Modify REC Multiplicity" function (*1).

- 1 - 8

REC is performed with the displayed priority level. "1" corresponds to "Very Low Priority", and "8" corresponds to "High Priority" for the [Modify EC/OPC Priority] function (*1).

Multiplicity

When the local storage system and the remote storage system are connected by remote connection, the multiplicity is displayed. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

- Automatic

REC is performed with the recommended multiplicity that is calculated by the [Measure Round Trip Time] result (*2).

- 1 - 1024

REC is performed with the multiplicity that is manually specified with the [Modify REC Multiplicity] function (*3).

Recommended Multiplicity

When the local storage system and the remote storage system are connected by remote connection, the recommended multiplicity is displayed. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

- 1 - 1024

The recommended multiplicity that is calculated by the [Measure Round Trip Time] result (*2).

The round trip time is not measured by the [Measure Round Trip Time] function (*2).

• Link Speed

When the local storage system and the remote storage system are connected by remote connection, the link speed is displayed between 1 Mbit/s - 65535 Mbit/s. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

- *1: Refer to "Modify EC/OPC Priority" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- *2: Refer to "Measure Round Trip Time" in "ETERNUS Web GUI User's Guide (Settings)" for details.
- *3: Refer to "Modify REC Multiplicity" in "ETERNUS Web GUI User's Guide (Settings)" for details.

8.7.3 REC Buffer

This function displays the REC Buffer status when performing REC in "REC asynchronous consistency mode". The "Consistency mode" secures the order of data transfer to the remote storage system for all of the specified REC sessions. This mode requires constant securement of the dedicated REC Buffer in the cache memory. Copying via REC Buffer stores multiple REC session I/Os in the REC Buffer for a certain period of time, and copies in blocks.

Caution

The ETERNUS DX60 S3 does not support this function.

🔵 Note

This function is displayed only when the Advanced Copy function license has been registered, and when using an ETERNUS DX/AF model that supports REC.

Category	REG	E Buffer					» Action
E 🤐 Advanced Copy	0	Group	Usage	Remote Box ID	Status	Mirror	Target 0
Local Copy Remote Copy		0	Send	00ETERNUSDXMS2ET00000A####EI000001######	ACTIVE	Nor	X Modify REC Buffer
DDX		1	Receive	00ETERNUSDXMS2ET00000A####EI000002######	ACTIVE	Rec	Assign REC Disk Buffer
E Settings		2	Receive	???	ACTIVE	Nor	
Snap Data Pool		3	Unused	-	4	4	
Copy Path		4	Unused	-	4	4	
REC Disk Buffer		5	Unused	2	12. 	12	
-		6	Unused	*	-		
		7	Unused	2	12	12	
							-

The following items are displayed in the Main area:

• Group

The management group number of the REC Buffer is displayed.

- ETERNUS DX100 S3

0

- ETERNUS DX200 S3

0 - 3

- ETERNUS DX500 S3/DX600 S3

0 - 7

- ETERNUS DX8100 S3/DX8700 S3/DX8900 S3

0 - 7

- ETERNUS AF250

0 - 3

- ETERNUS AF650

0 - 7

- ETERNUS DX200F
- 0 3

• Usage

The REC Buffer usage is displayed.

- Unused

- Send
- Receive
- Remote Box ID

The Box ID for the remote storage system is displayed.

If the copy path information is deleted after the REC Buffer creation, "???" is displayed. Note that REC Buffers with "???" cannot be used. Delete any REC Buffers with this status. Refer to "Modify REC Buffer" in "ETERNUS Web GUI User's Guide (Settings)" for details.

A "-" (hyphen) is displayed when the usage is "Unused".

Status

The REC Buffer status is displayed.

- ACTIVE
 - REC Buffer can transfer data.
- INACTIVE

REC Buffer cannot transfer data.

Mirror Status

The mirroring status (redundancy status) of the REC Buffer is displayed. When the REC Buffer usage is "Unused", a "-" (hyphen) is displayed. The REC Buffer is duplicated by two CMs to prevent data loss when the ETERNUS DX/AF fails or when maintenance is performed.

- Normal

Duplication of the REC Buffer was successful.

- Recovering

Duplication of the REC Buffer failed.

- Size
 - The REC Buffer size is displayed. When the REC Buffer usage is "Unused", a "-" (hyphen) is displayed.
 - ETERNUS DX100 S3
 - 128MB
 - ETERNUS DX200 S3 128MB, 256MB, 512MB
 - ETERNUS DX500 S3/DX600 S3 128MB, 256MB, 512MB, 1024MB, 2048MB
 - ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 128MB, 256MB, 512MB, 1024MB, 2048MB
 - ETERNUS AF250
 128MB, 256MB, 512MB
 - ETERNUS AF650
 128MB, 256MB, 512MB, 1024MB, 2048MB
 ETERNUS DX200F
 - 128MB, 256MB, 512MB
- Forwarding Interval

The data transfer interval is displayed. When the REC Buffer usage is "Unused", a "-" (hyphen) is displayed.

• Monitoring Time

The monitoring time, before transition to the "Halt" state for a copy session when an REC Buffer shortage occurs, is displayed. When the monitoring time" is "0 min.", the ETERNUS DX/AF is not being monitored. When the REC Buffer usage is "Unused", a "-" (hyphen) is displayed.

HALT Wait Timer

The maximum non-responding time is displayed. During the non-response time, the host I/O response is stopped to give priority to performing REC Buffer transfers in a high-load state. When the REC Buffer usage is "Unused", a "-" (hyphen) is displayed.

• I/O Priority Mode

Whether the "I/O Priority Mode" is enabled or disabled is displayed. A "-" (hyphen) is displayed when the usage is "Unused".

"I/O Priority Mode" reduces the effect on host I/O when an initial copy for starting, restarting, or recovering the copy function is performed.

This item is available when logged in using a user account with the "Advanced Copy Management" policy.

• Immediate HALT Mode

Whether the "Immediate HALT Mode" is enabled or disabled is displayed. A "-" (hyphen) is displayed when the usage is "Unused".

"Immediate HALT Mode" reduces the effect on host I/O because the REC Buffer is insufficient when "HALT Wait Timer" is set to "O sec.".

This item is available when logged in using a user account with the "Advanced Copy Management" policy.

• High Bandwidth Mode

Whether the "High Bandwidth Mode" is enabled or disabled is displayed. A "-" (hyphen) is displayed when the usage is "Unused".

"High Bandwidth Mode" reduces the number of communications by transferring control data required for buffer transfers with as little time as possible to improve the transfer speed for long distance communication.

This item is available when a user with the "Advanced Copy Management" policy is logged on an ETERNUS DX/AF with a controller firmware version V10L4x or later.

REC Disk Buffer Status

When the REC Buffer usage is "Send", the status of the REC Disk Buffers that are assigned to the REC Buffer is displayed. A "-" (hyphen) is displayed when the REC Disk Buffer is not allocated or the usage is "Receive" or "Unused".

- Active

All of the REC Disk Buffers in the REC Buffer are available.

- Rebuilding

Rebuild/copyback is being performed in some of the REC Disk Buffers.

- Formatting Formatting is being performed in some of the REC Disk Buffers.
- Not Supported

The copy destination storage system for REC does not support the REC Disk Buffers.

- Not Mirrored Some of the REC Disk Buffers have lost redundancy due to disk failure.

- Error

Some of the REC Disk Buffers cannot be used (due to RAID group failure or RAID group blockage).

If the "REC Disk Buffer Status" is "Formatting", "Not Supported", or "Error", all of the other REC Disk Buffers that belong to the same REC Buffer cannot be used.

REC Disk Buffer Total Capacity

When the usage is "Send", the total capacity of the REC Disk Buffer, which is assigned to the REC Buffer, is displayed. A "-" (hyphen) is displayed when the REC Disk Buffer is not assigned or when the usage is "Receive" or "Unused".

• Total Storage Data Size

When the REC Buffer usage is "Send", the size of the data in the REC Disk Buffer that is assigned to the REC Buffer is displayed. A "-" (hyphen) is displayed when the REC Disk Buffer is not assigned or when the usage is "Receive" or "Unused".

Free Disk Buffer Size

When the usage is "Send", the unused capacity of the REC Disk Buffer, which is assigned to the REC Buffer, is displayed. A "-" (hyphen) is displayed when the REC Disk Buffer is not assigned or when the usage is "Receive" or "Unused".

8.7.4 REC Disk Buffer

This function displays the existing REC Disk Buffers in the ETERNUS DX/AF.

Caution

- The ETERNUS DX60 S3 does not support this function.
- Drives are not monitored for bad sectors when the drives configure the REC Disk Buffer.

Note

This function is displayed only when the Advanced Copy function license has been registered, and when using an ETERNUS DX/AF model that supports REC.

The following items are displayed in the Main area:

- REC Disk Buffer List
- No.

The RAID group number of the REC Disk Buffer is displayed. Click this item to display the [REC Disk Buffer Detail] screen.

• Name

The REC Disk Buffer name is displayed. Click this item to display the [REC Disk Buffer Detail] screen.

Status

The REC Disk Buffer status is displayed. Refer to <u>"A.3 RAID Group Status" (page 407)</u> for details.

Total Capacity

The total capacity of the REC Disk Buffer is displayed.

Controlling CM

The Controlling CM of the REC Disk Buffer is displayed (x: CE number, y: CM number).

- For the ETERNUS DX8700 S3/DX8900 S3 CE#x CM#y
- For the other models CM#y

• REC Buffer

The management group number of the REC Buffer, to which the REC Disk Buffer is assigned, is displayed. A "-" (hyphen) is displayed for an REC Disk Buffer that is not assigned to any REC Buffers.

- ETERNUS DX100 S3
- 0
- ETERNUS DX200 S3

0 - 3

- ETERNUS DX500 S3/DX600 S3

0 - 7

- ETERNUS DX8100 S3/DX8700 S3/DX8900 S3
- 0 7
- ETERNUS AF250

0 - 3

- ETERNUS AF650

0 - 7

- ETERNUS DX200F
- 0 3
- Encryption
 - The encryption status of the REC Disk Buffer is displayed.

- CM

- An REC Disk Buffer that is encrypted by CM
- "-" (hyphen)
 - An REC Disk Buffer that is not encrypted (unencrypted volume)
- SED
 - An REC Disk Buffer that is encrypted by SED
- Process

A process that is being performed for the REC Disk Buffer is displayed. If no process is being performed, a "-

- " (hyphen) is displayed.
- Recovering
- Rebuild, copyback, redundant copy, or recovery of the RAID group is being performed.
- Formatting
 - Formatting is being performed.

Filter setting

Filter	Description
Name	Input the REC Disk Buffer name that is to be displayed. REC Disk Buffers matching or partially matching the input name are displayed. When not using the REC Disk Buffer name for filtering, leave this item blank.
Status	Select the REC Disk Buffer status that is to be displayed. When not using the REC Disk Buffer status for filtering, select "All" (all REC Disk Buffers).

8.8 Advanced Copy (Property)

Detailed information (Property) about the Advanced Copy is displayed.

For Local Copy

Category	Advanced Copy		» Action	
E 🤐 Advanced Copy	Advanced Copy Detail		Target 0	
E Cocal Copy	Session ID: Dx006C		X Stop Session	1
OPC	Property Extent Informatio	9		
QuickOPC	* EC Session			
SnapOPC	Source Volume No	12		
Monitor	Source Volume Name	VolumeName012		
+ SI Remote Conv	Destination Volume No.	28		
ODX	Destination Volume Name	VolumeName028		
3 XCOPY 9 Settings	Status	Active		
	Phase	Copying		
	Error Code	0x00		
	Time Stamp	2000-12-01 00:00:01		
	Elapsed Time	5 hour 27 min 51 sec		
	Copied Data Size	585.94 GB		
	Total Data Size	1.14 TB		
	Resolution	x4		
	Requestor	SCSI		
	Copy Range	Extent		
	Secondary Access Permission	No Read/Write		
	Concurrent Suspend Status	Normal		
	License	Regular		

The following items are displayed in the Main area:

Session ID

The session ID selected in the [Local Copy] screen is displayed.

Source Volume Name

The copy source volume name is displayed. If the status is "

• Destination Volume Name

The copy destination volume name is displayed. When the "Status" is " Reserved" or when the copy session type is "MON", a "-" (hyphen) is displayed.

Copy Range

The copy range of the copy session is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

- Totally
- Whole volume
- Extent
- Part of volume
- Secondary Access Permission

If the status is " Active", accessibility from the host to the copy destination volume is displayed. This item is displayed in EC. If the status is " Reserved", a "-" (hyphen) is displayed.

- Read Only at Equivalency When the "Phase" is "Equivalent", only read access to the copy destination volume is allowed
- No Read/Write
 No read/write access to the copy destination volume is allowed

Concurrent Suspend Status

When an instruction to collectively and tentatively separate multiple pairs of a copy source volume and a copy destination volume (Concurrent Suspend request) is received in EC session, transition status to "Suspend" is displayed. This item is displayed in EC. If the status is " Reserved", a "-" (hyphen) is displayed. If the Concurrent Suspend Status cannot be obtained, "Unknown" is displayed.

- Normal
 - Transition to the "Suspend" state is complete or Concurrent Suspend cannot be performed
- Exec

Transition to the "Suspend" state in progress

- Error

Transition to the "Suspend" state failed

- Unknown

A status other than the ones listed above

🔵 Note

Refer to <u>"8.2 Advanced Copy (All Local Sessions)</u>" (page 361) for the display items that are not described in this section.

For Remote Copy

Category	Advanced Copy		» Action
Advanced Copy Advan	Advanced Copy Detail	Advanced Copy Detail Session ID: 0x0066	
	Session ID: 0x0066		
	Property Extent Information		
	▼ REC Session		
	Source Volume No.	6	
	Source Volume Name	VolumeName006	
	Destination Volume No.	22	
	Destination Volume Name	00ETERNUSDXMS2ET00000A####EI000001###### / 22	
	Remote Session ID	0x0006	
	Status	Active	
	Phase	Copying	
	Error Code	0x00	
	Direction	From Local/To Remote	
	Time Stamp	2015-12-01 00:00:06	
	Elapsed Time	5 hour 27 min 56 sec	
	Copied Data Size	4.25 GB	
	Total Data Size	4.49 GB	
	Resolution	Bx	
	Requestor	LAN	
	Copy Range	Extent	
	Secondary Access Permission	No Read/Write	
	Sync	Async	
	Transfer Mode	Through Mode	
	Recovery Mode	Automatic Recovery	
	Split Mode	Automatic	
	Change Error	Normal	
	Concurrent Suspend Status	Normal	
	Remain Time	35 sec	
	License	Regular	

The following items are displayed in the Main area:

Session ID

The session ID selected in the [Remote Copy] screen is displayed.

Source Volume Name

The following is displayed depending on the "Direction". If the status is " Reserved", a "-" (hyphen) is displayed.

- When the "Direction" is "From Local/To Remote" The copy source volume name is displayed.
- When the "Direction" is "From Remote/To Local" The "Remote Box ID / Copy source volume number" is displayed.

Destination Volume Name

The following is displayed depending on the "Direction". If the status is "S Reserved", a "-" (hyphen) is displayed.

- When the "Direction" is "From Local/To Remote"

The "Remote Box ID / Copy destination volume number" is displayed.

- When the "Direction" is "From Remote/To Local" The copy destination volume name is displayed.
- Copy Range

The copy range of the copy session is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

- Totally
- Whole volume
- Extent
 Part of volume
- Secondary Access Permission

If the status is " \bigcirc Active", accessibility from the host to the copy destination volume is displayed. If the status is " \bigcirc Reserved", a "-" (hyphen) is displayed.

- Read Only at Equivalency
 - When the "Phase" is "Equivalent", only read access to the copy destination volume is allowed
- No Read/Write

No read/write access to the copy destination volume is allowed

• Sync

The operation mode of the copy session is displayed. If the status is " \bigcirc Reserved", a "-" (hyphen) is displayed.

- Sync (synchronous)
- Async (asynchronous)
- Transfer Mode

The transfer mode of the copy session is displayed. If the "Status" is " Reserved", a "-" (hyphen) is displayed. If the "Sync" is "Sync", a "-" (hyphen) is displayed.

- Stack Mode (Asynchronous Stack mode)
- Consistency Mode (Asynchronous Consistency mode)
- Through Mode (Asynchronous Through mode)
- Recovery Mode

The recovery mode of the copy session is displayed. If the status is " Reserved", a "-" (hyphen) is displayed.

- Automatic Recovery
 - In this mode, copy automatically resumes when the copy path is recovered from error status.
- Manual Recovery
- In this mode, copy does not automatically resume when the copy path is recovered from error status.

• Split Mode

The split mode of the copy session is displayed. This item is available only for sessions in REC synchronous mode. If the status is " Reserved", a "-" (hyphen) is displayed. If the "Transfer Mode" is "Stack Mode" or "Consistency Mode", the field is blank.

- Automatic

In this mode, Write I/O access to the copy source volume is accepted when the copy path is in error status.

- Manual

In this mode, Write I/O access to the copy source volume is not accepted when the copy path is in error status. Specific sense data is sent to the host.

Change Error

The result of changing REC mode ("Transfer Mode", "Recovery Mode", or "Split Mode") and the result of REC reverse operation is displayed.

When anything other than "Normal" is displayed, the operation mode may be different between the copy source and the copy destination storage systems, or REC reverse operation may disabled due to restriction in other functions.

If the status is " Reserved", a "-" (hyphen) is displayed.

- Normal

REC mode change and REC reverse operation are working normally

- Mode Change Error

An error was detected while changing the REC mode change

- Reverse Error An error was detected while the REC reverse operation was being performed
- Concurrent Suspend Status

When an instruction to collectively and tentatively separate multiple pairs of a copy source volume and a copy destination volume (Concurrent Suspend request) is received in REC session, transition status to "Suspend" is displayed. If the status is "

- Normal

Transition to the "Suspend" state is complete or Concurrent Suspend cannot be performed

- Exec

Transition to the "Suspend" state is in progress

- Error
 - Transition to the "Suspend" state failed
- Unknown

A status other than the ones listed above

Remain Time

The expected time to complete transition to the "Suspend" when a Concurrent Suspend request is received. If the "Status" is "

🔵 Note

Refer to <u>"8.3 Advanced Copy (All Remote Sessions)</u> (page 369) for the display items that are not described in this section.
For ODX

Category	Advanced Copy			» Action
Advanced Copy In the second copy In the second copy	Advanced Copy Detail Session ID: 0x0077		~	Target: 0 X Stop Session
Remote Copy DX	Property Extent Informa	tion		<u> </u>
H Settings	▼ ODX Session			
	Source Volume No.	2		
	Source Volume Name	VolumeName002	5	
	Destination Volume No.	17		
	Destination Volume Name	VolumeName017		
	Status	Active		
	Error Code	0x00		
	Time Stamp	2011-01-31 23:59:06		
	Elapsed Time	5 hour 27 min 56 sec		
	Copied Data Size	2.25 GB	3	
	Total Data Size	4.49 GB		
			×	

The following items are displayed in the Main area:

- Session ID
 - The session ID selected in the [ODX] screen is displayed.
- Source Volume Name
 The copy source volume name is displayed. If the "Status" is "
 ✓ Reserved", a "-" (hyphen) is displayed.
- Destination Volume Name

The copy destination volume name is displayed. If the "Status" is " Reserved", a "-" (hyphen) is displayed.

🔵 Note

Refer to <u>"8.4 ODX Sessions" (page 374)</u> for the display items that are not described in this section.

For XCOPY

Category	Advanced Copy		* Action
Advanced Copy Advanced Copy Elecal Copy Elecal Copy Elecal Copy Copy ODX	Advanced Copy Detail Session ID: 0x0078	Non	Target: 0 X Stop Session
COPY	Toperty Extent morna	DON	
🗄 🧮 Settings	* ACOPT Session		
	Source Volume No.	1 VolumeName/IO1	
	Destination Volume No	11	
	Destination Volume Name	VolumeName/111	
	Status	Active	
	Error Code	0,00	
	Time Stamp	2011-01-31 23:59:06	
	Elapsed Time	5 hour 27 min 56 sec	
	Copied Data Size	2.25 GB	
	Total Data Size	4.49 GB	
			.

The following items are displayed in the Main area:

- Session ID
 - The session ID selected in the [XCOPY] screen is displayed.
- Source Volume Name
 The copy source volume name is displayed. If the "Status" is "
 Reserved", a "-" (hyphen) is displayed.
- Destination Volume Name

The copy destination volume name is displayed. If the "Status" is " Reserved", a "-" (hyphen) is displayed.

🔵 Note

Refer to <u>"8.5 XCOPY Sessions" (page 376)</u> for the display items that are not described in this section.

For Virtual Volume

Category	Virtual Volume Sessions		* Action
Advanced Copy Advanced Copy Docal Copy Amote Copy ODX ODX XCOPY	Advanced Copy Detail Session ID: 0x0081	^	Target 0
Virtual Volume	Virtual Volume Session		
 Settings 	Source Volume No.	1 Vehanakinga001	
	Source volume Name	Volumerkamedu i	
	Destination Volume No.	17 Mohamahama017	
	Tune	Connected	
	Status	Active	
	Marging	No	
	Generation	2/3	
	Error Code	0x04	
	Time Stamp	2015-02-06 10:50:01	
	Elansed Time	5 hour 27 min 51 sec	
	Copied Data Size	2 00 GB	
	Total Data Size	4.00 GB	
	Destination FTRP No.	1	
	Destination FTRP Name	FTRP 1	
	Used Session Capacity	2.50 GB	
		~	

The following items are displayed in the Main area:

- Session ID The session ID selected in the [Virtual Volume] screen is displayed.
- Source Volume Name

The copy source volume name is displayed. If the "Status" is " Reserved", a "-" (hyphen) is displayed.

• Destination Volume Name

The copy destination volume name is displayed. If the "Status" is " <>>> Reserved", a "-" (hyphen) is displayed.

Destination FTRP Name

The FTRP name to which the copy destination FTV belongs is displayed. If the "Status" is " Reserved", a "-" (hyphen) is displayed. If the copy session type is not "Snapshot" or "Fastclone", this item is not displayed.

🔵 Note

Refer to <u>"8.6 Virtual Volume Sessions" (page 378)</u> for the display items that are not described in this section.

8.9 Advanced Copy (Extent information)

Detailed information (Extent information) about the Advanced Copy is displayed. This screen is available only when the "Copy Range" is "Extent".

Category	Copy E	xtent Information				» Action
Advanced Copy	Advanc	ced Copy Detail			~	Target: 0
E Remote Copy	Session	ID: 0x0078				X Stop Session
ODX ODX	Prope	erty Extent Informati	ion			
+ Settings	▼ Cop	y Extent Information				
	Offset	Source LBA	Destination LBA	Copy Extent Size		
	0	0x00000000000000000	0x000000000000000000000000000000000000	32.00 MB	0	
	0				2	
1					~	

The following items are displayed in the Main area:

Offset

The array number of extent information is displayed.

- Source LBA The copy source start Logical Block Address (LBA) of copy with range specification is displayed.
- Destination LBA The copy destination start LBA of copy with range specification is displayed.
- Copy Extent Size The data amount for copy with range specification is displayed.

8.10 Copy Path Detail

Detailed information of copy path is displayed.

Category	Copy Path			Action			
E 🤷 Advanced Copy	▼ Storage System Information				Target 0		
+ Local Copy	Local Storage Box ID 00ETERNUSDXMS2ET00000A####EI000000######				Get Round Trip Time		
Generate Copy ODX	Remote Storage Bo	* ODETER	00ETERNUSDXMS2ET00000A####EI000001#######			Modify REC Multiplicity	
Vidual Valuma	Connection Type	Remote	Remote				Set REC Bandwidth Limit
E G Settings	Priority Level						
Snap Data Pool	Multiplicity	5					
Copy Path REC Buffer	Recommended Multiplicity	Recommended 0					
REC Disk Buffer	Link Speed 16 Mbit/s						
	▼ Advanced Cop	y Path Stat	us				
	Local Port	Status	Remote Port WWN / iSCSI Name	IP Version	IP Address	Ba	
	CM#0 CA#0 Port#0	Normal	500000E0D4000181	÷	-	^	
	CM#0 CA#1 Port#0	Normal	500000E0D4000192	20 C	-	~	
	<					>	

The following items are displayed in the Main area:

- Storage System Information
- Local Storage System Box ID The Box ID of the local storage system is displayed.
- Remote Storage System Box ID The Box ID of the selected remote storage system is displayed.
- Connection Type

The connection type between the local storage system and the selected remote storage system is displayed.

- Direct
- Remote
- Priority Level

When the local storage system and the selected remote storage system are connected by direct connection, the priority level is displayed. If the "Connection Type" is "Remote", a "-" (hyphen) is displayed.

Multiplicity

When the local storage system and the selected remote storage system are connected by remote connection, the multiplicity is displayed. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

Recommended Multiplicity

When the local storage system and the selected remote storage system are connected by remote connection, the recommended multiplicity is displayed. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

• Link Speed

When the local storage system and the selected remote storage system are connected by remote connection, the link speed is displayed. If the "Connection Type" is "Direct", a "-" (hyphen) is displayed.

Advanced Copy Path Status

Local Port

The port information of the local storage system is displayed.

Status

The port path status between the local and remote storage systems is displayed with an icon and a character string.

- Normal
 The copy path is in the normal state.

The copy path is in the error state.

Remote Port WWN/iSCSI Name

The port WWN or iSCSI name of the remote storage system is displayed.

IP Version

When the port type is iSCSI, the IP version for the destination iSCSI port of the copy path is displayed. A "-" (hyphen) is displayed when the port type is FC.

- IPv4
- IPv6 (Link Local)
- IPv6 (Connect IP)
- "-" (hyphen)
- IP Address

When the port type is iSCSI, the IP address for the destination iSCSI port of the copy path is displayed. The display format varies according to the IP version.

A "-" (hyphen) is displayed when the port type is FC.

- For IPv4 address
 - XXX.XXX.XXX.XXX
 - xxx: 0 255 (decimal)
- For IPv6 address
 - xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
 xxxx: 0 ffff (hexadecimal, "a" "f" are lowercase letters) Refer to <u>"IPv6 Address Notation" (page 253)</u> for details.
- Bandwidth Limit

The bandwidth limit for sending data from the local storage system to the path is displayed.

- Unlimited
- 1 65535 Mbit/s

Detail Information

Detailed information about the copy path is displayed.

If an error occurs in the copy path, the error details or location is displayed using the following abbreviations. If there are multiple error locations, multiple abbreviations are displayed.

- Connectable

The copy path is in the normal state.

- Path Unstable

The copy path between the local storage system and remote storage system is in unstable status. For example, link-down repeatedly occurs in a certain period of time or communication fails.

- Bitmap Resolution Mismatched

The resolution settings are different between the local and remote storage systems.

- Suspected Spot (D)
 The copy path settings may be invalid.
- Suspected Spot (N)

The error occurs in the remote storage system.

- Suspected Spot (T) The error occurs in the FC-RA port or iSCSI-RA port on the remote storage system.
- Suspected Spot (C)

The error occurs in the cable.

- Suspected Spot (0)

The error occurs in an adapter that is not for a local or a remote storage system. This occurs only when the connection type is FC-AL.

- Suspected Spot (S)

The error occurs in the switch or switch settings.

- Suspected Spot (I) The error occurs in the FC-RA port or iSCSI-RA port on the local storage system.
- Suspected Spot (M) The error occurs in the memory.

Appendix A Status List

The status of the ETERNUS DX/AF, volumes, RAID groups, Thin Provisioning Pools, components, an SED authentication key (hereinafter, referred to as "key"), and key servers that are displayed in the operation screens is described below.

A.1 Storage System General Status

The general status of the ETERNUS DX/AF is displayed as an icon with character strings. A "Normal (green)" general status icon indicates normal status, while other color images indicate a failure. The meaning of each general status icon is described below.

Device general status	Description
Normal (Green)	The ETERNUS DX/AF is in the normal state.
Maintenance (Orange)	The ETERNUS DX/AF is under maintenance.
Warning (Yellow)	The ETERNUS DX/AF is in the warning state.
Error (Red)	The ETERNUS DX/AF is in the failed status.
Not Ready (Red)	"Not Ready" is a status where an abnormality is detected at a power-off, and I/O access from the host cannot be received.

A.1.1 Storage System General Status (Detail)

The general status of the ETERNUS DX/AF (detail) is displayed with an icon and character string, or only character string.

The meaning of ETERNUS DX/AF general status (detail) is described below.

Device general status (detail)	Device general status	Description
🥏 Normal	(Green)	The ETERNUS DX/AF is in the normal state.
S Maintenance	Maintenance (Orange)	Components that are undergoing maintenance exist in the ETERNUS DX/AF. Rebuild or copyback is being performed.
S Change Controlling CM	Maintenance (Orange)	Changing of the Controlling CM is required.
1 Pinned Data	Warning (Yellow)	Pinned data is detected.
1 Warning	Warning (Yellow)	A component requires preventive maintenance. A bad sector is detected.
😢 Error	(Red)	A component has an error.
😢 Not Ready (*)	Not Ready (Red)	A failure is detected when starting or turning off the ETERNUS DX/AF. I/O from the host cannot be received normally. *: The number, which indicates the factor of being "Not Ready", is displayed.
😵 Subsystem Down	Not Ready (Red)	The ETERNUS DX/AF is in failed status. I/O from the host cannot be received normally.
🛛 Unknown	Error (Red)	A status other than the ones listed above.

A.2 Volume Status

Volume status is displayed with an icon and the status name. The volume status is described below.

Status	Description
Available	The volume is operating normally.
Spare in Use	The RAID group to which the volume belongs manages redundancy by using the hot spare.
🚫 Readying	The volume is not formatted.
🚫 Rebuild	Rebuilding from a failed data drive to the hot spare or to the replaced drive is being performed in the RAID group to which the volume belongs.
S Copyback	Copyback from the hot spare to the new data drive is being performed in the RAID group to which the volume belongs.
SRedundant Copy	Redundant copy to the hot spare is being performed in the RAID group to which the volume belongs.
S Partially Exposed Rebuild	Rebuilding from the first failed data drive to the hot spare or to the replaced drive is being performed in the RAID group to which the volume belongs. This status is displayed only when the RAID level of the RAID group to which the volume belongs is "High Reliability (RAID6)" or "High Reliability (RAID6-FR)".
S Exposed Rebuild	Two of the data drives for the RAID group to which the volume belongs have failed. Rebuilding from the first failed data drive to the hot spare or to the replaced drive is being performed. In addition, all the hot spares have already been used. As a result, the second failed data drive is waiting for the hot spare to become available. This status is displayed only when the type of the RAID group to which the volume belongs is "High Reliability (RAID6)" or "High Reliability (RAID6-FR)".
A Exposed	The RAID group to which the volume belongs lost redundancy due to drive failure.
1 Partially Exposed	One of the drives that configures the RAID group to which the volume belongs has failed. This status is displayed only when the type of the RAID group to which the volume belongs is "High Reliability (RAID6)" or "High Reliability (RAID6-FR)".
😢 Not Available	The volume cannot be used.
😣 Not Ready	The RAID group to which the volume belongs is blocked.
😣 Broken	The volume is broken.
😣 Data Lost	Data in the volume is lost. Reading or writing of data cannot be performed.
Our Contract of the second	A status other than the ones listed above.

A.3 RAID Group Status

RAID group status is displayed with an icon and the status name. The RAID group status is described below.

Status	Description
Available	The RAID group is operating normally.
Spare in Use	Rebuilding to the hot spare is complete. The RAID group manages redundancy by using the hot spare.
Spare in Use (Fast)	Rebuilding to the Fast Recovery hot spare is complete. The RAID group manages redundancy by using the Fast Recovery hot spare. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".
Readying	The RAID group that is registered as an REC Disk Buffer is not formatted. This status is displayed only for a RAID group that is registered as an REC Disk Buffer.
S Rebuild	Rebuilding from a failed data drive to the hot spare or to the replaced drive is being performed in the RAID group.
S Copyback	Copyback from the hot spare to the new data drive is being performed in the RAID group.
S Copyback (Fast)	Copyback from the Fast Recovery hot spare (*1) to the new data drive for the RAID group is being performed. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)". *1: Hot spare area that is distributed in the Fast Recovery RAID group.
Sedundant Copy	Redundant copy to the hot spare is being performed in the RAID group.
S Partially Exposed Rebuild	Rebuilding from the first failed data drive to the hot spare or to the replaced drive is being performed in the RAID group. This status is displayed only when the RAID level is "High Reliability (RAID6)".
Seartially Exposed Rebuild (Fast)	Rebuilding from the first failed data drive to the Fast Recovery hot spare is being performed in the RAID group. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".
S Exposed Rebuild	Two of the data drives for the RAID group have failed. Rebuilding from the first failed data drive to the hot spare or to the replaced drive is being performed. In addition, all the hot spares have already been used. As a result, the second failed data drive is waiting for the hot spare to become available. This status is displayed only when the RAID level is "High Reliability (RAID6)".
S Exposed Rebuild (Fast)	Two of the data drives for the RAID group have failed. Rebuilding from the first failed data drive to the Fast Recovery hot spare is being performed. In addition, all the hot spares have already been used. As a result, the second failed data drive is waiting for the hot spare to become available. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".
1 Exposed	The RAID group lost redundancy due to drive failure.
1 Exposed (Fast)	The RAID group lost redundancy due to drive failure. The RAID group uses the Fast Recovery hot spare. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".
1 Partially Exposed	One of the drives that configures the RAID group has failed. This status is displayed only when the RAID level is "High Reliability (RAID6)".
1 Partially Exposed (Fast)	One of the drives that configures the RAID group has failed. The RAID group uses the Fast Recovery hot spare. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".

Status	Description
😢 No Disk Path	The RAID group is blocked.
SED Locked	The RAID group is blocked. If an SED authentication key cannot be obtained from the key server, "SED Locked" is displayed.
😢 Broken	The RAID group is broken.
😢 Broken (Fast)	The RAID group is broken. The RAID group uses the Fast Recovery hot spare. This status is displayed only when the RAID level is "High Reliability (RAID6-FR)".
Ounknown	A status other than the ones listed above.

A.4 Thin Provisioning Pool Status

Thin Provisioning Pool (TPP) status is displayed with an icon and the status name. The TPP status is described below.

Status	Description
🕏 Available	The TPP is operating normally.
S Maintenance	Forcible recovery of the TPP is being performed.
🚫 Readying	All the physical allocation area in the TPP is not formatted.
S Partially Readying	Some parts of the physical allocation area in the TPP is not formatted.
L Exposed	The TPP is available. The "Exposed" state of the TPP is displayed not only when the RAID group that configures the TPP has lost redundancy and is in the "Exposed" state, but also when the RAID group maintains redundancy in the "Spare in Use" state. The "Exposed" state of TPP indicates that the RAID group in the TPP is not in the normal state because of any causes such as the drive failure.
😢 Blockade	The TPP is blocked.
😢 Broken	The TPP is broken.
😢 Data Lost	Data in the TPP is lost. Reading or writing of data cannot be performed.
🕜 Unknown	A status other than the ones listed above.

A.5 Component Status

This section explains the component status.

The status of the components is displayed with an icon for each storage system image in the view screen.

Status	Description
I	The component is operating normally.
0	The component is installed, but not used.
0	The component is under maintenance.
<u>^</u>	The component requires preventive maintenance.
8	An error has occurred in the component.
0	A status other than the ones listed above.

In the list screen and the detailed information screen, the status of the components is displayed with an icon and the status name.

Status	Description
🕏 Normal	The component is operating normally.
Unconnected	A faulty component exists in the ETERNUS DX/AF.
Undefined	The component is installed, but not used.
Undefined (Error)	The component, which is not being used, is in the error state.
Normal (Unused parts inside)	There is an unused component that is installed in the ETERNUS DX/AF.
S Check1	The component is being rebooted.
S Maintenance	The component is under maintenance.
🔔 Warning	The component requires preventive maintenance.
😆 Error	An error has occurred in the component.
O Unknown	A status other than the ones listed above.

A.5.1 Drive Status

Drive status is displayed with an icon and the status name. The drive status is described below.

Status	Description
🕏 Available	The drive is in the normal state. The drive is used in the RAID group.
🥏 Spare	The drive is an unused hot spare.
• Present	The drive is not used (not registered as a RAID group or hot spare), or is waiting for rebuild/copy back.
🚫 Readying	The drive is starting up.
SRebuild/Copyback	Rebuild or copy back is being performed in the drive.
🔔 Redundant Copy	A Redundant copy is being performed in the drive.
😢 Not Supported	The drive is not supported. [Example] Drive capacity is insufficient.
😢 Not Exist	The drive cannot be recognized.
😢 Failed Usable	An error involving RAID group failure has occurred in the drive.
😢 Broken	An error has occurred in the drive.
🕐 Unknown	A status other than the ones listed above.

A.6 Key Status

Key status is displayed with the status name. The key status is described below.

Status	Description				
Normal	A valid key is registered for the SEDs. The key is in the normal state.				
Unregistered Server Certificate	The "SSL / KMIP Certificate" (key server certification) is not registered in the ETERNUS DX/AF. Communication between the ETERNUS DX/AF and the key server cannot be performed.				
Expired Server Certificate	The "SSL / KMIP Certificate" (key server certification) has expired. Communication between the ETERNUS DX/AF and the key server cannot be performed.				
No SSL Certificate	An SSL certificate (*1) for the ETERNUS DX/AF has not been created. Communication between the ETERNUS DX/AF and the key server cannot be performed.				
Network Error	The key cannot be obtained due to a network error between the ETERNUS DX/AF and the key server.				
Not Acquired	The required key for starting key server management is not obtained. The allocation of the Master server and the Slave server to the key group has been deleted.				
Expiration	An expired key is registered in the SED. The key has expired, but a new key can be obtained from the server.				
Key Server Error	The network between the ETERNUS DX/AF and the key server is in the normal state, but no SED key is stored in the key server.				
	A RAID group in which the key is being modified exists in the key group. "RAID group of which key is modifying" indicates the following conditions:				
	 The key is being updated manually from ETERNUS Web GUI or ETERNUS CLI 				
Modifying	 The key is automatically being updated because it expired 				
	 Updating of the key stopped due to an error 				
	 SEDs are maintained while a network error occurs when the security level is "Low" 				

*1: "Self-signed SSL certificate" or "SSL server certificate"

A.7 Key Server Status

Key server status is displayed with the status name. The key server status is described below.

Status	Description				
Normal	The communication between the ETERNUS DX/AF and the key server is normal. The key can be obtained successfully. The key server is in the normal state.				
	"Setting" indicates the following conditions:				
Setting	 The "SSL / KMIP Certificate" (key server certification) or SSL certificate (*1) is not registered. 				
	 The network between the ETERNUS DX/AF and the key server is normal, but connection to the key server is forbidden. 				
Network Error	The network between the ETERNUS DX/AF and the key server is not connected normally.				
Key Acquisition Failure	The key that is requested from the ETERNUS DX/AF does not exist in the key server.				
Key Server Error	An error due to a failure other than key acquisition failure is detected.				
Internal Error	Communication to the key server could not be performed due to an internal failure of the ETERNUS DX/AF.				

*1: "Self-signed SSL certificate" or "SSL server certificate"

Appendix B Error Code

The error codes for copy sessions are described below.

Error code Description					
0x10 - 0x1F	An error that is caused by a copy source volume occurs. Some copy source volumes cannot be accessed because a failure has occurred in a compo- nent (e.g. drives and drive enclosures).				
0x20 – 0x2F	An error that is caused by a copy destination volume occurs. Some copy destination volumes cannot be accessed because a failure has occurred in a component (e.g. drives and drive enclosures).				
0x30 – 0x3F	An error that is caused by a copy path occurs or an REC Buffer Halt occurs. The error location (Suspected Spot) is displayed in the "Detail Information" field on the [Copy Path] screen. Refer to <u>"8.7.2 Copy Path" (page 385)</u> for details.				
0xB1	This copy session stopped due to an error that has occurred in the cascade source session while the cascade copy was being specified.				
0xBA	A bad sector is detected.				
0xBB	SDV/SDP capacity is insufficient.				
0xBD	Overload status is detected in a copy destination volume or a copy destination storage system.				
0xBE	A copy path error occurs. Data is stored in the REC Buffer. This error is displayed only when the "Type" is "REC".				
0xBF	A copy path error occurs. Data is stored in the REC Disk Buffer. This error is displayed only when the "Type" is "REC".				
Other than above	An error other than the ones listed above occurs.				

Appendix C Setting Procedures for Replacing HBAs

This appendix describes how to replace a Host Bus Adapter (HBA) in the ETERNUS DX.

When management software such as ETERNUS SF Storage Cruiser is used, use the management software for migrating the current access path settings instead of the procedure that is provided in this manual.

One of the following connection statuses is used between a host and an ETERNUS DX. Note that the required procedures depend on the connection status.

- When the host affinity settings are used
- When the host affinity settings are not used (when conventional LUN mapping is used)

C.1 Advance Preparation

Before starting the operation, check the following information.

- The WWN of the current HBA
- The host name corresponds to the WWN of the current HBA
- The WWN of the new HBA

C.2 Overview of the Procedure

The workflow for replacing an HBA is as follows. Perform the following procedure.

- (1) Check the connection status between the host and the ETERNUS DX/AF. Refer to <u>"C.3 Checking the Connection Status Between the Host and the ETERNUS DX/AF" (page 417)</u> for details.
- (2) Replaces the HBA in the host and connects the host and the ETERNUS DX/AF. This operation must be performed by a maintenance engineer.
- (3) Perform the system settings according to the connection status that was checked in Step (1).
 - When the host affinity settings are used Settings for the ETERNUS DX/AF are required. Refer to <u>"C.4 Required Storage System Settings After HBA</u> <u>Replacement (When Host Affinity Settings are Used)</u>" (page 418) for details.
 - When the host affinity settings are not used (conventional LUN mapping is used) Settings for the ETERNUS DX/AF are not required. This ends the replacement procedure for an HBA.

The following procedure is an example when a FC interface is used between the host and the ETERNUS DX/AF. The same procedure can basically be used even when the interface type is iSCSI or FCoE.

C.3 Checking the Connection Status Between the Host and the ETERNUS DX/AF

Perform the following procedure to check the connection status between the host and the ETERNUS DX/AF.

Procedure

- **1** Click [Connectivity] in the navigation.
- **2** Click [FC/FCoE] in the category.

Category	FC/FCoE Host	* Action		
🗉 🧰 Connectivity	#Filter setting		Filter Clear	Target: 0
Host Group	Name: WWN: Host Group:	Add FC/FCoE Host Group Delete FC/FCoE Host		
Port Group Difference	2 th	ems (1/1 pages)	1 page Go	Modify FC/FCoE Host
Host Response	Name WWN	Host Group Host Response	Status	
CA Reset Group Host-LU QoS	HostG0_0 10000085D6513E8	3 HostG0 Default	Active	
	HostG0_1 100000065D6513F0	HostG0 Default	Active 🗸	
	<		>	

- → The [FC/FCoE Host] screen appears.
- **3** Check the connection status between the relevant host and the ETERNUS DX/AF in the "Status" field.
 - When the host affinity settings are used
 - → "Active" is displayed as the status. Proceed to <u>"C.4 Required Storage System Settings After HBA</u> <u>Replacement (When Host Affinity Settings are Used)" (page 418)</u>
 - When the host affinity settings are not used (conventional LUN mapping is used)
 - → "Inactive" is displayed as the status. In this case, settings after replacing the HBA are not required. The replacement of the HBA is complete.

End of procedure

C.4 Required Storage System Settings After HBA Replacement (When Host Affinity Settings are Used)

In this section, the setting procedure for an ETERNUS DX/AF that uses host affinity settings is provided.

Caution

- When management software such as ETERNUS SF Storage Cruiser is used, use the management software for migrating the current access path settings instead of the procedure that is provided in this manual (manual setting).
- To set WWN zoning by using the switch, make sure to change the zoning settings in advance.

The procedure for storage system settings when the host affinity is used is as follows. Change the WWN of the HBA that is to be replaced to the WWN of the new HBA.

Procedure

1 Input "User ID" and "Password" in the browser and log in to ETERNUS Web GUI.

			FUĴĨTSU
FUJITSU Storage			
ETERNUS DX500 S3			
NAME :ETERNUS Serial No :000000			
User ID	Password		
root	•••••		
	Login	Help	Option >>
Copyright 2013 FUJITSU LIMITED			

- **2** Change the WWN of the HBA that is to be replaced to the WWN of the new HBA.
 - **2-1** Click [Connectivity] in the navigation. → The [Connectivity] screen appears.
 - **2-2** Click [FC/FCoE] in the category. \rightarrow The [FC/FCoE Host] screen appears.
 - **2-3** Select the checkbox of the WWN for the HBA that is to be replaced (in this example, "1000000B5D6513FC" is selected).
 - **2-4** Click [Modify FC/FCoE Host] in [Action].

Category	FC/FCoE Host	Action
Connectivity Host Group GOVERDE SCSI	##Filter setting Filter Clear Name: WWN: Host Group: Host Response All	Add FC/FCoE Host Group
Port Group LUN Group	2 items H < 1/1 pages > H 1 + page Go	Modify FC/FCoE Host
Host Response	☑ Name WWN Host Group Host Response Status	
Host-LU QoS	HostG0_0 100000085D6513EB HostG0 Default Active	
	Version HostG0_1 10000008506513FC HostG0 Default Active Version	
		~

- \rightarrow The [Modify FC/FCoE Host] screen appears.
- **2-5** Change the WWN of the HBA that is to be replaced to the WWN of the new HBA, and click the [Modify] button.



- **2-6** Click the [OK] button. \rightarrow Changing of the FC host starts.
- **2-7** Click the [Done] button to return to the [FC/FCoE Host] screen.
- **2-8** Confirm that the WWN is successfully changed.

Category	gory FC/FCoE Host							» Action
🗉 🧰 Connectivity	##Eilter setting						Clear	Target 0
Host Group		Name: WWN: Host Group: Host Response All						+ Add FC/FCoE Host Group Delete FC/FCoE Host
E Port Group		2 items (< 1/1 pages > >) [1] ★ page Go					age Go	Modity FC/FCoE Host
Host Response		Name	WWN	Host Group	Host Response	Status		
E Host-LU QoS		HostG0_0	1000000B5D6513EB	HostG0	Default	Active	^	
		HostG0_1	1000000650651348	HostG0	Default	Active	~	
	<						>	
							~	

End of procedure

This ends the host affinity setting for replacing an HBA. Recover the multipath configuration from the host.

After recovering the multipath configuration, confirm that the ETERNUS DX/AF can be accessed from the host.



If the WWN is changed by the [Modify FC/FCoE Host] function, changing the host affinity setting is not required.

C.5 Required Storage System Settings After HBA Replacement (When Host Affinity Settings are not Used)

When the host affinity function is not used (conventional LUN mapping is used), changing the storage system settings after replacing an HBA is not required.

ETERNUS Web GUI User's Guide (Operation) FUJITSU Storage ETERNUS DX60 S3/DX100 S3/DX200 S3, ETERNUS DX500 S3/DX600 S3, ETERNUS DX8100 S3/DX8700 S3/DX8900 S3 Disk Storage Systems, ETERNUS AF250/AF650, ETERNUS DX200F All-Flash Arrays

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