FUJITSU

FUJITSU Storage
ETERNUS SF
Express V16.1 / Storage Cruiser V16.1 / AdvancedCopy Manager V16.1

Web Console Guide

Windows

Preface

Purpose

This manual describes the ETERNUS SF Web Console (hereafter referred to as "Web Console") used by the following FUJITSU Storage ETERNUS SF products:

- FUJITSU Storage ETERNUS SF Express (hereafter referred to as "Express")

- FUJITSU Storage ETERNUS SF Storage Cruiser (hereafter referred to as "Storage Cruiser")

- FUJITSU Storage ETERNUS SF AdvancedCopy Manager (hereafter referred to as "AdvancedCopy Manager")

Intended Readers

This manual is intended for operators and system administrators using Express, Storage Cruiser or AdvancedCopy Manager for their storage management.

Organization

This manual is composed as follows:

Chapter 1 Operating Environment and Environment Settings

   This chapter describes the browsers supported by Web Console and the required environment settings.

Chapter 2 Web Console Screen Layout

   This chapter explains the screen layout of the Web Console.

Chapter 3 Notes

   This chapter describes notes for the Web Console operations.

Chapter 4 Starting and Stopping Web Console

   This chapter explains how to start and stop the Web Console.

Chapter 5 Operations Started From Main Tab

   This chapter explains the operations started from clicking **Main** of the global navigation tab.

Chapter 6 Operations Started From Storage Tab

   This chapter explains the operations started from clicking **Storage** of the global navigation tab.

Chapter 7 Operations Started From Network Tab

   This chapter explains the operations started from clicking **Network** of the global navigation tab.

Chapter 8 Operations Started From Server Tab

   This chapter explains the operations started from clicking **Server** of the global navigation tab.

Chapter 9 Operations Started From Map View Tab

   This chapter explains the operations started from clicking **Map View** of the global navigation tab.

Chapter 10 Operations Started From Scheduler Tab

   This chapter explains the operations started from clicking **Scheduler** of the global navigation tab.

Chapter 11 Operations Started From Log Tab

   This chapter explains the operations started from clicking **Log** of the global navigation tab.

Chapter 12 Operations Started From System Tab

   This chapter explains the operations started from clicking **System** of the global navigation tab.

Notation

The names, abbreviations, and symbols shown below are used in this manual.

Operating Systems

Product Name	Notation	
Microsoft(R) Windows Server(R) 2003, Standard Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition	Windows Server 2003	Windows
Microsoft(R) Windows Server(R) 2008 Standard (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM) (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM) (32-bit)(64-bit)	Windows Server 2008	
Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter	Windows Server 2008 R2	
Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter	Windows Server 2012	
Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Datacenter	Windows Server 2012 R2	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7	
Windows(R) 8 Windows(R) 8 Pro	Windows 8	
Windows(R) 8.1 Windows(R) 8.1 Pro	Windows 8.1	
Solaris(TM) 9 Operating system	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)	RHEL-AS4	Linux
Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)	RHEL-ES4	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	

Product Name	Notation	
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T	SUSE Linux Enterprise Server 11	
HP-UX 11i v1 HP-UX 11i v2 HP-UX 11i v3	HP-UX	
AIX(R) V6.1 AIX(R) V7.1	AIX	
VMware vSphere(R) 4 Essentials Kit VMware vSphere(R) 4 Essentials Plus Kit VMware vSphere(R) 4 Standard Edition(TM) VMware vSphere(R) 4 Standard Plus Data Recovery VMware vSphere(R) 4 Advanced Edition(TM) VMware vSphere(R) 4 Enterprise Edition(TM) VMware vSphere(R) 4 Enterprise Plus Edition(TM)	VMware vSphere 4	VMware
VMware vSphere(R) 5 Essentials Kit VMware vSphere(R) 5 Essentials Plus Kit VMware vSphere(R) 5 Standard Edition(TM) VMware vSphere(R) 5 Standard Plus Data Recovery VMware vSphere(R) 5 Enterprise Edition(TM) VMware vSphere(R) 5 Enterprise Plus Edition(TM)	VMware vSphere 5	

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

FUJITSU Storage ETERNUS

Formal Name	Abbreviation		
FUJITSU Storage ETERNUS DX60/DX60 S2 FUJITSU Storage ETERNUS DX80/DX80 S2 FUJITSU Storage ETERNUS DX90/DX90 S2	-		ETERNUS Disk storage system
FUJITSU Storage ETERNUS DX100 S3 FUJITSU Storage ETERNUS DX200 S3			
FUJITSU Storage ETERNUS DX410 FUJITSU Storage ETERNUS DX440	ETERNUS DX400 series	ETERNUS DX400/DX400 S2 series	
FUJITSU Storage ETERNUS DX410 S2 FUJITSU Storage ETERNUS DX440 S2	ETERNUS DX400 S2 series		
FUJITSU Storage ETERNUS DX500 S3 FUJITSU Storage ETERNUS DX600 S3	-		
FUJITSU Storage ETERNUS DX8100 FUJITSU Storage ETERNUS DX8400 FUJITSU Storage ETERNUS DX8700	ETERNUS DX8000 series	ETERNUS DX8000/ DX8000 S2 series	
FUJITSU Storage ETERNUS DX8100 S2 FUJITSU Storage ETERNUS DX8700 S2	ETERNUS DX8000 S2 series		
FUJITSU Storage ETERNUS DX200F	-		
FUJITSU Storage ETERNUS LT20/LT20 S2 FUJITSU Storage ETERNUS LT40/LT40 S2 FUJITSU Storage ETERNUS LT60/LT60 S2 FUJITSU Storage ETERNUS LT200 FUJITSU Storage ETERNUS LT210	ETERNUS Tape library		

Formal Name	Abbreviation
FUJITSU Storage ETERNUS LT220 FUJITSU Storage ETERNUS LT230 FUJITSU Storage ETERNUS LT250 FUJITSU Storage ETERNUS LT270/LT270 S2	

Each individual device name in this document is listed with "FUJITSU Storage" omitted from it.

Software Products

Formal name	Abbreviation
Microsoft(R) Internet Explorer(R) 8 Microsoft(R) Internet Explorer(R) 9 Microsoft(R) Internet Explorer(R) 10 Microsoft(R) Internet Explorer(R) 11	Internet Explorer
Mozilla(R) Firefox(R) ESR 17 Mozilla(R) Firefox(R) ESR 24	Firefox
Microsoft(R) Exchange Server	Exchange Server
Microsoft(R) SQL Server(R)	SQL Server
VMware(R) vCenter(TM) Server	VMware vCenter Server or vCenter Server

Manuals

Formal name	Abbreviation
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Quick Reference	ETERNUS SF Quick Reference
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Release Notes	ETERNUS SF Release Notes
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Installation and Setup Guide	ETERNUS SF Installation and Setup Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Migration Guide	ETERNUS SF Migration Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Web Console Guide	ETERNUS SF Web Console Guide
FUJITSU Storage ETERNUS SF Storage Cruiser / AdvancedCopy Manager Cluster Environment Setup Guide	ETERNUS SF Cluster Environment Setup Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Messages	ETERNUS SF Messages
FUJITSU Storage ETERNUS SF Express / Storage Cruiser Event Guide	ETERNUS SF Event Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Glossary	ETERNUS SF Glossary

Besides the above-mentioned, each individual manual name in this document is listed with "FUJITSU Storage" omitted from it.

Others

- Quality of Service is abbreviated as "QoS".

- In this document, the following products are collectively described as "Windows Server 2008 or later".

    - Windows Server 2008

    - Windows Server 2008 R2

    - Windows Server 2012

- Windows Server 2012 R2

- In this document, unless there is a special explanatory note, ETERNUS DX200 S3 indicates ETERNUS DX200 S3 and ETERNUS DX200F. In addition, ETERNUS Disk storage system includes ETERNUS DX200F All Flash Arrays.
  However, the following functions are not supported in ETERNUS DX200F:

    - Energy saving operation for storage device

    - NAS operation for storage device

    - Automated Storage Tiering operation at multiple tiers (two or more)

    - Storage Cluster function

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Notes

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Update History

Content of Update	Updated Section	Revision
An error in the explanation concerning the input item is corrected.	6.15.16	1.1
The explanation concerning the input item is added.	6.16.1	
The number of maximum characters that is able to be specified for Allowed Hosts and Denied Hosts is changed.	6.16.1, 6.16.3	
The [Information] is added.	6.16.2	
The information related to ETERNUS DX200F is described.	"Others" in Preface	1.2
The information about Internet Explorer 8 is added.	1.1	2
The explanation related to "Selections" is described.	2.3	
The conditions that the Category pane, the Main pane, and the Action pane are not updated automatically are modified.	3.1	
The information about ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3 is added.	3.3	
A note is added.	3.5.4	
In [Point], the information is added or modified.	6.1.3, 6.1.9, 6.12.2, 6.12.3, 6.14.3, 7.2, 8.1.8	
In [Note], the information is added or modified.	6.7.1, 6.8.1, 6.8.3, 6.8.4, 6.11.12, 6.11.15, 6.15.1, 7.2, 8.3.1, Chapter 9, 11.3	
The procedure is modified.	6.9.1, 6.9.4	
The name of input items is changed. Or, the explanation about the input items is added or modified.	6.11.17, 6.15.2, 6.15.6, 6.15.7, 6.15.12, 6.15.13, 6.15.17, 6.15.20, 6.16.12	
The operational procedure concerning functions to support from Version 16.1 is described.	6.11.18, 6.11.19, 6.15.9, 6.15.19, 6.16.1, 6.16.6, 6.16.8 to 6.16.25, 6.19, 9.10, 9.17, All sections of Chapter 10, 12.4	
The explanation of items that had been newly added by the enhancement of the Automated QoS function is described.	6.15.17, 6.15.20, 6.17.2	
The firmware version required to operate the storage Automated Storage Tiering is described.	6.15	
The section title and procedure are modified.	7.1	
The "Record Count Preference" is added to displayed information.	12.2.1	
The procedure to change the default record count in table is described.	12.2.4	
An input item is added.	6.16.1	2.1
The naming rule of NAS backup volume, copy group, and NAS snapshot volume is changed.	6.16.1	
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Content of Update	Updated Section	Revision
The explanation of the tab which displays the detailed information is added.	6.16.7	
The [Point] is added.	6.16.23	
The [Note] is deleted.	6.16.23	

Manual Organization and Reading Suggestions

Manual Organization

The following table describes the Manual organization of Express, Storage Cruiser and AdvancedCopy Manager.

When to Read	Related Manuals (Abbreviated)	Related Products (*1)			Explanation
		EXP	SC	ACM	
Before installation	Quick Reference	Yes	Yes	Yes	This manual is common for all products.
	Release Notes	Yes	Yes	Yes	This manual is common for all products.
	Overview	-	-	Yes	This manual is unique for the product.
During installation	Installation and Setup Guide	Yes	Yes	Yes	This manual is common for all products.
	Cluster Environment Setup Guide	-	Yes	Yes	This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	Yes	Yes	Yes	This manual is common for all products.

During operation	Operation Guide	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available:
					
					  - Express Operation Guide
					
					  - Storage Cruiser Operation Guide
					
					  - Storage Cruiser Operation Guide for Optimization Function
					
					  - AdvancedCopy Manager Operation Guide (for Windows)
					
					  - AdvancedCopy Manager Operation Guide (for Solaris)
					
					  - AdvancedCopy Manager Operation Guide (for Linux)
					
					  - AdvancedCopy Manager Operation Guide (for HP-UX)
					
					  - AdvancedCopy Manager Operation Guide (for AIX)
					
					  - AdvancedCopy Manager Operation Guide for Copy Control Module

	Web Console Guide	Yes	Yes	Yes	This manual is common for all products.
Anytime	Event Guide	Yes	Yes	-	This manual is common for Express and Storage Cruiser.
	Messages	Yes	Yes	Yes	This manual is common for all products.
	Glossary	Yes	Yes	Yes	This manual is common for all products.

*1: "EXP" indicates Express, "SC" indicates Storage Cruiser and "ACM" indicates AdvancedCopy Manager.

How to Read Manuals

Please use the following table to find the most useful information in the Express, Storage Cruiser and AdvancedCopy Manager manuals to answer your inquiry.

Purpose	Manual	Main Contents	How to Read
Acquiring a product overview and basic operation knowledge	Quick Reference	- Product overview - Installation decision - Overview of the necessary tasks from installation to first use	Please read if you want to acquire a fundamental knowledge of the product and its operation in order to decide to install it or not.
	AdvancedCopy Manager Overview	- Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system	
Confirming the updated contents	Release Notes	- New function overview - Incompatibilities with previous version - Fixed bugs	Please read if you want to know the updated contents from a previous version and if you perform the upgrade.
Deciding if a version upgrade is required	Migration Guide	- Notes and cautions about version upgrade - Version upgrade procedure	Please read if you want to upgrade from a previous version.
Installing and correctly operating the product Setting up operating environment depending on purpose	Installation and Setup Guide	- Operating environment - Installation procedure - Setup procedure - Uninstallation procedure	Please read if you want to install and setup the product.
	Cluster Environment Setup Guide	- Supported cluster software - Installation procedure for a clustered system - Setup procedure for a clustered system - Uninstallation procedure for a clustered system	Please read if you want to install and setup the product on a clustered system.
Administration and operation of the installed system	Express Operation Guide	- Starting and stopping the software - Device monitoring - Data copy inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance	Please read if you want to start or shutdown the system, monitor the operation status, do backup/restore operations, etc.
	Storage Cruiser Operation Guide	- Starting and stopping the software	

Purpose	Manual	Main Contents	How to Read
		- Device monitoring	
		- Necessary tasks after an architectural modification of the system as well as product maintenance	
		- Command reference	
	Storage Cruiser Operation Guide for Optimization Function	- Operating environment construction	
		- Operating status monitoring	
		- Necessary tasks after an architectural modification of the system as well as product maintenance	
		- Command reference	
	AdvancedCopy Manager Operation Guide (for Windows)	- Starting and stopping the software	
	AdvancedCopy Manager Operation Guide (for Solaris)	- Data backup/restore inside the storage system	
	AdvancedCopy Manager Operation Guide (for Linux)	- Necessary tasks after an architectural modification of the system as well as product maintenance	
	AdvancedCopy Manager Operation Guide (for HP-UX)		
	AdvancedCopy Manager Operation Guide (for AIX)	- Command reference	
	AdvancedCopy Manager Operation Guide for Copy Control Module		
	Web Console Guide	- Operating environment	Please read if you want to understand the ETERNUS SF Web Console.
		- Screen layout description	
Dealing with messages issued by the software	Messages	- Messages and their explanations	Please read if you want a practical way of investigating and dealing with messages issued by the software.
		- Parameter (variable information) description	
		- System action	
		- Countermeasures	
Dealing with events issued by the software	Event Guide	- Phenomenon of event	Please read if you need to find a practical way of investigating and dealing with events.
		- Countermeasures	
Researching the meaning of specific terms related to the products and other important terms	Glossary	- Product specific terminology explanation	Please read if you want to learn the meaning of important terms, product specific terms or abbreviations used in the manuals.
		- Explanation of important terminology appearing in the manual	
		- Synonyms and related terms	

Purpose	Manual	Main Contents	How to Read
		- Proper form of abbreviated terms	

Contents

Chapter 1   Operating Environment and Environment Settings

This chapter describes the Web Console operating environment and its environment settings.

1.1   Supported Web Browsers

The following browsers are supported by the Web Console:

Web Browser	Remarks
Internet Explorer 8	Install KB976662 update. Some functions will not work in the display of the Map View. Refer to [Note] in "Chapter 9 Operations Started From Map View Tab" for details.
Internet Explorer 9	
Internet Explorer 10	Use a desktop version of Internet Explorer 10. A modern UI version of Internet Explorer 10 is not available.
Internet Explorer 11	Use a desktop version of Internet Explorer 11. A modern UI version of Internet Explorer 11 is not available.
Firefox ESR 17	
Firefox ESR 24	

📘 Point

. . . .

1024x786 pixels or more is recommended as screen resolution.

. . . .

1.2   JavaScript Settings

The Web Console needs JavaScript to be enabled in the web browser.

For Internet Explorer:

1. Click the **Tools** menu, and then click **Internet Options**.
   The **Internet Options** dialog box is displayed.

2. On the **Security** tab, select **Trusted sites**. Then, click the **Sites** button.
   The **Trusted sites** dialog box is displayed.

3. Enter the Management Server IP address, and then click **Add**. If the addition is finished, click **Close** to close the **Trusted sites** dialog box.
   The **Internet Options** dialog box is displayed again.

4. Click the **Custom level** button with **Trusted sites** selected.
   The **Security Settings** dialog box is displayed.

5. Scroll down the **Security Settings** list until you reach the **Scripting** section. Under the **Active scripting**, select **Enable**.

For Firefox:

1. Click the **Tools** menu, and then click **Options**.
   The **Options** dialog box is displayed.

2. Click the **Content** button.

3. Check the **Enable JavaScript** checkbox.

1.3 Cookie Settings

The Web Console needs cookies to be enabled in the web browser.

For Internet Explorer:

1. Click the **Tools** menu, and then click **Internet Options**.
   The **Internet Options** dialog box is displayed.

2. On the **Privacy** tab, click the **Advanced** button.
   The **Advanced Privacy Settings** dialog box is displayed.

3. Check the **Override automatic cookie handling** checkbox, and check **Accept** in the First-party Cookies.

For Firefox:

1. Click the **Tools** menu, and then click **Options**.
   The **Options** dialog box is displayed.

2. Click the **Privacy** button.

3. Select "Remember history" or "Use custom settings for history" from the **Firefox will:** drop-down menu.

4. If "Use custom settings for history" is selected, check the "Accept cookies from sites".

1.4 Compatibility View Settings of Internet Explorer

When using Internet Explorer, disable Compatibility View.
The procedure to disable it is as follows.

1. On the Internet Explorer, check that Compatibility View is enabled.

   a. Refer to "" to start the Web Console.

   b. On the Internet Explorer, click the **Tools** menu and then click **Developer Tools** (**F12 developer tools** for Internet Explorer 9 or Internet Explorer 10).
      For Internet Explorer 9 or Internet Explorer 10, press the **Alt** key to display the menu bar and use the **Tools** menu.

   c. Check if "IE8 Compat View", "IE9 Compat View", or "IE10 Compat" is displayed in the **Browser Mode** menu on the **Developer Tools** window. If not displayed, Compatibility View is disabled and no setting is required.

2. On the Internet Explorer, click the **Tools** menu and then click **Compatibility View Settings**.
   For Internet Explorer 9 or later, press the **Alt** key to display the menu bar and use the **Tools** menu.

3. Perform the following settings on the **Compatibility View Settings** dialog box.

   For Internet Explorer 11:

   a. If the address of the Management Server is displayed in **Websites you've added to Compatibility View**, select the address and then click **Remove**.

   b. Uncheck the **Display intranet sites in Compatibility view** checkbox.

> 📒 **Note**
> ....
> Performing the above step b. setting may disable a Compatibility View enabled site and change its screen view.
> For a site whose screen view is changed, causing a trouble to operation, add URL separately on the **Compatibility View Settings** window to enable Compatibility View.
> ....

   For Internet Explorer 8, Internet Explorer 9, Internet Explorer 10:

   a. If the address of the Management Server is displayed in **Website added to Compatibility View**, select the address and then click **Delete**.

b. Execute step 1 and check if Compatibility View is enabled.
If disabled, any further settings are not required.

c. Uncheck the Display all Websites in Compatibility View checkbox.

d. Execute step 1 and check if Compatibility View is enabled.
If disabled, any further settings are not required.

e. Uncheck the Display intranet sites in Compatibility view checkbox.

📖 Note
....

Performing the above step c. and step e. setting may disable a Compatibility View enabled site and change its screen view. For a site whose screen view is changed, causing a trouble to operation, add URL separately on the **Compatibility View Settings** window to enable Compatibility View.
....

📖 Note
....

On the **Compatibility View Settings** dialog box, the following checkbox is Internet site configuration and no setting is required.

- Internet Explorer 11: "Use Microsoft compatibility lists"

- Internet Explorer 10: "Download updated compatibility lists from Microsoft"

- Internet Explorer 8 and Internet Explorer 9: "Include updated Website lists from Microsoft"

....

1.5 HTTPS Connection

This chapter describes the security features of the HTTPS connection used by this software.
This software uses a HTTPS connection between the web browser (client) and Management Server. The connection data is encrypted with a security certificate.

As a default, a self-signed certificate is used when the product was installed.

As the network is isolated from the intranet by a firewall the communication with the neighboring devices is safe and using a self-signed certificate is not a problem, but may generate warning message in a web browser set to access the Internet.

- When the web browser is started a warning message is displayed regarding the security certificate upon establishing the connection for the first time.

- When Internet Explorer is used, the Address bar turns red and a "**Certificate Error**" message displays in the Security Status bar. Moreover, a warning icon of a possible phishing attempt is displayed in the Security Status bar.

To disable the first connection warning and error messages, it is necessary to create a certificate corresponding to the Management Server IP address or host name (FQDN) and import it in the web browser.

1.5.1 Certificate Creation

A certificate corresponding to "localhost" is created when the product was installed.
If the Management Server is the same as the server for the web browser (client), certificate creation is not necessary.

If the Web Console is served from a different terminal than the Management Server, follow the procedure below on the Management Server to create the certificate.

For Windows environment

1. Stop the following services.

    - ETERNUS SF Manager Apache Service

    - ETERNUS SF Manager Tomcat Service

    Open the **Services** dialog box by clicking **Control Panel** > **Administrative Tools** > **Services**, and then stop the target services.

2. Open a command prompt, and change to the *installDir*\Common\sys\apache\conf directory.

📘 Example
....
When the ETERNUS SF Manager is installed in "C:\ETERNUS_SF":

```
>cd "C:\ETERNUS_SF\Common\sys\apache\conf" <RETURN>
```
....

3. Back up the original certificate file.
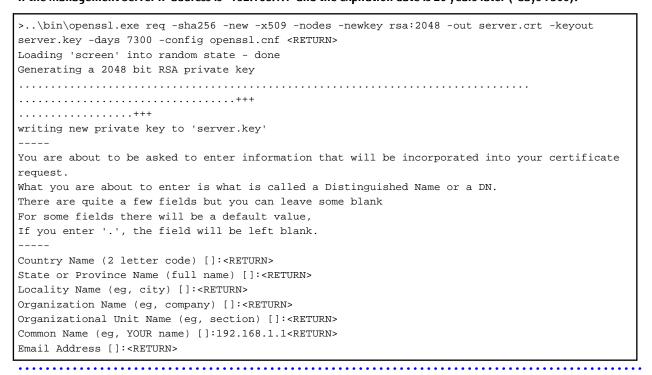
📘 Example
....
```
>copy server.crt server.crt.org <RETURN>
>copy server.key server.key.org <RETURN>
```
....

4. Execute the command (openssl.exe) to create a certificate for the software.

📘 Example
....
If the Management Server IP address is "192.168.1.1"and the expiration date is 20 years later (-days 7300):

```
>..\bin\openssl.exe req -sha256 -new -x509 -nodes -newkey rsa:2048 -out server.crt -keyout
server.key -days 7300 -config openssl.cnf <RETURN>
Loading 'screen' into random state - done
Generating a 2048 bit RSA private key
....................................................................................
...................................+++
.................+++
writing new private key to 'server.key'
-----
You are about to be asked to enter information that will be incorporated into your certificate
request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) []:<RETURN>
State or Province Name (full name) []:<RETURN>
Locality Name (eg, city) []:<RETURN>
Organization Name (eg, company) []:<RETURN>
Organizational Unit Name (eg, section) []:<RETURN>
Common Name (eg, YOUR name) []:192.168.1.1<RETURN>
Email Address []:<RETURN>
```
....

Option

-days

Specify the period for which the certificate is available.
This option is counted from the day of the command execution. Enter a reasonably long number of days, while keeping the expiration date earlier than January 19, 2038.

Input Items

Input Items	Explanation
Country Name	The two-letter abbreviation for your country. (ISO-3166)
State or Province Name	The state or province where the Management Server is located.

Input Items	Explanation
Locality Name	The city where your organization is located.
Organization Name	The exact legal name of your organization.
Organizational Unit Name	Optional for additional organization information.

Common Name	Enter the IP address or the host name (FQDN) that will be entered in the web browser. Enter This item is mandatory. The enter example is as follows.
	
	- In the case of specifying IP address:
	  192.168.1.1
	
	- In the case of specifying host name:
	  myhost.company.com

Email Address	E-mail address for contact

5. Start the following services.

   - ETERNUS SF Manager Apache Service

   - ETERNUS SF Manager Tomcat Service

   Open the **Services** dialog box by clicking **Control Panel** > **Administrative Tools** > **Services**, and then start the target services.

For Solaris or Linux environment

1. Log in the Management Server with Administrator privileges,

2. Execute the following command to stop daemons related to the web service.

   ```
   # /opt/FJSVesfcm/bin/stop-webservice.sh <RETURN>
   ```

3. Move to /etc/opt/FJSVesfcm/conf/apache directory.

   ```
   # cd /etc/opt/FJSVesfcm/conf/apache <RETURN>
   ```

4. Back up the original certificate file.

🏵 Example
· ·
```
# cp server.crt server.crt.org <RETURN>
# cp server.key server.key.org <RETURN>
```
· ·

5. Execute the openssl command to create a certificate for the software.

🏵 Example
· ·
If the Management Server IP address is "192.168.1.1"and the expiration date is 20 years later (-days 7300):

```
# /opt/FJSVesfcm/SSL/bin/openssl req -sha256 -new -x509 -nodes -newkey rsa:2048 -out server.crt
-keyout server.key -days 7300 -config openssl.cnf <RETURN>
Loading 'screen' into random state - done
Generating a 2048 bit RSA private key
................................................................................
..................................+++
.................+++
writing new private key to 'server.key'
-----
You are about to be asked to enter information that will be incorporated into your certificate
request.
What you are about to enter is what is called a Distinguished Name or a DN.
```

```
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) []:<RETURN>
State or Province Name (full name) []:<RETURN>
Locality Name (eg, city) []:<RETURN>
Organization Name (eg, company) []:<RETURN>
Organizational Unit Name (eg, section) []:<RETURN>
Common Name (eg, YOUR name) []:192.168.1.1<RETURN>
Email Address []:<RETURN>
```

Option

-days

Specify the period for which the certificate is available.

This option is counted from the day of the command execution. Enter a reasonably long number of days of using the software while keeping the expiration date earlier than January 19, 2038.

Input Items

Input Items	Explanation
Country Name	The two-letter abbreviation for your country. (ISO-3166)
State or Province Name	The state or province where the Management Server is located.
Locality Name	The city where your organization is located.
Organization Name	The exact legal name of your organization.
Organizational Unit Name	Optional for additional organization information.
Common Name	Enter the IP address or the host name (FQDN) that will be entered in the web browser. Enter This item is mandatory. The enter example is as follows. - In the case of specifying IP address: 192.168.1.1 - In the case of specifying host name: myhost.company.com
Email Address	E-mail address for contact

6. Execute the following command to restart daemons related to the web service.

```
# /opt/FJSVesfcm/bin/start-webservice.sh <RETURN>
```

1.5.2   Certificate Import

Follow the procedure below to import the certificate.

🖑 Note

Please use the same IP address or host name (FQDN) for the URL entered in the web browser as the one used in the generated certificate. For example, if the URL is different from the certificate, the certificate warning messages will be displayed.

- The certificate was created with a host name (FQDN) and the URL is entered with the IP address.

- The Management Server has several IP addresses, and the IP address used in the URL is different from the one used for the certificate creation.

For Internet Explorer:

1. In the web browser address bar, enter the IP address or host name (FQDN) specified in the **Common Name** at the certificate creation.
   If the Management Server is the same as the server for the web browser (client), enter the "localhost".

   ![Example icon] Example
   . . . .
   - In the case of entering IP address (192.168.1.1):

     ```
     https://192.168.1.1:9855/
     ```

   - In the case of entering "localhost":

     ```
     https://localhost:9855/
     ```
   . . . .

2. A dialog box showing the "**There is a problem with this website's security certificate.**" message is displayed. Click the **Continue to this website (not recommended).**.

3. Click the **Certificate Error** in the address bar.

4. Click on **View certificates** at the bottom of the dialog box.

5. On the **Certificates** dialog box, click **Install Certificate**.

6. The Certificate Import Wizard is displayed. Click **Next** on the Certificate Import Wizard.

7. The **Certificate Store** dialog box is displayed. Select **Place all certificates in the following store**, and then click **Browse**.

8. The **Select Certificate Store** dialog box is displayed. Select **Trusted Root Certification Authorities**, and then click **OK**.

9. The **Certificate Store** dialog box is displayed again. Check that **Trusted Root Certification Authorities** appears in the **Certificate store:**, and then click **Next**.

10. The **Completing the Certificate Import Wizard** dialog box is displayed. Check that **Trusted Root Certification Authorities** has been set, and then click **Finish**.

11. On the **Security Warning** dialog box, click **Yes**.

12. Restart the web browser, and then enter the URL of the Management Server.

For Firefox:

1. In the web browser address bar, enter the IP address or host name (FQDN) specified in the **Common Name** at the certificate creation.
   If the Management Server is the same as the server for the web browser (client), enter the "localhost".

   ![Example icon] Example
   . . . .
   - In the case of entering IP address (192.168.1.1):

     ```
     https://192.168.1.1:9855/
     ```

   - In the case of entering "localhost":

     ```
     https://localhost:9855/
     ```
   . . . .

2. The **This Connection is Untrusted** dialog box is displayed. Click **I Understand the Risks**, and then click **Add Exception**.

3. The **Add Security Exception** window id displayed. Check that **Permanently store this exception** has been checked on, and then click **Confirm Security Exception**.

Chapter 2   Web Console Screen Layout

The Web Console screen structure is described below.

Figure 2.1 Web Console Screen Layout

Map View structure is described below.

Figure 2.2 Map View Structure (Overview Screen)

Figure 2.3 Map View Structure (Logical Path View Screen)

Each component of the Web Console screen is described hereinafter.

2.1   Menu Area

Total Status

Displays the total status of storage device, network device, and server as following icons.

Icon	Explanation
Normal	All devices are running normally.
Warning	Some devices require the attention.
Error	The error has occurred in some devices.

Device Status

Displays the status of storage device, network device, and server.
The device type is displayed as following icons.

Icon	Explanation
	Storage devices
	Network devices
	Servers

The three icons to the right side of each device icon indicate the following information.

Icon	Explanation
	Number of normal state devices
	Number of alarming state devices
	Number of abnormal state devices

Operation Status

Displays the operation information as following icons.
If clicking any icon or number, the **Operation History** screen is displayed.

Icon	Explanation
	Number of the processing in progress
	Number of warning messages not confirmed processing results in the **Operation History** screen
	Number of error messages not confirmed processing results in the **Operation History** screen

Status of Automatic Refresh Processing

Displays the status of the automatic refresh processing for the screen as following icons.

Icon	Explanation
	Automatic refresh is active for the whole area of the screen.
	Automatic refresh is active partially. It is active for the menu area and Job Status pane only.
	Automatic refresh is inactive.

Refer to "3.1 Update of Information (Refresh Screen)" for the condition of entering to each state.

When a mouse over operation on the icon is performed, the tooltip that explains the status of operation and the condition is displayed.

Refresh

Clicking reloads the latest information from the Management Server.

Help

Clicking displays a drop-down list to select displayed information from. The following contents can be checked.

Selectable Items	Explanation
Manual	The online manual index screen is displayed.
Version	The product version is displayed.
License Agreement	The License Agreement is displayed.

Global Navigation Tab

> If a category on the global navigation tab is clicked, the top menu of the selected category is displayed on the category pane.

Breadcrumb List

> Indicates where the current page is.

🅿 Point
....

- If an Error or Warning level event is reported, perform the appropriate action, and then update the corresponding storage system element status manually. Also, when the storage system is recovered, update the corresponding storage system element status manually.
  Refer to "6.1.9 Reload ETERNUS Disk Storage System Configuration Information" about updating the configuration information.

- Information of Total status, Device status and Operation status are updated at intervals set in the Screen Refresh Interval (Default is 30 seconds) or by clicking 🔄.

- Clicking 🔄 resets the following setting values in the Main pane to the default value. Refer to "2.3 Main Pane" for respective setting.

  - Filter setting

  - Page setting

  - Displayed records setting

- Clicking 🔄 does not reset values in the Filter Setting on the Job Status pane.

- When the information screen is displaying multiple tabs, clicking 🔄 displays the leftmost tab information on the Main pane regardless of the current tab.

....

2.2 Category Pane

This pane displays selectable categories list.
The title bar indicates the current category. The "Storage" is the current category in the above screen.

Clicking an item displays information on the Main pane.

2.3 Main Pane

Information

    Displays explanation for the current Main pane.

Filter Setting

    Narrows down and displays the information on the Main pane.

    Clicking the **Filter setting** displays the filter screen as follows.

    Click **Filter** after entering filter criteria. Information matching the criteria specified is displayed in the information display area. Clicking **Clear** cancels filter setting.

Note

  - The text field filtering is by partial match. All information including typed characters is displayed.

  - On the Web Console, the capacity is displayed with a rounded value. Specify the range including the capacity to detect in the capacity field. For example, specify the range from 9GB to 11GB to detect 10GB.

Selections

    This is the number of checkboxes or radio buttons that are currently selected.

The selected state of the checkboxes and radio buttons are retained from before to after the following operations. However, if the information displayed in the line being selected is deleted, the selected state of its line will also be released.

- Click **Filter** or **Clear** in **Filter Setting**.

- Click the links (**<<, <, >, >>**) for the displayed page in **Page Setting**.

- Click Go in **Page Setting**.

- Change the pull-down menu in **Display *xxx* records** of **Displayed Record Setting**.

- Click on the column of the table (sort the table).

Page Setting

Information may be divided into several pages.
To display the information on page two and subsequent pages, click **>** or **>>**. Also, you can type a page number and click **Go**.
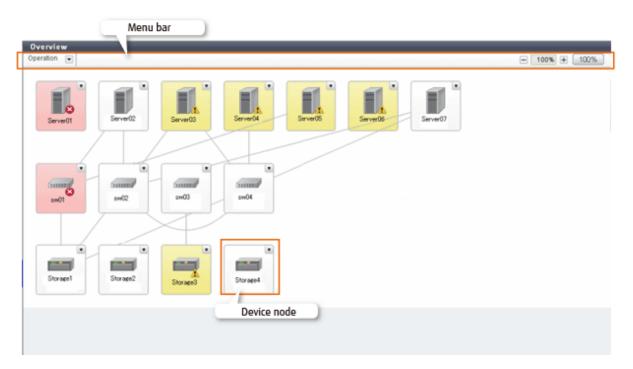
Displayed Records Setting

From the pull down menu, select the number of lines to display per screen.
The selectable values are 10, 25, 50 or 100.

📖 Information
. . . .
The default record count can be changed. Refer to "12.2.4 Record Count Preference" for information on how to change the default record count.
. . . .
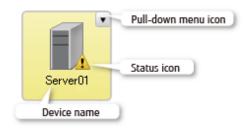
For Map View (Overview Screen)

Menu Bar

The Zoom In/Out button and a pull-down menu icon are displayed.
If you click the pull-down menu icon, pull-down menu is displayed.

Device Node
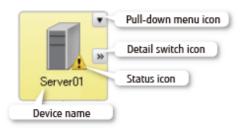
For Map View (Logical Path View Screen)

Menu Bar

The Zoom In/Out button and a pull-down menu icon are displayed.
If you click the pull-down menu icon, pull-down menu is displayed.

Device Node

2.4 Action Pane

This pane displays an executable action list for an item displayed on the Main pane. However, this pane is not displayed on Map View.

℗ Point
. . . .
Not executable actions are grayed out.
Click an action grayed out to display an executing condition for them.
. . . .

2.5 Job Status Pane

This section describes the Job Status pane.

Displayed Items

The current processing status information for each processing device is displayed. The displayed items are as follows:

Displayed Items	Explanation
Date	Update time and date of the processing status information (*1)
User ID	User that executed processing
Action	Action name

Status	Processing status. One of the following is displayed:
	
	  - Waiting
	
	  - Executing
	
	  - Completed

Result	Processing result
Target	Target to be processed. The names of ETERNUS Disk storage system, server, switch, etc. are displayed.

*1: If **Status** column is "Waiting", since **Date** column indicates the time processing was accepted, it may be different from the time and date output in the Operation History.

Displayed items are updated to the latest status when triggered by any of the following:

  - Automatic updating

    Displayed items are automatically updated at intervals set in the Screen Refresh Interval (Default is 30 seconds).

- Manual updating

  Click in the menu area.
- Opening/closing this pane

  Opening this pane always displays the latest updated information.

![Note icon] **Note**

- -

- In the following cases, the recorded information is automatically deleted and no longer displayed on this pane.

  - 24 hours has passed since **Status** column was changed to "Completed".

  - ETERNUS SF system services on the Management Server are restarted.

- On this pane, you can check the processing status of the operation performed on the Web Console that resulted in the dialog box being displayed as shown below. This pane does not display Command Line Interface (CLI) operations.

- -

How to Open/Close the Job Status Pane

Left-click on the bar that opens/closes this pane.
The above figure shows the screen transition when opening this pane.

![Information icon] **Information**

- -

Opening this pane displays the latest updated information.

- -

How to Resize the Job Status Pane (Vertically Only)

Resize this pane vertically as follows:

1. With the Job Status pane opened, place the mouse pointer on the bar that opens/closes this pane.

2. When the mouse pointer changes as shown in the above figure, drag it vertically.

Note

- The resize range has upper and lower limits.
- You cannot resize this pane horizontally.

Chapter 3   Notes

This chapter describes notes for the Web Console operations.

3.1 Update of Information (Refresh Screen)

The information displayed on the screen is updated automatically at intervals (Default is 30 seconds) set to **Screen Refresh Interval**. The input item in the screen is held before and after the update.

According to the setting of **Target** of the screen refresh preference, the area updated automatically is different as shown in the following tables.

Object to Be Updated	Explanation

Entire	Automatic refresh is active for the whole area (Menu area, Category pane, Main pane, Action pane, and Job Status pane) of the screen.
	
	However, when it meets any following requirements, the Category pane, the Main pane, and the Action pane are not updated automatically.
	
	  - The screen for setting or the Map View screen is displayed.
	
	  - A dialog box is displayed.

Menu area and Job Status pane	Automatic refresh is active for the menu area and Job Status pane only.
None (Disabled)	Automatic refresh is inactive.

The screen can be updated manually by clicking 🔄 in the menu area.

📖 Information

. . . .

- The status of the automatic refresh processing can be confirmed with the icon displayed in the menu area. Refer to "2.1 Menu Area" for details.

- Refer to "12.2.3 Change Value for Screen Refresh Preference" for information on how to change **Target** and **Screen Refresh Interval**.

. . . .

📋 Note

. . . .

- The automatic refresh never operates on the screen before log in and the screen displayed by another window.

    - Login screen

    - Session Timeout screen

    - Logical Path View

    - End to End View detail screen

    - Performance Chart window

- The automatic refresh never operates for the information related to Automated Storage Tiering.

- Clicking 🔄 resets the following setting values in the Main pane to the default value. Refer to "2.3 Main Pane" for respective setting.

    - Filter setting

    - Page setting

    - Displayed records setting

In addition, when information screen has tabs, clicking ⟳ displays the leftmost tab information on the Main pane regardless of the current tab.

- Clicking ⟳ does not reset values in the Filter Setting on the Job Status pane.

- Clicking ⟳ displays the existing information held by ETERNUS SF system. It does not acquire updated information from the devices. Clicking **Reload Conf.** or **Refresh** in an Action pane obtains updated information from the device.
  Device information excluding system information, device configuration status, performance management configuration information and the information related to Automated Storage Tiering is automatically collected for the following devices. Clicking ⟳ displays the automatically collected information.

    - ETERNUS DX80 S2/DX90 S2 (firmware version V10L40 or later)

    - ETERNUS DX100 S3/DX200 S3 (all firmware versions)

    - ETERNUS DX400 S2 series (all firmware versions)

    - ETERNUS DX500 S3/DX600 S3 (all firmware versions)

    - ETERNUS DX8000 S2 series (firmware version V10L40 or later)

3.2 Control by Monitoring Functions

Web Console operations are controlled by the following monitoring functions.

Session Timeout Monitoring

This function monitors the Web Console operations and discards the sessions not operated for a long time.

Web Console operation is the connection, excluding automatic updating of Web Console screen, to a Management Server from the Web Console.

When an operation runs beyond the term of monitoring interval from previous operation, it is rejected because of session timeout. The default monitoring interval is 60 minutes.

📚 See

Refer to "12.2.5 Change Value for Session Timeout" for information on how to change the monitoring interval.

Session Connection Number Monitoring

This function monitors the number of connecting sessions at the same time. If the number of connecting sessions exceeds the upper limits, 100 sessions, you fail to log on.

Maximum Operation Number Monitoring

This function monitors the number of operations.

If the number of operations exceeds either the following limit, the monitoring function rejects the operation.

- Upper limit for each user

  The upper limit immediately after login is 512.
  The upper limits can be changed in the **User Management** screen. The changed upper limit is valid during login.

📚 See

Refer to "12.1.3 Set Maximum Number of Jobs in Queue" for information on how to change the upper limit.

- Upper limit for the whole system

It is the total number of processing operated by all logged on users.
The upper limit 1024 is fixed.

P Point
....

For Number of Operations:

Processing requests from the Web Console are executed asynchronously after storing in the Management Server.
The number of operations indicates the total number of waiting and executing requests.
....

3.3 Operation on Model Upgrade for ETERNUS Disk Storage System

This section describes the operation on Model upgrade for ETERNUS Disk storage system on the Web Console.

Before Applying Model Upgrade Options	After Applying Model Upgrade Options	Operation
ETERNUS DX60	ETERNUS DX80	Refer to "Operation on Model Upgrade for ETERNUS DX60 to ETERNUS DX80, for ETERNUS DX80 S2 to ETERNUS DX90 S2, for ETERNUS DX410 S2 to ETERNUS DX440 S2".
ETERNUS DX80 S2	ETERNUS DX90 S2	
ETERNUS DX410 S2	ETERNUS DX440 S2	
ETERNUS DX80 S2/DX90 S2	ETERNUS DX410 S2/DX440 S2	Refer to "Operation on Model Upgrade for ETERNUS DX80 S2 or ETERNUS DX90 S2 to ETERNUS DX410 S2 or ETERNUS DX440 S2".
ETERNUS DX100 S3	ETERNUS DX200 S3 (*1)	Refer to "Operation on Model Upgrade for ETERNUS DX100 S3 to ETERNUS DX200 S3, for ETERNUS DX500 S3 to ETERNUS DX600 S3".
ETERNUS DX500 S3	ETERNUS DX600 S3	

*1: ETERNUS DX200F is excluded.

Operation on Model Upgrade for ETERNUS DX60 to ETERNUS DX80, for ETERNUS DX80 S2 to ETERNUS DX90 S2, for ETERNUS DX410 S2 to ETERNUS DX440 S2

Use the following procedure for applying Model upgrade options:

1. If Advanced Copy is in progress, stop Advanced Copy processing.

2. Apply Model upgrade options for ETERNUS Disk storage system.

3. Perform the following steps on the Web Console:

   a. Reload the latest information about ETERNUS Disk storage system. Refer to "6.1.9 Reload ETERNUS Disk Storage System Configuration Information" for details.

   b. Delete the license registered with ETERNUS Disk storage system. Refer to "6.7.3 Delete License" for details.

   c. Register the license with ETERNUS Disk storage system. Refer to "6.7.1 Register License" for details.

Note
....

- The device model name after applying Model upgrade options is displayed as "*nameAfterApplyingModelUpgradeOptions*"/"*nameBeforeApplyingModelUpgradeOptions*".

- When you reload configuration information of the device which is applied Model upgrade options to ETERNUS DX440 S2, make sure that the license of the old device is registered.

In the following cases, you cannot reload configuration information.

- When all of the licenses for the device which is applied Model upgrade options to ETERNUS DX440 S2 are deleted.

- When no license is registered with the device which is applied Model upgrade options to ETERNUS DX440 S2.

When you cannot reload configuration information since all of the licenses are deleted, provisionally register the license of the old device. Then, reload configuration information of the device.

Operation on Model Upgrade for ETERNUS DX80 S2 or ETERNUS DX90 S2 to ETERNUS DX410 S2 or ETERNUS DX440 S2

Use the following procedure for applying Model upgrade options:

1. If Advanced Copy is in progress, stop Advanced Copy processing.

2. Perform the following steps on the Web Console:

   a. Delete the license registered with ETERNUS Disk storage system. Refer to "6.7.3 Delete License" for details.

   b. Delete ETERNUS Disk storage system. Refer to "6.1.3 Delete ETERNUS Disk Storage System" for details.

3. Apply Model upgrade options for ETERNUS Disk storage system.

4. Perform the following steps on the Web Console:

   a. Register the upgraded ETERNUS Disk storage system. Refer to "6.1.1 Register ETERNUS Disk Storage System" for details.

   b. Register the license with the upgraded ETERNUS Disk storage system. Refer to "6.7.1 Register License" for details.

   c. If you have used the Advanced Copy function before applying Model upgrade options, reconfigure the connection type for ETERNUS Disk storage system. Refer to "6.11.2 Configure Connection Type for ETERNUS Disk Storage System" for details.

📄 **Note**

- A serial number of ETERNUS Disk storage system may change after applying Model upgrade options. If you apply Model upgrade options without deleting ETERNUS Disk storage system, ETERNUS SF may not recognize the new ETERNUS Disk storage system. In this case, delete the new ETERNUS Disk storage system and re-register it.

- If you apply Model upgrade options for ETERNUS Disk storage system without deleting the license, the screen displays the license list for the old device. To display the license list for the new device, delete all of the registered licenses and update the screen. Register the license after displaying the license list for the new device.

Operation on Model Upgrade for ETERNUS DX100 S3 to ETERNUS DX200 S3, for ETERNUS DX500 S3 to ETERNUS DX600 S3

Use the following procedure for applying Model upgrade options:

1. If Advanced Copy is in progress, stop Advanced Copy processing.

2. Apply Model upgrade options for ETERNUS Disk storage system.

3. Perform the following steps on the Web Console:

   a. Reload the latest information about ETERNUS Disk storage system. Refer to "6.1.9 Reload ETERNUS Disk Storage System Configuration Information" for details.

   b. Delete the license registered with ETERNUS Disk storage system. Refer to "6.7.3 Delete License" for details.

   c. Register the license with ETERNUS Disk storage system. Refer to "6.7.1 Register License" for details.

📄 **Note**

- The device model name after applying Model upgrade options is displayed as "*nameAfterApplyingModelUpgradeOptions*"/"*nameBeforeApplyingModelUpgradeOptions*".

- When you reload configuration information of the device which is applied Model upgrade options, make sure that the license for the device model before applying Model upgrade options is registered.

  In the following cases, you cannot reload configuration information.

  - When all of the licenses for the device which is applied Model upgrade options are deleted.

  - When no license is registered with the device which is applied Model upgrade options.

  When you cannot reload configuration information since all of the licenses are deleted, provisionally register the license of the old device. Then, reload configuration information of the device.

3.4 Restrictions

End to End View (VMware)

  Filter setting function is not available for **Path Status** column in the **Datastore** screen.
  When extracting the specified "path status" data, narrows data down using some spreadsheet software function after downloading data with CSV format.

About Unusable Characters

  Please do not use the double quote ("), single quote ('), less than sign (<) and multibyte characters in the input fields on each screen of the Web Console.
  If these characters are used, an unexpected action may be done.

3.5 Notes

3.5.1 Note for Operating Web Browser

Do not use buttons to transit screens in the web browser, for example the **Refresh**, **Back** or **Next** and so on, during using the Web Console.

If you use these buttons, the screen may not transit properly.

3.5.2 Note When Going Through Proxy Server

When accessing to the Management Server going through the proxy server, client IP addresses may not be displayed properly in the following screens.
For displaying properly, specify the Management Server to the exceptional setting without going through the proxy server of web browser.

  - **Login Result** pop-up window displayed at the time of login

  - **Login/Logout History** screen

  - **User Management** screen

 Note

If you use Firefox, do not check the **Auto-detect proxy settings for this network** radio button under the **Configure Proxies to Access the Internet** in the Connection Settings screen.

When the **Auto-detect proxy settings for this network** radio button is checked, the following message may be displayed.

```
esgui00001 Internal error occurred.
```

When the **Auto-detect proxy settings for this network** radio button is checked and the above message is displayed, select the category to be displayed in the global navigation tab.

3.5.3 Note for Pop-up Window

Clicking **Up** and **Down** on the pop-up window of each screen only displays the parent screen information.
When displaying other information, change the parent screen.

3.5.4 Note for Using Web Console with ETERNUS Web GUI or ETERNUS CLI Simultaneously

Some operations from the Web Console might terminate abnormally if ETERNUS Web GUI or ETERNUS CLI is used simultaneously with the Web Console.

Use ETERNUS Web GUI or ETERNUS CLI only according to the procedure described in the manual for this product when you use the Web Console.

3.5.5 Note for Management Software Call

When the Web Console calls management software of the following devices, it uses HTTPS connection by default.

- ETERNUS DX60/DX60 S2/DX80/DX80 S2/DX90/DX90 S2, DX100 S3/DX200 S3

- ETERNUS DX400 S2 series

- ETERNUS DX500 S3/DX600 S3

- ETERNUS DX8000 S2 series

Set URL with HTTP connection to "Management Software" as a setting item for ETERNUS Disk storage system.

See
....
Refer to "6.1.4 Change ETERNUS Disk Storage System Information" for setting information to "Management Software".
....

3.5.6 Note for FCoE Port of ETERNUS Disk Storage System

For the FCoE port in ETERNUS Disk storage system, use the ETERNUS Web GUI for the following operations:

- Change the port settings

When the **Reload Conf.** operation is performed on the Web Console, the setting information set by the ETERNUS Web GUI is displayed on the Web Console.

3.5.7 Note When Mixing Disks of Different Type in a RAID Group

Web Console cannot create the RAID group in which online disk and nearline disk are mixed. If mixing different types of disks in a RAID group, use the ETERNUS Web GUI.

However, it is not recommended to mix disks with different the rotational speed in the same RAID group, because the access performance is degraded.

3.5.8 Note for LUN Mapping Which Does Not Use Host Affinity Function

For the LUN Mapping which does not use Host Affinity function, Web Console can only display.
Use the ETERNUS Web GUI for the setting, modification and deletion.

When the **Reload Conf.** operation is performed on the Web Console, the setting information set by the ETERNUS Web GUI is displayed on the Web Console.

3.5.9 Note for Dialog Box Displayed During Script Processing

When the script processing is taking a long time, the browser may display a warning dialog box.
To continue processing, it is necessary to confirm acceptance on the warning dialog box.

The displaying of the warning dialog box can be avoided by the following methods.

- For Internet Explorer:

  Change the script time-out value to the larger than current value by modifying a registry entry. Serious problems may occur if you modify the registry incorrectly. Therefore, be careful to modify the registry correctly.

  Refer to the following information (Article ID: 175500) provided by Microsoft about the method for modifying a registry entry:

  `http://support.microsoft.com/kb/175500/en`

- For Firefox:

  Let the script run longer from about:config page.
  Refer to "Warning Unresponsive script" in the FIREFOX HELP at the following site provided by Mozilla about the setting method:

  `http://support.mozilla.com/en-US/home`

3.5.10   Note for Last Operation Date

The Last Operation Date displayed on the **User Management** screen and the pop-up window of the forcible login is a reference, and it is not updated in the following operations.

- Sort the displayed contents

- Switch the screen

- Update to the latest information

- Set the maximum number of jobs in queue

- Change the session timeout value

- Collect the troubleshooting information

3.5.11   Note for IPv6

This sub section describes the notes on IPv6 on the Web Console.

Operation

  Since using Express in the IPv6 environment is not supported, use it in the IPv4 environment.

View

  If IPv6 is displayed in the IP Address field in the table on the Web Console, the following are observed.
  IPv6 address is expressed in full format or abbreviated format. For abbreviated format, multiple formats are available for one address based on an adaptable rule. The Web Console uses and displays the recommended format in RFC5952 so as to make IPv6 address format unique and unified. However, like the screen to add HBA, if there are two fields on one screen; one to enter IP addresses and the other to display the entered IP addresses, IPv6 address is expressed in the format used for its input.

  The recommended format in RFC5952 complies with the following rules:

  - In the 16 bit field (number between ":" and ":"), if the number starts with zero (0), all leading zeros are suppressed to be expressed. The "0000" is expressed as "0" (called zero-valued field).

  - About abbreviation to "::"

    - If a zero-valued field is abbreviated to "::", all zeros are abbreviated to the extent possible. For example, in the case of "2001:db8:0:0:0:0:2:1", it is expressed as "2001:db8::2:1", not as "2001:db8::0:2:1".

    - If many zeros do not continue but only one zero exists in a zero-valued field, the zero is not abbreviated. For example, in the case of "2001:db8:0:1:1:1:1:1", it is not expressed as "2001:db8::1:1:1:1:1".

    - When abbreviating a zero-valued field, the field where zero continues the most is abbreviated. For example, in the case of "2001:0:0:1:0:0:0:1", it is expressed as "2001:0:0:1::1", not as "2001::1:0:0:0:1".
      In addition, if there are multiple zero-valued fields where zero continues, the first zero continuing field (leftmost side) is abbreviated. For example, in the case of "2001:db8:0:0:1:0:0:1", it is expressed as "2001:db8::1:0:0:1", not as "2001:db8:0:0:1::1".

- Hexadecimal alphabets (from "a" to "f") are expressed in lowercase letters.

Configuration

For IPv6 address entry, both full format and abbreviated format are available. However, a special format of IPv4 embedded IPv6 address (::ffff:192.0.0.1, ::<192.0.0.1>, 2002:192.0.0.1:) and a format that adds an interface number or name with "%" (fe80::1234%fx0) are not available.

On the Web Console, the following conditions are checked as an IPv6 address syntax:

- Other characters than from "0" to "9", from "a" to "f", from "A" to "F" and ":" are not used, and

- There are not more than 9 fields separated with ":", and

- The ":" alone is not specified.

If the above conditions are met, an IPv6 address can be configured on the Web Console. However, if there is something wrong with the configured IP address, error may occur when accessing a target device with the address.

Filter

IPv6 can be specified in the IP Address field to be filtered in the table on the Web Console. Partial match filtering is accepted. For example, only ":" is accepted.
The values displayed in the table are to be filtered. Despite of the same IP address as an IPv6 address, if it does not match with that in the table, it does not correspond to the filter criterion.

Sort Method

When sorting IP addresses in the table on the Web Console, they are sorted by their displayed values. If IPv4 and IPv6 addresses coexist, they are not separated to be sorted.

Chapter 4　Starting and Stopping Web Console

This chapter explains how to start and stop the Web Console.

Note

- The Web Console is optimized for a screen size of 1024x768 and the browser default font. If the web browser window settings differ significantly from these values, the Web Console may be displayed incorrectly.

- The Web Console uses JavaScript and Cookies. Please setup the web browser beforehand to enable both these features.

4.1　How to Start Web Console

The Web Console is started according by the following procedure:

1. Start Internet Explorer or Firefox on a PC connected to the Management Server.

   ## Information

   Refer to "1.1 Supported Web Browsers" for information on the supported browser versions.

2. Enter the address of the Management Server in the web browser address bar.
   The connection with the Management Server is done through the HTTPS protocol.

   - For specifying the IPv4 address:

     ```
     https://ipv4Address:portNumber/
     ```

     For *ipv4Address*, specify the IPv4 address or Fully Qualified Domain Name (FQDN) of Management Server.
     For *portNumber*, specify the port number of "Web Console service (ETERNUS SF Manager Apache service)" that is entered during the installation. The default port number is 9855.

     ## Example

     The following example specifies "10.20.30.40" to *ipv4Address* and "9855" to *portNumber*.

     ```
     https://10.20.30.40:9855/
     ```

   - For specifying the IPv6 address (only when Storage Cruiser or AdvancedCopy Manager is being used):

     ```
     https://[ipv6Address]:portNumber/
     ```

     For *ipv6Address*, specify the IPv6 address or Fully Qualified Domain Name (FQDN) of Management Server. When Firefox is used, you cannot specify the IPv6 address. Therefore, specify the FQDN.
     For *portNumber*, specify the port number of "Web Console service (ETERNUS SF Manager Apache service)" that is entered during the installation. The default port number is 9855.

     ## Example

     The following example specifies "2001:db8::1" to *ipv6Address* and "9855" to *portNumber*.

     ```
     https://[2001:db8::1]:9855/
     ```

![See icon] **See**

Refer to "1.5 HTTPS Connection" for information on the HTTPS connection between Web Browser and Management Server.

![Note icon] **Note**

Note 1

If the login screen does not appear, check the following points:

- Error in the URL

- Web browser proxy settings

- Management Server firewall settings

Note 2

When the web browser is started, a warning message about the security certificate is displayed upon establishing the connection for the first time. In Internet Explorer, a dialog box showing the "There is a problem with this website's security certificate." message is displayed. This is due to the fact that the product uses a self-signed certificate for the HTTPS (SSL) protocol.
The software generates a different self-signed security certificate for each Management Server during the ETERNUS SF Manager installation.
As the network is isolated from the intranet by a firewall, the communication with the neighboring devices is safe and using a self-signed certificate is not a problem. Therefore it is possible to acknowledge the warning and proceed safely to the next screen.
For Internet Explorer, select "Continue to this website (not recommended)." to display the login screen.

Note 3

When connecting with Internet Explorer, the Address bar turns red and a "Certificate Error" message displays in the Security Status bar. Moreover, a warning icon of a possible phishing attempt is displayed in the Security Status bar.
These display warnings are caused by the self-signed certificate described in [Note 2] and as such do not constitute a problem.

Note 4

To remove the warning and error notifications about the security certificate, a certificate corresponding to the Management Server IP address or host name must be created and installed in the web browser.
Refer to "1.5 HTTPS Connection" for details.

Note 5

When already logged in a browser window on a client PC, the login screen may not be displayed and the login may be automatically performed when opening another browser window on the same client.

Note 6

When Internet Explorer Information bar displays the following message, a file download has been blocked.

```
To help protect your security, Internet Explorer blocked this site from downloading files to your
computer. Click here for more options...
```

In the above case, the file can be downloaded by performing the following procedure.

1. Click the Information bar to display **Option**.

2. Click the "Download Software" on the **Option** screen.

3. The dialog box which contains the following message is displayed. Click **Cancel**.

```
To display the webpage again, Internet Explorer Need to resend the information...
```

4. Execute the blocked operation again.

4.2　How to Login to Web Console

Once "4.1 How to Start Web Console" has been done, the login screen below is displayed. Enter a valid user name and password, and then click **Login**.

Information

When the user of the same name has already logged in, the dialog box including the following message will be displayed.

```
Another user is already logged in under the same username.
If you log in, the user logged in currently will be forcibly logged out.
```

If you click **OK** in the dialog box, the user logged in currently will be forcibly logged out and you will be able to log in.

The following screen is displayed when the user authentication has been successfully completed.

Note

A different user cannot login concurrently from the same computer.

4.3 How to Logout From Web Console

To logout from the Web Console, click **Logout** on the top right of the screen.
Once the logout has been done, the screen returns to the login screen described in "4.2 How to Login to Web Console".

Note

After finishing using the Web Console, please always logoff.

If the web browser is closed while still logged in, the user authentication will not be performed correctly on the next login procedure and might lead to an unintended automatic login.

4.4 How to Stop Web Console

Close the web browser to stop the Web Console.

Chapter 5 Operations Started From Main Tab

This chapter explains the operations started from clicking **Main** of the global navigation tab.

5.1 Display Dashboard

If clicking **Main** of the global navigation tab, the dashboard will be displayed.
The information displayed on the dashboard is as follows:

Hardware Components

> The status of the storage device, network device, and server is displayed. If clicking the number, the detailed information is displayed.

> When multiple irregularities occur in the same system, only one state will be displayed. For example, if it is in both "Normal" and "Warning" states, only "Warning" is displayed.

Displayed Items		Explanation
✅	Normal	Number of Normal state components
⚠️	Warning	Number of Warning state components
❌	Error	Number of Error state components

Events

> The status of the event logs is displayed. If clicking the number, the detailed information is displayed.

Displayed Icons		Explanation
ℹ️	Information	Number of Information level events
⚠️	Warning	Number of Warning level events
❌	Error	Number of Error level events

Storage Capacity

> This shows capacity values for each storage type as well as the total capacity.

Displayed Items		Explanation
Raw	Available	Total capacity of disks not used for storage devices
		Unused disks refer to those not part of a RAID group or configured as a hot spare.
	Total	Total disk capacity for all storage devices
Configured	Available	Total available capacity for RAID groups in all storage devices
	Total	Total capacity for RAID groups in all storage devices
RAID*x*	Available	Total available capacity for each RAID type in all storage devices
	Total	Total capacity for each RAID type in all storage devices

Network Port

> This shows number of ports on all connected switches.

Displayed Items	Explanation
E_Port	Total number of Fibre Channel switch ports connected to the E port
F_Port	Total number of Fibre Channel switch ports connected to the F port

Displayed Items	Explanation
FL_Port	Total number of Fibre Channel switch ports connected to the FL port
Total	Total number of connected Fibre Channel switch ports

Chapter 6   Operations Started From Storage Tab

This chapter explains the operations started from clicking **Storage** of the global navigation tab.

6.1 Operations for ETERNUS Disk Storage System

This section describes the operation methods related to ETERNUS Disk storage system.

6.1.1   Register ETERNUS Disk Storage System

The procedure to register an ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The current registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Action pane, click **Discover** under **Disk Array**.
   The information input screen is displayed.

3. Add an ETERNUS Disk storage system.

   For Registering by Searching Subnet:

   a. Click the **Search on Subnet** radio button.

   b. Enter a subnet address and SNMP community name.

   c. Click **Discover**.

   For Registering by Searching IP Address:

   a. Click the **IP Address** radio button.

   b. Enter an IP address and SNMP community name.

   c. Click **Discover**.

4. Check the target ETERNUS Disk storage system checkbox.

5. Enter the user name and password of the checked ETERNUS Disk storage system.

6. Check the **SNMP Trap Setting** checkbox as needed basis.

> 📄 **Note**
> ....
> Please do not check the **SNMP Trap Setting** checkbox if the target ETERNUS Disk storage system is managed by the Management Server that operates AdvancedCopy Manager's manager only.
> ....

7. Click **Register**.

> 📄 **Note**
> ....
> - The registration processing of ETERNUS Disk storage system may take from a few minutes to over 10 minutes depending on the device configuration. The Job Status pane allows you to confirm the completion of ETERNUS Disk storage system registration processing. However, since the information in the Job Status pane is automatically deleted 24 hours after processing is completed, check deleted information in "11.1 Display Operation History". The ETERNUS Disk storage system registration processing has completed when the displayed items of the **Operation History** screen is as follows:
>   - Action: Register Disk Array
>   - State: Complete
>   - Result: Success
>   - Target: IP address of the registered ETERNUS Disk storage system

Please do not perform any operation for this ETERNUS Disk storage system until the registration processing has been completed.

- If the ETERNUS Disk storage system is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

- For IPv6 network environment, the ETERNUS Disk storage system cannot be registered by searching subnets. Register it by searching IP address.

- If the ETERNUS Disk storage system is already registered with IPv6 address, to prevent registration in a dual stack configuration, it cannot be registered with IPv4 address by searching subnets.

6.1.2   Display ETERNUS Disk Storage System

The procedure to display the registered ETERNUS Disk Storage System list/details is as follows:
To display the list, perform step 1 only.
To display the specific ETERNUS Disk Storage System details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk Storage System.
   The detail of the selected ETERNUS Disk Storage System is displayed on the Main pane.

6.1.3   Delete ETERNUS Disk Storage System

The procedure to delete the registered ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Delete** under **Storage**.
   The information confirmation screen is displayed.

4. When releasing the Host Affinity setting related to the ETERNUS Disk storage system, check the **Remove Access Path** checkbox. In case of uncheck this checkbox, delete the access path manually.

5. Click **Delete**.

P Point

When the **Remove Access Path** checkbox is checked at step 4, zoning information is deleted from the switch on access path. After deleting the ETERNUS Disk storage system, perform **Reload Conf.** for the switch on access path. The zoning information configured to the switch is updated.

6.1.4   Change ETERNUS Disk Storage System Information

The procedure to change the registered ETERNUS Disk storage system information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Modify** under **Storage**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Modify**.

Note

··

This procedure does not include instructions for:

- Changing any registered IPv4 address to IPv6 address.

- Changing any registered IPv6 address to IPv4 address.

To change the IP address version of any registered ETERNUS Disk storage system, delete the registered ETERNUS Disk storage system first and then register the ETERNUS Disk storage system again. When Automated Storage Tiering is used, including the case that one layer Tier pool function is used, perform the procedure of "Change IP Address of Target Device" in the *ETERNUS SF Storage Cruiser Operation Guide for Optimization Function* after re-registering the storage device.

··

6.1.5 Set/Change Information of Account That Can Access ETERNUS Disk Storage System

The procedure to register the information of the account that can access ETERNUS Disk storage system into this product and the procedure to change the account information registered in this product are as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Reset Password** under **Storage**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Reset**.

Note

··

- This procedure does not include instructions for:

  - Registering the account information into ETERNUS Disk storage system

  - Changing the account information registered in ETERNUS Disk storage system

- If account information in ETERNUS Disk storage system is registered or changed, execute this procedure immediately to match the account information in ETERNUS Disk storage system and this product.

  When account information in ETERNUS Disk storage system and this product is not matched, communication from this product to ETERNUS Disk storage system fails because of the authentication error. If the authentication error occurs, the Web Console cannot display the correct information.

··

6.1.6 Change Storage System Name or Box ID for ETERNUS Disk Storage System

The procedure to change the ETERNUS Disk storage system name or Box ID managed by this product is as follows:

1. Delete the target ETERNUS Disk storage system. Refer to "6.1.3 Delete ETERNUS Disk Storage System" for details.

2. Re-register the target ETERNUS Disk storage system. Refer to "6.1.1 Register ETERNUS Disk Storage System" for details.

3. When you were using Advanced Copy function before changing the name or Box ID, re-configure the connection conditions of ETERNUS Disk storage system. Refer to "6.11.2 Configure Connection Type for ETERNUS Disk Storage System" for details.

Note

··

This procedure does not include instructions for:

- Changing the storage system name of ETERNUS Disk storage system itself

- Changing the Box ID of ETERNUS Disk storage system itself

··

6.1.7   Configure ETERNUS Disk Storage System

The procedure to configure ETERNUS Disk storage system is as follows:

- a. Add a server.
- b. Create a new RAID group.
- c. Create new volumes.
- d. Assign volumes to a server.

The procedure to configure ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Storage Conf.** under **Wizard**.

4. Click **Next**.

5. Enter and select **Server Information** and **Host Bus Adapter Information**.

6. Click **Add**.

7. Enter and select the detailed information of the new RAID group.

8. Click **Create** or **Skip**.

9. Enter and select the information of the new volume.

10. Click **Create** or **Skip**.

11. Click **Assign**.

📖 Note
. . . .
Even if this operation is interrupted, the new resources (server, volume and RAID group) added or created during this operation are not deleted.
To delete the new resources added or created during this operation, perform the following operations.

- "8.1.4 Delete Server"

- "6.8.3 Delete Volume"

- "6.9.3 Delete RAID Group"

. . . .

6.1.8   Assign ETERNUS Disk Storage System Volumes to Server

The procedure to assign volumes of ETERNUS Disk storage system to a server is as follows:

- a. Select Server
- b. Select HBA and Port
- c. Assign Volumes to the Server

The procedure to assign volumes of ETERNUS Disk storage system to a server is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Assign Volume** under **Wizard**.

4. Click **Next**.

5. Click the target server radio button.

6. Click **Next**.

7. To set the zoning, check "Yes" of the **Zoning Setting** radio button.
   Only when the license of ETERNUS SF Storage Cruiser Standard Edition is registered, the **Zoning Setting** radio button can be checked.

8. Click the target HBA checkbox.

9. Click **Connect** to select a port of the ETERNUS Disk storage system to be connected.

10. Click **Next**.

11. Select a volume to be assigned in either of the following tabs.
    Only when the ETERNUS SF Storage Cruiser Standard Edition license is registered, **Affinity/LUN Group** tab can be clicked.

    For Using [Select Volume] Tab:

    a. Check the target volume checkbox to be added from the volume list.

    b. Click **Add**.

    For Using [Select Affinity/LUN Group] Tab:

    a. Check the target Affinity/LUN Group radio button to be assigned from the Affinity/LUN Group list.

12. Click **Assign**.

Note

- If volume assignment fails, it is possible that the zoning was partially successful. The failure may be due to a temporary communication problem. Retry the volume assignment.

- In an environment where BS2000 is connected to an ETERNUS Disk storage system, do not change the affinity group for BS2000.

6.1.9 Reload ETERNUS Disk Storage System Configuration Information

The procedure to reload the ETERNUS Disk storage system configuration information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, check the target ETERNUS Disk storage system checkbox.

3. On the Action pane, click **Reload Conf.** under **Storage**.

Point

ETERNUS SF Manager updates the displayed information, obtaining the information from the ETERNUS Disk storage system section by section. If any of the situations below have occurred, perform the above-described operation to display the up-to-date information.

- Changed the configuration using ETERNUS Web GUI. (*1)

- Changed the configuration using CLI. (*1)

- Check the status of the constituted elements because of trouble in the ETERNUS Disk storage system.

- Clear the Error status after the recovery because of trouble in the ETERNUS Disk storage system.

*1: For the following devices, the configuration information excluding performance management configuration information and the information related to Automated Storage Tiering is automatically reflected, so the above-mentioned operation is not required.

- ETERNUS DX80 S2/DX90 S2 (firmware version V10L40 or later)

- ETERNUS DX100 S3/DX200 S3 (all firmware versions)

- ETERNUS DX400 S2 series (firmware version V10L40 or later)

- ETERNUS DX500 S3/DX600 S3 (all firmware versions)

- ETERNUS DX8000 S2 series (firmware version V10L40 or later)

![Note icon] **Note**

The reloading of ETERNUS Disk storage system configuration information may take from a few minutes to over 10 minutes depending on the device configuration. The Job Status pane allows you to confirm the completion of ETERNUS Disk storage system configuration information reloading. However, since the information in the Job Status pane is automatically deleted 24 hours after processing is completed, check deleted information in "11.1 Display Operation History". The ETERNUS Disk storage system configuration information reloading has completed when the displayed items of the **Operation History** screen is as follows:

- Action: Reload Configuration on Disk Array

- State: Complete

- Result: Success

- Target: Name of the registered ETERNUS Disk storage system

Please do not perform any operation for this ETERNUS Disk storage system until the configuration information reloading has been completed.

6.1.10   Enable/Disable Extreme Cache

The procedure to enable/disable the Extreme Cache of the ETERNUS Disk Storage System is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the ETERNUS Disk Storage System.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system.

4. On the Category pane, click **Extreme Cache**.

5. On the Action pane, click **Configure** under **Extreme Cache**.

6. To enable the Extreme Cache, click the **Enable** radio button and then specify its capacity (in units of 100GB).
   To disable it, click the **Disable** radio button.

7. Click **Configure**.

6.2   Operations for Storage Devices (Other Than ETERNUS Disk Storage System)

This section describes the operation methods related to storage devices other than ETERNUS Disk storage system.

6.2.1   Register Storage Device

The procedure to register a storage device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.

3. On the Action pane, click **Register** under **Storage**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Register**.

📎 Note

. . . .
If the storage device is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.
. . . .

6.2.2   Display Storage Device

The procedure to display the storage device (other than ETERNUS Disk storage system) list/details is as follows:
To display the list, perform from step 1 to step 2.
To display the specific storage device details, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, click the target storage device.
   The detail of the selected storage device is displayed on the Main pane.

6.2.3   Delete Storage Device

The procedure to delete the storage device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, check the target storage device checkbox.

4. On the Action pane, click **Delete** under **Storage**.
   The information confirmation screen is displayed.

5. Confirm the information, and then click **Delete**.

6.2.4   Change Storage Device Information

The procedure to change the storage device (other than ETERNUS Disk storage system) information is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, check the target storage device checkbox.

4. On the Action pane, click **Modify** under **Storage**.
   The information input screen is displayed.

5. Enter the necessary information, and then click **Modify**.

📎 Note

. . . .
This procedure does not include instructions for:

- Changing any registered IPv4 address to IPv6 address.

- Changing any registered IPv6 address to IPv4 address.

To change the IP address version of any registered storage device, delete the registered storage device first and then register the storage device again.
. . . .

6.2.5 Register Port of Storage Device

The procedure to register the port of the storage device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, click the target storage device name.

4. On the Category pane, click **Port**.
   The port information for target storage device is displayed on the Main pane.

5. On the Action pane, click **Add** under **Port**.
   The information input screen is displayed.

6. Register port.

   For Inputting Port Information:

          a. Click the **Manual Input** tab.

          b. Enter a WWPN and WWNN.

          c. Click **Add**.

          d. Click **Next**.
             The information confirmation screen is displayed.

          e. Confirm the information, and then click **Add**.

   For Searching From Port Information:

          a. Click the **Now Connected to FC-Switch** tab.

          b. Select the target switch from the **FC-Switch** pull-down list.

          c. Click **Discover**.
             The discovered ports are displayed.

          d. Click the target port checkbox.

          e. Click **Next**.
             The information confirmation screen is displayed.

          f. Confirm the information, and then click **Add**.

6.2.6 Display Port Information of Storage Device

The procedure to display the port information for the storage device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, click the target storage device name.

4. On the Category pane, click **Port**.
   The port information for target storage device is displayed on the Main pane.

6.2.7 Delete Port of Storage Device

The procedure to delete the port of the storage device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Disk Array (Manual)**.
   The registered storage devices are displayed on the Main pane.

3. On the Main pane, click the target storage device name.

4. On the Category pane, click **Port**.
   The port information for target storage device is displayed on the Main pane.

5. On the Main pane, click the target port checkbox.

6. On the Action pane, click **Delete** under **Port**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

6.3 Operations for ETERNUS LT250/LT270

This section describes the operation methods related to ETERNUS LT250/LT270.

Refer to "6.4 Operations for Tape Library (Other Than ETERNUS LT250/LT270)" for operation methods related to the following ETERNUS Tape libraries.

- ETERNUS LT20/LT20 S2

- ETERNUS LT40/LT40 S2

- ETERNUS LT60/LT60 S2

- ETERNUS LT200/LT210/LT220/LT230

- ETERNUS LT270 S2

📌 Note

....
- The Web Console cannot change the tape library information. In the Web Console, the actions which change the tape library information are always grayed out.

- If you have changed the IP address of the registered tape library, it is necessary to delete and then reregister the tape library.
....

6.3.1 Register Tape Library

The procedure to register a tape library is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
   The registered tape libraries are displayed on the Main pane.

3. On the Action pane, click **Discover** under **Tape Library**.
   The information input screen is displayed.

4. Enter an IP address and SNMP community name, and then click **Discover**.

5. Confirm the information, and then click **Register**.

📌 Note

....
- An IP address that has been already used in the tape library registered in the ETERNUS SF system cannot be specified.

- The Web Console cannot set the SNMP Trap transmission place address for tape library. In the Web Console, the **SNMP Trap setting** checkbox is always grayed out. Therefore, it is necessary to set the SNMP Trap transmission place address on the tape library separately.

- The registration processing of tape library may take from a few minutes to over 10 minutes depending on the device configuration. The Job Status pane allows you to confirm the completion of tape library registration processing. However, since the information in the Job Status pane is automatically deleted 24 hours after processing is completed, check deleted information in "11.1 Display

". The tape library registration processing has completed when the displayed items of the **Operation History** screen is as follows:

- Action: Register Tape Library

- State: Complete

- Result: Success

- Target: IP address of the registered tape library

Please do not perform any operation for this tape library until the registration processing has been completed.

- If the tape library is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

6.3.2   Display Tape Library

The procedure to display the registered tape library list/details is as follows:
To display the list, perform from step 1 to step 2.
To display the specific tape library details, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.
The detail of the selected tape library is displayed on the Main pane.

6.3.3   Delete Tape Library

The procedure to delete the registered tape library is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
The registered tape libraries are displayed on the Main pane.

3. On the Main pane, check the target tape library checkbox.

4. On the Action pane, click **Delete** under **Tape Library**.
The information confirmation screen is displayed.

5. Confirm the information, and then click **Delete**.

6.3.4   Change Tape Library Information

The procedure to change the tape library information is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
The registered tape libraries are displayed on the Main pane.

3. On the Main pane, check the target tape library checkbox.

4. On the Action pane, click **Modify** under **Tape Library**.
The information input screen is displayed.

5. Enter the necessary information, and then click **Modify**.

📄 Note

This procedure does not include instructions for:

- Changing any registered IPv4 address to IPv6 address.

- Changing any registered IPv6 address to IPv4 address.

To change the IP address version of any registered tape library, delete the registered tape library first and then register the tape library again.

6.3.5 Reload Tape Library Configuration Information

The procedure to reload the tape library configuration information is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, check the target tape library checkbox.

4. On the Action pane, click **Reload Conf.** under **Tape Library**.

🅿 Point

If any of the situations below have occurred, perform the above-described operation to display the up-to-date information.

- Changed the tape library configuration.

- Check the status of the constituted elements because of trouble in the tape library.

- Clear the Error status after the recovery because of trouble in the tape library.

📝 Note

The reloading of tape library configuration information may take from a few minutes to over 10 minutes depending on the device configuration. The Job Status pane allows you to confirm the completion of tape library configuration information reloading. However, since the information in the Job Status pane is automatically deleted 24 hours after processing is completed, check deleted information in "11.1 Display Operation History". The tape library configuration information reloading has completed when the displayed items of the **Operation History** screen is as follows:

- Action: Reload Configuration on Tape Library

- State: Complete

- Result: Success

- Target: Name of the registered tape library

Please do not perform any operation for this tape library until the configuration information reloading has been completed.

6.3.6 Display Device of Tape Library

The procedure to display list/details of devices in the tape library is as follows:
To display the list, perform from step 1 to step 4.
To display the specific device details, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.

4. On the Category pane, click **Device**.
   The devices in the tape library are displayed on the Main pane.

5. On the Main pane, click the target device.
   The detail of the selected device is displayed on the Main pane.

6.3.7 Display Port of Tape Library

The procedure to display ports in the tape library is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.

4. On the Category pane, click **Port**.
   The ports in the tape library are displayed on the Main pane.

6.4 Operations for Tape Library (Other Than ETERNUS LT250/LT270)

This section describes the operation methods related to tape libraries other than ETERNUS LT250/LT270.

In this section, the following models are included in the ETERNUS Tape libraries.

- ETERNUS LT20/LT20 S2

- ETERNUS LT40/LT40 S2

- ETERNUS LT60/LT60 S2

- ETERNUS LT200/LT210/LT220/LT230

- ETERNUS LT270 S2

6.4.1 Register Tape Library

The procedure to register a tape library (other than ETERNUS LT250/LT270) is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Action pane, click **Register** under **Tape Library**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Register**.

🔰 Note

- An IP address that has already been registered as a tape library cannot be specified.

- A name that has already been registered as a tape library other than ETERNUS LT250/LT270 cannot be specified.

- Make URL set to the Management Software either following formats. If the format does not differ from which format, an unexpected action may be done.

```
http://
https://
```

- If the tape library is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

6.4.2   Display Tape Library

The procedure to display the registered tape library (other than ETERNUS LT250/LT270) list/details is as follows:
To display the list, perform from step 1 to step 2.
To display the specific tape library details, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.
   The detail of the selected tape library is displayed on the Main pane.

6.4.3   Delete Tape Library

The procedure to delete the tape library (other than ETERNUS LT250/LT270) is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, check the target tape library checkbox.

4. On the Action pane, click **Delete** under **Tape Library**.
   The information confirmation screen is displayed.

5. Confirm the information, and then click **Delete**.

Information
. . . .
When a tape library is deleted, the device and port information registered manually are deleted at the same time.
. . . .

6.4.4   Change Tape Library Status

The procedure to change the status of tape library (other than ETERNUS LT250/LT270) is as follows:

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, check the target tape library checkbox.

4. On the Action pane, click **Modify** under **Tape Library**.
   The information input screen is displayed.

5. Enter the necessary information, and then click **Modify**.

Note
. . . .
- The Web Console can only change the status of the tape library.
  The tape library information cannot be changed using the Web Console. In the Web Console, input fields of the tape library information are always grayed out.

- If you have changed the IP address of a tape library, it is necessary to register a tape library again after deleting it.
. . . .

6.4.5   Add/Display/Delete Device in Tape Library

The procedure to add a device to the registered tape library (other than ETERNUS LT250/LT270) and the procedure to display/delete the device in the registered tape library (other than ETERNUS LT250/LT270) are as follows:

To display the device list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.

4. On the Category pane, click **Device**.
   The devices registered in the tape library are displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Adding Device:

   a. On the Action pane, click **Add** under **Device**.
      The information input screen is displayed.

   b. Enter the necessary information, and then click **Add**.

   For Displaying Specific Device Details:

   a. On the Main pane, click the target device.
      The detail of the selected device is displayed on the Main pane.

   For Deleting Device:

   a. On the Main pane, check the target device checkbox.

   b. On the Action pane, click **Delete** under **Device**.
      The information confirmation screen is displayed.

   c. Confirm the information, and then click **Delete**.

Information

When a device is deleted, the port information registered in the device is deleted at the same time.

6.4.6 Add/Display/Delete Port in Tape Library

The procedure to add the port to the registered tape library (other than ETERNUS LT250/LT270) and the procedure to display/delete the port in the registered tape library (other than ETERNUS LT250/LT270) are as follows:
To display the port list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.

2. On the Category pane, click **Tape Library (Manual)**.
   The registered tape libraries are displayed on the Main pane.

3. On the Main pane, click the target tape library.

4. On the Category pane, click **Device**.
   The devices registered in the tape library are displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Adding Port:

   a. On the Main pane, click the device to add the port.
      The detailed information of the device registered in the tape library is displayed.

   b. On the Action pane, click **Add** under **Port**.
      The information input screen is displayed.

c. Enter the necessary information, and then click **Next**.
　　　　　The information confirmation screen is displayed.

　　　　d. Confirm the information, and then click **Add**.

　　For Deleting Port:

　　　　a. On the Main pane, click the device that has the port to be deleted.
　　　　　The detailed information of the device registered in the tape library is displayed.

　　　　b. On the Main pane, check the target port checkbox.

　　　　c. On the Action pane, click **Delete** under **Port**.
　　　　　The information confirmation screen is displayed.

　　　　d. Confirm the information, and then click **Delete**.

Point

Only FC ports can be added.

6.5 Operations for Access Path

Refer to "8.3 Operations for Access Path".

6.6 Operations for Correlation Management

This section describes the correlation management operations for storage device.

Note

The **End to End View (Hyper-V)** in the Category pane can be selected only if the operating system of the Management Server is Windows.

6.6.1 Display/Export End to End View

The procedure to display/export the End to End view list is as follows:
To display the End to End view list, perform from step 1 to step 3.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The End to End view list is displayed on the Main pane.

4. Perform the following procedures according to the operation purpose.

   For Displaying Specific End to End View Details:

   　a. On the Main pane, check the target End to End view radio button.

   　b. On the Action pane, click **Display Details** under **End to End View**.
   　　The detail of the selected End to End view is displayed on the Main pane.

   For Exporting End to End View Information:

   　a. On the Main pane, check the target End to End view radio button.

   　b. On the Action pane, click **Download** under **End to End View**.

c. Specify the location to save the file, and then click **OK**.

d. Click **Save**.

Note

Even if Filter setting is enabled on the Web Console, all data is exported.

6.6.2 Display/Export VMware End to End View

The procedure to display/export the VMware End to End view list is as follows:
To display the End to End view list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.
   The VMware End to End view list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Displaying Specific VMware End to End View Details:

   a. On the Main pane, click the IP address to display the detailed information.

   b. Click the **VMware Host** tab, **VMware Guest** tab, **Partition** tab, **Raw Device Mapping** tab, or **Datastore** tab to display on the Main pane.

   c. When reference the detailed information on the **Datastore** tab, click the Datastore name.

Note

Information for a VMware Guest is not fully displayed if VMware Tools are not installed in it.

   For Exporting VMware End to End View Information:

   a. On the Main pane, click the **End to End View (VMware)** - **Raw Device Mapping** tab or **End to End View (VMware)** - **Datastore** tab.

   b. On the Main pane, check the target VMware End to End view radio button.

   c. On the Action pane, click **Download** under **End to End View (VMware)**.

   d. Specify the location to save the file, and then click **OK**.

   e. Click **Save**.

6.6.3 Register/Reload VMware vCenter/vSphere Server

The procedure of server registration/reloading of the VMware vCenter/vSphere is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.

5. On the Action pane, click **Register/Reload** under **VMware vCenter/vSphere Server**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Confirm**.

> 🅿 **Point**
> ....
> The configuration information managed by the VMware vCenter/vSphere server is not automatically updated. When the configuration is changed, reload the VMware vCenter/vSphere server according to the above-mentioned procedure.
> ....

> 📑 **Note**
> ....
> If the VMware vCenter/vSphere server is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.
> ....

6.6.4 Delete VMware vCenter/vSphere Server

The procedure to delete the VMware vCenter/vSphere server is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.

5. Check the target checkbox on the Main pane.

6. On the Action pane, click **Delete** under **VMware vCenter/vSphere Server**.
   VMware vCenter/vSphere is displayed in a pop-up window.

7. Click the button at the lower right in the pop-up window.

6.6.5 Register/Reload Hyper-V Host

The procedure of server registration/reloading of the Hyper-V host is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, check the target server checkbox to register as a Hyper-V host.

6. On the Action pane, click **Register/Reload** under **Hyper-V Host**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Confirm**.

6.6.6   Display Hyper-V Host

The procedure to display the Hyper-V host list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific Hyper-V host details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the target Hyper-V host.

6. On the Main pane, click the **Hyper-V Host** tab, **Hyper-V Guest** tab, **Partition** tab, **Pass-through Disk** tab, or **Virtual Hard Disk** tab.

6.6.7   Delete Hyper-V Host

The procedure to delete the Hyper-V host is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the target Hyper-V host checkbox.

6. On the Action pane, click **Delete** under **Hyper-V Host**.
   The Hyper-V host is displayed in a pop-up window.

7. Click the button at the lower right in the pop-up window.

6.6.8 Display/Export Hyper-V Host End to End View

The procedure to display/export the Hyper-V End to End view list is as follows:
To display the list, perform from step 1 to step 5.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click either of the following tabs.

   - **End to End View (Hyper-V) - Pass-through Disk** tab

     The End to End view list related to the pass-through disk is displayed on the Main pane.

   - **End to End View (Hyper-V) - Virtual Hard Disk** tab

     The End to End view list related to the virtual hard disk is displayed on the Main pane.

6. Perform the following procedures according to the operation purpose.

   For Displaying Specific Hyper-V End to End View Details:

   a. On the Main pane, check the target Hyper-V End to End view radio button.

   b. On the Action pane, click **Display Details** under **End to End View (Hyper-V)**.
      The detail of the selected Hyper-V End to End view is displayed on the Main pane.

   For Exporting Hyper-V End to End View Information:

   a. On the Main pane, check the target Hyper-V End to End view radio button.

   b. On the Action pane, click **Download** under **End to End View (Hyper-V)**.

   c. Specify the location to save the file, and then click **OK**.

   d. Click **Save**.

Point

- To display information, it is required that the Hyper-V host has already been registered.

- When the Data Exchange service of Integration Services is not running on the Hyper-V host, a part of Hyper-V guest information is not displayed.

- When the operating system of Hyper-V guest is not Windows, a part of Hyper-V guest information might be not displayed even if the Data Exchange service of Integration Services is running.

Note

The information of virtual HBA on the Hyper-V guest is not displayed.

6.7 Operations for System Management

This section describes the system management operations for storage device.

6.7.1 Register License

The procedure to register a license is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **License Management**.
   The registered and registerable license list is displayed on the Main pane.

5. On the Main pane, check the target license checkbox.

6. On the Action pane, click **Register** under **License**.
   The information input screen is displayed.

7. Enter a license key, and then click **Register**.

Note

Enable the following settings for the interface to ETERNUS Disk storage systems before registering a license:

Model Name	Interface Settings
ETERNUS DX60/DX60 S2/DX80/DX90	Telnet connection
ETERNUS DX80 S2/DX90 S2 ETERNUS DX100 S3/DX200 S3 ETERNUS DX400 S2 series ETERNUS DX500 S3/DX600 S3 ETERNUS DX8000 S2 series	SSH connection

6.7.2 Display License

The procedure to display the registered and registerable licenses is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **License Management**.
   The registered and registerable license list is displayed on the Main pane.

Point

A registered license displays a date in the **Registration Date** column. A registerable license displays "-" in the **Registration Date** column.
In addition, a trial license will display the expiration date in the **Expiry Date** column and a regular license displays "-" in the **Expiry Date** column.

6.7.3 Delete License

The procedure to delete a license is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **License Management**.
   The registered and registerable license list is displayed on the Main pane.

5. On the Main pane, check the target license checkbox.

6. On the Action pane, click **Delete** under **License**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

6.7.4 Enable Encryption Mode

The procedure to enable the encryption mode of ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **Encryption**.

5. On the Action pane, click **Enable** under **Encryption Mode**.

📝 Note
. . . .

There are storage device models that cannot set the encryption mode from the Web Console. Refer to "Volume Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.
. . . .

6.7.5 Disable Encryption Mode

To disable the encryption mode of ETERNUS Disk storage system, it is necessary to delete all encrypted volumes.
The procedure to disable the encryption mode of ETERNUS Disk storage system is as follows:

1. Refer to "6.8.3 Delete Volume" to delete all encrypted volumes.

2. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

3. On the Main pane, click the target ETERNUS Disk storage system.

4. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

5. On the Category pane, click **Encryption**.

6. On the Action pane, click **Disable** under **Encryption Mode**.

📝 Note
. . . .

- There are storage device models that cannot set the encryption mode from the Web Console. Refer to "Volume Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

- If the encryption mode is changed to "disable", it is necessary to restart the ETERNUS Disk storage system.
  Refer to the ETERNUS Disk storage system manual for more information.

··

6.7.6　Display Eco-mode

The procedure to display the ETERNUS Disk storage system Eco-mode is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **ECO Mode**.
   The current Eco-mode is displayed on the Main pane.

6.7.7　Configure Eco-mode

The procedure to enable/disable ETERNUS Disk storage system Eco-mode is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **System**.
   The items of the Category pane change into the items concerning the system management.

4. On the Category pane, click **ECO Mode**.
   The current Eco-mode is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Enabling Eco-mode:

   a. On the Action pane, click **Enable** under **ECO Mode**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Enable**.

   For Disabling Eco-mode:

   a. On the Action pane, click **Disable** under **ECO Mode**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Disable**.

6.8　Operations for Volume

This section describes the volume operations.

6.8.1　Create Volume

The procedure to create volumes is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.

4. On the Action pane, click **Create** under **Volume**.
   The information input screen is displayed.

5. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Create**.

🖙 Note
....
- The maximum capacity of volume that can be created is the largest contiguous free space in the RAID group. When fragmentation has occurred in the RAID group, the largest contiguous free space is less than the total free capacity of the RAID group.
  If the volume cannot be created because of insufficient free capacity of the RAID group, even though you specified capacity less than the total free capacity of RAID group, use the ETERNUS Web GUI to verify the free space of the RAID group.

- In the following cases, the maximum number of volumes cannot be created.

  - There is a Thin Provisioning Pool in the storage device.

  - There is a concatenation volume in the storage device.

  - There is a REC Disk buffer in the storage device.

  - There is a volume which is executing RAID Migration.

  - There is a volume which is executing Thin Provisioning Volume balancing.

- When creating a volume to the RAID group using Self Encrypting Drive (SED) disk, specify "No" for volume encryption.

- Volume creation may take several minutes to several hours depending on the device configuration. When creating a number of volumes at one time, consider the processing time to carry it out.

- There are storage device models that cannot set the encryption mode from the Web Console. Refer to "Volume Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

- In the Web Console, the volume that is LUN concatenated and Wide Striping Volume cannot be created.
....

6.8.2 Display Volume

The procedure to display volumes is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

   In addition, clicking the number of the volume on the Main pane displays the basic information of the volume.

6.8.3 Delete Volume

The procedure to delete volumes is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

4. On the Main pane, click the target volume checkbox.

5. On the Action pane, click **Delete** under **Volume**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Delete**.

📝 **Note**

- Volume deletion may take several minutes to several hours depending on the device configuration. When deleting a number of volumes at one time, consider the processing time to carry it out.

- In the Web Console, it is not possible to delete LUN concatenated volumes and Wide Striping Volumes.

6.8.4 Delete Reserved Volume or Forcible Delete/Format Volume

The procedure to delete the reserved volume, the procedure to delete a volume forcibly, and the procedure to format a volume are as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

4. On the Main pane, check the target volume checkbox.

5. Perform the following procedures according to the operation purpose.

   For Deleting Reserved Volume:

   a. On the Action pane, click **Reserve Delete** under **Volume**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Reserve Delete**.

   For Deleting Volume forcibly:

   a. On the Action pane, click **Force Delete** under **Volume**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Force Delete**.

   For Formatting Volume:

   a. On the Action pane, click **Format** under **Volume**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Format**.

📝 **Note**

In the Web Console, the following operations cannot be performed:

- Reserve deletion of Snap Data Pool Volume

- Format of LUN concatenated volume

- Format of Wide Striping Volume

6.8.5 Change Extreme Cache Configuration of Volume

The procedure to change the current configuration of the Extreme Cache is as follows:

ℙ **Point**

Specify whether to use Extreme Cache of each volume.
After the volume is created, the Extreme Cache configuration (Enabled or Disabled) can be changed. The default setting is "Enabled"

when the volume is created. The change of Extreme Cache configuration is required only when Extreme Cache is used for a specific volume.

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1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

4. On the Main pane, check the target volume checkbox. Two or more volumes can be selected.

5. Perform the following procedures according to the operation purpose.

   For Changing from Enable to Disable:

   a. On the Action pane, click **Disable** under **Extreme Cache(Read)**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Disable**.

   For Changing from Disable to Enable:

   a. On the Action pane, click **Enable** under **Extreme Cache(Read)**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Enable**.

Note

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The Extreme Cache cannot be set to SDV or SDPV.

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6.8.6 Expand Capacity of Thin Provisioning Volume

The procedure to expand the Thin Provisioning Volume capacity is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

4. On the Main pane, check the target Thin Provisioning Volume checkbox.

5. On the Action pane, click **Expand (TPV)** under **Volume**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Expand**.

6.8.7 Start/Stop Thin Provisioning Volume Restriping

The procedure to start the Thin Provisioning Volume restriping is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Volume**.
   The volume list is displayed on the Main pane.

4. On the Main pane, check the target Thin Provisioning Volume checkbox.

5. Perform the following procedures according to the operation purpose.

For Starting of Restriping:

    a. On the Action pane, click **Start Restriping (TPV)** under **Volume**.
       The information confirmation screen is displayed.

    b. Confirm the information, and then click **Start**.

For Stopping of Restriping:

    a. On the Action pane, click **Stop Restriping (TPV)** under **Volume**.
       The information confirmation screen is displayed.

    b. Confirm the information, and then click **Stop**.

6.9 Operations for RAID Group

This section describes the operations related to RAID Group.

6.9.1 Create RAID Group

The create modes for RAID groups are automatic and manual.
In the case of automatic, appropriate disks are automatically selected based on specified RAID type, disk type, and RAID group capacity. The Stripe Depth is 64 KB.

The automatic mode and Stripe Depth can be only selected for the following models:

- ETERNUS DX80 S2/DX90 S2

- ETERNUS DX100 S3/DX200 S3

- ETERNUS DX400 S2 series

- ETERNUS DX500 S3/DX600 S3

- ETERNUS DX8000 S2 series

How to Create RAID Group Automatically

The procedure to create the RAID group within ETERNUS Disk storage system automatically is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.

4. On the Action pane, click **Create** under **RAID Group**.
   The information input screen is displayed.

5. Enter the necessary information in the **Name**, **RAID Type** and **Disk Type** fields.

6. Click the **Automatic** radio button in the **Create Mode**.

7. Enter the **Number of RAID Groups**, **Minimum Capacity per RAID Group** and **Select Disks** (only when "High Reliability (RAID6-FR)" is selected for **RAID Type**), and then click **Next**.
   The information confirmation screen is displayed.

8. Check that the configuration of the RAID groups to be created is correct, and then click **Create**.
   The creation of the RAID groups is started.

How to Create RAID Group Manually

The procedure to create the RAID group within ETERNUS Disk storage system manually is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.

4. On the Action pane, click **Create** under **RAID Group**.
   The information input screen is displayed.

5. Enter the necessary information in the **Name**, **RAID Type** and **Disk Type** fields.

6. Click the **Manual** radio button in the **Create Mode**.

7. Select the **Stripe Depth**, **Fast Recovery Configuration** (only when "High Reliability (RAID6-FR)" is selected for **RAID Type**) and disks to be used, and then click **Next**.
   The information confirmation screen is displayed.

8. Check that the configuration of the RAID groups to be created is correct, and then click **Create**.
   The creation of the RAID groups is started.

Note

The **Name** field cannot be input for the model that cannot give a name to the RAID group.

6.9.2   Display RAID Group

The procedure to display the list/details of RAID Groups created in ETERNUS Disk storage system is as follows:
To display the list, perform from step 1 to step 3.
To display the specific RAID Group details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.
   The RAID groups in ETERNUS Disk storage system are displayed on the Main pane.

4. On the Main pane, click the target RAID group number.

5. The detail of the selected RAID group is displayed on the Main pane. When switching the tabs on the Main pane, displays the information below.

Tab Name	Description
Basic	Be able to confirm the RAID type, total capacity, spare capacity, etc.
Volume layout	Be able to confirm the volume information created in the RAID group.
Disks	Be able to confirm the physical disk information which configures the RAID group.

6.9.3   Delete RAID Group

The procedure to delete a RAID group created in ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.
   The RAID groups in ETERNUS Disk storage system are displayed on the Main pane.

4. On the Main pane, check the target RAID group checkbox.

5. On the Action pane, click **Delete** under **RAID Group**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Delete**.

6.9.4   Configure RAID Group Eco-mode

The procedure to enable/disable RAID group Eco-mode is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.
   The items of the Category pane change into the items concerning the RAID Group.

4. On the Category pane, click **ECO Mode**.
   The RAID groups in ETERNUS Disk storage system are displayed on the Main pane.

5. On the Main pane, check the target RAID group checkbox.

6. Perform the following procedures according to the operation purpose.

   For Enabling Eco-mode:

   a. On the Action pane, click **Enable** under **ECO Mode**.
      The information confirmation screen or information input screen is displayed.

   b. When the information input screen is displayed, enter the necessary information.

   c. Confirm the information, and then click **Enable**.

   For Disabling Eco-mode:

   a. On the Action pane, click **Disable** under **ECO Mode**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Disable**.

6.9.5   Start/Stop Disk Drive Which Configures RAID Group

The procedure to start/stop the disk drive which configures RAID Group is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **RAID Group**.

4. On the **RAID Group** pane, click **ECO Mode**.
   The RAID groups in ETERNUS Disk storage system are displayed on the Main pane.

5. On the Main pane, check the target RAID group checkbox.

6. Perform the following procedures according to the operation purpose.

   For Starting of Disk Drive:

   a. On the Action pane, click **Start** under **Disk Drive**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Start**.

   For Stopping of Disk Drive:

   a. On the Action pane, click **Stop** under **Disk Drive**.
      The information confirmation screen is displayed.

b. Confirm the information, and then click **Stop**.

6.10 Operations for Thin Provisioning

This section describes the operations related to Thin Provisioning.

6.10.1 Create Thin Provisioning Pool

The procedure to create Thin Provisioning Pool within ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Thin Provisioning**.

4. On the Action pane, click **Create** under **Thin Provisioning Pool**.
   The information input screen is displayed. (Specify Pool Information)

5. Enter the necessary information, and then click **Next**.
   The information input screen is displayed. (Specify disks to create RAID Groups)

6. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Create**.

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To use the Self Encryption Drive (SED) for a disk in a Thin Provisioning Pool, specify "No" for Encryption of the pool.
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6.10.2 Display Thin Provisioning Pool

The procedure to display the list/details of Thin Provisioning Pools created in ETERNUS Disk storage system is as follows:
To display the list, perform from step 1 to step 3.
To display the specific Thin Provisioning Pool details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Thin Provisioning**.
   Thin Provisioning Pools in ETERNUS Disk storage system are displayed on the Main pane.

4. On the Main pane, click the target Thin Provisioning Pool number.

5. The detail of the selected Thin Provisioning Pool is displayed on the Main pane. When switching the tabs on the Main pane, displays the information below.

Tab Name	Description
Basic	Be able to confirm the total capacity, usage rate, threshold value, etc.
RAID Group	Be able to confirm the information of RAID group which configures Thin Provisioning Pool.
Volume	Be able to confirm the information of Thin Provisioning volumes.

6.10.3 Display Capacity Graph of Thin Provisioning Pool

The procedure to display the capacity graph of the Thin Provisioning Pool created in ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Thin Provisioning**.
   Thin Provisioning Pools in ETERNUS Disk storage system are displayed on the Main pane.

4. On the Main pane, check the target Thin Provisioning Pool checkbox.

5. On the Action pane, click **Capacity Chart** under **Charts**.

6. On the Capacity Chart window, enter the necessary information, and then click **Plot**.
   The capacity information is displayed as graph.

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- The total capacity and used capacity of the specified Thin Provisioning Pool are displayed as graphs.

- The Thin Provisioning Pool that can be displayed in one Capacity Chart window is only one.

- When "1 Month" is specified in the Duration, the data of every one day is plotted from present to 1 month ago (for 31 days).
  When "1 Year" or "10 Years" is specified in the Duration, the data of every one month is plotted for one year or ten years.

- The threshold value is not displayed in the Capacity Chart window.

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6.10.4 Expand Capacity of/Format/Change Threshold Value of/Delete Thin Provisioning Pool

The procedure to expand capacity of/format/change the threshold value of/delete the Thin Provisioning Pool created in ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Thin Provisioning**.
   Thin Provisioning Pools in ETERNUS Disk storage system are displayed on the Main pane.

4. On the Main pane, check the target Thin Provisioning Pool checkbox.

5. Perform the following procedures according to the operation purpose.

   For Expanding Capacity of Thin Provisioning Pool:

   a. On the Action pane, click **Expand** under **Thin Provisioning Pool**.
      The information input screen is displayed. (Specify Pool Information)

   b. Enter the necessary information, and then click **Next**.

   c. If selected "Yes" in the **Manually Name RAID Groups** radio button in step 6, then enter the new RAID group name and check the target checkbox in the disk list.

   d. Click **Create**.

   e. Check a created RAID group checkbox from the **RAID Group List**, scrolling down as needed.

   f. Click **Next**.

   g. Confirm the information, and then click **Expand**.

   For Formatting Thin Provisioning Pool:

   a. On the Action pane, click **Format** under **Thin Provisioning Pool**.
      The information input screen is displayed.

   b. Enter the necessary information, and then click **Format**.

For Changing Threshold Value of Thin Provisioning Pool:

    a. On the Action pane, click **Modify Threshold** under **Thin Provisioning Pool**.
       The information input screen is displayed.

    b. Enter the necessary information, and then click **Modify**.

For Deleting Thin Provisioning Pool:

    a. On the Action pane, click **Delete** under **Thin Provisioning Pool**.
       The information confirmation screen is displayed.

    b. Confirm the information, and then click **Delete**.

6.11 Operations for Advanced Copy

This section describes the operations related to Advanced Copy.

6.11.1 Configure Copy Table Size for Advanced Copy

The procedure to configuration the copy table size for Advanced Copy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Configuration**.
   The current set value is displayed on the Main pane.

5. On the Action pane, click **Modify** under **Copy Table Size**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Modify**.

6.11.2 Configure Connection Type for ETERNUS Disk Storage System

The procedure to configure the connection type for ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Configuration**.
   The current set value is displayed on the Main pane.

5. On the Action pane, click **Set** under **Copy Control Type**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Set**.

6.11.3 Create/Display/Delete Copy Group

The procedure to create/display/delete a copy group is as follows:
To display the copy group list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Copy Group**.
   The created copy group list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Creating Copy Group:

       a. On the Action pane, click **Create** under **Copy Group**.
          The information input screen is displayed.

       b. Enter the necessary information, and then click **Create**.

   For Deleting Copy Group:

       a. On the Action pane, click **Delete** under **Copy Group**.
          The information confirmation screen is displayed.

       b. Confirm the information, and then click **Delete**.

6.11.4 Create Copy Pair

The procedure to create a copy pair is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.

4. On the Action pane, click **Create Copy Pair** under **Copy Group**.
   The screen to select the copy type is displayed.

5. Enter the necessary information, and then click **Next**.
   The screen to set the copy group is displayed.

6. Select the existing copy group or enter the new created copy group name, and then click **Next**.
   The screen to set the copy pair is displayed.

7. Configure the copy pair selecting the copy source volume and copy destination volume, and then click **Next**.
   The information confirmation screen is displayed.

8. Confirm the information, and then click **Create**.

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When creating a copy pair, if an encrypted volume for the copy source is specified, only encrypted volumes can be selected as a copy destination. If an unencrypted volume for the copy source is specified, only unencrypted volumes can be selected as a copy destination.

To create a copy pair of an encrypted volume and an unencrypted volume, use the acpair add command. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

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6.11.5 Add/Display/Delete Copy Pair

The procedure to add/display/delete a copy pair is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Copy Group**.
   The created copy group list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Adding Copy Pair:

   a. On the Main pane, check the target copy group checkbox.

   b. On the Action pane, click **Add** under **Copy Pair**.
      The screen to set the copy pair is displayed.

   c. Enter the necessary information, and then click **Next**.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Add**.

   For Displaying Copy Pairs:

   a. On the Main pane, click the target copy group name.
      The created copy pairs are displayed on the Main pane.

   For Deleting Copy Pair:

   a. On the Main pane, check the target copy group checkbox.

   b. On the Action pane, click **Remove** under **Copy Pair**.
      The screen to select a copy pair is displayed.

   c. Check the target copy pair checkbox, and then click **Next**.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Remove**.

Note

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When adding a copy pair, if an encrypted volume for the copy source is specified, only encrypted volumes can be selected as a copy destination. If an unencrypted volume for the copy source is specified, only unencrypted volumes can be selected as a copy destination.

To add a copy pair of an encrypted volume and an unencrypted volume, use the acpair add command. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

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6.11.6 Cancel Copy Session of Copy Pair

The procedure to cancel a copy session of a copy pair is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Copy Group**.
   The created copy group list is displayed on the Main pane.

5. On the Main pane, click the target copy group name.
   The created copy pairs are displayed on the Main pane.

6. On the Main pane, check the target copy pair checkbox.

7. On the Action pane, click **Cancel** under **Copy Pair**.
   The information confirmation screen is displayed.

8. Confirm the information, and then click **Cancel Copy**.

6.11.7 Perform Advanced Copy

The procedure to perform Advanced Copy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Copy Group**.
   The created copy group list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Performing for Each Copy Group:

   a. On the Main pane, check the target copy group checkbox.

   b. When copying in forward direction, click **Start Forward Copy** under **Copy Group Operations** on the Action pane. When copying in backward direction, click **Start Backward Copy** under **Copy Group Operations** on the Action pane.
      The information confirmation screen is displayed.

   c. Confirm the information, and then click **Start**.

   For Performing for Each Copy Pair:

   a. On the Main pane, click the target copy group name.
      The created copy pair list is displayed on the Main pane.

   b. On the Main pane, check the target copy pair checkbox.

   c. When copying in forward direction, click **Start Forward Copy** under **Copy Pair Operations** on the Action pane. When copying in backward direction, click **Start Backward Copy** under **Copy Pair Operations** on the Action pane.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Start**.

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The selectable copy operations on the Action pane for each copy type of Advanced Copy is as follows:

Copy Type	Selectable Action (Y: Selectable, N: Not selectable)						
	Start Forward Copy	Start Backward Copy	Suspend	Resume	Reverse	Change Mode	Cancel
OPC	Y	Y	N	N	N	N	Y
QuickOPC	Y	Y	N	N	N	N	Y
SnapOPC+	Y	Y	N	N	N	N	Y
EC	Y	Y	Y	Y	Y	N	Y
REC	Y	Y	Y	Y	Y	Y	Y

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6.11.8   Display/Forcible Suspend/Forcible Cancel Copy Session

The procedure to display/forcible suspend/forcible cancel the copy sessions is as follows:
To display the copy session list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Copy Sessions**.
   The running copy session list is displayed on the Main pane.

5. On the Main pane, check the target copy session checkbox.

6. Perform the following procedures according to the operation purpose.

   For Suspending Copy Session Forcibly:

   a. On the Action pane, click **Force Suspend** under **Copy Session**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Suspend**.

   For Cancelling Copy Session Forcibly:

   a. On the Action pane, click **Force Cancel** under **Copy Session**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Cancel Copy**.

6.11.9   Display Snap Data Pool Information

The procedure to display the Snap Data Pool information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Snap Data Pool**.
   The registered Snap Data Pool list is displayed on the Main pane.

6.11.10   Change Snap Data Pool Policy

The procedure to change the Snap Data Pool policy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Snap Data Pool**.
   The registered Snap Data Pool list is displayed on the Main pane.

5. On the Action pane, click **Modify** under **Policy of Snap Data Pool**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Modify**.

6.11.11   Change Advanced Copy Settings Using Wizard

The procedure to change the Advanced Copy settings using a wizard is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Configuration**.
   The Advanced Copy setting information is displayed on the Main pane.

5. On the Action pane, click **Advanced Copy** under **Wizard**.
   The Advanced Copy setting wizard screen is displayed, and then click **Next**.

6. The copy table size setting screen for Advanced Copy is displayed.
   Click the target radio button, and specify the new value.
   When selecting "Custom", specify **Resolution** and **Table Size**, and then click **Next**.

7. The Snap Data Pool policy change screen is displayed.
   Enter the necessary information, and then click **Next**.

8. The confirmation screen is displayed. Click **Finish** when the information is correct.

6.11.12   Display/Set REC Path

The procedure to display/set REC path is as follows:
To display the REC path list, perform from step 1 to step 4.
To set the REC path, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **REC Path**.
   The created REC path list is displayed on the Main pane.

5. On the Action pane, click **Set** under **REC Path**.
   The screen to select remote partner is displayed.

6. Select the remote copy destination ETERNUS Disk storage system, and then click **Next**.
   The REC path setting screen is displayed.

7. Select remote copy route and connection type between ETERNUS Disk storage systems, and then click **Set**.

Note
....

- A local device port for which "RA" or "CA/RA" is displayed in the **Mode** field can be selected as a remote copy route.

- A remote device port for which "RA" or "CA/RA" is displayed in the **Mode** field can be selected as a remote copy route.

- The settings of the line speed and the compression ratio of REC path is enabled only when the one or more REC paths have been added.

- When the deletion of the existed REC path is only executed, the specified line speed and compression ratio are not set.

- The copy destination device should have the same IP address version as the copy source device (both should have either IPv4 or IPv6).

6.11.13 Measure Round Trip Time for REC Path

The procedure to measure the round trip time for REC path is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **REC Path**.
   The created REC path list is displayed on the Main pane.

5. On the Action pane, click **Measure** under **Round Trip Time**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Measure**.

6.11.14 Display/Change REC Transfer Buffer

The procedure to display/change the REC transfer buffer setting is as follows:
To display the REC transfer buffer list, perform from step 1 to step 4.
To change the REC transfer buffer setting, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **REC Buffer**.
   The created REC transfer buffer list is displayed on the Main pane.

5. On the Action pane, click **Modify** under **REC Buffer**.
   The screen to select remote partner is displayed.

6. Select the remote partner, and then click **Next**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

🛈 Note

The REC transfer buffer will be set to both of REC copy source and destination ETERNUS Disk storage systems when using ETERNUS SF system. Therefore, free space more than specified as Size is required on both of them.

As for maximum REC transfer buffer capacity of each ETERNUS Disk storage system, please refer to the hardware manual.

6.11.15 Set Remote Advanced Copy Using Wizard

The procedure to set remote Advanced Copy using a wizard is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **REC Path** or **REC Buffer**.
   The created REC path list or REC transfer buffer list is displayed on the Main pane.

5. On the Action pane, click **Remote Copy Conf.** under **Wizard**.
   Remote Advanced Copy setting wizard screen is displayed, and then click **Next**.

6. The screen to select the remote partner is displayed.
   Select an ETERNUS Disk storage system which is the copy destination of Remote Advanced Copy, and then click **Next**.

7. The screen to setup the copy table size is displayed.
   Set the copy parameters to both source and destination ETERNUS Disk storage systems, and then click **Next**.

8. The screen to set REC path is displayed.
   Select remote copy route and connection type between ETERNUS Disk storage systems, and then click **Next**.

9. The screen to select REC transfer buffer is displayed.
   When using in the Asynchronous Consistency mode, select both local and remote REC transfer buffer, and then click **Next**.

10. The confirmation screen of settings is displayed. Click **Finish** when the information is correct.

Note

- A local device port for which "RA" or "CA/RA" is displayed in the **Mode** field can be selected as a remote copy route.

- A remote device port for which "RA" or "CA/RA" is displayed in the **Mode** field can be selected as a remote copy route.

- The settings of the line speed and the compression ratio of REC path is enabled only when the one or more REC paths have been added.
  When the deletion of the existed REC path is only executed, the specified line speed and compression ratio are not set.

- The REC transfer buffer will be set to both of REC copy source and destination ETERNUS Disk storage systems when using ETERNUS SF system. Therefore, free space more than specified as Size is required on both of them.
  As for maximum REC transfer buffer capacity of each ETERNUS Disk storage system, please refer to the hardware manual.

6.11.16 Create Exchange Server Backup Script and Script Execution Environment Setting Using Wizard

The procedure to create an Exchange Server backup script using a wizard is as follows:

Note

Perform the following operations before executing the wizard.

- Formatting the backup destination volume with the NTFS format

- Allocating the drive letter or the mount point for the backup source/destination volume

1. Immediately after login, on the Action pane in which the Dashboard is displayed, click **for Exchange Server** under **Backup Wizard**.
   A list of servers is displayed by selecting **Server** on the global navigation tab, click **for Exchange Server** under **Backup Wizard** on the Action pane.

2. Check the message displayed in the Information area, and then click **Next**.

3. Check the selected backup configuration, and then click **Next**.

4. Select a Mailbox Server for the backup source, and then click **Next**.

ℹ️ Information

The servers that meet all the following conditions are displayed on the page:

- It is registered on the ETERNUS SF system as a Managed Server of AdvancedCopy Manager.

- It does not serve as a Management Server, as well.

- The server operating system is Windows Server 2008 or later.

5. Select the database to be backed up within the Mailbox Server, and then click **Next**.

6. Check the backup destination volume name, and then click **Next**.
   To change the backup destination volume, check the **change destination volume** checkbox to change the backup destination volume using the drop-down menu.

7. Check the set contents displayed, and then click **Execute**.

ℹ️ Information

The transaction log file (.log) registered as backups by executing the backup wizard can be checked with swsrpdevdisp_exchange command.

In addition, performing backup with the backup execution script backs up all the transaction log files and checkpoint files in the selected database, which exist in the backup source volume.

8. Check that the following message is displayed in the Information area, and then click **Close**.

```
Backup setting for Exchange Server is complete.
To backup databases automatically, register the script in a scheduler such as Task Scheduler of
Windows.
```

🅿️ Point

When the wizard completes, the script file to execute backup is stored in the backup source Mailbox Server under the file name shown below. Copy this script file to the folder in use and execute backup manually or alternatively register the script in the operating system scheduler.

```
installDir\Wizard\bat\execute_backup_dbName_date.bat
```

installDir : The program directory specified at the AdvancedCopy Manager's agent installation.
dbName : The name of the Mailbox database within the Mailbox Server selected in the wizard or public folder database name
date : The date for executing the wizard (yyyymmddhhmmss format)

In addition, along with the execute backup script file, the script file to delete the registered volume configuration set up by the Backup Wizard is stored in the backup source Mailbox Server under the file name shown below. Copy this script file to the folder in use, and if a volume configuration is changed, manually delete the registered volume configuration.

```
installDir\Wizard\bat\delete_backup_dbName_date.bat
```

installDir : The program directory specified at the AdvancedCopy Manager's agent installation.
dbName : The name of the Mailbox database within the Mailbox Server selected in the wizard or public folder database name
date : The date for executing the wizard (yyyymmddhhmmss format)

🈲 Note

When a backup script is being created (after clicking **Execute**), other processing may be kept waiting. Therefore, when any backup script is being created, do not perform any other processing.

....

Clicking **Next** on the database selection screen performs fetching device information (*1) for Mailbox Server and Backup server. Therefore, if you cancel the backup wizard after clicking **Next** on the database selection page, newly found device information by the backup wizard is kept reflected to AdvancedCopy Manager management information.

Though newly found device information exists in AdvancedCopy Manager management information, it does not affect the use of the backup wizard. However, to delete the device information from AdvancedCopy Manager management information, execute the stgxfwcmdeldev command. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on the command.

*1: Refer to "Fetching Device Information on Managed Server" in "Replication" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on fetching device information.

....

6.11.17   Restore Exchange Server Database Using Wizard

The procedure to restore an Exchange Server database using a wizard is as follows:

1. Immediately after login, on the Action pane in which the Dashboard is displayed, click **for Exchange Server** under **Restore Wizard**.
   A list of servers is displayed by selecting **Server** on the global navigation tab, click **for Exchange Server** under **Restore Wizard** on the Action pane.

2. The welcome page is displayed. Check the message displayed in the Information area, and then click **Next**.

3. The **Select of Mailbox Server** page is displayed. From the displayed Mailbox Servers, select one to be restored, and then click **Next**.

4. The **Select of Mailbox Database** page is displayed. Select one database to be restored. Also select a restoration method (Roll forward or Point-in-time) for the selected database. Then, click **Next**.

   Information

....

   Roll forward restoration is performed by the use of a transaction log. This is available only when nothing is missing from the log file. This can restore database to the latest point recorded in the log.
   Point-in-time restoration is performed by the use of backup data. This can restore database to the point in time when its backup was taken.

....

   Note

....

   - A database that is in use is not displayed. In the case of Database Availability Group (DAG) configuration, any database in use on servers other than the selected server is not displayed, either.
     To restore a database that is in use, exit the restore wizard, dismount the database and restart the restore wizard.

   - Selecting passive in DAG configuration switches to active when the wizard is completed.

....

5. The **Input of Authentication** page is displayed. Enter the following authentication information and click **Next**.

Item Name	Specification	Explanation
Domain Name	Required	Specify a domain name of the backup server. The maximum length of the input character is 1024.
User Name	Required	Specify a user name of the backup server. The maximum length of the input character is 1024. It is necessary to specify a name of the user with all the following authorities: - Exchange Server management role group "Organization Management" - Domain Admins

Item Name	Specification	Explanation
Password	Required	Specify a password for the user name of the backup server. The maximum length of the input character is 1024.

6. The **Checking the restore information** page is displayed. The displayed information is as follows:

    - Restore Method

    - Mailbox Server

    - Restore Information

    - Backup Information

    Check the displayed information, and then click **Execute**.

7. The confirmation message about the restore processes is displayed in the **Confirm** dialog box. If no problem about the restore for the displayed database exists, click **OK**.

8. The **Restore of Exchange Server** dialog box (dialog box to notify of having accepted restore execution) is displayed. Clicking **Done** transits to the Main screen or Server Overview screen (returns to the wizard's starting point).

6.11.18 Create SQL Server Backup Script and Script Execution Environment Setting Using Wizard

The procedure to create an SQL Server backup script using a wizard is as follows:

1. Immediately after login, on the Action pane in which the Dashboard is displayed, click **for SQL Server** under **Backup Wizard**. A list of servers is displayed by selecting **Server** on the global navigation tab, click **for SQL Server** under **Backup Wizard** on the Action pane.

2. The **Welcome to the Easy Backup Setting Wizard for SQL Server** page is displayed. Check the message displayed in the Information area, and then click **Next**.

3. The **Select of backup-configuration** page is displayed. Select a backup configuration, and then click **Next**.

📖 Information

Only "D2D(Disk to Disk)" can be selected.

4. The **Select of Database Server** page is displayed. Select a database server for the backup source, and then click **Next**.

📖 Information

The servers that meet all the following conditions are displayed on the page:

    - It is registered on the ETERNUS SF system as a Managed Server of AdvancedCopy Manager.

    - The version 16.1 or later AdvancedCopy Manager's agent is installed.

    - The server operating system is Windows Server 2008 or later.

5. The **Input of Authentication** page is displayed. Enter the following authentication information for the instance of backup target, and then click **Next**.

Item Name	Specification	Explanation
NetBIOS Domain Name	Optional	Specify a NetBIOS domain name of the database server. Check the following *domainName* about the NetBIOS domain name. - *domainName* of "*domainName\userName*" displayed by clicking **Object Explorer** > *connectServerName* > **Security** > **Logins** on the SQL Server Management Studio

Item Name	Specification	Explanation
		The maximum length of the input character is 15.
		When this specification has been omitted, the local domain is selected.

User Name	Required	Specify a user name of the database server.
		The maximum length of the input character is 20.
		
		It is necessary to specify a name of the user with all the following authorities:
		
		- Windows role
		
		   - For using the domain authentication:
		    Administrators, Domain Admins, Domain Users, Enterprise Admins, Group Policy Creator Owners, Schema Admins
		
		   - For using the local accounts authentication:
		    Administrators
		
		- SQL Server role
		
		   - sa (SystemAdmin privilege)

Password	Required	Specify a password for the user name of the database server. The maximum length of the input character is 127.

6. The **Select of Instance** page is displayed. Select an instance of the backup target that exists on the database server, and then click **Next**.

Information

- The instances that meet all the following conditions are displayed on the page:

    - An instance of SQL Server 2008 R2 or SQL Server 2012 that is installed on the database server selected in step 4

    - An instance that has successfully been connected using the authentication information entered in step 5

    - An instance whose service is running

- The instance displayed on the page will depend on whether the database server selected in step 4 is a physical server or a logical server.

    - When a physical server has been selected:
      Only the instances of non-clustered configurations will be displayed.
      When the physical node of a clustered configuration has been selected, only the instance of that physical node will be displayed.

    - When a logical server has been selected:
      Instances of clustered configurations will be displayed.

7. The **Select of Database** page is displayed. Select the database to be backed up, and then click **Next**.

Information

The user databases that exist in the instance selected in step 6 are displayed on the page

8. The **Select of Backup Server** page is displayed. Select a backup server for the backup destination, and then click **Next**.

Information

The servers that meet all the following conditions are displayed on the page:

- It is registered on the ETERNUS SF system as a Managed Server of AdvancedCopy Manager.

- The version 16.1 or later AdvancedCopy Manager's agent is installed.

- The server operating system is Windows Server 2008 or later.

....

9. The **Backup source / destination volume mapping** page is displayed. Enter the following item.

Item Name	Explanation
Replication Group Name	Specify a name of the replication group to be created. The maximum length of the input character is 64. Any alphanumeric character, a hyphen (-), an underscore (_), a pound symbol (#), and a period (.) may be specified. The letters to be specified are case sensitive. As a default, "ApplinkForSQLGroup_*date*" is displayed. The *date* (yyyymmddhhmmss format) is a date when this page has been displayed.

In addition, select the backup destination volume of the database selected in step 7 and then click **Next**. When the backup server is a clustered configuration, select a shared volume as the backup destination volume.

🅿 Point
....
The replication group name input here will be applied to the name of the script file that will be generated in this task. If a script file of the same name (upper and lower case letters not distinguished) already exists, this will result in an error.
....

10. The **Input of Log Backup** page is displayed. Enter the following item, and then click **Next**.

Item Name	Explanation
Log Backup Path	Specify a backup destination for the transaction log. The maximum length of the input character is 260. As a default, the path of the log backup which is configured with SQL Server is displayed.

🅿 Point
....
When operating backup of multiple generations, the same directory path must be specified in **Log Backup Path** for all generations.
....

11. The **Checking the backup information** page is displayed. Check the set contents, and then click **Execute**.

12. The **Creating the backup script** page is displayed. Check that the following message is displayed in the Information area, and then click **Close**.
The displayed screen will be turned to the Main screen or the Server Overview screen (in which the wizard was started).

```
The script for SQL Server backup has been created.
To backup databases automatically, register the script in a scheduler.
```

🅿 Point
....
When the wizard completes, the script file to execute backup is stored in the backup source database server under the file name shown below. Copy this script file to the folder in use and execute backup manually or alternatively register the script in the scheduler.

```
workDir\Wizard\bat\execute_backup_groupName.bat
workDir\Wizard\bat\execute_logbackup_groupName.bat
```

workDir : In a non-clustered environment, this indicates the program directory specified at the AdvancedCopy Manager's agent installation. In a clustered environment, this indicates <*Drive of shared disk for shared data of AdvancedCopy Manager*>:\var\opt\swstorage directory.
groupName : The name of the replication group specified in step 9.

In addition, along with the execute backup script file, the script file to delete the registered volume configuration set up by the Backup Wizard is stored in the database server under the file name shown below. Copy this script file to the folder in use, and if a volume or database configuration is changed, manually delete the registered volume configuration.

```
workDir\Wizard\bat\delete_backup_groupName.bat
```

workDir : In a non-clustered environment, this indicates the program directory specified at the AdvancedCopy Manager's agent installation. In a clustered environment, this indicates <*Drive of shared disk for shared data of AdvancedCopy Manager*>:\var\opt \swstorage directory.
groupName : The name of the replication group specified in step 9.

. . . .

Note

. . . .

- When a backup script is being created (after clicking **Execute**), other processing may be kept waiting. Therefore, when any backup script is being created, do not perform any other processing.

- The fetching device information (*1) is performed while the backup wizard is executing. Therefore, if you cancel the backup wizard after clicking **Next** on the **Select of Instance** page or **Select of Backup Server** page, newly found device information by the backup wizard is kept reflected to AdvancedCopy Manager management information.
  Though newly found device information exists in AdvancedCopy Manager management information, it does not affect the use of the backup wizard. However, to delete the device information from AdvancedCopy Manager management information, execute the stgxfwcmdeldev command. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on the command.

  *1: Refer to "Fetching Device Information on Managed Server" in "Replication" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on fetching device information.

. . . .

6.11.19 Restore SQL Server Database Using Wizard

The procedure to restore an SQL Server database using a wizard is as follows:

1. Immediately after login, on the Action pane in which the Dashboard is displayed, click **for SQL Server** under **Restore Wizard**. A list of servers is displayed by selecting **Server** on the global navigation tab, click **for SQL Server** under **Restore Wizard** on the Action pane.

2. The **Welcome to Restore Wizard for SQL Server** page is displayed. Check the message displayed in the Information area, and then click **Next**.

3. The **Select of Database Server** page is displayed. From the displayed database servers, select one to be restored, and then click **Next**.

Information

. . . .

The servers that meet all the following conditions are displayed on the page:

- It is registered on the ETERNUS SF system as a Managed Server of AdvancedCopy Manager.

- The version 16.1 or later AdvancedCopy Manager's agent is installed.

- The server operating system is Windows Server 2008 or later.

. . . .

4. The **Input of Authentication** page is displayed. Enter the following authentication information for the instance of restore target, and then click **Next**.

Item Name	Specification	Explanation
NetBIOS Domain Name	Optional	Specify a NetBIOS domain name of the database server. Check the following *domainName* about the NetBIOS domain name.

Item Name	Specification	Explanation
		- *domainName* of "*domainName\userName*" displayed by clicking **Object Explorer** > *connectServerName* > **Security** > **Logins** on the SQL Server Management Studio The maximum length of the input character is 15. When this specification has been omitted, the local domain is selected.

User Name	Required	Specify a user name of the database server.
		The maximum length of the input character is 20.
		
		It is necessary to specify a name of the user with all the following authorities:
		
		- Windows role
		
		  - For using the domain authentication:
		   Administrators, Domain Admins, Domain Users, Enterprise Admins, Group Policy Creator Owners, Schema Admins
		
		  - For using the local accounts authentication:
		   Administrators
		
		- SQL Server role
		
		  - sa (SystemAdmin privilege)

Password	Required	Specify a password for the user name of the database server. The maximum length of the input character is 127.

5. The **Select of Instance** page is displayed. Select the instance of restore target, and then click **Next**.

Information

- The instances that meet all the following conditions are displayed on the page:

    - An instance of SQL Server 2008 R2 or SQL Server 2012 that is installed on the database server selected in step 3

    - An instance that has successfully been connected using the authentication information entered in step 4

    - An instance whose service is running

    - An instance where a default database is set as "master"

    - Instances on which a database that has been backed up exists

- The instance displayed on the page will depend on whether the database server selected in step 3 is a physical server or a logical server.

    - When a physical server has been selected:
    Only the instances of non-clustered configurations will be displayed.
    When the physical node of a clustered configuration has been selected, only the instance of that physical node will be displayed.

    - When a logical server has been selected:
    Instances of clustered configurations will be displayed.

6. The **Select of Database** page is displayed. Select the following items, and then click **Next**.

Item Name	Explanation
Database Name	Select the database to be restored. When an identical volume is being shared by multiple databases, all databases sharing that particular volume will be displayed together. Similarly, **Restore Method** and **Backup Date** will be displayed together.

Item Name	Explanation
Restore Method	Select a restoration method ("Latest time" or "Point of backup") from the drop down list.
	The "Latest time" can only be selected in cases when all transaction logs generated after the latest backup are in order.
Backup Date	This is the date that the restore target was backed up.
	This item can be selected when the **Restore Method** is "Point of backup".
	When the database has been backed up in multiple generations, select a backup time of the generation to be restored.

Information

- The databases that meet all the following conditions are displayed on the page:
    - User databases that existed on the instance selected in step 5
    - User databases for which a backup has been obtained
- With restoration to the latest point, it is checked whether the system is in the following state.
    - **Recovery Model** is either "Full" or "Bulk logged".
    - A bulk operation has not been executed after a full backup in cases when **Recovery Model** is "Bulk logged".
    - The log backups from after the latest full backup are in order.
    - A backup of the latest transaction log has been obtained immediately prior to execution of the Restore Wizard.

Note

- Databases in operation will also be displayed on the page. Select the correct database to be restored in order to avoid mistakenly restoring a database that is in operation.
- If a backup of a transaction log has not been acquired since last full backup, only "Point of backup" can be selected as a restore method.

7. The **Input of Log Backup** page is displayed. Enter the following item, and then click **Next**.

Item Name	Explanation
Log Backup Path	Specify a backup destination for the transaction log. The maximum length of the input character is 260.
	As a default, the path of the log backup which is configured with SQL Server is displayed.
	Input is not required in cases when "Point of backup" has been selected for **Restore Method** in step 6.

8. The **Checking the restore information** page is displayed. The displayed information is as follows:

    - Restore Method
    - Database Server
    - Restore Information
    - Backup Information

    Check the displayed information, and then click **Execute**.

9. The confirmation message about the restore processes is displayed in the **Confirm** dialog box. If no problem about the restore for the displayed database exists, click **OK**.

10. The **Restore of SQL Server** dialog box (dialog box to notify of having accepted restore execution) is displayed. Clicking **Done** transits to the Main screen or Server Overview screen (returns to the wizard's starting point).

6.12 Operations for Storage Device Connectivity

This section describes the operation related to storage device connectivity.

Note
....

- The range of possible values may be restricted depending on the hardware specifications.
  Perform the settings according to the hardware specifications.

- The storage device connectivity does not manage the ports for NAS connection.

....

6.12.1 Display Storage Port List

The procedure to display the port list of storages is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The port type list is displayed on the Main pane.

6.12.2 Display FC/iSCSI/SAS/FCoE Port

The procedure to display the FC/iSCSI/SAS/FCoE port list is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The port type list is displayed on the Main pane.

4. On the Main pane, click the digit of **Number of Ports** field for the target port.
   The target port list is displayed on the Main pane.

Point
....
The basic IP address #0 information is displayed when Multi-VLAN function of the iSCSI port is enabled.
....

6.12.3 Change FC/iSCSI/SAS Port Settings

The procedure to change the FC/iSCSI/SAS port settings is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The port type list is displayed on the Main pane.

4. On the Main pane, click the digit of **Number of Ports** field for the target port.
   The target port list is displayed on the Main pane.

5. On the Main pane, check the target port checkbox.

6. When changing a FC port, click the target action under **Port** on the Action pane.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

P Point

. . . .

The setting of the basic IP address #0 information can be changed when Multi-VLAN function of the iSCSI port is enabled.

. . . .

Note

. . . .

- The deletion and preservation information when the FC port mode or the iSCSI port mode is changed are as follows:

Port Mode Before It Changes	Port Mode After Change		
	CA	RA	CA/RA
CA	-	- Host Affinity/LUN Mapping information is deleted	- Host Affinity/LUN Mapping information is preserved
RA	- REC path information is deleted	-	- REC path information is preserved
CA/RA	- Host Affinity/LUN Mapping information is preserved - REC path information is deleted	- Host Affinity/LUN Mapping information is deleted - REC path information is preserved	-

- When the FC port mode is changed, FC port setting returns to initial value.

- When the iSCSI port mode is changed, iSCSI port setting returns to initial value.

- Setting the IP address, link local IP address, connection IP address, iSCSI name, or iSCSI alias name of an iSCSI port the same as another iSCSI port may not be allowed. Refer to [Note] in "Connectivity Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

- If the port is iSCSI-RA, Transfer Rate and iSCSI Name cannot be changed by the Web Console.
  If it needs to be changed, use the ETERNUS Web GUI.

. . . .

6.12.4   Display Number of Hosts for Port Type

The procedure to display the number of hosts by port type is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host**.
   The number of hosts for each port type is displayed on the Main pane.

6.12.5   Display FC/iSCSI/SAS Host

The procedure to display the FC/iSCSI/SAS host list is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host**.
   The number of hosts for each port type is displayed on the Main pane.

5. On the Main pane, click the digit of **Number of Hosts** field for the target host.

6.12.6   Add FC/iSCSI/SAS Host

The procedure to add an FC/iSCSI/SAS host is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host**.
   The number of hosts for each port type is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Adding FC Host:

   a. On the Action pane, click **Add FC Host** under **Host**.
      The information input screen is displayed.

   b. On the **Now Connected** tab, specify WWN and a FC CA port that is connected to the host to be added. Enter the necessary information for the specified WWN. When entering WWN manually, select the **Manual Input** tab, and enter the necessary information. Click **Add**, and specify an object WWN from the **FC Host** list.

   c. Specify the host information to add, and then click **Next**.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Add**.

   For Adding iSCSI Host:

   a. On the Action pane, click **Add iSCSI Host** under **Host**.
      The information input screen is displayed.

   b. On the **Now Connected** tab, specify iSCSI name and an iSCSI CA port that is connected to the host to be added. Enter the necessary information for the specified iSCSI. When entering iSCSI manually, select the **Manual Input** tab, and enter the necessary information. Click **Add**, and specify an object iSCSI name from the **iSCSI Host** list.

   c. Specify the host information to add, and then click **Next**.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Add**.

   For Adding SAS Host:

   a. On the Action pane, click **Add SAS Host** under **Host**.
      The information input screen is displayed.

   b. On the **Now Connected** tab, specify SAS address and a SAS CA port that is connected to the host to be added. Enter the necessary information for the specified SAS. When entering SAS manually, select the **Manual Input** tab, and enter the necessary information. Click **Add**, and specify an object SAS address from the **SAS Host** list.

   c. Specify the host information to add, and then click **Next**.
      The information confirmation screen is displayed.

   d. Confirm the information, and then click **Add**.

Note

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Notes for Adding iSCSI Host

- If the iSCSI host is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

- Setting the IP address, iSCSI name, iSCSI alias name, and iSCSI host name of an iSCSI host the same as another iSCSI host may not be allowed. Refer to [Note] in "Connectivity Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

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6.12.7   Change SAS Host

The procedure to change the SAS host is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host**.
   The number of hosts for each port type is displayed on the Main pane.

5. On the Main pane, click the digit of **Number of Hosts** field for the target SAS host.
   The SAS host list is displayed on the Main pane.

6. On the Main pane, check the target SAS host checkbox.

7. On the Action pane, click **Modify SAS Host** under **Host**.
   The information input screen is displayed.

8. Enter the necessary information, and then click **Modify**.

6.12.8   Delete FC/iSCSI/SAS Host

The procedure to delete the FC/iSCSI/SAS host is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host**.
   The number of hosts for each port type is displayed on the Main pane.

5. On the Main pane, click the digit of **Number of Hosts** field for the target host.
   The target host list is displayed on the Main pane.

6. On the Main pane, check the target host checkbox.

7. On the Action pane, click **Delete FC Host**, **Delete iSCSI Host**, or **Delete SAS Host** under **Host**.
   The information input screen is displayed.

6.12.9   Display Affinity/LUN Group

The procedure to display the Affinity/LUN group list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific Affinity/LUN group details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Affinity/LUN Group**.
   The Affinity/LUN group list is displayed on the Main pane.

5. On the Main pane, click the target Affinity/LUN group number.
   The detail of the selected Affinity/LUN group is displayed on the Main pane.

🛑 Note

In an environment where BS2000 is connected to an ETERNUS Disk storage system, the affinity group for BS2000 may not be properly displayed.

6.12.10 Create Affinity/LUN Group

The procedure to create the Affinity/LUN group is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Affinity/LUN Group**.
   The Affinity/LUN group list is displayed on the Main pane.

5. On the Action pane, click **Create** under **Affinity/LUN Group**.
   The information input screen is displayed.

6. Specify **Affinity/LUN Group Setting** and **Define LUN Mapping** items, and then click **Add**.
   Specify **Define LUN Mapping** from either **Specify Volume Range** tab or **Select Volume** tab.
   The volume list is displayed on the **Assigned Volumes**.

7. Click **Next**.
   The information confirmation screen is displayed.

8. Confirm the information, and then click **Create**.

📘 Information

From **Assigned** column of the volume list on **Define LUN Mapping** and **Assigned Volumes** in the above step 6, you can check whether the volume is assigned to other Affinity/LUN group.

Displayed Strings	Explanation
Assigned	Volumes assigned to other Affinity/LUN groups.
No use	Volumes not assigned to other Affinity/LUN groups.

6.12.11 Delete Affinity/LUN Group

The procedure to delete the Affinity/LUN group is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Affinity/LUN Group**.
   The Affinity/LUN group list is displayed on the Main pane.

5. On the Main pane, check the target Affinity/LUN group checkbox.

6. On the Action pane, click **Delete** under **Affinity/LUN Group**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

6.12.12   Change Affinity/LUN Group Settings

The procedure to change the Affinity/LUN group settings is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Affinity/LUN Group**.
   The Affinity/LUN group list is displayed on the Main pane.

5. On the Main pane, check the target Affinity/LUN group checkbox.

6. On the Action pane, click **Modify** under **Affinity/LUN Group**.
   The information input screen is displayed.

7. When adding volumes, specify with either **Specify Volume Range** tab or **Select Volume** tab, and then click **Add**.
   The volumes are added on the **Assigned Volumes**.
   When deleting volumes, check the volume checkbox to delete on the **Assigned Volumes**.

8. Click **Next**.
   The information confirmation screen is displayed.

9. Confirm the information, and then click **Modify**.

Information

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From **Assigned** column of the volume list on **Define LUN Mapping** and **Assigned Volumes** in the above step 7, you can check whether the volume is assigned to other Affinity/LUN group.

Displayed Strings	Explanation
Assigned	Volumes assigned to other Affinity/LUN groups.
No use	Volumes not assigned to other Affinity/LUN groups.

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Note

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In an environment where BS2000 is connected to an ETERNUS Disk storage system, do not change the affinity group for BS2000.

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6.12.13   Display Host Affinity

The procedure to display the Host Affinity list is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host Affinity**.
   The Host Affinity list is displayed on the Main pane.

6.12.14 Create/Delete Host Affinity

The procedure to create/delete the Host Affinity is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **Host Affinity**.
   The Host Affinity list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Creating Host Affinity:

   a. On the Action pane, click **Create** under **Host Affinity**.
      The information input screen is displayed.

   b. Enter the necessary information, and then click **Create**.

   For Deleting Host Affinity:

   a. On the Main pane, check the target Host Affinity checkbox.

   b. On the Action pane, click **Delete** under **Host Affinity**.
      The information confirmation screen is displayed.

   c. Confirm the information, and then click **Delete**.

6.12.15 Display LUN Mapping

The procedure to display the LUN Mapping is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Connectivity**.
   The items of the Category pane change into the items concerning the connectivity.

4. On the Category pane, click **LUN Mapping**.
   The LUN Mapping list is displayed on the Main pane.

6.13 Operations for Storage Device Component

This section describes the operations related to the storage device component.

6.13.1 Display Entire Device Information

The procedure to display entire information of storage device is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The entire device information is displayed on the Main pane.

6.13.2   Display Controller Enclosure Information

The procedure to display the Controller Enclosure information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Controller Enclosure**.
   The Controller Enclosure information is displayed on the Main pane.

6.13.3   Display Drive Enclosure Information

The procedure to display the Drive Enclosure information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Drive Enclosure**.
   The Drive Enclosure list is displayed on the Main pane.

   When selecting Drive Enclosure on the Main pane, the detailed information of selected Drive Enclosure is displayed.

6.13.4   Display Port Information

The procedure to display the storage port information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Ports**.
   The port list is displayed on the Main pane.

6.13.5   Change FC/iSCSI Port Mode

The procedure to change the FC/iSCSI port mode is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Ports**.
   The port list is displayed on the Main pane.

5. On the Main pane, click the target port.

6. On the Main pane, click the target port checkbox.

7. On the Action pane, click **Modify FC Port Mode** or **Modify iSCSI Port Mode** under **Port**.
   The information input screen is displayed.

8. Enter the necessary information, and then click **Modify**.

6.13.6   Display Disk Information

The procedure to display the storage disk information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Disks**.
   The disk list is displayed on the Main pane.

6.13.7   Register Global Hot Spare Disk

The procedure to register the Global Hot Spare disk is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Disks**.
   The disk list is displayed on the Main pane.

5. On the Main pane, check the disk checkbox to register as Global Hot Spare disk, selecting disks which are suitable for the storage device to be used.

6. On the Action pane, click **Assign Global HS** under **Hot Spare**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Assign**.

6.13.8   Register Dedicated Hot Spare Disk

The procedure to register the Dedicated Hot Spare disk is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Disks**.
   The disk list is displayed on the Main pane.

5. On the Main pane, check the disk checkbox to register as Dedicated Hot Spare disk, selecting disks which are suitable for the storage device to be used.

6. On the Action pane, click **Assign Dedicated HS** under **Hot Spare**.
   The information input screen is displayed.

7. RAID Groups are displayed on the **Register RAID Group**. Select a RAID Group radio button, and then click **Assign**.

6.13.9   Release Hot Spare Disk

The procedure to release the Hot Spare disk is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Component**.
   The items of the Category pane change into the items concerning the component.

4. On the Category pane, click **Disks**.
   The disk list is displayed on the Main pane.

5. On the Main pane, check the target disk checkbox.

6. On the Action pane, click **Release** under **Hot Spare**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Release**.

6.14   Operations for Performance Management of Storage Device

This section describes the operations related to performance management of the storage devices.

6.14.1   Display Performance Monitoring Status

The procedure to display the collection status of performance information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Configuration**.
   The collection status of performance information for the selected storage system is displayed on the Main pane.

6.14.2   Start/Change Settings of/Stop Performance Monitoring

The procedure to start/change the settings of/stop the performance monitoring is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Configuration**.

5. Perform the following procedures according to the operation purpose.

   For Starting of Performance Monitoring:

   a. On the Action pane, click **Start** under **Performance**.
      The information input screen is displayed.

b. Enter the necessary information, and then click **Start**.

For Change Settings of Performance Monitoring:

a. On the Action pane, click **Modify** under **Performance**.
The information input screen is displayed.

b. Enter the necessary information, and then click **Modify**.

For Stopping of Performance Monitoring:

a. On the Action pane, click **Stop** under **Performance**.

6.14.3   Display Performance Information Graph

The procedure to display the collected performance information with a graph is as follows:

1. On the global navigation tab, click **Storage**.
The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Charts**.

5. On the Main pane, select the items which you want to display from the **Select Charts Category** pull-down list.

6. Select the objects to display.

7. On the Action pane, click **Performance Chart** under **Charts**.

8. On the Performance Chart window, enter the necessary information, and then click **Plot**.
The performance information is displayed as graphs.

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- To display the Threshold Monitoring graph, only one object must be selected.
When multiple objects are selected on the Main pane (at the above step 6), display the Threshold graph by specifying only one object on the Performance Chart screen.

- If you check the **Display Threshold Monitoring** checkbox, the current threshold value is displayed on the graph.

- The "Peak graph" is a graph where only the maximum values inside successive time intervals are plotted on the vertical axis. If you check the **Peak Graph** checkbox in the Performance Chart window, the Peak graph can be displayed on the graph. The **Peak Graph** checkbox is enabled when "1 Day" or "1 Week" is specified in the Duration.

- To confirm the performance information according to Extreme Cache, select volume or RAID group on **Selected Resources** in the Performance Chart window. In addition, select "Read(Extreme Cache)" or "Read(DRAM + Extreme Cache)" under "Cache Hit Rate" on **Series**.

- To confirm the performance information according to Automated QoS function, select volume on **Selected Resources** in the Performance Chart window. In addition, select "Read + Write" under "Response Time" on **Series**.

- The graph of the target response time is displayed when all the following requirements are met.

  - Only one volume is selected on the Main pane.

  - "Read + Write" under "Response Time" is selected on **Series** in the Performance Chart window.

  - The Automated QoS priority or target response time has been set to the selected volume.

  - The **Display Target Response Time** checkbox is checked.

- When the Automated QoS priority is set, target response time that has been automatically configured will be displayed.

- To confirm the QoS achievement rate (achievement rate for **Target Response Time**), select volume on **Selected Resources** in the Performance Chart window. In addition, select "QoS achievement rate" under "QoS achievement rate" on **Series**.

- The QoS achievement rate is displayed only when the Automated QoS priority or a target response time of other than 0 has been configured.

6.14.4 Export Performance Information

The procedure to export the collected performance information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Charts**.

5. On the Main pane, select the items which you want to display from the **Select Charts Category** pull-down list.

6. Select the objects to display.

7. On the Action pane, click **Performance Chart** under **Charts**.

8. On the Performance Chart window, enter the necessary information, and then click **Download**.

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The "Peak graph" is a graph where only the maximum values inside successive time intervals are plotted on the vertical axis. If you check the **Peak Graph** checkbox in the Performance Chart window, the data of Peak graph can be exported. The **Peak Graph** checkbox is enabled when "1 Day" or "1 Week" is specified in the **Duration**.

6.14.5 Enable/Disable Threshold Monitoring

The procedure to enable/disable the Threshold Monitoring is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The current status is displayed on the Main pane.

5. On the Action pane, click **Enable** or **Disable** under **Monitoring**.

6.14.6 Start/Stop Threshold Monitoring

The procedure to start/stop the Threshold Monitoring is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The current status is displayed on the Main pane.

5. On the Action pane, click **Start Monitoring** or **Stop Monitoring** under **Thresholds Setting**.

6.14.7 Display/Change Threshold Monitoring Common Configuration for All CMs

The procedure to display/change the common configuration of the Threshold Monitoring for all CMs is as follows:
To display it, perform from step 1 to step 5.
To change it, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **CM Configuration**.
   The common configuration of the Threshold Monitoring for all CMs is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Default Setting**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

6.14.8 Set/Change/Delete Threshold Monitoring Configuration for Each CM

The procedure to set/change/delete the configuration of the Threshold Monitoring for each CM is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **CM Configuration**.

6. On the Main pane, click the target of the Threshold Monitoring.
   The list of CMs that the configuration of the Threshold Monitoring is set is displayed on the Main pane.

7. Perform the following procedures according to the operation purpose.

   For Setting Threshold:

   a. On the Action pane, click **Add** under **Individual Setting**.
      The information input screen is displayed.

   b. Enter the necessary information, and check the target CM checkbox. Then, click **Add**.

   For Changing Threshold:

   a. On the Main pane, check the target CM checkbox.

   b. On the Action pane, click **Modify** under **Individual Setting**.
      The information input screen is displayed.

   c. Enter the necessary information, and then click **Modify**.

   For Deleting Threshold:

   a. On the Main pane, check the target CM checkbox.

   b. On the Action pane, click **Delete** under **Individual Setting**.
      The information confirmation screen is displayed.

    c. Confirm the information, and then click **Delete**.

6.14.9 Display/Change Threshold Monitoring Common Configuration for All RAID Groups

The procedure to display/change the common configuration of the Threshold Monitoring for all RAID groups is as follows:
To display it, perform from step 1 to step 5.
To change it, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **RAID Group Configuration**.
   The common configuration of the Threshold Monitoring for all RAID groups is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Default Setting**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

6.14.10 Set/Change/Delete Threshold Monitoring Configuration for Each RAID Group

The procedure to set/change/delete the configuration of the Threshold Monitoring for each RAID group is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **RAID Group Configuration**.

6. On the Main pane, click the target of the Threshold Monitoring.
   The list of RAID groups that the configuration of the Threshold Monitoring is set is displayed on the Main pane.

7. Perform the following procedures according to the operation purpose.

   For Setting Threshold:

       a. On the Action pane, click **Add** under **Individual Setting**.
          The information input screen is displayed.

       b. Enter the necessary information, and check the target RAID group checkbox. Then, click **Add**.

   For Changing Threshold:

       a. On the Main pane, check the target RAID group checkbox.

       b. On the Action pane, click **Modify** under **Individual Setting**.
          The information input screen is displayed.

       c. Enter the necessary information, and then click **Modify**.

For Deleting Threshold:

    a. On the Main pane, check the target RAID group checkbox.

    b. On the Action pane, click **Delete** under **Individual Setting**.
The information confirmation screen is displayed.

    c. Confirm the information, and then click **Delete**.

6.14.11 Display/Change Threshold Monitoring Common Configuration for All Volumes

The procedure to display/change the common configuration of the Threshold Monitoring for all volumes is as follows:
To display it, perform from step 1 to step 5.
To change it, perform all steps.

1. On the global navigation tab, click **Storage**.
The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Volume Configuration**.
The common configuration of the Threshold Monitoring for all volumes is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Default Setting**.
The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

6.14.12 Set/Change/Delete Threshold Monitoring Configuration for Each Volume

The procedure to set/change/delete the configuration of the Threshold Monitoring for each volume is as follows:

1. On the global navigation tab, click **Storage**.
The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Volume Configuration**.

6. On the Main pane, click the target of the Threshold Monitoring.
The list of volumes that the configuration of the Threshold Monitoring is set is displayed on the Main pane.

7. Perform the following procedures according to the operation purpose.

For Setting Threshold:

    a. On the Action pane, click **Add** under **Individual Setting**.
The information input screen is displayed.

    b. Enter the necessary information, and check the target volume checkbox. Then, click **Add**.

For Changing Threshold:

    a. On the Main pane, check the target volume checkbox.

b. On the Action pane, click **Modify** under **Individual Setting**.
The information input screen is displayed.

c. Enter the necessary information, and then click **Modify**.

For Deleting Threshold:

a. On the Main pane, check the target volume checkbox.

b. On the Action pane, click **Delete** under **Individual Setting**.
The information confirmation screen is displayed.

c. Confirm the information, and then click **Delete**.

6.14.13 Set Threshold Monitoring Time

There are the following items about the Threshold Monitoring time.

- Start Time of the Threshold Monitoring

- Stop Time of the Threshold Monitoring

- Start Time of the Alarm Display

- Stop Time of the Alarm Display

- Frequency of the Alarm Display

The procedure to set the Threshold Monitoring time is as follows:

1. On the global navigation tab, click **Storage**.
The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Performance**.
The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Time Setting**.
The current status is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Time Setting**.
The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

6.15 Operations for Automated Storage Tiering

This section describes the operation methods related to Automated Storage Tiering.

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The following firmwares are necessary to use Automated Storage Tiering. In addition, the Flexible Tier function of the storage device should be enabled.

Storage Device	Required Firmware Version
ETERNUS DX80 S2/DX90 S2 ETERNUS DX400 S2 series ETERNUS DX8000 S2 series	V10L54 or later

Storage Device	Required Firmware Version
ETERNUS DX100 S3/DX200 S3 ETERNUS DX500 S3/DX600 S3	V10L13 or later

6.15.1 Enable/Disable Automated Storage Tiering

The procedure to enable/disable Automated Storage Tiering of the storage device is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Setting**.
   The current status of Automated Storage Tiering is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Enabling Feature:

   > On the Action pane, click **On** under **Setting**.

   For Disabling Feature:

   > On the Action pane, click **Off** under **Setting**.

![Note icon] Note

- The **On** can be clicked only when the **Automated Storage Tiering Status** displayed in the Main pane in step 4 is "Off".
  The **Off** can be clicked only when the **Automated Storage Tiering Status** is "On".

- When enabling Automated Storage Tiering, working volumes automatically created by the storage device are required. The working volume is a save volume used when the relocation is performed, it is not displayed in the Web Console screen. When the storage device cannot create the required working volumes, Automated Storage Tiering cannot be enabled. The number of working volumes required for each storage device model is as follows.

  - ETERNUS DX80 S2/DX90 S2, DX100 S3/DX200 S3: 32

  - ETERNUS DX400 S2 series, DX500 S3/DX600 S3, DX8000 S2 series: 64

- To disable Automated Storage Tiering, it is necessary to delete all Flexible Tier Pools (FTRPs).

6.15.2 Create Tiering Policy

The procedure to create a Tiering policy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tiering Policies**.
   The registered Tiering policies are displayed on the Main pane.

5. On the Action pane, click **Create** under **Tiering Policies**.
   The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Create**.

Item Name	Explanation
Policy Name	Specify a name (that is unique within the ETERNUS SF system) for the Tiering policy that is being created. Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.

Execution Mode	Specify the execution mode which specifies the method for operation of Automated Storage Tiering.
	The three following execution modes may be selected. The default setting is "Auto".
	
	- Auto
	
	  The performance data for Automated Storage Tiering is collected and evaluated, and the volume relocation is executed automatically.
	
	- Semi-Auto
	
	  The performance data for Automated Storage Tiering is collected and evaluated. It is necessary to manually perform the volume relocation.
	
	- Manual
	
	  The performance data for Automated Storage Tiering is collected. It is necessary to evaluate the performance data and perform the volume relocation both manually.

Evaluation Period	Specify the evaluation range of the performance data for Automated Storage Tiering. Select a number and a unit ("Hour", "Day", or "Week"). The default setting is "1 Day". When the unit is "Hour", 2, 4, 6, 8, or 12 may be specified. The starting point of the evaluation period varies depending on the setting of **Execution Mode**. If **Execution Mode** is "Auto" or "Semi-Auto", the starting point of the evaluation period is 0:00. For example, if "6 Hour" is specified, the evaluation will be conducted from 0:00-6:00, 6:00-12:00, 12:00-18:00, and 18:00-24:00. If **Execution Mode** is "Manual", the starting point of the evaluation period is the time when an evaluation of the access status for the Tier pool has been executed. For example, if "6Hour" is selected and an evaluation of the access status for the Tier pool was executed at 9:00, the evaluation will be done at 3:00-9:00. When the selected unit is "Day", a value within the range of 1 through 31 may be specified. When the selected unit is "Week", 1 may be specified.

Evaluation Standard	Specify the standards for the evaluation of the performance for Automated Storage Tiering. From the pull-down list, select either of the following.
	
	- Peak
	
	  From within the evaluation period, the evaluation will be performed with the maximum peak value of the performance data (IOPS value) for Automated Storage Tiering.
	
	- Average
	
	  From within the evaluation period, the evaluation will be performed with the average of the performance data (IOPS value) for Automated Storage Tiering.

Automated Storage Tiering Execution Time	Specify the time, within the range of 0:00-23:59, to start collection, evaluation, and relocation of performance data for Automate Storage Tiering. This can be specified only when **Execution Mode** is set to "Auto" or "Semi-Auto" and the unit of **Evaluation Period** is set to "Day" or "Week". When the unit of **Evaluation Period** is set to "Hour", the process will be executed at the time after the specified number of hours (2, 4, 6, 8, or 12 hours) has elapsed from 0:00.

Item Name	Explanation
Automated Storage Tiering Time Limit	Specify the time to discontinue the volume relocation as elapsed time from the time specified in **Automated Storage Tiering Execution Time**. The default setting is "no limit" (process will not be discontinued). When the unit of **Evaluation Period** is "Day" or "Week", a value from 00 through 24 may be specified. When the unit of **Evaluation Period** is "Hour", a value from 00 up to the value specified with **Evaluation Period** may be specified.
Evaluation Day	Specify the day of the week to start evaluation of the access status data. The default setting is "None" (start evaluation at **Automated Storage Tiering Execution Time** after the **Evaluation Period** has elapsed from the completion of the operation to start Automated Storage Tiering). This can be specified only when **Execution Mode** is set to "Auto" or "Semi-Auto" and the unit of **Evaluation Period** is set to "Week". When the **Evaluated from initial specified day (Evaluated despite insufficient Evaluation Period)** checkbox is checked, even if the evaluation period is insufficient, an evaluation will be performed using access status data that exists by the specified day of the week for the first time. Check this checkbox when it is desirable to immediately start operation of Automated Storage Tiering. The default setting for this checkbox is not checked (recommended). When this checkbox is not checked, an evaluation will not be performed on the specified day of the week for the first time, and from the next specified day of the week, evaluations will always be performed using access status data for the evaluation period.
Days of the Week subject to Evaluation	Upon execution of relocation, specify the day of the week to collect performance data for Automated Storage Tiering that will be subject to evaluation. This can be specified only when the unit of **Evaluation Period** is set to "Day" or "Week". In the default setting, all days of the week are subject to evaluation. The days of the week that are checked off will be excluded from being subject to evaluation.
Time of the Day subject to Evaluation	Specify the time of the day to collect and evaluate performance data for Automated Storage Tiering. This can be specified only when the unit of **Evaluation Period** is set to "Day" or "Week". The default setting is "24 Hours" (the 24 hours from 0:00 to 0:00). For both the starting time and the ending time of evaluation, a value from 0:00 to 23:00 may be specified.
Configure Evaluation Excluded Day	Specify the day, with a calendar, to be subject to evaluation of performance data for Automated Storage Tiering. This can be specified only when the unit of **Evaluation Period** is set to "Day" or "Week". In the default setting, the **Enable** checkbox is checked on. While in this state, the date to be subject to evaluation may be specified with the calendar that is displayed by clicking **Edit Evaluation Excluded Day**. When the **Enable** checkbox is checked off, the configure of evaluation excluded day will become void.
Data Type	Select "IOPS" from the pull-down list. As performance data for Automated Storage Tiering, the number of process per second for Read/Write will be used.
Data Range of Layer	Specify whether to manually configure the data range of each layer or to have the system automatically configure this. In the default setting, the **Automatic Configuration** checkbox is checked on. When set to automatic configuration, **Data Range of Low**, **Data Range of Middle**, and **Data Range of High** cannot be specified. The system will automatically decide relocation standards.

Item Name	Explanation
	When the **Automatic Configuration** checkbox is checked off, the date range for each layer can be manually configured.
Data Range of Low	Specify the range of the IOPS values to use as standards for location to the Low sub-pool of the Tier pool. For this item, specify a maximum value. It is also possible to input a decimal value. The minimum value is fixed at "0", and a "-" will be displayed in the Main pane of the Tiering policy. When this specification has been omitted, a "-:-" will be displayed in the Main pane of the Tiering policy.
Data Range of Middle	Specify the range of the IOPS values to use as standards for location to the Middle sub-pool of the Tier pool. For this item, specify a minimum value and a maximum value. It is also possible to input a decimal value. When this specification has been omitted, a "-:-" will be displayed in the Main pane of the Tiering policy.
Data Range of High	Specify the range of the IOPS values to use as standards for location to the High sub-pool of the Tier pool. For this item, specify a minimum value. It is also possible to input a decimal value. The maximum value is fixed at "2147483647", and a "-" will be displayed in the Main pane of the Tiering policies. When this specification has been omitted, a "-:-" will be displayed in the Main pane of the Tiering policy.

Point

- When operating with 2 layers, it is necessary to either specify both the 2 fields of **Data Range of Low** and **Data Range of High**, or omit the specification for both of these.

- When operating with 3 layers, it is necessary to either specify all 3 fields of **Data Range of Low**, **Data Range of Middle**, and **Data Range of High**, or omit the specification for all of these.

Information

Tiering policies can be created by specifying only **Policy Name**. In such case, the following values will be configured for the other items.

- Execution Mode: Auto

- Evaluation Period: 1day

- Evaluation Standard: Peak

- Automated Storage Tiering Execution Time: 00:00

- Automated Storage Tiering Time Limit: No Limit

- Days of the Week subject to Evaluation: Su/Mo/Tu/We/Th/Fr/Sa (All days)

- Time of the Day subject to Evaluation: 24Hours

- Configure Evaluation Excluded Day: Enable

- Data Type: IOPS

- Data Range of Layer: The **Automatic Configuration** checkbox is checked on. (It is set automatically)

- Data Range of Low: (Not set)

- Data Range of Middle: (Not set)

- Data Range of High: (Not set)

6.15.3 Display Tiering Policy

The procedure to display the registered Tiering policy list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific Tiering policy details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tiering Policies**.
   The registered Tiering policies are displayed on the Main pane.

5. On the Main pane, click the target Tiering policy.
   The detail of the selected Tiering policy is displayed on the Main pane.

6.15.4 Change Tiering Policy

The procedure to change configuration of the registered Tiering policy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tiering Policies**.
   The registered Tiering policies are displayed on the Main pane.

5. On the Main pane, check the target Tiering policy checkbox.
   Only one Tiering policy can be selected.

6. On the Action pane, click **Modify** under **Tiering Policies**.
   The information input screen is displayed.

7. Refer to the table of step 6 of "6.15.2 Create Tiering Policy" to enter the necessary information, and then click **Modify**.

Note

The **Policy Name** is cannot be changed.

6.15.5 Delete Tiering Policy

The procedure to delete the registered Tiering policy is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tiering Policies**.
The registered Tiering policies are displayed on the Main pane.

5. On the Main pane, check the target Tiering policy checkbox.
Only one Tiering policy can be selected.

6. On the Action pane, click **Delete** under **Tiering Policies**.
The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

Note
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The Tiering policy that is currently assigned to any Tier pool cannot be deleted.
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6.15.6 Create One Layer Tier Pool

The procedure to create a Tier pool of one layer is as follows:

1. On the global navigation tab, click **Storage**.
The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
The registered Tier pools are displayed on the Main pane.

5. On the Action pane, click **Create(One Layer)** under **Tier Pool**.
The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Next**.

Item Name	Explanation
Tier Pool Name	This is a name of the Tier pool to be created. This name must be unique across all the ETERNUS Disk storage system registered in Storage Cruiser. Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Warning Threshold of Pool	To monitor the available capacity of the Tier pool, specify a threshold (%) of the usage rate of the Tier pool as a decimal figure in the range of 5-99. The default setting is "90". Specify a value that is greater than **Caution Threshold of Pool**. When this threshold is exceeded, a warning will be notified by the SNMP Trap.
Caution Threshold of Pool	To monitor the available capacity of the Tier pool, specify a threshold (%) of the usage rate of the Tier pool as 0 or as a decimal figure in the range of 5-80. The default setting is "75". Specify a value that is less than **Warning Threshold of Pool**. When this threshold is exceeded, a caution will be notified by the SNMP Trap. When "0" is specified or the **Set no Caution Threshold of pool** checkbox is checked on, the value of this item will be disabled.
Encryption Status	Specify whether to make the Tier pool being created an encrypted Tier pool. The default setting is "No" (do not encrypt). When setting this as an encrypted Tier pool, select "Yes".

Item Name	Explanation
Specify Assigned CM	As needed, specify the CM which takes charge of the Tier pool being created.
	In the default setting, a checkbox is not checked (a CM in charge is not specified).
	To specify a CM which takes charge of the Tier pool, check the checkbox. All of the CMs present on the storage device will be displayed, make a selection from these.
Disk Selection	Specify the method for the selection of disks that configure the sub-pool. The default setting is "Auto" (automatic selection).
	When "Auto" is selected, in the screen to configure the sub-pool, it is necessary to specify a minimum required capacity for the sub-pool.
	When "Manual" is selected, in the screen to configure the sub-pool, it is necessary to specify the disks that will configure the sub-pool.

7. The screen to configure the sub-pool is displayed.
   Refer to the following table to enter the necessary information, and then click **Next**.

   - If "Auto" is selected for **Disk Selection** in step 6:

Item Name	Explanation
FTSP Name	Specify a name (that is unique within the ETERNUS SF system) for the sub-pool.
	Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Disk Type	Specify the type of disk that will configure the sub-pool.
	Make a selection from the disk types (Online, Nearline, SSD, SED-SAS) that are displayed in the pull-down list.
Reliability	Specify the RAID level of the sub-pool. Make a selection from one of the following that are displayed in the pull-down list.
	- High Performance(RAID1+0)
	- High Capacity(RAID5)
	- High Reliability(RAID6)
	- Mirroring(RAID1)
	- Striping(RAID0)
Minimum Required Capacity	Specify the capacity required at a minimum for the sub-pool. A capacity of 1MB or more may be specified. It is also possible to input a decimal value.
Specify Assigned CM	Only when a CM in charge has been specified in step 6, as needed, specify the CM which takes charge of the RAID group configuring the sub-pool.
	In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool.
	To specify a CM in charge, check the checkbox. All of the CMs specified in step 6 will be displayed, make a selection from these. Up to 2 CMs may be specified.

   - If "Manual" is selected for **Disk Selection** in step 6:

Item Name	Explanation
FTSP Name	Specify a name (that is unique within the ETERNUS SF system) for the sub-pool.

Item Name	Explanation
	Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Disk Type	Specify the type of disk that will configure the sub-pool.
	Make a selection from the disk types (Online, Nearline, SSD, SED-SAS) that are displayed in the pull-down list.
Reliability	Specify the RAID level of the sub-pool. Make a selection from one of the following that are displayed in the pull-down list. - High Performance(RAID1+0) - High Capacity(RAID5) - High Reliability(RAID6) - Mirroring(RAID1) - Striping(RAID0)
Selection Disks	Specify the disk of the RAID group that will configure the sub-pool. The number of disks required will differ depending on the reliability of the RAID group.
Stripe Depth	Specify the size (KB) per disk in 1 stripe of the RAID group configuring the sub-pool. The default setting is "64". The stripe depth that can be specified depends on **Reliability** and the number of disks of the RAID group. - High Performance(RAID1+0): 64/128/256/512/1024 - High Capacity(RAID5) (from 2D+1P to 4D+1P): 64/128/256/512 - High Capacity(RAID5) (from 5D+1P to 8D+1P): 64/128/256 - High Capacity(RAID5) (from 9D+1P to 15D+1P): 64/128 - High Reliability(RAID6): 64 - Mirroring(RAID1): Cannot be specified - Striping(RAID0): 64/128/256/512/1024
Specify Assigned CM	Only when a CM in charge has been specified in step 6, as needed, specify the CM which takes charge of the RAID group configuring the sub-pool. In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool. To specify a CM in charge, check the checkbox. All of the CMs specified in step 6 will be displayed, make a selection from these. Only one CM can be specified.

8. The information confirmation screen is displayed. Confirm the information, and then click **Create**.

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Even if "SED-SAS" is selected in **Disk Type**, the **Encryption Status** does not automatically switch to "Yes". When switching Tier pool to encrypted Tier pool, it is required to set the **Encryption Status** to "Yes", regardless of **Disk Type**. FTV for which Encryption is displayed as "Yes" on the Volume Overview screen is only the FTV created in the encrypted Tier pool.
....

6.15.7 Create Tier Pool

The procedure to create a Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Action pane, click **Create** under **Tier Pool**.
   The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Next**.

Item Name	Explanation
Tier Pool Name	This is a name of the Tier pool to be created. This name must be unique across all the ETERNUS Disk storage system registered in Storage Cruiser. Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Policy Name	Specify the Tiering policy to associate with the Tier pool that is being created. Make a selection from the Tiering policies that have been defined and are displayed in the pull-down list.
Warning Threshold of Pool	To monitor the available capacity of the Tier pool, specify a threshold (%) of the usage rate of the Tier pool as a decimal figure in the range of 5-99. The default setting is "90". Specify a value that is greater than **Caution Threshold of Pool**. When this threshold is exceeded, a warning will be notified by the SNMP Trap.
Caution Threshold of Pool	To monitor the available capacity of the Tier pool, specify a threshold (%) of the usage rate of the Tier pool as 0 or as a decimal figure in the range of 5-80. The default setting is "75". Specify a value that is less than **Warning Threshold of Pool**. When this threshold is exceeded, a caution will be notified by the SNMP Trap. When "0" is specified or the **Set no Caution Threshold of pool** checkbox is checked on, the value of this item will be disabled.
Encryption Status	Specify whether to make the Tier pool being created an encrypted Tier pool. The default setting is "No" (do not encrypt). When setting this as an encrypted Tier pool, select "Yes".
Specify Assigned CM	As needed, specify the CM which takes charge of the Tier pool being created. In the default setting, a checkbox is not checked (a CM in charge is not specified). To specify a CM which takes charge of the Tier pool, check the checkbox. All of the CMs present on the storage device will be displayed, make a selection from these.
Number of Layers	Specify the number of layers of the Tier pool that is being created. 2 or 3 may be selected. The default setting is "2".
Disk Selection	Specify the method for the selection of disks that configure the sub-pool. The default setting is "Auto" (automatic selection).

Item Name	Explanation
	When "Auto" is selected, in the screen to configure the Low sub-pool, Middle sub-pool, and High sub-pool, it is necessary to specify a minimum required capacity for each of the sub-pools.
	When "Manual" is selected, in the screen to configure the Low sub-pool, Middle sub-pool, and High sub-pool, it is necessary to specify the disks that will configure each of the sub-pools.

7. The screen to configure the Low sub-pool is displayed.
   Refer to the following table to enter the necessary information, and then click **Next**.

   - If "Auto" is selected for **Disk Selection** in step 6:

Item Name	Explanation
FTSP Name	Specify a name (that is unique within the ETERNUS SF system) for the sub-pool.
	Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Disk Type	Specify the type of disk that will configure the sub-pool.
	Make a selection from the disk types (Online, Nearline, SSD, SED-SAS) that are displayed in the pull-down list.
Reliability	Specify the RAID level of the sub-pool. Make a selection from one of the following that are displayed in the pull-down list.
	- High Performance(RAID1+0)
	- High Capacity(RAID5)
	- High Reliability(RAID6)
	- Mirroring(RAID1)
	- Striping(RAID0)
Minimum Required Capacity	Specify the capacity required at a minimum for the sub-pool. A capacity of 1MB or more may be specified. It is also possible to input a decimal value.
Specify Assigned CM	Only when a CM in charge has been specified in step 6, as needed, specify the CM which takes charge of the RAID group configuring the sub-pool.
	In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool.
	To specify a CM in charge, check the checkbox. All of the CMs specified in step 6 will be displayed, make a selection from these. Up to 2 CMs may be specified.

   - If "Manual" is selected for **Disk Selection** in step 6:

Item Name	Explanation
FTSP Name	Specify a name (that is unique within the ETERNUS SF system) for the sub-pool.
	Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Disk Type	Specify the type of disk that will configure the sub-pool.
	Make a selection from the disk types (Online, Nearline, SSD, SED-SAS) that are displayed in the pull-down list.

Item Name	Explanation
Reliability	Specify the RAID level of the sub-pool. Make a selection from one of the following that are displayed in the pull-down list. - High Performance(RAID1+0) - High Capacity(RAID5) - High Reliability(RAID6) - Mirroring(RAID1) - Striping(RAID0)
Selection Disks	Specify the disk of the RAID group that will configure the sub-pool. The number of disks required will differ depending on the reliability of the RAID group.
Stripe Depth	Specify the size (KB) per disk in 1 stripe of the RAID group configuring the sub-pool. The default setting is "64". The stripe depth that can be specified depends on **Reliability** and the number of disks of the RAID group. - High Performance(RAID1+0): 64/128/256/512/1024 - High Capacity(RAID5) (from 2D+1P to 4D+1P): 64/128/256/512 - High Capacity(RAID5) (from 5D+1P to 8D+1P): 64/128/256 - High Capacity(RAID5) (from 9D+1P to 15D+1P): 64/128 - High Reliability(RAID6): 64 - Mirroring(RAID1): Cannot be specified - Striping(RAID0): 64/128/256/512/1024
Specify Assigned CM	Only when a CM in charge has been specified in step 6, as needed, specify the CM which takes charge of the RAID group configuring the sub-pool. In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool. To specify a CM in charge, check the checkbox. All of the CMs specified in step 6 will be displayed, make a selection from these. Only one CM can be specified.

8. The screen to configure the Middle sub-pool is displayed.
   If "2" is selected for **Number of Layers** in step 6, the Middle sub-pool cannot be created. Click **Next** to go to next step.
   If "3" is selected for **Number of Layers** in step 6, refer to the table of step 7 to enter the necessary information, and then click **Next**.

9. The screen to configure the High sub-pool is displayed.
   Refer to the table of step 7 to enter the necessary information, and then click **Next**.

10. The information confirmation screen is displayed. Confirm the information, and then click **Create**.

📝 Note
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Even if "SED-SAS" is selected in **Disk Type**, the **Encryption Status** does not automatically switch to "Yes". When switching Tier pool to encrypted Tier pool, it is required to set the **Encryption Status** to "Yes", regardless of **Disk Type**. FTV for which Encryption is displayed as "Yes" on the Volume Overview screen is only the FTV created in the encrypted Tier pool.
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6.15.8   Display Tier Pool

The procedure to display the registered Tier pool list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific Tier pool details, perform all steps.

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
    The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
    The registered Tier pools are displayed on the Main pane.

5. On the Main pane, click the target Tier pool.
    The detail of the selected Tier pool is displayed on the Main pane.

    If you select **History** tab, the relocation history is displayed.

6.15.9   Display Capacity Graph of Tier Pool

The procedure to display the capacity graph of the Tier pool created in ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
    The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
    The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.
    Only one Tier pool can be selected

6. On the Action pane, click **Capacity Chart** under **Charts**.

7. On the Capacity Chart window, enter the necessary information, and then click **Plot**.
    The capacity information is displayed as graph.

🅟 Point
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-   The total capacity and used capacity of the specified Tier pool are displayed as graphs.

-   The Tier pool that can be displayed in one Capacity Chart window is only one.

-   When "1 Month" is specified in the Duration, the data of every one day is plotted from present to 1 month ago (for 31 days).
    When "1 Year" or "10 Years" is specified in the Duration, the data of every one month is plotted for one year or ten years.

-   The threshold value is not displayed in the Capacity Chart window.

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6.15.10   Start/Stop Automated Storage Tiering for Tier Pool

The procedure to start/stop Automated Storage Tiering for the specific Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.

6. Perform the following procedures according to the operation purpose.

   For Starting of Automated Storage Tiering:

       On the Action pane, click **Start** under **Automated Storage Tiering**.

   For Stopping of Automated Storage Tiering:

       On the Action pane, click **Stop** under **Automated Storage Tiering**.

Note
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If **Execution Mode** of the Tiering policy is "Auto" or "Semi-Auto", and the Automated Storage Tiering for a particular Tier pool is stopped and restarted, the collected performance data is discarded with respect to the Tier pool and new performance data starts to be collected. The evaluation period is counted from when the Automated Storage Tiering starts.

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6.15.11   Change Tier Pool

The procedure to change configuration of the registered Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.
   Only one Tier pool can be selected.

6. On the Action pane, click **Modify** under **Tier Pool**.
   The information input screen is displayed.

7. Perform the following procedures according to the operation purpose.

   For Switching Layer of Sub-pools:

       Specify new Tier layer from the pull-down list of **FTSP Number** in Sub-Pool Information.

   For Changing Sub-pool Name:

       Enter new name to **FTSP Name** text box in Sub-Pool Information.

   For Changing Tiering Policy:

       Specify new Tiering policy from the pull-down list of **Policy Name**.

Note
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- The FTSP name cannot be changed.

- Two or more sub-pools cannot be set for the same Tier layer.

- For the one layer Tier pool, **Warning Threshold of Pool**, **Caution Threshold of Pool**, and **FTSP Name** can be changed.

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6.15.12 Change Number of Layers of Tier Pool

The procedure to change number of layers of the registered Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.
   Only one Tier pool can be selected.

6. On the Action pane, click **Modify Layer** under **Tier Pool**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Next**.

Item Name	Explanation
Policy Name	Specify the Tiering policy to associate with the Tier pool. Make a selection from the Tiering policies that have been defined and are displayed in the pull-down list. The Tiering policies that cannot be applied to the Tier pool configuration after the change are not displayed.
Assigned CM	Only when a CM in charge has been specified at the time of the Tier pool creation, the CM in charge can be added. As needed, specify the CM which takes charge of the Tier pool being created. In the default setting, a checkbox is not checked (a CM in charge is not specified). To specify a CM which takes charge of the Tier pool, check the checkbox. All of the CMs present on the storage device will be displayed, make a selection from these.
Number of Layers	Specify the number of layers of the Tier pool. Only an increase is possible.
Disk Selection	Specify the method for the selection of disks that configure the sub-pool. The default setting is "Auto" (automatic selection). When "Auto" is selected, in the screen to configure the Low sub-pool and Middle sub-pool, it is necessary to specify a minimum required capacity for each of the sub-pools. When "Manual" is selected, in the screen to configure the Low sub-pool and Middle sub-pool, it is necessary to specify the disks that will configure each of the sub-pools.

8. The screen to configure the sub-pool is displayed.
   Refer to the table of step 7 of "6.15.7 Create Tier Pool" to enter the necessary information for the added sub-pool, and then click **Next**.

9. The information confirmation screen is displayed. Confirm the information, and then click **Modify**.

6.15.13 Expand Capacity of Sub-Pool in Tier Pool

The procedure to expand the sub-pool capacity of the Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, click the target Tier pool.
   The details of the selected Tier pool is displayed on the Main pane

6. On the Main pane, select **Sub-Pool** tab.
   The sub-pool information is displayed on the Main pane.

7. On the Main pane, check the target sub-pool radio button.

8. On the Action pane, click **Expand Sub-Pool Capacity** under **Sub-Pool**.
   The information confirmation screen for the target Tier pool is displayed. Only the following items can be changed though the current configuration is displayed on this screen.

Item Name	Explanation
Assigned CM	Only for the Tier pool that the CM in charge has been specified, a CM in charge can be added.
	In the default setting, a checkbox is not checked (a CM in charge is not added).
	To add a CM which takes charge of the Tier pool, check off the checkbox.
Disk Selection	Specify the method for the selection of disks that configure the sub-pool. The default setting is "Auto" (automatic selection).
	When "Auto" is selected, in the screen to configure the sub-pool, it is necessary to specify a minimum required capacity for the sub-pool.
	When "Manual" is selected, in the screen to configure the sub-pool, it is necessary to specify the disks that will configure the sub-pool.

9. Enter the necessary information, and then click **Next**.
   The sub-pool information input screen is displayed.

10. Refer to the following table to enter the necessary information, and then click **Next**.

    - If "Auto" is selected for **Disk Selection** in step 8:

Item Name	Explanation
FTSP Name	Specify a name for the sub-pool that the capacity is being expanded.
	In the default setting, the name of the target sub-pool is displayed. However, its name can be changed.
	When change the name, specify a name that is unique within the storage device. Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Minimum Required Capacity	Specify the capacity required at a minimum for the sub-pool. A capacity of 1MB or more may be specified. It is also possible to input a decimal value.
Specify Assigned CM	As needed, specify the CM which takes charge of the RAID group configuring the sub-pool.
	In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool.
	To specify a CM in charge, check the checkbox.

    - If "Manual" is selected for **Disk Selection** in step 8:

Item Name	Explanation
FTSP Name	Specify a name for the sub-pool that the capacity is being expanded. In the default setting, the name of the target sub-pool is displayed. However, its name can be changed. When change the name, specify a name that is unique within the storage device. Any alphanumeric character (1-16 characters), a hyphen (-), an underscore (_), and a pound symbol (#) may be specified. The letters to be specified are not case sensitive.
Selection Disks	Specify the disk of the RAID group that will configure the sub-pool. The number of disks required will differ depending on the reliability of the RAID group.
Specify Assigned CM	As needed, specify the CM which takes charge of the RAID group configuring the sub-pool. In the default setting, a checkbox is not checked (a CM in charge is not specified). Any CM in charge can be configured from the CM in charge specified to the Tier pool. To specify a CM in charge, check the checkbox.

11. The information confirmation screen is displayed. Confirm the information, and then click **Expand**.

6.15.14　Delete Tier Pool

The procedure to delete the registered Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.
   Two or more Tier pools can be selected.

6. On the Action pane, click **Delete** under **Tier Pool**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

📒 Note
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The following Tier pools cannot be deleted.

- Tier pools on which any FTV is present

- Tier pools in which Automated Storage Tiering has already been started

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6.15.15　Evaluate Access Status Data for Tier Pool

The procedure to evaluate the access status of the registered Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **Tier Pool**.
   The registered Tier pools are displayed on the Main pane.

5. On the Main pane, check the target Tier pool checkbox.
   Only one Tier pool can be selected.

6. On the Action pane, click **Evaluation** under **Automated Storage Tiering**.

6.15.16   Register Tier Pool

The procedure to register the Flexible Tier Pool (FTRP) created in the storage device as the Tier pool is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.

4. On the Action pane, click **Status Update** under **Automated Storage Tiering**.
   If you click **Tier Pool** on the Category pane after completing the Status Update processing, the target FTRP is displayed on the Main pane.

6.15.17   Create FTV

The procedure to create an FTV is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Action pane, click **Create** under **FTV**.
   The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Create**.

Item Name	Explanation
Tier Pool Name	Specify the name of the Tier pool in which to create the FTV.
FTV Name	Specify a volume name (that will be unique within the storage device) for the FTV to create. Any alphanumeric character (1-16 characters), except for a period (.), a question mark (?), single quote ('), or double quote (") may be specified. The letters to be specified are not case sensitive.
Total Capacity	Specify the volume capacity of the FTV that is to be created. The units that may be specified are MB (megabytes), GB (gigabytes), or TB (terabytes).
Number of Volumes	Specify the number of volumes of the FTV that is to be created. When multiple volumes are created, the volumes will be assigned a name that adds "_x" (x is a consecutive number from 0) to the volume name specified with **FTV Name**.
Caution Threshold of FTV	Specify the threshold value, as a ratio of the used capacity. A set standard of this item is as follows: - For ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3:

Item Name	Explanation

	`[Total capacity of FTV] * [Caution threshold] < [Used capacity of FTV]`
	
	Specifies a threshold (%) for the storage device to report a host sense. Specify a decimal value in the range of 1-100.
	If specification is omitted, 80% that is the recommended value of the storage device is set.
	
	- For ETERNUS Disk storage systems other than those listed above:
	
	`[Free capacity of FTV] * [Caution threshold] > [Free capacity of Tier pool]`
	
	Specifies a threshold (%) for **Alarm Status** of FTV information to be changed. Specify a decimal value in the range of 1-200.
	If specification is omitted, 10% that is the recommended value of the storage device is set.
	Note that the free capacity of FTV is a value of the total capacity of FTV subtracted by usage.
	
	If the ratio of usage reaches the caution threshold that has been set, **Alarm Status** below turns "Caution".
	
	- **Alarm Status** of the **Volume** tab screen in details of the Tier pool
	
	- **Alarm Status** of the **Basic** tab screen in details of FTV

Priority FTSP	When newly assigning data, specify which sub-pool of the Tier pool to assign the data to in a prioritized manner. When the data is not assigned to the specified sub-pool, the data will be assigned to a different sub-pool. If omitted, the data will be assigned in the following order. (1) Sub-pool that configured with Online disks (2) Sub-pool that configured with Nearline disks (3) Sub-pool that configured with SSDs In the case of creating an FTV of one layer Tier pool, the processing after the Tier pool is changed from one layer to two or three layers can be specified beforehand. If continue to use the one layer Tier pool, the specification is not required.
Low Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the Low sub-pool upon relocation within an integer from 0-100. (*1) If specify **Low Quota Share**, **Middle Quota Share**, and **High Quota Share**, it is necessary to specify values so that the sum of these values is 100%. If omitted, the relocation will be performed based on the Tiering policy.
Middle Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the Middle sub-pool upon relocation within an integer from 0-100. (*1) If specify **Low Quota Share**, **Middle Quota Share**, and **High Quota Share**, it is necessary to specify values so that the sum of these values is 100%. If omitted, the relocation will be performed based on the Tiering policy.
High Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the High sub-pool upon relocation within an integer from 0-100. (*1) If specify **Low Quota Share**, **Middle Quota Share**, and **High Quota Share**, it is necessary to specify values so that the sum of these values is 100%.

Item Name	Explanation
	If omitted, the relocation will be performed based on the Tiering policy.
Automated QoS:Enable/Disable	Select whether to make the volume being created subject to adjustments of the Automated QoS. The default setting is "Disable". If select "Enable", **Automated QoS:Priority**, **Target Response Time**, or **Automated QoS:Tier Control** can be specified. If select "Enable" and not specify **Automated QoS:Priority** or **Target Response Time**, the device will be affected by the adjustments by the Automated QoS function of the other volumes to which those items are specified. The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Priority	Specify the Automated QoS priority. Simply by specifying "Low", "Middle", or "High" to the volume used by the user, automatic tuning will be performed in accordance with the current load. When "Unlimited" has been selected, this will be of the topmost priority and of the volumes sharing the same resources, performance will be the highest. When "No Set" is selected, there is no priority and therefore adjustments will be made to slow down performance in order to prevent the other volumes to which priority levels and target response times have been set from being affected. The value of this item is only enabled when using the Automated QoS function.
Target Response Time	As an integer from 0-10000, specify the target value (millisecond) of the response time of the volume the user will be using. When "0" has been specified, the bandwidth of the volume concerned will be unlimited. Although a space may be entered, when a space is entered, a target response time will not be configured for that volume. Accordingly, the response time will depend on the configured values for the target response times of the other volumes, and may become faster or slower. The target response time is specified for each volume. Furthermore, **Automated QoS:Priority** cannot be specified when this item has been specified. The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Tier Control	Select whether to perform coordination between the Automated QoS function and Automated Storage Tiering. Simply by specifying together with **Automated QoS:Priority** or **Target Response Time**, automatic tuning of performance will be performed through utilization of the Automated QoS function and Automated Storage Tiering. The value of this item is only enabled when using the Automated QoS function. In addition, this can only be specified when all of the following conditions have been satisfied. - A value other than "Unlimited" and "No Set" is specified for **Automated QoS:Priority**. Alternatively, a value other than "0" is specified for **Target Response Time**. - The execution mode of the Tier pool specified for **Tier Pool Name** is "Auto". - **Low Quota Share** and **High Quota Share** have been specified for two layer operation. **Low Quota Share**, **Middle Quota Share** and **High Quota Share** have been specified for three layer operation.

*1: The assignment rate is an approximation, and there are cases when data is not assigned exactly according to specification.

P Point
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- When operating with 1 layer, **Low Quota Share**, **Middle Quota Share**, and **High Quota Share** cannot be specified.

- When operating with 2 layers, it is necessary to either specify both the 2 fields of **Low Quota Share** and **High Quota Share**, or omit the specification for both of these.

- When operating with 3 layers, it is necessary to either specify all 3 fields of **Low Quota Share**, **Middle Quota Share**, and **High Quota Share**, or omit the specification for all of these.

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6.15.18   Display FTV

The procedure to display the list/details of FTVs registered in the storage device is as follows:
To display the list, perform from step 1 to step 4.
To display the specific FTV details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Main pane, click the target FTV.
   The detail of the selected FTV is displayed on the Main pane.

6.15.19   Display FTV Performance Information Graph

The procedure to display the performance information of FTVs registered in the storage device with a graph is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Main pane, select the objects to display.

6. On the Action pane, click **Performance Chart** under **Charts**.

7. On the Performance Chart window, enter the necessary information, and then click **Plot**.
   The performance information is displayed as graphs.

🅿 Point
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- To display the Threshold Monitoring graph, only one object must be selected.
  When multiple objects are selected on the Main pane (at the above step 5), display the Threshold graph by specifying only one object on the Performance Chart screen.

- If you check the **Display Threshold Monitoring** checkbox, the current threshold value is displayed on the graph.

- The "Peak graph" is a graph where only the maximum values inside successive time intervals are plotted on the vertical axis. If you check the **Peak Graph** checkbox in the Performance Chart window, the Peak graph can be displayed on the graph. The **Peak Graph** checkbox is enabled when "1 Day" or "1 Week" is specified in the Duration.

- To confirm the performance information according to Extreme Cache, select "Read(Extreme Cache)" or "Read(DRAM + Extreme Cache)" under "Cache Hit Rate" on **Series**.

- To confirm the performance information according to Automated QoS function, select "Read + Write" under "Response Time" on **Series**.

- The graph of the target response time is displayed when all the following requirements are met.

    - Only one volume is selected on the Main pane.

    - "Read + Write" under "Response Time" is selected on **Series** in the Performance Chart window.

    - The Automated QoS priority or target response time has been set to the selected volume.

    - The **Display Target Response Time** checkbox is checked.

- When the Automated QoS priority is set, target response time that has been automatically configured will be displayed.

- To confirm the QoS achievement rate (achievement rate for **Target Response Time**), select "QoS achievement rate" under "QoS achievement rate" on **Series**.

- The QoS achievement rate is displayed only when the Automated QoS priority or a target response time of other than 0 has been configured.

6.15.20 Change FTV

The procedure to change the FTV configuration is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Main pane, check the target FTV checkbox.
   Only one FTV can be selected.

6. On the Action pane, click **Modify** under **FTV**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Modify**.

Item Name	Explanation
FTV Name	Specify the FTV volume name.
Total Capacity	Specify the FTV volume capacity.

Caution Threshold of FTV	Specify the threshold value, as a ratio of the used capacity. A set standard of this item is as follows:
	
	 - For ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3:
	
	 `[Total capacity of FTV] * [Caution threshold] < [Used capacity of FTV]`
	
	 Specifies a threshold (%) for the storage device to report a host sense. Specify a decimal value in the range of 1-100.
	
	 - For ETERNUS Disk storage systems other than those listed above:
	
	 `[Free capacity of FTV] * [Caution threshold] > [Free capacity of Tier pool]`
	
	 Specifies a threshold (%) for **Alarm Status** of FTV information to be changed. Specify a decimal value in the range of 1-200.
	 Note that the free capacity of FTV is a value of the total capacity of FTV subtracted by usage.

Item Name	Explanation
	If the ratio of usage reaches the caution threshold that has been set, **Alarm Status** below turns "Caution".
	- **Alarm Status** of the **Volume** tab screen in details of the Tier pool
	- **Alarm Status** of the **Basic** tab screen in details of FTV
Priority FTSP	When newly assigning data, specify which sub-pool of the Tier pool to assign the data to in a prioritized manner.
Low Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the Low sub-pool upon relocation within an integer from 0-100.
Middle Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the Middle sub-pool upon relocation within an integer from 0-100.
High Quota Share	Specify the ratio (%) of the capacity of the volume to assign to the High sub-pool upon relocation within an integer from 0-100.
Automated QoS:Enable/Disable	Select whether to change the volume being created subject to adjustments of the Automated QoS. The default setting is "Disable".
	If select "Enable", **Automated QoS:Priority**, **Target Response Time**, or **Automated QoS:Tier Control** can be specified.
	If select "Enable" and not specify **Automated QoS:Priority** or **Target Response Time**, the device will be affected by the adjustments by the Automated QoS function of the other volumes to which those items are specified.
	The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Priority	Simply by specifying "Low", "Middle", or "High" to the volume used by the user, automatic tuning will be performed in accordance with the current load. When "Unlimited" has been selected, this will be of the topmost priority and of the volumes sharing the same resources, performance will be the highest. When "No Set" is selected, there is no priority and therefore adjustments will be made to slow down performance in order to prevent the other volumes to which priority levels and target response times have been set from being affected.
	The value of this item is only enabled when using the Automated QoS function.
Target Response Time	As an integer from 0-10000, specify the target value (millisecond) of the response time of the volume the user will be using. When "0" has been specified, the bandwidth of the volume concerned will be unlimited. Although a space may be entered, when a space is entered, a target response time will not be configured for that volume. Accordingly, the response time will depend on the configured values for the target response times of the other volumes, and may become faster or slower.
	The target response time is specified for each volume.
	Furthermore, **Automated QoS:Priority** cannot be specified when this item has been specified.
	The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Tier Control	Select whether to perform coordination between the Automated QoS function and Automated Storage Tiering.
	Simply by specifying together with **Automated QoS:Priority** or **Target Response Time**, automatic tuning of performance will be performed through utilization of the Automated QoS function and Automated Storage Tiering.
	The value of this item is only enabled when using the Automated QoS function. In addition, this can only be specified when all of the following conditions have been satisfied.

Item Name	Explanation
	- A value other than "Unlimited" and "No Set" is specified for **Automated QoS:Priority**. Alternatively, a value other than "0" is specified for **Target Response Time**. - The execution mode of the Tier pool specified for **Tier Pool Name** is "Auto". - **Low Quota Share** and **High Quota Share** have been specified for two layer operation. **Low Quota Share**, **Middle Quota Share** and **High Quota Share** have been specified for three layer operation.

6.15.21　Delete FTV

The procedure to delete the registered FTV is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Main pane, check the target FTV checkbox.
   Two or more FTVs can be selected.

6. On the Action pane, click **Delete** under **FTV**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Delete**.

📙 Note
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An FTV that is currently assigned to a server cannot be deleted

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6.15.22　Format FTV

The procedure to format the registered FTV is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.
   The registered FTVs are displayed on the Main pane.

5. On the Main pane, check the target FTV checkbox.
   Only one FTV can be selected.

6. On the Action pane, click **Format** under **FTV**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Format**.

6.15.23　Update Automated Storage Tiering Information

The procedure to update to latest information about Automated Storage Tiering is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.

4. On the Action pane, click **Status Update** under **Automated Storage Tiering**.

Information

In this operation, the following information is updated.

- Relocation status, evaluation result, and relocation history about volumes

- Tier pool information

- FTV information

6.15.24 Display Relocation Target Volume

The procedure to display the relocation target volume list/details is as follows:
To display the list, perform from step 1 to step 3.
To display the specific relocation target volume details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The relocation target volumes of Automated Storage Tiering are displayed on the Main pane.

4. On the Main pane, click the target volume.
   The detail of the selected volume is displayed on the Main pane.

Note

The volumes displayed by this operation are volumes filled with all the following conditions when this operation is executed.

- The evaluation of the access status to the volume is completed.

- Relocation is being waited for execution or is being executed.

6.15.25 Start/Stop Relocation

The procedure to start/stop the relocation of data within the volume is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The relocation target volumes of Automated Storage Tiering are displayed on the Main pane.

4. On the Main pane, check the target volume checkbox.

5. Perform the following procedures according to the operation purpose.

   For Starting of Relocation:

   a. On the Action pane, click **Execute** under **Automated Storage Tiering**.
      The information confirmation screen is displayed.

      b. Confirm the information, and then click **Execute**.

For Stopping of Relocation:

      a. On the Action pane, click **Stop** under **Automated Storage Tiering**.
          The relocation processing is stopped.

      b. On the Action pane, click **Status Update** under **Automated Storage Tiering**.
          On the Main pane, "Suspended" is displayed in the **Status** field of the target volume.

6.15.26 Confirm Evaluation Result/Relocation Information and Delete Evaluation Result

The procedure to confirm the evaluation result/relocation information of Automated Storage Tiering or the procedure to delete the evaluation result is as follows:
To confirm the evaluation result and relocation information, perform from step 1 to step 3.
To delete the evaluation result, perform all steps.

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
    The evaluation result and relocation information of the relocation target volumes are displayed on the Main pane.

4. To delete the evaluation result and do not start the relocation, perform the following procedures.

      a. On the Main pane, check the target volume checkbox.

      b. On the Action pane, click **Delete** under **Automated Storage Tiering**.

      c. On the Action pane, click **Status Update** under **Automated Storage Tiering**.

6.16 Operations for NAS Management

This section describes the operation methods related to the NAS management.

6.16.1 Create Shared Folder

It is necessary to perform the following procedures when making a shared folder.

    a. A shared folder creation

    b. NAS backup settings

    c. NAS snapshot settings

    d. Access settings

The procedure to create a shared folder is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.

4. On the Action pane, click **Create** under **Shared Folder**.
    The **Create Shared Folder** page is displayed.

Item Name	Explanation
Shared Folder Name	This is the shared folder name.
	The input condition is as follows:

Item Name	Explanation
	- Use 1 to 250 alphanumeric characters (with the exception of \ / : * ? " < > | = , ;). - The character string "$bak" cannot be set to the last characters of the string.
Protocol	This is the protocol type that the shared folder will use.
Oplocks Setting	This is a setting of the Oplocks function to avoid the file access confliction. When the "CIFS" is checked for **Protocol**, specification is required. When the Oplocks function is enabled, it becomes impossible to use Alternate Data Stream (ADS) though the improvement of the access performance from the client can be expected. When both protocols of CIFS/NFS are selected, it is not recommended to enable the Oplocks function.
Destination NAS Volume to create Shared Folder	This is a selection of the NAS volume in which the shared folder is created. New: Creates a new NAS volume. Existing: Selects from existing NAS volumes.
Volume Name	This is the NAS volume name. When "New" is selected for **Destination NAS Volume to create Shared Folder**, specification is required. The input condition is as follows: - Use 1 to 16 alphanumeric characters (with the exception of ? * ,).
Volume Capacity	This is the NAS volume capacity. When "New" is selected for **Destination NAS Volume to create Shared Folder**, specification is required. The system area of 300GB is automatically allocated for the NAS volume. The input condition is as follows: - Use an integer from 400(GB) to 128(TB). However, the capacity that can be created as a file system varies with the device model and firmware version. Refer to the file system specification described in the ETERNUS Disk storage system manual.
Volume Number	This is the NAS volume number. When "New" is selected for **Destination NAS Volume to create Shared Folder**, specification is required. When performing the inter-box backup of a NAS volume, specify the same number as REC destination NAS volume. The input condition is as follows: - Use 1 to 6 numeric characters. - Volume numbers already used are not allowed. However, the maximum specifiable number varies with the number of volumes creatable in the target device and the number of internal volumes. Refer to the volume specification described in the ETERNUS Disk storage system manual.
Select TPP	This is the Thin Provisioning pool in which the NAS volume is created. When "New" is selected for **Destination NAS Volume to create Shared Folder**, specification is required. When only one Thin Provisioning pool exists, it is automatically selected.

Item Name	Explanation
Select NAS Volume	This is a selection of the NAS volume in which the shared folder is created.
	When "Existing" is selected for **Destination NAS Volume to create Shared Folder**, specification is required.
	When only one NAS volume exists, it is automatically selected.

5. Enter the necessary information, and then click **Next**.
   The **Set NAS Backup** page is displayed.

Item Name	Explanation
Set NAS Backup	This is a selection for setting a NAS backup.
	If the NAS backup has already been set, "Yes" is selected automatically.
Destination Volume to backup	This is the selection of whether to create a new NAS backup volume for the backup destination.
	When "New" is selected for **Set NAS Backup**, specification is required.
	New: Creates a new NAS backup volume. Existing: Selects from existing NAS backup volumes.
	If the NAS backup has already been set, "Existing" is selected automatically.
Select TPP	This is the Thin Provisioning pool in which the NAS backup volume is created.
	When "New" is selected for **Destination Volume to backup**, specification is required.
	It is recommended to select a Thin Provisioning pool different from the Thin Provisioning pool to which the NAS volume is created.
	When only one Thin Provisioning pool exists, it is automatically selected.
Select NAS Backup Volume	This is a selection of the NAS backup volume for the backup destination.
	When "Existing" is selected for **Destination Volume to backup**, specification is required.
	NAS backup volumes, which are not set for NAS backup and are the same capacity as the NAS volume of the shared folder creation destination, will be displayed.
	When NAS backup has already been set, the NAS backup volume which has been set will be displayed.

Information

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When the NAS backup is set, the NAS backup volume, copy group, and the copy pair are automatically configured with the following values:

- NAS Backup Volume

Items	Value to Be Set
Volume Name	*nasVolumeName*$bak_*N* (*1)
Volume Capacity	Same as the NAS volume where the shared folder is created
Volume Type	Same as the NAS volume where the shared folder is created
Thin Provisioning pool where the backup volume is created	Thin Provisioning pool selected by user

*1: "*N*" is a sequential number from 0. The number of digits varies.

- Copy Group

Items	Value to Be Set
Copy Group Name	NAS_QuickOPC_*nasVolumeName_N* (*1)
Copy Group Type	QuickOPC

*1: "*N*" is a sequential number from 0. The number of digits varies.

- Copy Pair

Items	Value to Be Set
Source Volume	NAS volume
Destination Volume	NAS backup volume

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6. Enter the necessary information, and then click **Next**.
   The **Set Snapshot** page is displayed.

Item Name	Explanation
Using Snapshot	This is the selection of whether to use NAS snapshot. Yes: Select this when using NAS snapshot. No: Select this when not using NAS snapshot. If the NAS snapshot has already been used, "Yes" is selected automatically and this item cannot be changed.
Number of Snapshot Generations	This is the number of snapshot generations to be kept. When "Yes" is selected for **Using Snapshot**, specification is required. The input condition is as follows: - Use an integer from 1 to 128. However, the number of snapshot generations that can be set varies with the device model and firmware version. Refer to the NAS snapshot specification described in the ETERNUS Disk storage system manual. If the NAS snapshot has already been used, this item cannot be changed.

Schedule Setting	This is the configuration of the schedule for collecting the snapshot.
	
	When "Yes" is selected for **Using Snapshot**, specification is required.
	
	  - Cycle:
	  This is the selection of the cycle by which snapshot will be collected.
	
	  Daily: A snapshot will be collected every day at the time selected in **Hours**.
	  Weekly: A snapshot will be collected every week on the selected day of the week at the time selected in **Hours**.
	
	  - On:
	  This is the selection of the day of the week on which the snapshot will be collected.
	  This selection cannot be made in cases when "Daily" has been selected in **Cycle**.
	  Check the checkbox for the day of the week on which to collect the snapshot.
	
	  - Hours:
	  This is the selection of the time at which the snapshot will be collected.
	  Check the checkbox of the time you wish to collect a snapshot.
	  When an interval of collecting a snapshot is selected, the selected interval time is automatically checked from the start point of zero time.

Item Name	Explanation
	If the NAS snapshot has already been used, this item cannot be changed.
Select RAID Group in which the NAS Snapshot is created	This is the RAID group of the destination where the NAS snapshot volume is to be created. When "Yes" is selected for **Using Snapshot**, specification is required. When there is only one RAID group, the RAID group will be selected automatically. When the RAID group has already been set, only the set RAID group will be displayed.

Point

- The snapshots will be collected based on the time in the ETERNUS Disk storage system.

- When the selection for **Using Snapshot** has been changed from "No" to "Yes", collection of the snapshot will be automatically started.

Information

When starting the use of NAS snapshot, a NAS snapshot volume will be created automatically.

The NAS snapshot volume is configured with the following values:

- NAS Snapshot Volume

Items	Value to Be Set
Volume Name	*nasVolumeName*$snap_*N* (*1)
Volume Capacity	Same as the NAS volume where the shared folder is created
Volume Type	SDV
RAID group where the NAS snapshot is created	RAID group selected by user

*1: "*N*" is a sequential number from 0. The number of digits varies.

7. Enter the necessary information, and then click **Next**.
The Access Setting screen is displayed.

Item Name	Explanation
Owner	This is an owner to whom the access privilege for the shared folder is given. The user name on the authentication server must be specified. If root (initial value) is set, it is accessible from all clients on business LAN. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Group	This is a group to which the access privilege for the shared folder is given. The group name on the authentication server must be specified. If root (initial value) is set, it is accessible from all groups on business LAN. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Allowed Hosts	This is an allowed access setting of the unit of host for the shared folder.

Item Name	Explanation
	When no host is specified, all hosts are allowed. The input condition is as follows: - Use 1 to 255 alphanumeric characters. Specify by the following formats. To specify more than one, please input ","(comma) as delimiter. - Single specification (Example: 192.168.0.1) - Subnet specification (Example: 192.168.10.0/255.255.255.0)
Denied Hosts	This is a denied access setting of the unit of host for the shared folder. When the "CIFS" is checked for **Protocol** at step 4, specification is allowed. The input condition is as follows: - Use 1 to 255 alphanumeric characters. Specify by the following formats. To specify more than one, please input ","(comma) as delimiter. - Single specification (Example: 192.168.0.1) - Subnet specification (Example: 192.168.10.0/255.255.255.0)

Information

Settings of **Allowed Hosts** and **Denied Hosts** are applied with the following rules:

- When the same address is entered for **Allowed Hosts** and **Denied Hosts**, the **Allowed Hosts** is prioritized.

- When both **Allowed Hosts** and **Denied Hosts** are entered, all unspecified addresses are permitted.

Access conditions for shared folders based on the above rules are as follows:
Here, IP Address A is included in Subnet A and IP Address B in Subnet B

Allowed Hosts Setting		Denied Hosts Setting				
		Specified (specify the address below)				Not specified
		IP Address A	IP Address B	Subnet A	Subnet B	-
Specified (specify the address to the right)	IP Address A	Permit all addresses.	Deny IP Address A only. Permit all others.	Deny IP Address A only. Permit all others.	Deny IP Address A only. Permit all others.	Deny IP Address A only. Permit all others.
	IP Address B	Deny IP Address B only. Permit all others.	Permit all addresses.	Deny IP Address B only. Permit all others.	Deny IP Address B only. Permit all others.	Deny IP Address B only. Permit all others.
	Subnet A	Deny Subnet A other than IP Address A. Permit all others.	Deny Subnet A only. Permit all others.	Permit all addresses.	Deny Subnet A only. Permit all others.	Deny Subnet A only. Permit all others

Allowed Hosts Setting		Denied Hosts Setting				
		Specified (specify the address below)				Not specified
		IP Address A	IP Address B	Subnet A	Subnet B	-
	Subnet B	Deny Subnet B only. Permit all others.	Deny Subnet B other than IP Address B. Permit all others.	Deny Subnet B only. Permit all others.	Permit all addresses	Deny Subnet B only. Permit all others.
Not specified	-	Permit IP Address A only. Deny all others.	Permit IP Address B only. Deny all others.	Permit Subnet A only. Deny all others.	Permit Subnet B only. Deny all others.	Permit all addresses.

8. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

9. Check that the input information is correct, and then click **Create**.

Information

When "New" is selected for **Destination NAS Volume to create Shared Folder**, the shared folder is created after completing of the NAS volume creation processing. Therefore, when it failed to create the shared folder, the NAS volume remains. If try to create the shared folder again, select "Existing" for **Destination NAS Volume to create Shared Folder** and specify the remained NAS volume. If create the shared folder newly from first step, try to create it again after deleting the remained NAS volume. Refer to "6.8.3 Delete Volume" for information on how to delete the NAS volume.

6.16.2 Display Shared Folder

The procedure to display the shared folder list/details is as follows:
To display the list, perform from step 1 to step 3.
To display the specific shared folder details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The created shared folders are displayed on the Main pane.

4. On the Main pane, click the target shared folder number.

5. The detail of the selected shared folder is displayed on the Main pane. The following information can be displayed by switching tab on the Main pane.

Tab Name	Explanation
Basic	The shared folder information, the creation destination volume information, and NAS backup setting information are displayed.
Access Setting	The access setting information defined in the shared folder is displayed.
Allowed/Denied Hosts	The host access information defined in the shared folder is displayed.

6.16.3 Change Shared Folder

The procedure to change the shared folder configuration is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The created shared folders are displayed on the Main pane.

4. On the Main pane, click the target shared folder checkbox.

5. On the Action pane, click **Modify** under **Shared Folder**.
   The Changes the Setting page is displayed.

Item Name	Explanation
Oplocks Setting	This is a setting of the Oplocks function to avoid the file access confliction. When the protocol is CIFS or CIFS/NFS, specification is allowed. When the Oplocks function is enabled, it becomes impossible to use Alternate Data Stream (ADS) though the improvement of the access performance from the client can be expected. When both protocols of CIFS/NFS are selected, it is not recommended to enable the Oplocks function.
Owner	This is an owner to whom the access privilege for the shared folder is given. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Group	This is a group to which the access privilege for the shared folder is given. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Writeable	This is a selection whether to be able to write to the shared folder.
Allowed Hosts	This is an allowed access setting of the unit of host for the shared folder. When no host is specified, all hosts are allowed. The input condition is as follows: - Use 1 to 255 alphanumeric characters. Specify by the following formats. To specify more than one, please input ","(comma) as delimiter. - Single specification (Example: 192.168.0.1) - Subnet specification (Example: 192.168.10.0/255.255.255.0)
Denied Hosts	This is a denied access setting of the unit of host for the shared folder. When the "CIFS" or "CIFS/NFS" is checked for **Protocol**, specification is allowed. The input condition is as follows:

Item Name	Explanation
	- Use 1 to 255 alphanumeric characters.
	Specify by the following formats. To specify more than one, please input ","(comma) as delimiter.
	- Single specification (Example: 192.168.0.1)
	- Subnet specification (Example: 192.168.10.0/255.255.255.0)

📖 **Information**

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Refer to [Information] of step 6 of "6.16.1 Create Shared Folder" for access conditions for shared folders based on settings of **Allowed Hosts** and **Denied Hosts**.

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6. Enter the necessary information, and then click **Modify**.

📖 **Information**

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When the shared folder configuration is changed, sharing is temporarily stopped.

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6.16.4 Delete Shared Folder

The procedure to delete the shared folder is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The created shared folders are displayed on the Main pane.

4. On the Main pane, click the target shared folder checkbox.

5. On the Action pane, click **Delete** under **Shared Folder**.
   The information confirmation screen is displayed.

6. Check that the selected shared folder is correct, and then click **Delete**.

6.16.5 Start/Stop Sharing

The procedure to start/stop the sharing of the shared folder is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The created shared folders are displayed on the Main pane.

4. On the Main pane, click the target shared folder checkbox.

5. Perform the following procedures according to the operation purpose.

   For Starting of Sharing:

   a. On the Action pane, click **Start** under **Sharing**.
      The information confirmation screen is displayed.

   b. Check that the selected shared folder is correct, and then click **Start**.

For Stopping of Sharing:

    a. On the Action pane, click **Stop** under **Sharing**.
       The information confirmation screen is displayed.

    b. Check that the selected shared folder is correct, and then click **Stop**.

6.16.6　Create NAS Interface

It is necessary to perform the following procedures about making a NAS interface.

    a. NAS interface settings

    b. IP address settings

The procedure to create a NAS interface is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **NAS Interface**.
   The NAS interface list is displayed on the Main pane.

5. On the Action pane, click **Create** under **NAS Interface**.
   The NAS Interface Setting page is displayed.

Item Name	Explanation
IP Version	This is a version of IP address that the NAS interface uses.
RIP Setting	This is an RIP function setting to select the access route set to the NAS interface automatically.
VLAN ID	This is the selection of whether to set a VLAN ID to the NAS interface.
	Select "Set" in cases when allocating multiple NAS interfaces to one port.
Port	This is an allocation port of the NAS interface.
	The following port cannot be selected:
	- A member port of the bonding port
Redundant Port	This is a redundant port for the allocation port of the NAS interface.
	When the allocation port is made redundant, the redundant configuration can be released by selecting "None".
	Select the master port in cases when specifying a bonding port to the redundant port.
	The following ports cannot be selected:
	- A port in same CM as the allocation port
	- A redundant port of another port
	- A member port of the bonding port
Set Member Port of Bonding Port	For the allocation port and the redundant port, set member ports to be bonded.
	It is possible to set a maximum of 15 member ports.
	When the bonding port has been set, it is possible to release the port bonding by deleting all of the member ports.
	When the allocation port is made redundant, it will not be possible to newly create or release bonding port. Set the bonding port after releasing the redundant configuration.

Item Name	Explanation
	The following ports cannot be selected: - A port of CM different from CM in which the master port exists - Port to which a NAS interface has already been allocated - A duplicated port - A master of the bonding port - A member port of another bonding port
Mode	This is the operating mode of the bonding port. When the balancing mode has been selected, specify **Load Balancing** item.
Load Balancing	This is the load balancing method for when the balancing mode has been selected.
Hash Policy	This is the method used to decide the port to be used. This is to be selected in cases when the operating mode is balancing (Exclusive OR) or IEEEE802.3ad.

Information

As listed below, the ports which can be configured as the allocation port, redundant port, and member port differ depending on the configuration status of the target port.

Port Configuration Status				Explanation of Port Configuration Status	Availability of Configuration (A=Available, N/A=Not Available)		
Port Bonding	Redundancy	Interface Settings	VLAN ID		Allocation Port	Redundant Port	Member Port
-	-	-	-	Non-configured port	A	A	A
-	-	Y	No	Single port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A	N/A
-	-	Y	Yes	Single port to which a NAS interface having a VLAN ID has been allocated	A	A	N/A
-	-	Y	Mix	Single port to which a NAS interface having a VLAN ID and a NAS interface not having a VLAN ID have been allocated	A	A	N/A
-	Y	-	-	Standby port to which a NAS interface has not been allocated	A	N/A	N/A
-	Y	Y	No	Active port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A (*2)	N/A
-	Y	Y	Yes	Active port to which a NAS interface having a VLAN ID has been allocated	A	A (*2)	N/A
-	Y	Y	Mix	Active port to which a NAS interface having a VLAN ID and a NAS interface not having a VLAN ID have been allocated	A (*1)	A (*2)	N/A
Me	-	-	-	Member port to which a NAS interface has not been allocated	N/A	N/A	A (*3)
Ma	-	-	-	Master port to which a NAS interface has not been allocated	A	A	N/A

Port Configuration Status				Explanation of Port Configuration Status	Availability of Configuration (A=Available, N/A=Not Available)		
Port Bonding	Redundancy	Interface Settings	VLAN ID		Allocation Port	Redundant Port	Member Port
Ma	-	Y	No	Master port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A	N/A
Ma	-	Y	Yes	Master port to which a NAS interface having a VLAN ID has been allocated	A	A	N/A
Ma	-	Y	Mix	Master port to which a NAS interface having a VLAN ID and a NAS interface not having a VLAN ID have been allocated	A (*1)	A	N/A
Ma	Y	-	-	Master and standby port to which a NAS interface has not been allocated	A	A (*2)	N/A
Ma	Y	Y	No	Master and active port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A (*2)	N/A
Ma	Y	Y	Yes	Master and active port to which a NAS interface having a VLAN ID has been allocated	A	A (*2)	N/A
Ma	Y	Y	Mix	Master and active port to which a NAS interface having a VLAN ID and a NAS interface not having a VLAN ID have been allocated	A (*1)	A (*2)	N/A

*1: This will only be displayed in cases when "Set" has been selected for **VLAN ID** in the NAS Interface Setting page.
*2: Only the redundant port configured to the allocation port will be displayed.
*3: Only the member port configured to the allocation port will be displayed.

The meaning of the "Port Configuration Status" in the above table is as follows:

- Port Bonding

  Me: A status of being configured to the member port
  Ma: A status of being configured to the master port

- Redundancy

  Y: A status of being made redundant

- Interface Settings

  Y: A status of having a NAS interface allocated

- VLAN ID

  No: A status of having a NAS interface not having a VLAN ID configured allocated
  Yes: A status of having a NAS interface having a VLAN ID configured allocated
  Mix: A status of having a NAS interface not having a VLAN ID configured and a NAS interface having a VLAN ID configured allocated

 Point

For the **Load Balancing** and **Hash Policy** of the port bonding, the same configurations will be implemented to the allocation port and the redundant port.

6. Enter the necessary information, and then click **Next**.
   The IP Address Setting screen is displayed.

Item Name	Explanation
IP Address	This is an IP address of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
Subnet Mask	This is a subnet mask of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
Gateway	This is a gateway of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
IPv6 Link Local Address	This is a link local address of IPv6 format. When **IPv6 Global Address** is not specified, specification is required. The input condition is as follows: - *xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Global Address	This is a global address of IPv6 format. When **IPv6 Link Local Address** is not specified, specification is required. When **IPv6 Gateway** is specified, specification is required. The input condition is as follows: - *xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Gateway	This is a gateway of IPv6 format. The input condition is as follows: - *xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Prefix length	This is a prefix length of IPv6 format. When **IPv6 Global Address** is specified, specification is required. The input condition is as follows: - Use an integer from 3 to 128.
VLAN ID	This is the VLAN ID to be configured to the NAS interface. The input condition is as follows: - Use an integer from 1 to 4094.

🅿 Point
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The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.11 Note for IPv6" for details.
. . . .

7. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

8. Check that the input information is correct, and then click **Create**.

6.16.7   Display NAS Interface

The procedure to display the NAS interface list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific NAS interface details, perform all steps.

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **NAS Interface**.
   The NAS interface list is displayed on the Main pane.

5. On the Main pane, click the target NAS interface.

6. The detail of the selected NAS interface is displayed on the Main pane. When switching the tabs on the Main pane, displays the information below.

Tab Name	Description
Basic	NAS interface information/IP address settings are displayed.
Bonding Port	Bonding port settings for allocation port are displayed.
Redundant Bonding Port	Bonding port settings for redundant port are displayed.

6.16.8   Change NAS Interface

It is necessary to perform the following procedures about changing the NAS interface configuration.

a. NAS interface settings

b. IP address settings

The procedure to change the NAS interface settings is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **NAS Interface**.
   The NAS interface list is displayed on the Main pane.

5. On the Main pane, click the target NAS interface checkbox.

6. On the Action pane, click **Modify** under **NAS Interface**.
   The NAS Interface Setting screen is displayed.

Item Name	Explanation
IP Version	This is a version of IP address that the NAS interface uses.
RIP Setting	This is an RIP function setting to select the access route set to the NAS interface automatically.
Port	This is an allocation port of the NAS interface.
	It is possible to set only when a port is not allocated to the NAS interface to be changed.
	The port where the NAS interface is not allocated must be selected.
	The following port cannot be selected:

Item Name	Explanation
	- A member port of the bonding port
Redundant Port	This is a redundant port for the allocation port of the NAS interface.
	When the allocation port is made redundant, the redundant port can be changed by the selecting of another port or the redundant configuration can be released by selecting "None".
	Select the master port in cases when specifying a bonding port to the redundant port.
	The following ports cannot be selected:
	- A port in same CM as the allocation port
	- A redundant port of another port
	- A member port of the bonding port
Set Member Port of Bonding Port	For the allocation port and the redundant port, set member ports to be bonded.
	It is possible to set a maximum of 15 member ports.
	When the bonding port has been set, it is possible to release the port bonding by deleting all of the member ports.
	When the allocation port is made redundant, it will not be possible to newly create or release bonding port. Set the bonding port after releasing the redundant configuration.
	The following ports cannot be selected:
	- A port of CM different from CM in which the master port exists
	- Port to which a NAS interface has already been allocated
	- A duplicated port
	- A master of the bonding port
	- A member port of another bonding port
Mode	This is the operating mode of the bonding port.
	When the balancing mode has been selected, specify **Load Balancing** item.
Load Balancing	This is the load balancing method for when the balancing mode has been selected.
Hash Policy	This is the method used to decide the port to be used.
	This is to be selected in cases when the operating mode is balancing (Exclusive OR) or IEEEE802.3ad.

Information

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As listed below, the configuration items which can be changed differ depending on the configuration status of the allocation port of the target NAS interface.
If you would like to change a unchangeable item in this operation, perform the deletion and recreation of NAS interface.

Status of Port Which NAS Interface to Be Changed Is Allocated			Explanation of Port Status	Availability of Changing (A=Available, N/A=Not Available)				
Port Bonding	Redundancy	Interface Settings		IP Version, RIP Setting	Port	Redundant Port	Set Member Port of Bonding Port (*1)	Detail Settings of Bonding Port
-	-	Y	Single port	A	N/A	A	A	A

Status of Port Which NAS Interface to Be Changed Is Allocated			Explanation of Port Status	Availability of Changing (A=Available, N/A=Not Available)				
Port Bonding	Redundancy	Interface Settings		IP Version, RIP Setting	Port	Redundant Port	Set Member Port of Bonding Port (*1)	Detail Settings of Bonding Port
-	Y	Y	Active port	A	N/A	A	N/A	N/A
Ma	-	Y	Master port	A	N/A	A	A	A
Ma	Y	Y	Master and active port	A	N/A	A	A	A

*1: It is not possible to delete all member ports.

The meaning of the "Port Configuration Status" in the above table is as follows:

- Port Bonding

  Ma: A status of being configured to the master port

- Redundancy

  Y: A status of being made redundant

- Interface Settings

  Y: A status of having a NAS interface allocated

Refer to [Information] in step 5 in "6.16.6 Create NAS Interface" for ports which can be set to the allocation port, the redundant port, and the member port, based on the configuration status of the target port.
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7. Enter the necessary information, and then click **Next**.
   The IP Address Setting screen is displayed.

Item Name	Explanation
IP Address	This is an IP address of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
Subnet Mask	This is a subnet mask of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
Gateway	This is a gateway of IPv4 format. The input condition is as follows: - *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
IPv6 Link Local Address	This is a link local address of IPv6 format. When **IPv6 Global Address** is not specified, specification is required. The input condition is as follows: - *xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Global Address	This is a global address of IPv6 format. When **IPv6 Link Local Address** is not specified, specification is required. When **IPv6 Gateway** is specified, specification is required.

Item Name	Explanation
	The input condition is as follows: - *xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Gateway	This is a gateway of IPv6 format. The input condition is as follows: - *xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)
IPv6 Prefix length	This is a prefix length of IPv6 format. When **IPv6 Global Address** is specified, specification is required. The input condition is as follows: - Use an integer from 3 to 128.

Point

The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.11 Note for IPv6" for details.

8. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

9. Check that the input information is correct, and then click **Modify**.

6.16.9 Delete NAS Interface

The procedure to delete the NAS interface is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **NAS Interface**.
   The NAS interface list is displayed on the Main pane.

5. On the Main pane, click the target NAS interface checkbox.

6. On the Action pane, click **Delete** under **NAS Interface**.
   The information confirmation screen is displayed.

7. Check that the selected NAS interface is correct, and then click **Delete**.

Information

- When the allocation port of the selected NAS interface has been made redundant, if no other NAS interface is allocated to the allocation port and the redundant port, the redundancy configuration is released.

- When the allocation port of the selected interface has been bonded, if no other NAS interface is allocated to the allocation port, the port bonding is released.

6.16.10 Change NAS Server Name

The procedure to change the NAS server name is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Environment Setting**.
   The NAS environment setting information is displayed on the Main pane.

5. On the Action pane, click **Modify NAS Server Name** under **Environment Setting**.
   The Modify NAS Server Name page is displayed.

Item Name	Explanation
Name	This is a unique name specified for an ETERNUS Disk storage system.
	When an ETERNUS Disk storage system is shipped, a name based on a serial number is set by default.
	Deleting an input value returns to the default value.
	The input condition is as follows:
	- Use 1 to 15 alphanumeric characters.
	- A hyphen (-). However, it cannot be specified for the first and last characters.

6. Enter the necessary information, and then click **Modify**.

6.16.11   Configure DNS Server

The procedure to set a DNS server is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Environment Setting**.
   The NAS environment setting information is displayed on the Main pane.

5. On the Action pane, click **Set DNS Server** under **Environment Setting**.
   The Set DNS Server page is displayed.

Item Name	Explanation
IPv4: Primary IP Address	This is an IPv4 address of the primary DNS server.
	The input condition is as follows:
	- *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
IPv4: Secondary IP Address	This is an IPv4 address of the secondary DNS server.
	The input condition is as follows:
	- *xxx.xxx.xxx.xxx* (*xxx* is an integer from 0 to 255)
IPv6: Primary IP Address	This is an IPv6 address of the primary DNS server.
	The input condition is as follows:
	- *xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)

Item Name	Explanation
IPv6: Secondary IP Address	This is an IPv6 address of the secondary DNS server. The input condition is as follows: - *xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx* (*xxxx* is a hexadecimal number from 0 to ffff)

P Point
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- It is not possible to set only **Secondary IP Address**.

- A same IP address cannot be set to **Primary IP Address** and **Secondary IP Address**.

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6. Enter the necessary information, and then click **Set**.

Information
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If an Active Directory authentication server whose DNS function is enabled is registered to an ETERNUS Disk storage system, name resolution is possible by the use of the DNS function on the Active Directory authentication server. However, in that case, the DNS server information is not displayed on the Web Console.

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6.16.12   Configure Authentication Server

The procedure to set an authentication server is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Environment Setting**.
   The NAS environment setting information is displayed on the Main pane.

5. On the Action pane, click **Set Authentication Server** under **Environment Setting**.
   The Setting Authentication Server page is displayed.

Item Name	Explanation
Domain Name	This is a name of the domain in which it participates. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Domain Administrator	This is an administrator name of the domain in which it participates. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Domain Administrator's Password	This is an administrator's password of the domain in which it participates. When you set or change the domain administrator, specification is required. The input condition is as follows: - Use 1 to 255 alphanumeric characters.
Authentication Server	This is an IP address or FQDN of the authentication server. FQDN can be input when a DNS server is set.

Item Name	Explanation
	If the authentication server is made redundant, three servers can be registered in the maximum.
	When two or more servers are registered, it is accessed in order of **Authentication Server (1)**, **Authentication Server (2)**, and **Authentication Server (3)**.
	The input condition is as follows:
	– For IPv4:
	xxx.xxx.xxx.xxx (*xxx* is an integer from 0 to 255)
	– For IPv6:
	xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx (*xxxx* is a hexadecimal number from 0 to ffff)
	– For FQDN:
	Use 1 to 255 alphanumeric characters.

🅿 Point

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- The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.11 Note for IPv6" for details.

- In the setting of the authentication server, Active Directory and LDAP can be specified respectively. Specify them in the following cases.

    - Active Directory: The case of authenticating the access to the shared folder that uses the CIFS protocol

    - LDAP: The case of authenticating the access to the shared folder that uses the NFS protocol

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6. Enter the necessary information, and then click **Set**.

🅿 Point

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To delete the authentication server configuration, click **Set** after deleting all of values for domain information and authentication server information.

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6.16.13　Display NAS Environment Setting Information

The procedure to display NAS environment setting information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Environment Setting**.
   The NAS environment setting information is displayed on the Main pane.

6.16.14　Set NAS Backup

The procedure to set a NAS backup is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. On the Action pane, click **Set NAS Backup** under **NAS Backup**.
   The Setting for Backup NAS Volume page is displayed.

Item Name	Explanation
Destination Volume to backup	This is the selection of a NAS backup volume for the backup destination. New: Creates a new NAS backup volume. Existing: Selects from existing NAS backup volumes.
Select TPP	This is the Thin Provisioning pool in which the NAS backup volume is created. When "New" is selected for **Destination Volume to backup**, specification is required. It is recommended to select a Thin Provisioning pool different from the Thin Provisioning pool to which the NAS volume is created. When only one Thin Provisioning pool exists, it is automatically selected.
Select NAS Backup Volume	This is a selection of the NAS backup volume for the backup destination. When "Existing" is selected for **Destination Volume to backup**, specification is required. NAS backup volumes which are the same capacity as the NAS volume of the shared folder creation destination will be displayed.

7. Enter the necessary information, and then click **Create**.

📖 Information
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When the NAS backup is set, the NAS backup volume, copy group, and the copy pair are automatically configured. Refer to [Information] of step 5 of "6.16.1 Create Shared Folder" for details.
· ·

6.16.15 Display Backup Information

The procedure to display the backup information is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.

5. On the Main pane, click the target NAS volume number.
   The backup information of the selected NAS volume is displayed on the Main pane.

6.16.16 Backup of NAS Volume

The procedure to back up the NAS volume is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. On the Action pane, click **Backup** under **NAS Backup**.
   The information confirmation screen is displayed.

7. Check that the selected NAS volume is correct, and then click **Start**.

Information

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- When the backup destination volume for the shared folder is mounted, the backup cannot be performed.

- When the NAS backup is not set, the backup cannot be performed.

- -

6.16.17 Restore to NAS Volume

The procedure to restore to the NAS volume is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. On the Action pane, click **Restore** under **NAS Backup**.
   The information confirmation screen is displayed.

7. Check that the selected NAS volume is correct, and then click **Start**.

Information

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- When the backup destination volume for the shared folder is mounted, the restore cannot be performed.

- When the NAS volume is not backed up, the restore cannot be performed.

- -

6.16.18 Mount/Unmount Backup Destination

The procedure to mount/unmount the backup destination is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. Perform the following procedures according to the operation purpose.

   For Mounting:

       a. On the Action pane, click **Mount NAS Backup** under **NAS Backup**.
   The information confirmation screen is displayed.

       b. Check that the selected NAS volume is correct, and then click **Start**.

   For Unmounting:

       a. On the Action pane, click **Unmount NAS Backup** under **NAS Backup**.
   The information confirmation screen is displayed.

       b. Check that the selected NAS volume is correct, and then click **Stop**.

Information
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When the backup has not been performed, the backup destination volume cannot be mounted.
. . . .

6.16.19 Set/Change/Release NAS Snapshot

The procedure to set the NAS snapshot is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
   The NAS volume list is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. On the Action pane, click **Set** under **Snapshot**.
   The Set Snapshot page is displayed.

Item Name	Explanation
Using Snapshot	This is the selection of whether to use NAS snapshot. Yes: Select this when using NAS snapshot. No: Select this when not using NAS snapshot.
Number of Snapshot Generations	This is the number of snapshot generations to be kept. When "Yes" is selected for **Using Snapshot**, specification is required. The input condition is as follows: - Use an integer from 1 to 128. However, the number of snapshot generations that can be set varies with the device model and firmware version. Refer to the NAS snapshot specification described in the ETERNUS Disk storage system manual.

Schedule Setting	This is the configuration of the schedule for collecting the snapshot.
	
	 When "Yes" is selected for **Using Snapshot**, specification is required.
	
	   - Cycle:
	     This is the selection of the cycle by which snapshot will be collected.

Item Name	Explanation
	Daily: A snapshot will be collected every day at the time selected in **Hours**. Weekly: A snapshot will be collected every week on the selected day of the week at the time selected in **Hours**. - On: This is the selection of the day of the week on which the snapshot will be collected. This selection cannot be made in cases when "Daily" has been selected in **Cycle**. Check the checkbox for the day of the week on which to collect the snapshot. - Hours: This is the selection of the time at which the snapshot will be collected. Check the checkbox of the time you wish to collect a snapshot. When an interval of collecting a snapshot is selected, the selected interval time is automatically checked from the start point of zero time.
Select RAID Group in which the NAS Snapshot is created	This is the RAID group of the destination where the NAS snapshot volume is to be created. When "Yes" is selected for **Using Snapshot**, specification is required. When there is only one RAID group, the RAID group will be selected automatically. When the RAID group has already been set, only the set RAID group will be displayed.

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When the selection for **Using Snapshot** has been changed from "Yes" to "No", snapshots that have already been collected will be deleted. Also, the NAS snapshot volume will be deleted.
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- The snapshots will be collected based on the time in the ETERNUS Disk storage system.

- When NAS snapshots are in use, a RAID group from which to create a NAS snapshot volume cannot be changed.
  To change the RAID group, change "Yes" selected for **Using Snapshot** to "No" and reset after having stopped the operation.
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 Information
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When the selection for **Using Snapshot** has been changed from "No" to "Yes" or number of snapshot generations has been increased, NAS snapshot volume will be automatically created. Refer to [Information] in step 6 in "6.16.1 Create Shared Folder".
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7. Enter the necessary information, and then click **Set**.

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When the selection for **Using Snapshot** has been changed from "No" to "Yes", collection of the snapshot will be automatically started.
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6.16.20   Display NAS Snapshot

The procedure to display list of the NAS snapshot setting and the collected snapshot is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
    The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
    The NAS volume list is displayed on the Main pane.

5. On the Main pane, click the target NAS volume number.

6. On the Main pane, click **Snapshot** tab.
    The list of the NAS snapshot setting and the collected snapshot for the selected NAS volume is displayed on the Main pane.

6.16.21   Start/Stop Snapshot Collection

The procedure to start/stop the snapshot collection is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
    The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Backup Management**.
    The NAS volume list is displayed on the Main pane.

5. On the Main pane, click the target NAS volume checkbox.

6. Perform the following procedures according to the operation purpose.

    For Starting of Snapshot Collection:

    a. On the Action pane, click **Start** under **Snapshot**.
        The Start Snapshot page is displayed.

    b. Check that the selected NAS volume is correct, and then click **Start**.

    For Stopping of Snapshot Collection:

    a. On the Action pane, click **Stop** under **Snapshot**.
        The Stop Snapshot page is displayed.

    b. Check that the selected NAS volume is correct, and then click **Stop**.

6.16.22   Add Quota Setting

The procedure to add a quota setting is as follows:

1. On the global navigation tab, click **Storage**.
    The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
    The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Quota Management**.
    The quota setting list is displayed on the Main pane.

5. On the Action pane, click **Add** under **Quota Setting**.
    The Add Quota page is displayed.

Item Name	Explanation
Select NAS Volume	This is a selection of the NAS volume in which the quota management setting is added.
	When only one NAS volume exists, it is automatically selected.
Quota Target	This is a user or group name targeted for quota management.

Item Name	Explanation
	Enter the user or group name set to the authentication server.
	The input condition is as follows:
	- Use 1 to 255 alphanumeric characters. ("root" cannot be set.)
Type	This is a selection of the type of quota target.
	User: Select this when quota target is a user name. Group: Select this when quota target is a group name.
Disk Space (Warning)	This is a warning value of disk space usage set to quota target.
	The input condition is as follows:
	- Use an integer from 0 to **Disk Space (Limit)**.
	If Zero (0) is specified, a warning value is not set (no limit).
	When specifying both **Disk Space (Limit)** and **Disk Space (Warning)**, set so that a value of **Disk Space (Limit)** is larger than a value of **Disk Space (Warning)**.
Disk Space (Limit)	This is a limit value of disk space usage set to quota target.
	The input condition is as follows:
	- Use an integer from 0 to 128(TB).
	If Zero (0) is specified, a limit value is not set (no limit).
File Count (Warning)	This is a warning value of file count set to quota target.
	The input condition is as follows:
	- Use an integer from 0 to **File Count (Limit)**.
	If Zero (0) is specified, a warning value is not set (no limit).
	When specifying both **File Count (Limit)** and **File Count (Warning)**, set so that a value of **File Count (Limit)** is larger than a value of **File Count (Warning)**.
File Count (Limit)	This is a limit value of file count set to quota target.
	The input condition is as follows:
	- Use an integer from 0 to 134,217,723.
	If Zero (0) is specified, a limit value is not set (no limit).

6. Enter the necessary information, and then click **Add**.

P Point

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- Quota can be set for the user and group registered to the authentication server.

- When a warning value is set, if the warning value is exceeded, an event indicating that the warning value has been exceeded is displayed on **Log** tab of the quota management.

- When a limit value is set, if the limit value has been reached, it causes an error when writing to a NAS volume.

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6.16.23 Display Quota Information

The procedure to display the quota setting information and the quota management events is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Quota Management**.

5. The quota setting list is displayed on the Main pane. When switching the tabs on the Main pane, displays the information below.

Tab Name	Explanation
Quota Setting	The information of quota setting and usage status is displayed.
Log	Event log indicating that a quota warning value has been exceeded and a limit value has been exceeded is displayed.

📘 Point

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In **Used Status** of the **Quota Setting** tab, the following state is displayed according to the disk usage and the number of files:

State	Explanation
Normal	Disk usage and the number of files are normal, which is below the warning value.
Warning	Either disk usage or the number of files or both are larger than the warning value and less than the limit value.
Exceeded	Either disk usage or the number files or both have reached the limit value (exceeded the limit value). If data is updated or a file is created in this state, an error occurs, resulting in an event notification saying that the limit value has been exceeded.
Unknown	The information on disk usage and the number of files cannot be obtained. The following items will not be displayed: - Disk Space (Used Size) - Disk Space (Used Rate) - File Count (Used Count) - File Count (Used Rate) The authentication server could not be accessed or the user or group to which quota is set may have been deleted from the authentication server. In this state, check the following points: - Whether communication is possible between the authentication server and the ETERNUS Disk storage system. - Whether the user or group to which quota is set is registered to the authentication server.

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6.16.24   Change Quota Setting

The procedure to change a quota setting is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Quota Management**.
   The quota setting list is displayed on the Main pane.

5. On the Main pane, click the target quota setting checkbox.

6. On the Action pane, click **Modify** under **Quota Setting**.
   The Modify Quota page is displayed.

Item Name	Explanation
Disk Space (Warning)	This is a warning value of disk space usage set to quota target. The input condition is as follows: - Use an integer from 0 to **Disk Space (Limit)**. If Zero (0) is specified, a warning value is not set (no limit). When specifying both **Disk Space (Limit)** and **Disk Space (Warning)**, set so that a value of **Disk Space (Limit)** is larger than a value of **Disk Space (Warning)**.
Disk Space (Limit)	This is a limit value of disk space usage set to quota target. The input condition is as follows: - Use an integer from 0 to 128(TB). If Zero (0) is specified, a limit value is not set (no limit).
File Count (Warning)	This is a warning value of file count set to quota target. The input condition is as follows: - Use an integer from 0 to **File Count (Limit)**. If Zero (0) is specified, a warning value is not set (no limit). When specifying both **File Count (Limit)** and **File Count (Warning)**, set so that a value of **File Count (Limit)** is larger than a value of **File Count (Warning)**.
File Count (Limit)	This is a limit value of file count set to quota target. The input condition is as follows: - Use an integer from 0 to 134,217,723. If Zero (0) is specified, a limit value is not set (no limit).

7. Enter the necessary information, and then click **Modify**.

6.16.25 Delete Quota Setting

The procedure to delete a quota setting is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **NAS Management**.
   The items of the Category pane change into the items concerning the NAS Management.

4. On the Category pane, click **Quota Management**.
   The quota setting list is displayed on the Main pane.

5. On the Main pane, click the target quota setting checkbox.

6. On the Action pane, click **Delete** under **Quota Setting**.
   The Delete Quota page is displayed.

7. Check that the selected quota setting is correct, and then click **Delete**.

6.17 Operations for Automated QoS

This section describes the operation methods related to the Automated QoS function.

6.17.1 Enable/Disable Automated QoS Function

The procedure to enable/disable the Automated QoS function is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. Perform the following procedures according to the operation purpose.

   For Enabling Feature:

   On the Action pane, click **Activate** under **Automated QoS**.

   For Disabling Feature:

   On the Action pane, click **Stop** under **Automated QoS**.

6.17.2 Change Configuration of Automated QoS Function

The procedure to change the configuration related to Automated QoS function is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. On the Category pane, click **Automated Storage Tiering**.
   The items of the Category pane change into the items concerning Automated Storage Tiering.

4. On the Category pane, click **FTV**.

5. On the Action pane, click **Modify** under **FTV**.
   The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Modify**.

Item Name	Explanation
Automated QoS:Enable/Disable	Select whether to change the volume being created subject to adjustments of the Automated QoS. The default setting is "Disable".
	If select "Enable", **Automated QoS:Priority**, **Target Response Time**, or **Automated QoS:Tier Control** can be specified.
	If select "Enable" and not specify **Automated QoS:Priority** or **Target Response Time**, the device will be affected by the adjustments by the Automated QoS function of the other volumes to which those items are specified.
	The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Priority	Simply by specifying "Low", "Middle", or "High" to the volume used by the user, automatic tuning will be performed in accordance with the current load. When "Unlimited" has been selected, this will be of the topmost priority and of the volumes sharing the same resources, performance will be the highest. When "No Set" is selected, there is no priority and therefore adjustments will be made to slow down performance in order to prevent the other volumes to which priority levels and target response times have been set from being affected.
	The value of this item is only enabled when using the Automated QoS function.

Item Name	Explanation
Target Response Time	As an integer from 0-10000, specify the target value (millisecond) of the response time of the volume the user will be using. When "0" has been specified, the bandwidth of the volume concerned will be unlimited. Although a space may be entered, when a space is entered, a target response time will not be configured for that volume. Accordingly, the response time will depend on the configured values for the target response times of the other volumes, and may become faster or slower. The target response time is specified for each volume. Furthermore, **Automated QoS:Priority** cannot be specified when this item has been specified. The value of this item is only enabled when using the Automated QoS function.
Automated QoS:Tier Control	Select whether to perform coordination between the Automated QoS function and Automated Storage Tiering. Simply by specifying together with **Automated QoS:Priority** or **Target Response Time**, automatic tuning of performance will be performed through utilization of the Automated QoS function and Automated Storage Tiering. The value of this item is only enabled when using the Automated QoS function. In addition, this can only be specified when all of the following conditions have been satisfied. - A value other than "Unlimited" and "No Set" is specified for **Automated QoS:Priority**. Alternatively, a value other than "0" is specified for **Target Response Time**. - The execution mode of the Tier pool specified for **Tier Pool Name** is "Auto". - **Low Quota Share** and **High Quota Share** have been specified for two layer operation. **Low Quota Share**, **Middle Quota Share** and **High Quota Share** have been specified for three layer operation.

6.18 Operations for Reporting

This section describes the operation methods related to the Reporting function.

6.18.1 Enable/Disable Reporting Function

The procedure to enable/disable the Reporting function is as follows:

1. On the global navigation tab, click **Storage**.
   The registered ETERNUS Disk storage systems are displayed on the Main pane.

2. On the Main pane, click the target ETERNUS Disk storage system.

3. Perform the following procedures according to the operation purpose.

   For Enabling Feature:

   On the Action pane, click **Activate** under **Reporting**.

   For Disabling Feature:

   On the Action pane, click **Stop** under **Reporting**.

6.19 Operations for Storage Cluster

Refer to "Operation Method" in "Storage Cluster Function" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedures related to Storage Cluster.

Chapter 7   Operations Started From Network Tab

This chapter explains the operations started from clicking **Network** of the global navigation tab.

7.1 Display FC Switch

The procedure to display the registered FC switch list/details is as follows:
To display the list, perform step 1 only.
To display the specific FC switch details, perform all steps.

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, click the target FC switch.
   The detail of the selected FC switch is displayed on the Main pane.

7.2 Register FC Switch

The procedure to register the FC switch is as follows:

1. On the global navigation tab, click **Network**.

2. On the Action pane, click **Discover** under **Switch**.
   The information input screen is displayed.

3. Enter the necessary information, and then click **Discover**.
   The information registration screen is displayed.

4. Check the target switch checkbox.

5. Specify the FC switch information, and then click **Register**.

🅿 Point
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- First register the Principal switch and then register all the FC switches that make up the fabric.

  If the Principal switch has not registered first or unknown, on completion of registration of all the FC switches making up the fabric, perform "7.8 Reload FC Switch Configuration Information" on all the FC switches making up the fabric.

- For the FC switch of Fabric OS v6.3 or later, register the FC switch after enabling the SSH connection of the FC switch.
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🛑 Note
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- If the FC switch is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

- Insure that the URL for the Management Software is in one of the following formats. If it is not then an unexpected action will be done.

  ```
  http://
  https://
  ```
. . . .

7.3 Delete FC Switch

The procedure to delete the FC switch is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, check the target FC switch checkbox.

3. On the Action pane, click **Delete** under **Switch**.
   The information confirmation screen is displayed.

4. Confirm the information, and then click **Delete**.

7.4 Change FC Switch Information

The procedure to change the FC switch information is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, check the target FC switch checkbox.

3. On the Action pane, click **Delete** under **Switch**.
   The information input screen is displayed.

4. Refer to the following table to enter the necessary information, and then click **Modify**.

Item Name	Explanation
SNMP Community Name(Write)	This is a Write-direction SNMP community name. In order to start/stop beacon, it is necessary to set the Write-direction SNMP community name correctly. The "private" is specified at the time of the device registration. If it does not agree to the value of the FC switch, set a correct value on this screen.

Note
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This procedure does not include instructions for:

- Changing any registered IPv4 address to IPv6 address.

- Changing any registered IPv6 address to IPv4 address.

To change the IP address version of any registered FC switch, delete the registered FC switch first and then register the FC switch again.
....

7.5 Reset FC Switch Password

The procedure to re-configure the FC switch password is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, check the target FC switch checkbox.

3. On the Action pane, click **Reset Password** under **Switch**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Reset**.

7.6 Display FC Switch Ports

The procedure to display the FC switch ports is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Port**.
   The FC switch ports are displayed on the Main pane.

7.7 Display/Delete FC switch Zoning

The procedure to display/delete the FC switch zoning is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Zoning**.
   The FC switch zoning information is displayed on the Main pane.

4. Perform the following procedures according to the operation purpose.

   For Displaying:

   a. On the Main pane, click the target zoning.
      The World Wide Port Name (WWPN) registered in the clicked zoning is displayed on the Main pane.

   For Deleting:

   a. On the Main pane, click the target zoning checkbox.

   b. On the Action pane, click **Delete** under **Zoning**.
      The information confirmation screen is displayed.

   c. Confirm the information, and then click **Delete**.

7.8 Reload FC Switch Configuration Information

The procedure to reload the FC switch configuration information is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, check the target FC switch checkbox.

3. On the Action pane, click **Reload Conf.** under **Switch**.

- In registering FC switches, if the Principal switch has not been registered beforehand or unknown, on completion of registration of all the FC switches making up the fabric, perform this operation on all the FC switches making up the fabric.

- If the FC switch configuration has been changed in such cases as below, perform this operation on all the FC switches making up the fabric:

  - The Principal switch was changed due to FC switch replacement.

  - The fabric configuration was changed due to cascade connection/disconnection between FC switches.

  - Switches were added to or deleted from the fabric.

  - The Principal switch was intentionally changed.

  - The device name of the FC switch was changed.

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7.9 Start/Stop Beacon

The procedure to start/stop the FC switch beacon is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switch list is displayed on the Main pane.

2. On the Main pane, check the target FC switch checkbox.

3. Perform the following procedures according to the operation purpose.

   For Starting of Beacon:

   a. On the Action pane, click **Beacon (Start)** under **Beacon**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Start**.

   For Stopping of Beacon:

   a. On the Action pane, click **Beacon (Stop)** under **Beacon**.
      The information confirmation screen is displayed.

   b. Confirm the information, and then click **Stop**.

🛈 Note

In order to start/stop beacon, it is necessary to set the Write-direction SNMP community name of the FC switch to the ETERNUS SF system. When the device is registered to the ETERNUS SF system, "private" is set by default. If the Write-direction SNMP community name of the FC switch is not "private", refer to "7.4 Change FC Switch Information" to change the **SNMP Community Name(Write)**.

7.10 Access Path Setting

The procedure to set an access path is as follows:

1. On the global navigation tab, click **Network**.

2. On the Category pane, click **Access Path**.

3. On the Action pane, click **Add (Other)** under **Access Path**.
   The Welcome screen is displayed.

4. Click **Next**.
   The Select Server HBA screen is displayed.

5. Click the target server and HBA radio button.

6. Click **Next**.
   The Select Storage Port screen is displayed.

7. Click the target storage and port radio button.
   The port list is not displayed until storage is selected.

8. Click **Next**.
   The information confirmation screen is displayed.

9. Confirm the information, and then click **Add**.

7.11 Operations for Performance Management of Network Device

This section describes the operations related to performance management of the network devices.

7.11.1   Display Performance Monitoring Status

The procedure to display the collection status of performance information is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Configuration**.
   The collection status of performance information for the selected FC switch is displayed on the Main pane.

7.11.2   Start/Change Settings of/Stop Performance Monitoring

The procedure to start/change the settings of /stop the performance monitoring is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Configuration**.

5. Perform the following procedures according to the operation purpose.

   For Starting of Performance Monitoring:

   a. On the Action pane, click **Start** under **Performance**.
      The information input screen is displayed.

   b. Enter the necessary information, and then click **Start**.

   For Change Settings of Performance Monitoring:

   a. On the Action pane, click **Modify** under **Performance**.
      The information input screen is displayed.

   b. Enter the necessary information, and then click **Modify**.

   For Stopping of Performance Monitoring:

   a. On the Action pane, click **Stop** under **Performance**.

7.11.3   Display Performance Information Graph

The procedure to display the collected performance information with a graph is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Charts**.

5. On the Main pane, select the objects to display.

6. On the Action pane, click **Performance Chart** under **Charts**.

7. On the Performance Chart window, enter the necessary information, and then click **Plot**.
   The performance information is displayed as graphs.

- To display the Threshold Monitoring graph, only one object must be selected.
  Multiple objects maybe selected on the Main pane (above step 5). These objects can be selected one at a time on the Performance Chart screen to display the Threshold graph.

- If you check the **Display Threshold Monitoring** checkbox, the current threshold value is displayed on the graph.

- The **Peak Graph** checkbox is enabled when "1 Day" or "1 Week" is specified for the Duration.

7.11.4 Export Performance Information

The procedure to export the collected performance information is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Charts**.

5. On the Main pane, select the objects to display.

6. On the Action pane, click **Performance Chart** under **Charts**.

7. On the Performance Chart window, enter the necessary information, and then click **Download**.

7.11.5 Enable/Disable Threshold Monitoring

The procedure to enable/disable the Threshold Monitoring is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The current status is displayed on the Main pane.

5. On the Action pane, click **Enable** or **Disable** under **Monitoring**.

7.11.6 Start/Stop Threshold Monitoring

The procedure to start/stop the Threshold Monitoring is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The current status is displayed on the Main pane.

5. On the Action pane, click **Start Monitoring** or **Stop Monitoring** under **Thresholds Setting**.

7.11.7   Display/Change Threshold Monitoring Common Configuration for All Ports

The procedure to display/change the common configuration of the Threshold Monitoring for all ports is as follows:
To display it, perform from step 1 to step 5.
To change it, perform all steps.

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Port Configuration**.
   The common configuration of the Threshold Monitoring for all ports is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Default Setting**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

7.11.8   Set/Change/Delete Threshold Monitoring Configuration for Each Port

The procedure to set/change/delete the configuration of the Threshold Monitoring for each port is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Port Configuration**.

6. On the Main pane, click the target of the Threshold Monitoring.
   The list of ports that the configuration of the Threshold Monitoring is set is displayed on the Main pane.

7. Perform the following procedures according to the operation purpose.

   For Setting Threshold:

   a. On the Action pane, click **Add** under **Individual Setting**.
      The information input screen is displayed.

   b. Enter the necessary information, and check the target port checkbox. Then, click **Add**.

   For Changing Threshold:

   a. On the Main pane, check the target port checkbox.

   b. On the Action pane, click **Modify** under **Individual Setting**.
      The information input screen is displayed.

   c. Enter the necessary information, and then click **Modify**.

   For Deleting Threshold:

   a. On the Main pane, check the target port checkbox.

   b. On the Action pane, click **Delete** under **Individual Setting**.
      The information confirmation screen is displayed.

c. Confirm the information, and then click **Delete**.

7.11.9   Set Threshold Monitoring Time

There are the following items about the Threshold Monitoring time.

- Start Time of the Threshold Monitoring

- Stop Time of the Threshold Monitoring

- Start Time of the Alarm Display

- Stop Time of the Alarm Display

- Frequency of the Alarm Display

The procedure to set the Threshold Monitoring time is as follows:

1. On the global navigation tab, click **Network**.
   The registered FC switches are displayed on the Main pane.

2. On the Main pane, click the target FC switch.

3. On the Category pane, click **Performance**.
   The items of the Category pane change into the items concerning the performance management.

4. On the Category pane, click **Threshold Monitoring**.
   The items of the Category pane change into the items concerning the Threshold Monitoring.

5. On the Category pane, click **Time Setting**.
   The current status is displayed on the Main pane.

6. On the Action pane, click **Modify** under **Time Setting**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Modify**.

Chapter 8   Operations Started From Server Tab

This chapter explains the operations started from clicking **Server** of the global navigation tab.

8.1 Operations for Server

This section describes the operations related to the server.

8.1.1 Register Server

The procedure to register the server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Action pane, click **Register** under **Server**.
   The information input screen is displayed. (select the registration options)

3. Enter the necessary information, and then click **Next**.
   The information input screen is displayed. (enter the detailed server information)

4. Enter the necessary information, and then click **Register**.

📝 Note
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- The Job Status pane allows you to confirm the completion of server registration processing. However, since the information in the Job Status pane is automatically deleted 24 hours after processing is completed, check deleted information in "11.1 Display Operation History". The server registration processing has completed when the displayed items of the **Operation History** screen is as follows:

  - Action: Register Server

  - State: Complete

  - Result: Success

  - Target: IP address for registered server

  Please do not perform any operation for this server until the registration processing has been completed.

- Please do not register a server which is managed by another Management Server.

- To install the Storage Cruiser's agent on the Managed Server which the AdvancedCopy Manager's agent has been installed, it is necessary to register its Managed Server again after deleting it.

- If the server is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

- For a server on which the following agent is installed, even if IPv6 address exists in the server, its registration is accepted only with IPv4 address.

  - Storage Cruiser's agent that does not support IPv6 address

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8.1.2 Display Server

The registered server list is displayed on the Main pane when clicking **Server** on the global navigation tab.

📝 Note
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- The servers registered by CLI are not displayed on the Web Console.

- In the case of the following servers, a displayed operating system name may be different from a Storage Cruiser's agent installed server:

  - VMware Host

  - VMware Guest

  - Hyper-V host

  - Hyper-V guest

8.1.3 Display Server Details

The procedure to display the detailed information of the registered server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.
   The detailed information of the server and HBA list are displayed on the Main pane.

Note

A CNA card installed in the server is displayed as "FC HBA".

8.1.4 Delete Server

The procedure to delete the registered server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, check the target server checkbox.

3. On the Action pane, click **Delete** under **Server**.
   The information confirmation screen is displayed.

4. Confirm the information, and then click **Delete**.

Note

- If there are access paths connected with the server to be deleted:

  Before deleting the server, delete all access paths connected with the server to be deleted.

- If the server is registered as the Hyper-V host:

  Before deleting the server, delete the registration as the Hyper-V host.

8.1.5 Change Server Information

Information

To change the server information, there are operations that are required before and after use of the Web Console. For this reason, change the server information after referring to the following sections in the operation guide of the product in use.

- "Maintenance" in the *ETERNUS SF Express Operation Guide*

- "Changing Operating Environment" in the *ETERNUS SF Storage Cruiser Operation Guide*

- "Changing Operating Environment" in "Operation Maintenance" in the *ETERNUS SF AdvancedCopy Manager Operation Guide*

The procedure to change the registered server information on the **Modify Server** screen of Web Console is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, check the target server checkbox.

3. On the Action pane, click **Modify** under **Server**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Modify**.

🅿 Point
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- If the following conditions apply, it is necessary to perform the above procedure to declare the use of AdvancedCopy Manager.

  - The server registered using the Web Console has been set up the Managed Server of AdvancedCopy Manager using the command.

  - In addition, the Advanced Copy functions will be operated from the Web Console.

- When using the Advanced Copy function on the server registered by the Web Console, specify "Yes" for [Use AdvancedCopy Manager]. In addition, when a server registered by the Web Console is configured by the command as the Managed Server of AdvancedCopy Manager, it is necessary to perform same procedures for using the Advanced Copy function.

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8.1.6 Set/Change Information of Account That Can Access VMware Host

The procedure to register the information of the account that can access the VMware Host into this product, and the procedure to change the account information registered in this product are as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, check the target VMware Host checkbox.

3. On the Action pane, click **Reset Password** under **Server**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Reset**.

📙 Note
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- This procedure does not include instructions for:

  - Registering the account information into the VMware Host

  - Changing the account information registered in the VMware Host

- If account information in the VMware Host is registered or changed, execute this procedure immediately to match the account information in the VMware Host and this product.

  When account information in the VMware Host and this product are not matched, communicate from this product to the VMware Host fails because of the authentication error. If the authentication error occurs, the Web Console cannot display the correct information.

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8.1.7 Reload Server Configuration Information

The procedure to reload the server configuration information is as follows:

1. On the global navigation tab, click **Server**.
   The registered server list is displayed on the Main pane.

2. On the Main pane, check the target server checkbox.

3. On the Action pane, click **Reload Conf.** under **Server**.

8.1.8   Add HBA

The procedure to add HBA to the registered server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.
   The detailed information of the server and information about HBAs installed in the server are displayed on the Main pane.

3. On the Action pane, click **Add** under **HBA**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.

5. Confirm the information, and then click **Add**.

📘 Point
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The interface which can be selected in the HBA adding operation is as follows.

Server Status	Interfaces Can Be Added
Managed Server of both Storage Cruiser and AdvancedCopy Manager	iSCSI and SAS (An HBA of FC is automatically detected by registering a server or reloading server configuration information.)
Managed Server of Storage Cruiser	
Managed Server of AdvancedCopy Manager	FC, iSCSI and SAS
Server registered in Express	
Manually embedded device of Storage Cruiser	

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📙 Note
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If an HBA whose interface is iSCSI is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.

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8.1.9   Delete HBA

The procedure to delete HBA is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.
   The detailed information of the server and information about HBAs installed in the server are displayed on the Main pane.

3. On the Main pane, check the target HBA checkbox.

4. On the Action pane, click **Delete** under **HBA**.
   The information confirmation screen is displayed.

5. Confirm the information, and then click **Delete**.

Note

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When deleting a target HBA that is installed in the device, the deletion operation finishes normally, but the HBA information is not deleted and the status of the HBA is updated to be displayed.

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8.1.10 Display Volume of Server

The procedure to display volumes associated with each server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Volume**.
   The volumes associated with the selected server are displayed on the Main pane.

4. On the Main pane, click the target volume.
   The detail of the selected volume is displayed on the Main pane.

8.1.11 Change Volume of Server

The procedure to change the volume associated with each server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Volume**.
   The volumes associated with the selected server are displayed on the Main pane.

4. On the Action pane, click **Modify** under **Volume**.
   The Select Affinity Group Information screen is displayed.

5. Click the radio button of the affinity group to assign volumes to the server.

6. Click **Next**.
   The Specify LUN Mapping screen is displayed.

7. Select volumes you want to assign.

8. Click **Next**.
   The information confirmation screen is displayed.

9. Confirm the information, and then click **Modify**.

8.1.12 Operations for Device

8.1.12.1 Display Device

The procedure to display devices managed by AdvancedCopy Manager is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Device**.
   The device list is displayed on the Main pane.

8.1.12.2 Display Devices That Use Same Copy Area

The procedure to display devices that use same copy area is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Device**.
   The device list is displayed on the Main pane.

4. On the Main pane, click "Click Here" link of **Same Area Device** column for the target device.
   The information of devices that use the same copy area is displayed.

8.1.12.3   Add/Reload Device

The procedure to add/reload a device is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Device**.

4. On the Action pane, click **Discover/Reload** under **Devices**.
   The Select Registration Devices screen is displayed.

5. On the Main pane, click the checkbox of the device to manage AdvancedCopy Manager, and then click **Next**.
   The Remove Previously managed Devices screen is displayed.

6. On the Main pane, click the checkbox of the device to remove from AdvancedCopy Manager, and then click **Next**.
   The Changed Devices Information screen is displayed.

7. Confirm the information of the changed devices, and then click **Next**.
   The information confirmation screen is displayed.

8. Confirm the information, and then click **Add**.

8.1.12.4   Delete Device

The procedure to delete a device managed by a server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Device**.
   The device list is displayed on the Main pane.

4. On the Main pane, click the target device checkbox.

5. On the Action pane, click **Delete** under **Devices**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Delete**.

8.2   Operations for Advanced Copy

This section describes the operations related to Advanced Copy.

8.2.1   Display Advanced Copy Status

The procedure to display the Advanced Copy information for the specific server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
The Advanced Copy information is displayed on the Main pane.

8.2.2   Operations for Replication Management Function

8.2.2.1   Create/Display/Change/Delete Replication Group

The procedure to create/display/change/delete a replication group is as follows:

1. On the global navigation tab, click **Server**.
The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
The registered replication group list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Creating Replication Group:

   a. On the Action pane, click **Create** under **Replication Group**.
   The Create Group screen is displayed.

   b. Refer to the following table to enter the necessary information, and then click **Create**.

Item Name	Explanation
Group name	Specify a name for the group that manages replication pairs.
	To not create a group, click the **Do not create group (Device pairs do not have to belong to a group.)** checkbox.
	To enable bidirectional copy between the devices in this group, click the **Enable bidirectional copying between the devices in this group** checkbox.
Source server	The replication source server name is displayed.
Destination server	When the replication destination device exists on the server different from the replication source server, click the **Create replication groups on a different server** checkbox and specify the server where the replication destination device exists.
	To create a replica on the same server, it is unnecessary to specify.
Operation server	When you create a replica on a different server, select the server where the replication operations are performed.

   c. Click **Next**.
   The Add Replication Pairs screen is displayed.

   d. Select the replication source/destination device.

   By default, only pairs where replication source/destination devices have the same size can be created. In order to create the pair that replication source/destination devices are different size, click the **Allow devices of any size to be paired** checkbox.

   e. Click **Add**.

   For Displaying Replication Group Details:

   a. On the Main pane, click the target replication group name.

For Changing Replication Group:

    a. On the Main pane, click the target replication group checkbox.

    b. On the Action pane, click **Modify** under **Replication Group**.
The information input screen is displayed.

    c. Perform the following procedure to define the replication group again.

When the specific replication pair is removed from the replication group, click the target replication pair checkbox and then click **Delete**.

When a new replication pair is added to the replication group, select the replication source/destination devices and then click **Add**. By default, only pairs where replication source/destination devices have the same size can be created. In order to create the pair that replication source/destination devices are different size, click the **Allow devices of any size to be paired** checkbox.

    d. Click **Modify**.

For Deleting Replication Group:

    a. On the Main pane, click the target replication group checkbox.

    b. On the Action pane, click **Delete** under **Replication Group**.
The information input screen is displayed.

    c. Refer to the following table to enter the necessary information, and then click **Delete**.

Item Name	Explanation
Emergency operation mode	If there has been a communications error during a previous replication which requires the relationship between the source/destination servers to be cleared at both ends, this checkbox should be checked.
Perform communication between linked servers	Check if necessary. If the replication group or volume pair does not share the same replication source server, this checkbox is checked by default.

8.2.2.2   Display Replication Pair

The replication pair defined in the replication group can be confirmed by displaying the replication group details. Refer to "8.2.2.1 Create/Display/Change/Delete Replication Group" for information on how to display the replication group details.

8.2.2.3   Start OPC/QuickOPC/SnapOPC/SnapOPC+

The procedure to start OPC/QuickOPC/SnapOPC/SnapOPC+ for a replication group is as follows:

1. On the global navigation tab, click **Server**.
The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Start OPC** under **Replication Operations**.
The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Start**.

Item Name	Explanation
Copy Type	Specify the type of Advanced Copy to be executed.
Reverse copy	To reverse the replication direction (to execute the copy from the replication destination device to the replication source device), click the **Reverse Copy (from destination to source)** checkbox.
Concurrent OPC	To perform the Concurrent OPC for the replication group, click the **Executing Concurrent OPC** checkbox.
Pre- and Post-processing scripts	Specify whether to perform the pre-/post-processing for the replication source/destination devices. To perform the pre-/post-processing for the replication source device, click the **Run scripts on the source devices** checkbox. If OS of the server that has the replication source device is Windows and you wish to flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click the **Flush file system buffers only. Source devices will not be locked. (Windows only)** checkbox. To perform the pre-/post-processing for the replication destination device, click the **Run scripts on the destination devices** checkbox.
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an Advanced Copy is not started, click the **Skip device status check and pre-, post-processing scripts on non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.4   Stop OPC/QuickOPC/SnapOPC/SnapOPC+

The procedure to stop OPC/QuickOPC/SnapOPC/SnapOPC+ that is being executed for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Cancel OPC** under **Replication Operations**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Cancel OPC**.

8.2.2.5   Start/Resume EC

The procedure to start/resume EC for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Start/Resume EC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Start/Resume**.

Item Name	Explanation
Reverse Copy	To reverse the replication direction (to execute EC from the replication destination device to the replication source device), click the **Reverse Copy (from destination to source)** checkbox.
Copy Destination Access	To enable the Destination Access Permission function, click the **Copy Destination Access** checkbox.
Pre-processing script on destination device	To perform the pre-processing for the replication destination device, click the **Run pre-processing script on destination device** checkbox.
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an EC is not started, click the **Skip device status check and pre-, post-processing script on non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.6   Suspend EC

The procedure to suspend EC that is being executed for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Suspend EC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Suspend**.

Item Name	Explanation
Suspend concurrently	To create a replica using the concurrent suspend function, click the **Suspend the EC session concurrently** checkbox.
Pre- and post-processing scripts	Specify whether to perform the pre-/post-processing for the replication source/destination devices. To perform the pre-/post-processing for the replication source device, click the **Run scripts on the source devices** checkbox. This is valid only when the copy status is "equivalent". If OS of the server that has the replication source device is Windows and you wish to flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click the **Flush file system buffers only. Source devices will not be locked. (Windows only)** checkbox. This is valid only when the copy status is "equivalent". To perform the pre-/post-processing for the replication destination device, click the **Run scripts on the destination devices** checkbox. This is valid only when the copy status is "equivalent".
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an EC is not started, click the **Skip device status check and pre-, post-processing scripts on non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.7   Reverse EC Direction

The procedure to reverse the EC direction for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Reverse EC Direction** under **Replication Operations**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Reverse Direction**.

8.2.2.8   Stop EC

The procedure to stop EC that is being executed for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Cancel EC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Cancel EC**.

Item Name	Explanation
Pre- and post-processing scripts	Specify whether to perform the pre-/post-processing for the replication source/destination devices.
	To perform the pre-/post-processing for the replication source device, click the **Run scripts on the source devices** checkbox. This is valid only when the copy status is "equivalent". If OS of the server that has the replication source device is Windows and you wish to flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click the **Flush file system buffers only. Source devices will not be locked. (Windows only)** checkbox. This is valid only when the copy status is "equivalent".
	To perform the pre-/post-processing for the replication destination device, click the **Run scripts on the destination devices** checkbox. This is valid only when the copy status is "equivalent".
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an EC is not started, click the **Skip device status check and pre-, post-processing scripts on non-operation server** checkbox. This is valid at server-to-server replication only.
	To cancel EC forcibly from the server which an EC is not started, click the **Forcibly cancel copying on the non-operation server** checkbox.

8.2.2.9 Start/Resume REC

The procedure to start/resume REC for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Start/Resume REC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Start/Resume**.

Item Name	Explanation
Reverse Copy	To reverse the replication direction (to execute REC from the replication destination device to the replication source device), click the **Reverse Copy (from destination to source)** checkbox.
Copy Destination Access	To enable the Destination Access Permission function, click the **Copy Destination Access** checkbox.
Initial copy skip	Click the **Skip initial copy (Resume in remain mode)** checkbox in the following cases: - When you wish to start the synchronous processing by using the initial copy skip function on beginning of replication - When you wish to resume the synchronous processing by the Remain mode on resuming of replication

Transfer mode	Specify the transfer mode of the device to-device synchronous processing.
	
	- Synchronous: Check to use the Synchronous mode. When this mode is selected, the Split mode ("Automatic" or "Manual") of the device to-device synchronous processing must be specified.
	
	  - Automatic: Check if started by the Automatic Split mode.
	
	  - Manual: Check if started by the Manual Split mode.
	
	- Consistency: Check to use the Consistency mode.
	
	- Stack: Check to use the Stack mode.

Recovery mode	Specify the recovery mode for the device-to-device synchronous processing. - Automatic: Check to use the Manual Recovery mode. - Manual: Check to use the Automatic Recovery mode.
Pre-processing script on destination device	To perform the pre-processing for the replication destination device, click the **Run pre-processing script on destination device** checkbox.
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an REC is not started, click the **Skip device status check and pre-, post-processing script on non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.10 Suspend REC

The procedure to suspend REC that is being executed for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Suspend REC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Suspend**.

Item Name	Explanation
Concurrent Suspend	To create a replica using the concurrent suspend function, click the **Suspend the REC session concurrently** checkbox.
Forcibly suspend	To suspend forcibly, click the **Suspend the REC session forcibly** checkbox. The data of the replication destination device is not guaranteed. In addition, the pre-/post-processing for the replication source device and replication destination device is not executed.
Pre- and post-processing scripts	Specify whether to perform the pre-/post-processing for the replication source/destination devices. To perform the pre-/post-processing for the replication source device, click the **Run scripts on the source devices** checkbox. This is valid only when the copy status is "equivalent". If OS of the server that has the replication source device is Windows and you wish to flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click the **Flush file system buffers only. Source devices will not be locked. (Windows only)** checkbox. This is valid only when the copy status is "equivalent". To perform the pre-/post-processing for the replication destination device, click the **Run scripts on the destination devices** checkbox. This is valid only when the copy status is "equivalent".
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an REC is not started, click the **Skip device status check and pre-, post- processing scripts on non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.11   Reverse REC Direction

The procedure to reverse the REC direction for a replication group is as follows:

1. Perform the procedure of "8.2.2.9 Start/Resume REC" to start/suspend REC.

2. After the copy status of REC has been changed to "equivalent", perform step 5 and later of "8.2.2.10 Suspend REC" to suspend REC.

3. On the Main pane, click the target replication group checkbox.

4. On the Action pane, click **Reverse REC Direction** under **Replication Operations**.
   The information confirmation screen is displayed.

5. Confirm the information, and then click **Reverse Direction**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Reverse Direction**.

8.2.2.12   Stop REC

The procedure to stop REC that is being executed for a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Cancel REC** under **Replication Operations**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Cancel REC**.

Item Name	Explanation
Forcibly cancel on "halt" state	To stop the REC session whose copy status is "halt", click the **Cancel the REC session of "halt" state** checkbox. This is valid only when the copy status is "halt".
Pre- and post-processing scripts	Specify whether to perform the pre-/post-processing for the replication source/destination devices.
	To perform the pre-/post-processing for the replication source device, click the **Run scripts on the source devices** checkbox. This is valid only when the copy status is "equivalent". If OS of the server that has the replication source device is Windows and you wish to flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click the **Flush file system buffers only. Source devices will not be locked. (Windows only)** checkbox. This is valid only when the copy status is "equivalent".
	To perform the pre-/post-processing for the replication destination device, click the **Run scripts on the destination devices** checkbox. This is valid only when the copy status is "equivalent".
Server-to-server replication	To not perform the device status confirmation and pre-/post-processing scripts on the server which an REC is not started, click the **Skip device status check and pre-,post-processing scripts on non-operation server** checkbox. This is valid at server-to-server replication only.
	To cancel REC forcibly from the server which an REC is not started, click the **Forcibly cancel copying on the non-operation server** checkbox. This is valid at server-to-server replication only.

8.2.2.13 Change REC Mode

The procedure to change the REC mode of a replication group is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Main pane, click the target replication group checkbox.

6. On the Action pane, click **Change REC Mode** under **Replication Operations**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Change Mode**.

8.2.2.14 Refresh Copy Status of Replication Operation

The procedure to update the replication status to the latest information is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.
   The registered replication group list is displayed on the Main pane.

5. On the Action pane, click **Refresh** under **Status**.

   The latest copy status is gathered from the storage device. In order to display the latest copy status on the screen, click ⟳ on the menu area.

8.2.2.15 Replication Error Recovery

The procedure to perform the recovery for the replication management files is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Replication Operation**.

5. On the Action pane, click **Recovery** under **Replication Error Recovery**.
   The information input screen is displayed.

6. Refer to the following table to enter the necessary information, and then click **Recovery**.

Item Name	Explanation
Replication management files	Replication management files are recreated by using files stored in the Management Server. Click the **Recreate files from the Storage Management Server** checkbox in the following cases: - An operation that updates the replication management files, the swsrpsetvol command or the swsrpdelvol command etc., has terminated abnormally (including a forced termination by a system failure). - An error status has been generated for the replication management files (for example, because of an incorrect deletion of the replication management files).
Unfinished post-processing	To perform any unfinished post-processing, click the **Perform any unfinished post-processing** checkbox.

8.2.3 Operations for Backup Management Function

8.2.3.1 Enable Backup Management

The procedure to set a server as the server that can use the backup management function of AdvancedCopy Manager is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Action pane, click **Enable** under **Backup Management**.

8.2.3.2 Set As Transaction Volume or Backup Volume

The procedure to set the device connected with a server as transaction volume or backup volume is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Action pane, click **Set As Transaction Volume** or **Set As Backup Volume** under **Device Types**.
   The information confirmation screen is displayed.

6. Confirm the information, and then click **Set**.

Point

. . . .

The device that can be set as a transaction volume or backup volume of AdvancedCopy Manager is a device that meets the following conditions:

- "Unassigned" is displayed in **Device Type** column on the Backup Operation overview screen (displayed by performing the above step 4), and,

- "No" is displayed in **In Use by Replication** column.

. . . .

8.2.3.3 Display Transaction Volume

The procedure to display transaction volumes is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.
   The devices are displayed on the Main pane. The device that "Transaction" is displayed in **Device Type** column is a transaction volume.

In order to display the transaction volume details, click the target device name.

8.2.3.4 Release Transaction Volume or Backup Volume

The procedure to release the setting as a transaction volume or backup volume is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.
   The devices are displayed on the Main pane.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Release Volume Type** under **Device Types**.
   The information confirmation screen is displayed.

7. Confirm the information, and then click **Release**.

8.2.3.5 Set/Display/Delete Backup Policy

The procedure to set a backup policy to the transaction volume and the procedure to display/delete the backup policy set to the transaction volume are as follows:
To display the backup policy, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.
   The backup policy (Backup generations to Keep, Backup Interval) set for each transaction volume is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Setting Backup Policy:

   a. On the Main pane, click the target device checkbox.

   b. On the Action pane, click **Set Backup Policy** under **Backup Policy**.
      The information input screen is displayed.

   c. Enter the necessary information, and then click **Set**.

   For Deleting Backup Policy:

   a. On the Main pane, click the target device checkbox.

   b. On the Action pane, click **Release Backup Policy** under **Backup Policy**.
      The information confirmation screen is displayed.

   c. Confirm the information, and then click **Release**.

8.2.3.6 Start/Resume Synchronous Copy (EC)

The procedure to start/resume the synchronous copy (EC) is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Start/Resume Sync.** under **High Speed Backup**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Start/Resume Sync Copy**.

Item Name	Explanation
Select Type	Specify the selection method of the backup volume.
	Auto-select selects the most suitable backup volume automatically. To back up to the specific backup volume, it is necessary to click the **Use a device map file** radio button and to enter the device map file name.

8.2.3.7   Perform Backup

The procedure to perform the backup is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Backup** under **High Speed Backup**.
   The information input screen is displayed.

7. Refer to the following table to enter the necessary information, and then click **Backup**.

Item Name	Explanation
Backup Type	Specify the backup method.
	- To use the snap shot type high-speed backup, select either of the following:
	- Start Snapshot Copy (OPC) / Stop Synchronized Copy (EC)
	- Start Snapshot Copy (QuickOPC)
	- To use the synchronous backup, select either of the following:
	- Start Snapshot Copy (OPC) / Stop Synchronized Copy (EC)
	- Suspend Synchronized Copy (EC)
	To use the synchronous backup, it is necessary to perform the procedure of "8.2.3.6 Start/ Resume Synchronous Copy (EC)" before performing the backup.
Select Type	Specify the selection method of the backup volume.
	Auto-select selects the most suitable backup volume automatically. To back up to the specific backup volume, it is necessary to click the **Use a device map file** radio button and to enter the device map file name.
Flush file system buffer only. It does not lock source device (Windows only)	To flush the file system buffer instead of volume locking because of the data guarantee for the replication source device, click this checkbox. This is valid only when OS of the server that has the transaction volume is Windows.

8.2.3.8   Display Tracking Status

The procedure to display the tracking status is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the **Tracking Status** tab.

8.2.3.9   Stop Tracking Processing

The procedure to stop the tracking processing is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Action pane, click **Cancel Tracking (QuickOPC)** under **High Speed Backup**.
   The information input screen is displayed.

6. Click the target device checkbox.

7. Click **Cancel Tracking**.

8.2.3.10   Display Synchronous Status

The procedure to display the synchronous status is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the **Sync. Status** tab.

8.2.3.11   Stop Synchronous Processing

The procedure to stop the synchronous processing is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Action pane, click **Cancel Sync. Copy (EC)** under **High Speed Backup**.
   The information input screen is displayed.

6. Click the target device checkbox.

7. Click **Cancel Sync. Copy**.

8.2.3.12   Perform Restore

The procedure to perform the restore from the backup volume is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Restore** under **High Speed Backup**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Restore**.

8.2.3.13   Display Restore Status

The procedure to display the restore status is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the **Restore Status** tab.

8.2.3.14   Delete Backup History

The procedure to delete a backup history is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Delete Backup Generation** under **Backup Generation**.
   The information input screen is displayed.

7. Click the target generation checkbox. In addition, click the **Emergency Mode** checkbox in the case of the emergency operation mode.

8. Click **Delete**.

8.2.3.15   Refresh Copy Status of Backup Operation

The procedure to update the backup status to the latest information is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Action pane, click **Refresh** under **Status**.
   The latest copy status is gathered from the storage device. In order to display the latest copy status on the screen, click on the menu area.

8.2.3.16 Backup Error Recovery

The procedure to perform the recovery for the backup management files is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Advanced Copy**.
   The items of the Category pane change into the items concerning Advanced Copy.

4. On the Category pane, click **Backup Operation**.

5. On the Main pane, click the target device checkbox.

6. On the Action pane, click **Error Recovery** under **Maintenance**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Recovery**.

8.3 Operations for Access Path

8.3.1 Display Access Path

The procedure to display the access path is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
   The connecting information for a server and storage devices is displayed on the Main pane.

📘 Point
....
Only the access path set to an ETERNUS Disk storage system is displayed.
....

📙 Note
....
The access path status is not updated automatically. When you check the access path status, click **Refresh** in the access path status to make the status up-to-date.
It may take a few minutes to update the access path status. You can confirm the completion of the processing on the **Operation History** screen.
....

8.3.2 Add Access Path to ETERNUS Disk Storage System

The procedure to add an access path to ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
   The connection information for a server and storage devices is displayed on the Main pane.

3. On the Action pane, click **Add (ETERNUS)** under **Access Path**.

4. Click the target server radio button on the Select Server screen.
   Enter the necessary information, and then click **Next**.

5. Click the target storage device radio button on the Select Storage screen.
   Enter the necessary information, and then click **Next**.

6. Click the target Affinity Group on the Select Affinity Group screen.
   Enter the necessary information, and then click **Next**.

7. Confirm the information, and then click **Add**.

🖙 Note
. . . .
Even if this operation is interrupted, the new Affinity/LUN group created during this operation is not deleted.
To delete the new Affinity/LUN group created during this operation, perform the operation "6.12.11 Delete Affinity/LUN Group".
. . . .

📖 Information
. . . .
If you create a new Affinity/LUN group, you can check by **Assigned** column of the volume list whether the selected volume is assigned to other Affinity/LUN group.

Displayed Strings	Explanation
Assigned	Volumes assigned to other Affinity/LUN groups.
No use	Volumes not assigned to other Affinity/LUN groups.

. . . .

8.3.3   Add Access Path (Other Than ETERNUS Disk Storage System)

The procedures to add an access path to a device other than ETERNUS Disk storage system is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
   The connection information for a server and storage devices is displayed on the Main pane.

3. On the Action pane, click **Add (Other)** under **Access Path**.

4. Click the target server radio button on the Select Server screen.
   Enter the necessary information, and then click **Next**.

5. Click the target storage device radio button on the Select Storage screen.
   Enter the necessary information, and then click **Next**.

6. Confirm the information, and then click **Add**.

🖙 Note
. . . .
This operation for devices other than ETERNUS Disk storage system executes only the WWPN zoning setting to the FC switch because it cannot set the host affinity for devices other than ETERNUS Disk storage system.
Set WWPN zoning information can be confirmed with the zoning list screen.
Devices for which host affinity cannot be set are not displayed in the screen displaying access path information.
. . . .

8.3.4   Delete Access Path

The procedure to delete an access path is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
The connection information for a server and storage devices is displayed on the Main pane.

3. On the Main pane, check the target access path checkbox.

4. On the Action pane, click **Delete** under **Access Path**.
The information confirmation screen is displayed.

5. Confirm the information, and then click **Delete**.

8.3.5 Change Access Path

The procedure to change an access path is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
The connection information for a server and storage devices is displayed on the Main pane.

3. On the Main pane, check the target access path checkbox.

4. On the Action pane, click **Modify** under **Access Path**.

5. Click the target HBA radio button on the Select Server HBA screen.
Enter the necessary information, and then click **Next**.

6. Confirm the information, and then click **Modify**.

8.3.6 Display Access Path Status Details

The procedure to display the details of access path status is as follows:

1. On the global navigation tab, click **Server**.

2. On the Category pane, click **Access Path**.
The connection information for a server and storage devices is displayed on the Main pane.

3. On the Main pane, click the **Status** field (icon or text part) of the target access path to display the status.
The detailed information of the access path status is displayed.

8.3.7 Inherit Access Path

The procedure to inherit an access path is as follows:

1. On the global navigation tab, click **Server**.
The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.
The detailed information of the server and information about HBAs installed in the server are displayed on the Main pane.

3. On the Main pain, check the checkbox of the post-replaced HBA.

4. On the Action pane, click **Inherit** under **Access Path**.
The information confirmation screen is displayed.

5. Confirm the information, and then click **Inherit**.

Note

- Basic conditions under which an ETERNUS SF system can recognize HBA replacement on a server node are as follows:

  - Storage Cruiser's agent is installed in the server node.

  - HBA is replaced in the same slot on the server node.

  - The server node is registered in the ETERNUS SF system.

- Access path is configured for pre-replaced HBA.

Even if HBA is replaced with the above basic conditions met, HBA replacement may not be recognized in the following cases:

- When hot swapping HBA on Linux

- When replacing HBA on the Solaris OS

- When the zoning settings intended for access path inheritance is as follows, access path cannot be inherited:

- Port zoning

- Not one-to-one WWPN zoning

- The zoning of tape library devices or other storage devices than ETERNUS Disk storage systems cannot be inherited.

- In the host registration information, host number cannot be inherited. Host name can be inherited.

- If inheritance processing is done on any access path to which no zoning is set, zoning creation is skipped, and host registration and affinity settings alone are performed.

8.4 Operations for Correlation Management

This section describes the correlation management operations for server.

8.4.1 Display/Export End to End View

The procedure to display/export the End to End view list is as follows:
To display the End to End view list, perform from step 1 to step 3.
Otherwise, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The End to End view list is displayed on the Main pane.

4. Perform the following procedures according to the operation purpose.

   For Displaying Specific End to End View Details:

   a. On the Main pane, check the target End to End view radio button.

   b. On the Action pane, click **Display Details** under **End to End View**.
      The detail of the selected End to End view is displayed on the Main pane. If switching the tabs on the Main pane, the detailed information of the selected tab can be displayed.

   For Exporting End to End View Information:

   a. On the Main pane, check the target End to End view radio button.

   b. On the Action pane, click **Download** under **End to End View**.

   c. Specify the location to save the file, and then click **OK**.

   d. Click **Save**.

8.4.2 Display/Export VMware End to End View

The procedure to display/export the VMware End to End view list is as follows:
To display the End to End view list, perform from step 1 to step 4.
Otherwise, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.
   The VMware End to End view list is displayed on the Main pane.

5. Perform the following procedures according to the operation purpose.

   For Displaying Specific VMware End to End View Details:

   a. On the Main pane, click the IP address to display the detailed information.

   b. Click the **VMware Host** tab, **VMware Guest** tab, **Partition** tab, **Raw Device Mapping** tab, or **Datastore** tab to display on the Main pane.

   c. When reference the detailed information on the **Datastore** tab, click the Datastore name.

   For Exporting VMware End to End View Information:

   a. On the Main pane, click the **End to End View (VMware) - Raw Device Mapping** tab or **End to End View (VMware) - Datastore** tab.

   b. On the Main pane, check the target VMware End to End view radio button.

   c. On the Action pane, click **Download** under **End to End View (VMware)**.

   d. Specify the location to save the file, and then click **OK**.

   e. Click **Save**.

8.4.3   Display Raw Device Mapping of VMware End to End View

The procedure to display the raw device mapping information of VMware End to End view is as follows:
To display the list, perform from step 1 to step 5.
To display the specific raw device mapping information details, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.
   The VMware End to End view list is displayed on the Main pane.

5. On the Main pane, click the **End to End View (VMware) - Raw Device Mapping** tab.

6. On the Main pane, the target information radio button.

7. On the Action pane, click **Display Details** under **End to End View (VMware)**.
   The detailed information is displayed on the Main pane. If switching the tabs on the Main pane, the detailed information of the selected tab can be displayed.

8.4.4   Display Datastore of VMware End to End View

The procedure to display the datastore information of VMware End to End view is as follows:
To display the list, perform from step 1 to step 5.
To display the specific datastore information details, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.
   The VMware End to End view list is displayed on the Main pane.

5. On the Main pane, click the **End to End View (VMware)** - **Datastore** tab.

6. On the Main pane, the target information radio button.

7. On the Action pane, click **Display Details** under **End to End View (VMware)**.
   The detailed information is displayed on the Main pane. If switching the tabs on the Main pane, the detailed information.

8.4.5   Register/Reload VMware vCenter/vSphere Server

The procedure of server registration/reloading of the VMware vCenter/vSphere is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.

5. On the Action pane, click **Register/Reload** under **VMware vCenter/vSphere Server**.
   The information input screen is displayed.

6. Enter the necessary information, and then click **Confirm**.

📎 Note
....
If the VMware vCenter/vSphere server is a dual stack device to which both IPv4 and IPv6 addresses are configured, register either of the two addresses.
....

8.4.6   Delete VMware vCenter/vSphere Server

The procedure to delete the VMware vCenter/vSphere server is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (VMware)**.

5. Check the target checkbox on the Main pane.

6. On the Action pane, click **Delete** under **VMware vCenter/vSphere Server**.
   VMware vCenter/vSphere is displayed in a pop-up window.

7. Click the button at the lower right in the pop-up window.

8.4.7   Register/reload Hyper-V Host

The procedure of server registration/reloading of the Hyper-V host is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, check the target server checkbox to register as a Hyper-V host.

6. On the Action pane, click **Register/Reload** under **Hyper-V Host**.
   The information input screen is displayed.

7. Enter the necessary information, and then click **Confirm**.

8.4.8 Display Hyper-V Host

The procedure to display the Hyper-V host list/details is as follows:
To display the list, perform from step 1 to step 4.
To display the specific Hyper-V host details, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the target Hyper-V host.

6. On the Main pane, click the **Hyper-V Host** tab, **Hyper-V Guest** tab, **Partition** tab, **Pass-through Disk** tab, or **Virtual Hard Disk** tab.

8.4.9 Display Pass-through Disk of Hyper-V End to End View

The procedure to display the pass-through disk of Hyper-V host list/details is as follows:
To display the list, perform from step 1 to step 5.
To display the specific pass-through disk of Hyper-V host details, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the **End to End View (Hyper-V) - Pass-through Disk** tab.

6. On the Main pane, click the target information radio button.

7. On the Action pane, click **Display Details** under **End to End View (Hyper-V)**.
   The detailed information is displayed on the Main pane. If switching the tabs on the Main pane, the detailed information.

8.4.10 Display Virtual Hard Disk Hyper-V End to End View

The procedure to display the virtual hard disk of Hyper-V host list/details is as follows:
To display the list, perform from step 1 to step 5.
To display the specific virtual hard disk of Hyper-V host details, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the **End to End View (Hyper-V) - Virtual Hard Disk** tab.

6. On the Main pane, click the target information radio button.

7. On the Action pane, click **Display Details** under **End to End View (Hyper-V)**.
   The detailed information is displayed on the Main pane. If switching the tabs on the Main pane, the detailed information.

8.4.11   Delete Hyper-V Host

The procedure to delete the Hyper-V host is as follows:

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click the target Hyper-V host checkbox.

6. On the Action pane, click **Delete** under **Hyper-V Host**.
   The Hyper-V host is displayed in a pop-up window.

7. Click the button at the lower right in the pop-up window.

8.4.12   Display/Export Hyper-V End to End View

The procedure to display/export the Hyper-V End to End view list is as follows:
To display the list, perform from step 1 to step 5.
Otherwise, perform all steps.

1. On the global navigation tab, click **Server**.
   The registered servers are displayed on the Main pane.

2. On the Main pane, click the target server name.

3. On the Category pane, click **Correlation**.
   The items of the Category pane change into the items concerning the correlation management.

4. On the Category pane, click **End to End View (Hyper-V)**.

5. On the Main pane, click either of the following tabs.

   - **End to End View (Hyper-V) - Pass-through Disk** tab

     The End to End view list related to the pass-through disk is displayed on the Main pane.

   - **End to End View (Hyper-V) - Virtual Hard Disk** tab

     The End to End view list related to the virtual hard disk is displayed on the Main pane.

6. Perform the following procedures according to the operation purpose.

   For Displaying Specific Hyper-V End to End View Details:

   a. On the Main pane, check the target Hyper-V End to End view radio button.

   b. On the Action pane, click **Display Details** under **End to End View (Hyper-V)**.
      The detail of the selected Hyper-V End to End view is displayed on the Main pane.

For Exporting Hyper-V End to End View Information:

    a. On the Main pane, check the target Hyper-V End to End view radio button.

    b. On the Action pane, click **Download** under **End to End View (Hyper-V)**.

    c. Specify the location to save the file, and then click **OK**.

    d. Click **Save**.

Chapter 9   Operations Started From Map View Tab

This chapter explains the operations started from clicking **Map View** of the global navigation tab.

Map View has the following screens:

Screen Name	Explanation
Overview	Displays the physical configuration of the device nodes held by ETERNUS SF system.
Logical Path View	Displays on the Main pane the physical configuration and logical configuration of the device nodes selected on the Overview screen.

Note
....

- When displaying the Overview and Logical Path View screens, the maximum number of registered devices is 1000. If the number exceeds 1000, a communication error may occur.
  To confirm the device information when any communication error occurs, use "End to End view".

- When using Internet Explorer 8, the following features cannot be used with the display of the map view.

    - Zoom in/out a screen by the button or mouse wheel

    - Display all on a screen by clicking **View all device** on the menu bar.

....

9.1   Display Overview Screen

In order to display the Overview screen, it is necessary to click **Map View** on the global navigation tab.
As a result, physical configuration information of the system is displayed on the Main pane.

Note
....

- If you click 🔄 in the menu area with the displayed content different from the resources (other user added or deleted the resources),

  a dialog box including the following message is displayed:

  ```
  Resource information has been refreshed because they were modified.
  ```

  To close the dialog box, click **OK** or **Close**.
  The information displayed on the tree view and Main pane is updated.

- If you click 🔄 in the menu area while the device selected on the tree view has been deleted by other user,

  a dialog box including the following message is displayed:

  ```
  Resource information has been refreshed because they were modified.
  ```

  To close the dialog box, click **OK** or **Close**.
  At this time, the selected state on the tree view is transferred to the root node (Overview node). On the Main pane, the content when the root node was selected is displayed. The tree view expanded state is not changed.

....

9.2   Highlight on Overview Screen

The procedure to highlight is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the target device node.

 Point
. . . .

Depending on the type of the device clicked in step 2, what is highlighted varies as follows:

Device to Be Clicked	What Is Highlighted
Server	- Physical connection line between clicked server and its physically connected network device - Network device as physical connection destination
Storage device	- Physical connection line between clicked storage device and its physically connected network device - Network device as physical connection destination
Network device	None.

. . . .

9.3 Array Display on Overview Screen

The procedure to display devices by arrangement is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the menu bar.

3. Click **Arrange devices** in the pull-down menu.

9.4 Display All on Overview Screen

The procedure to display the entire system is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the menu bar.

3. Click **View all device** in the pull-down menu.

9.5 Move Device Node on Overview Screen

The procedure to move the device node is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, drag the target device node and move to the target location.

9.6 Reload Device Node Configuration on Overview Screen

The procedure to reload the configuration information is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the target device node.

3. Click **Reload Conf.** in the pull-down menu.

 Note

. . . .

Even if **Reload Conf.** is executed on the Overview screen, the information currently displayed on the Main pain of Logical Path View is not updated.

. . . .

9.7 Save Location Information on Overview Screen

The procedure to save the location information of the Overview screen is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the menu bar.

3. Click **Save location** in the pull-down menu.

9.8 Initialize Location Information on Overview Screen

The procedure to initialize the location information of the Overview screen is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the menu bar.

3. Click **Set default location** in the pull-down menu.

9.9 Zoom In/Out Overview Screen

The following is the procedure to zoom in/out the Overview screen is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, use the mouse wheel or click the zoom in/out button of the menu bar.

   For Using Mouse Wheel:

   > If zoom in, move the mouse wheel upwards to scroll.
   > If zoom out, move the mouse wheel downwards to scroll.

   For Clicking Zoom In/Out Button:

   > If zoom in, click "**+**" (zoom in button).
   > If zoom out, click "**-**" (zoom out button).
   > If adjust the scale to 100%, click **100%**.

9.10 Call Management Software from Overview

The procedure to call the management software from the Overview is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon of the target device node.

3. Click **Management Software Call** in the pull-down menu.

This operation cannot be executed in cases when the management software information has not been registered.

In addition, when the targeted device is a server, this operation cannot be executed as this feature is not supported.
....

9.11 Display Logical Path View

The procedure to display the Logical Path View is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click the pull-down menu icon for a target device node and then click **Logical Path View**.

If you click on the menu bar with the target device deleted, a dialog box including the following message is displayed:

```
Please close the window by clicking [Close] button of Logical Path View because specified resource
has been removed.
```

Clicking **OK** or **Close** in the dialog box closes the dialog box and the currently displayed window, as well.
....

9.12 Highlight on Logical Path View Screen

The procedure to highlight is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click **Logical Path View** in the menu for a target device node.
   The logical configuration of the target device node is displayed on another window.

3. On another window, click the target device node or component.

- The components are as follows:

    - Physical port of network device

    - HBA of server

    - Multipath information of server

    - CA port of storage device

    - Affinity Group of storage device

- Depending on the type of the device clicked in step 3, what is highlighted varies as follows:

Device to Be Clicked	What Is Highlighted
Server, Storage device	- Physical port of network device. (However, if the network device is not displayed in detail, its device nodes are highlighted) - Physical connection line between clicked device and its physically connected network device
Physical port of network device	- HBA of server or CA port of storage device. (If the server or storage device is not displayed in detail, its device nodes are highlighted)

Device to Be Clicked	What Is Highlighted
	- Physical connection line between physical port of network device and HBA (or CA port)
Server component (HBA or multipath information)	- Physical port of network device. (However, if the network device is not displayed in detail, its device nodes are highlighted)
	- Physical connection line between server and network device
	- Physical connection line between network device and storage device
	- Logical path between server and storage device
	- CA port and affinity group of the storage device logically related to a clicked device. (However, if the storage device is not displayed in detail, its device nodes are highlighted)
Storage device component (CA port or Affinity Group information)	- Physical port of network device. (However, if the network device is not displayed in detail, its device nodes are highlighted)
	- Physical connection line between server and network device
	- Physical connection line between network device and storage device
	- Logical path between server and storage device
	- HBA and multipath information for the server logically related to a clicked device. (However, if the server is not displayed in detail, its device nodes are highlighted)
Network device	None.

- The cascade lines between network devices are not highlighted.

9.13 Array Display on Logical Path View Screen

The procedure to display the Logical Path View by arrangement is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click **Logical Path View** in the menu for the target device node.
   The logical configuration of the target device node is displayed on another window.

3. On another window, click the pull-down menu icon on the menu bar.

4. Click **Arrange devices** in the pull-down menu.

9.14 Display All on Logical Path View Screen

The following is the procedure to display the entire logical configuration of a target device:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click **Logical Path View** in the menu for the target device node.
   The logical configuration of the target device node is displayed on another window.

3. On another window, click the pull-down menu icon on the menu bar.

4. Click **View all device** in the pull-down menu.

9.15 Reload Device Node Configuration on Logical Path View Screen

The procedure to reload configuration is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click **Logical Path View** in the menu for a target device node.
   The logical configuration of the target device is displayed on another window.

3. On another window, click the pull-down menu icon of the target device node.

4. Click **Reload Conf.** in the pull-down menu.

🔶 Note
. . . .
If **Reload Conf.** is executed on the Logical Path View screen, the information currently displayed on the Category pane and Main pain of the Overview screen is not updated.
. . . .

9.16 Zoom In/Out Logical Path View Screen

The procedure to zoom In/Out the Logical Path View screen is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, use the mouse wheel or click the zoom in/out button of the menu bar.

   For Using Mouse Wheel:

   > If zoom in, move the mouse wheel upwards to scroll.
   > If zoom out, move the mouse wheel downwards to scroll.

   For Clicking Zoom In/Out Button:

   > If zoom in, click "**+**" (zoom in button).
   > If zoom out, click "**-**" (zoom out button).
   > If adjust the scale to 100%, click **100%**.

9.17 Call Management Software from Logical Path View Screen

The procedure to call the management software from the Logical Path View screen is as follows:

1. On the global navigation tab, click **Map View**.
   Physical configuration information of the system is displayed on the Main pane.

2. On the Main pane, click **Logical Path View** in the menu for the target device node.
   The logical configuration of the target device node is displayed on another window.

3. On another window, click the pull-down menu icon on the menu bar.

4. Click **Management Software Call** in the pull-down menu.

🔶 Note
. . . .
This operation cannot be executed in cases when the management software information has not been registered.
In addition, when the targeted device is a server, this operation cannot be executed as this feature is not supported.
. . . .

Chapter 10   Operations Started From Scheduler Tab

This chapter explains the operations started from clicking **Scheduler** of the global navigation tab.

10.1 Create Scheduler Task

The procedure to create a scheduler task is as follows:
To cancel creation in the process, click **Cancel**.

1. On the global navigation tab, click **Scheduler**.
   The list of current registered scheduler tasks and their status are displayed on the Main pane.

2. On the Action pane, click **Create** under **Task**.
   The **Create scheduler task** wizard is launched. Then, the welcome page is displayed.

3. Check the displayed information, and then click **Next**.
   The **Select of task type** page is displayed.

Information

The type displayed on the page is "ACM Script".
If "ACM Script" is selected, the following scripts can be registered in the scheduler task:

   - Backup script generated by the Backup Wizard for Exchange Server

   - Backup script generated by the Backup Wizard for SQL Server

4. Select type from the pull-down list, and then click **Next**.
   The **Select of Host name** page is displayed.

Information

The hosts that meet all the following conditions are displayed on the page:

   - The ETERNUS SF Manager or AdvancedCopy Manager's agent of Version 16.1 or later is installed.

   - The server that the ETERNUS SF Manager or AdvancedCopy Manager's agent has been installed is registered on the ETERNUS SF system as a Managed Server of AdvancedCopy Manager.

   - The host operating system is Windows Server 2008 or later.

5. Select a host that will execute the subject (script) of the scheduler task. In addition, enter the following authentication information for the selected host, and then click **Next**.

Item Name	Explanation
Domain name	Enter a domain name required for authentification. The specification of this item can be omitted. When this specification has been omitted, the local domain is selected. The maximum length of the input character is 63.
User name	Enter a user name required for authentification. The maximum length of the input character is 20.
Password	Enter a password for the user required for authentification. The maximum length of the input character is 127.

The **Select of operations** page is displayed. In this page, a list of scripts on the selected host is displayed.

6. From the list of scripts, select the scripts in the order they are to be executed, and then click **Add**. Then, click **Next**.
   To change a selected script or the order of execution of scripts, check the script to be changed and click **Delete**.
   The **Setting of schedule** page is displayed.

7. Enter or select about the following items, and then click **Next**.

Item Name	Explanation
Task name	Specify a name of the scheduler task to be created. Any alphanumeric character and an underscore (_) may be specified. The first character must use the alphabet. The letters to be specified are not case sensitive.
Execution period	Select the scheduler task execution period. Make a selection from one of the following. - Once: The scheduler task will be executed only once at the specified time. - Hourly: The scheduler task will be executed in intervals of the specified time. When this period is selected, the item of **Execution interval(Hour)** will be displayed. - Daily: The scheduler task will be executed at the specified time of every day. - Weekly: The scheduler task will be executed on the specified day of the week. When this period is selected, the item of **Execution week** will be displayed. - Monthly: The scheduler task will be executed on the specified day of every month. When this period is selected, the item of **Execution day** will be displayed.
Execution start date	From the calendar, select the execution starting date of the scheduler task. When a date is selected from the calendar, that date will be entered into the text box. The scheduler will be effective from the selected date. If either of "Once", "Hourly" or "Daily" is selected in **Execution period**, it will be the first execution day. If "Weekly" or "Monthly" is selected in **Execution period**, it is a starting point date. The day corresponding to the selection of "Weekly" or "Monthly", including the starting point day, will the first execution day.
Execution start time	Select the execution starting time of the scheduler task.
Execution interval(Hour)	When "Hourly" is specified for **Execution period**, select the execution interval thereof. 1, 2, 3, 4, 6, 8, or 12 can be selected.

Item Name	Explanation
Execution week	When "Weekly" is specified for **Execution period**, select the day of the week for the execution thereof. Multiple days of the week can be selected.
Execution day	When "Monthly" is specified for **Execution period**, select the execution date thereof. One day can be selected from 1 to 31 or "Last". "Last" means the last day of each month. In the month that the selected date does not exist, task is not executed.

The information confirmation screen is displayed.

8. As the information entered up until step 7 will be displayed, finally check whether it is okay to create a scheduler task with the displayed content.
   If it is okay, click **Create**.

   When the creation of the scheduler task has been completed, a pop-up indicating the completion of the creation will be displayed.

9. Click **Done**.

10.2 Display Scheduler Task

The procedure to display the scheduler task list/details is as follows:
To display the list, perform step 1 only.
To display the specific scheduler task details, perform all steps.

1. On the global navigation tab, click **Scheduler**.
   The list of current registered scheduler tasks and their status are displayed on the Main pane. The displayed items are as follows:

Item Name	Explanation
Task name	This is the name of the scheduler task created with the **Create scheduler task** wizard.
Status	This is the status of the scheduler task. One of the following is displayed: - Waiting: Waiting for the next execution - Executing: Being executed - Disable: Is not an execution object of the scheduler
Type	This is the type of the script.
Host name	This is the name of the host that will execute the script that has been scheduled.
IP Address	This is the IP address of the host that will execute the script that has been scheduled.
Execution period	This is the execution period of the scheduler task. One of the following is displayed: - Once: The scheduler task will be executed only once at the specified time. - Hourly: The scheduler task will be executed in intervals of the specified time. - Daily: The scheduler task will be executed at the specified time of every day. - Weekly: The scheduler task will be executed on the specified day of the week. - Monthly: The scheduler task will be executed on the specified day of every month.
Next start time	This is the scheduler task execution date for the next time. This will be displayed in the yyyy/mm/dd hh:mm:ss format. If a scheduler task has never been executed, the first execution day will be displayed. If the scheduler task was executed, the next execution day will be displayed. If the starting point day of the execution start day and the first execution day are the same, the date same as the execution start day will be displayed.

Item Name	Explanation
Last start time	This is the scheduler task execution date for the previous time. This will be displayed in the yyyy/mm/dd hh:mm:ss format. A hyphen (-) will be displayed When the scheduler task has never been executed.
Last result	This is the result of the previous scheduler task execution. One of the following is displayed: - Success: Completed successfully - Failed: Failed to execute - Warning: Warning (timeout) - -: Not executed

2. On the Main pane, click the target scheduler task.
   The detail of the selected scheduler task is displayed on the Main pane.

Item Name	Explanation
Task name	This is the name of the scheduler task created with the **Create scheduler task** wizard.
Type	This is the type of the script.
Host name	This is the name and IP address of the host that will execute the script that has been scheduled. A hyphen (-) will be displayed when the host has been deleted.
Domain name	This is the domain name of the host that will execute the script that has been scheduled. A hyphen (-) will be displayed when input has been omitted during the creation of the scheduler task.
User name	This is the user name for the scheduler task execution.
Script path	This is the path name for where the script of the scheduler task is stored.
Script name(Execution order)	The script names of the scheduler tasks will be displayed in the order in which they will be executed. Only the file name will be displayed.
Execution period	This is the execution period of the scheduler task. One of the following is displayed: - Once: The scheduler task will be executed only once at the specified time. - Hourly (*hour*): The scheduler task will be executed in intervals of the specified time. - Daily: The scheduler task will be executed at the specified time of every day. - Weekly (*dayOfWeek*): The scheduler task will be executed on the specified day of the week. - Monthly (*date*): The scheduler task will be executed on the specified day of every month.
Execution start date	The execution starting date configured with the scheduler task will be displayed. The scheduler will be effective from the date that is displayed in this field. If "Weekly" or "Monthly" is selected in **Execution period**, it is a starting point date.
Execution start time	The execution starting time configured with the scheduler task will be displayed. This will be displayed in the hh:mm format.

10.3 Delete Scheduler Task

The procedure to delete a scheduler task is as follows:

1. On the global navigation tab, click **Scheduler**.
   The list of current registered scheduler tasks and their status are displayed on the Main pane.

2. On the Main pane, either check the target scheduler task checkboxes (multiple selections allowed) or click the link of the task name of the target scheduler task to display the scheduler task display page.

3. On the Action pane, click **Delete** under **Task**.
   The **Delete schedule task** page is displayed.

4. Check that the selected scheduler task is correct, and then click **Delete**.
   When the scheduler task has been deleted, a pop-up notifying the deletion will be displayed.

Information

If **Cancel** is clicked, the scheduler task is not deleted.

5. Click **Done**.

Point

When the status of scheduler task is "Executing", the scheduler task cannot be deleted.

10.4 Execute Schedule Task Immediately

The procedure to execute a scheduler task immediately is as follows:

1. On the global navigation tab, click **Scheduler**.
   The list of current registered scheduler tasks and their status are displayed on the Main pane.

2. On the Main pane, either check the target scheduler task checkboxes (only one selection allowed) or click the link of the task name of the target scheduler task to display the scheduler task display page.

3. On the Action pane, click **Execute immediate** under **Operation**.
   The **Execute immediate schedule task** page is displayed.

4. Check that the selected scheduler task is correct, and then click **Execute**.
   When the scheduler task has been instantly executed, a pop-up notifying the instant execution will be displayed.

Information

If **Cancel** is clicked, the scheduler task is not executed immediately.

5. Click **Done**.

Point

- The number of scheduler tasks that can be executed concurrently and immediately for the same host is one.

- Even if status of scheduler task is "Disable", the scheduler task can be executed immediately.

- When the status of scheduler task is "Executing", the scheduler task cannot be executed immediately.

10.5 Enable/Disable Scheduler Task
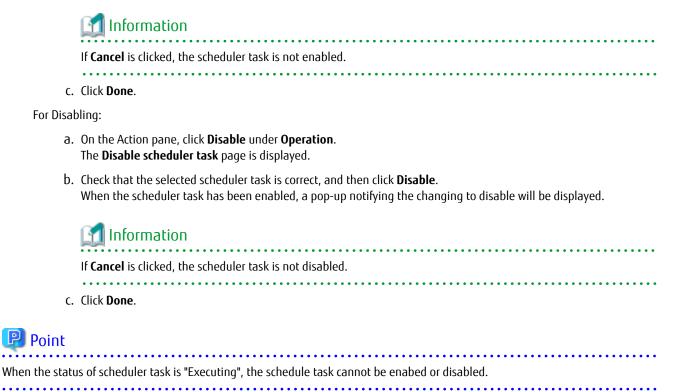
The procedure to enable/disable a scheduler task is as follows:

1. On the global navigation tab, click **Scheduler**.
   The list of current registered scheduler tasks and their status are displayed on the Main pane.

2. On the Main pane, either check the target scheduler task checkboxes (multiple selections allowed) or click the link of the task name of the target scheduler task to display the scheduler task display page.

3. Perform the following procedures according to the operation purpose.

For Enabling:

    a. On the Action pane, click **Enable** under **Operation**.
       The **Enable scheduler task** page is displayed.

    b. Check that the selected scheduler task is correct, and then click **Enable**.
       When the scheduler task has been enabled, a pop-up notifying the changing to enable will be displayed.

    📘 Information
....
    If **Cancel** is clicked, the scheduler task is not enabled.
....

    c. Click **Done**.

For Disabling:

    a. On the Action pane, click **Disable** under **Operation**.
       The **Disable scheduler task** page is displayed.

    b. Check that the selected scheduler task is correct, and then click **Disable**.
       When the scheduler task has been enabled, a pop-up notifying the changing to disable will be displayed.

    📘 Information
....
    If **Cancel** is clicked, the scheduler task is not disabled.
....

    c. Click **Done**.

📗 Point
....
When the status of scheduler task is "Executing", the schedule task cannot be enabed or disabled.
....

Chapter 11   Operations Started From Log Tab

This chapter explains the operations started from clicking **Log** of the global navigation tab.

In the operations described in this chapter, the following history information can be referred.

- Operation History

- Events

- Login/Logout History

- Threshold Monitoring Alarms

11.1 Display Operation History

The procedure to display the operation logs is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Operation History**.
   The operation log list is displayed on the Main pane.

If confirming the detailed operation log information, click the confirmation object operation log. The detailed information displayed on a pop-up window.

Information Displayed in Operation History Screen

The following is the information displayed in the **Operation History** screen.

Column Name	Description
(none)	Status of confirmation for processing result. " ● " icon is displayed if not confirm the processing result.
Date	Recorded time and date.
User ID	User name that performed the operation.
Action	Operation name.
State	Processing status for the operation. - Submit: Indicates receiving the processing. - Start: Indicates starting the processing. - Complete: Indicates completing the processing.
Result	The processing result for the operation. Displays the operation logs which **State** column is "Complete". - ✅ Success : Indicates completed the processing successfully. - ⚠ Warning : Indicates completed the processing. It may have possibilities of shortage of requirements. - ❌ Failed : Indicates terminated the processing abnormally.
Target	Operational object (device name, etc.) Displays hyphen (-) for the operation logs which indicate "Submit" on the **State** column.
Detail	Detailed resource name and setup contents on the screen (as an operational object). Displays hyphen (-) if there is no information to display.

Note

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- The history of screens displayed is not displayed on the **Operation History** screen, because they are not recorded as logs.

- The filter function can limit the display on **Operation History** screen to only the operation logs which indicate "Complete" on the **State** column.

. . . .

Message Confirmation

If there are operation logs which the processing result is " ⚠ Warning " or " ❌ Failed ", check the message and perform appropriate action by following procedures. The operation logs with unidentified messages are displayed with boldface and unidentified mark "🔵" on the leftmost column.

1. Click the confirmation object operation log.

2. Refer to the **Message** field in a pop-up window.

3. Refer to the *ETERNUS SF Messages*, and perform appropriate action according to the corresponding message.

When no corrective action is required, the log status can be marked as confirmed.

1. On the Action pane, click [Mark as Confirmed].

2. Confirm that the log in the **Mark as Confirmed** screen does not require corrective action, and then click **Mark**.

Note

. . . .

- The target operational logs of "Mark as Confirmed" are limited to logs currently displayed on the screen.

- When confirming a specific user's operation logs, set the filter function to only display the specific user's operation logs.

. . . .

11.2 Export Operation History

The procedure to export operation logs is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Operation History**.

3. On the Action pane, click **Download** under **Operation History**.
   The **File Download** dialog box is displayed.

4. Click **Save**.
   The **Save As** dialog box is displayed.

5. Click **Save**, specifying the location to save the operation logs.

Note

. . . .

- Even if Filter setting is enabled on the Web Console, all data is exported.

- Logs are exported as zip-compressed CSV file.

- The character code of the CSV format file is UTF-8. It is necessary to specify the character code depending on the application which opens the file.

- A hyphen (-) is displayed in the "Operation ID" column of all of the data in the exported file, because **Operation ID** column is currently unused.

. . . .

11.3 Display Events

The procedure to display the events is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Events**.
   The event list is displayed on the Main pane.

If confirming the detailed event information, click **Message** column for the confirmation object event. The detailed information is displayed in a pop-up window.

![Note icon] Note
. . . .

The event caused by quota setting in NAS management is not displayed on this screen. For the event notified as to quota setting in NAS management, refer to "6.16.23 Display Quota Information" to confirm.
. . . .

11.4 Export Events

The procedure to export events is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Events**.

3. On the Action pane, click **Download** under **Events**.
   The **File Download** dialog box is displayed.

4. Click **Save**.
   The **Save As** dialog box is displayed.

5. Click **Save**, specifying the location to save the events.

![Note icon] Note
. . . .

- Even if Filter setting is enabled on the Web Console, all data is exported.

- Logs are exported as zip-compressed CSV file.

- The character code of the CSV format file is UTF-8. It is necessary to specify the character code depending on the application which opens the file.
. . . .

11.5 Display Login/Logout History

The procedure to display the login and logout logs is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Login/Logout History**.
   The login and logout log list is displayed on the Main pane.

11.6 Export Login/Logout History

The procedure to export the login and logout logs is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Login/Logout History**.

3. On the Action pane, click **Download** under **Login/Logout History**.
   The **File Download** dialog box is displayed.

4. Click **Save**.
   The **Save As** dialog box is displayed.

5. Click **Save**, specifying the location to save the login and logout logs.

Note

....

- Even if Filter setting is enabled on the Web Console, all data is exported.

- Logs are exported as zip-compressed CSV file.

- The character code of the CSV format file is UTF-8. It is necessary to specify the character code depending on the application which opens the file.

....

11.7 Display Threshold Monitoring Alarms

The procedure to display the threshold monitoring alarms is as follows:

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Threshold Monitoring Alarms**.
   The threshold monitoring alarm list is displayed on the Main pane.

When confirming the detailed threshold monitoring alarm information, click the confirmation object threshold monitoring alarm. The detailed information is displayed in a pop-up window.

Note

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The "Report ID" of the Threshold Monitoring Alarms circulates from 1 to 1000.
The Report ID may overlap because it is not unique in the Threshold Monitoring Alarms.
....

11.8 Export Threshold Monitoring Alarms

The procedure to export the threshold monitoring alarms is as follows

1. On the global navigation tab, click **Log**.

2. On the Category pane, click **Threshold Monitoring Alarms**.

3. On the Action pane, click **Download** under **Threshold Monitoring Alarms**.
   The **File Download** dialog box is displayed.

4. Click **Save**.
   The **Save As** dialog box is displayed.

5. Click **Save**, specifying the location to save the threshold monitoring alarms.

Note

....

- Even if Filter setting is enabled on the Web Console, all data is exported.

- Logs are exported as zip-compressed CSV file.

- The character code of the CSV format file is UTF-8. It is necessary to specify the character code depending on the application which opens the file.

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Chapter 12   Operations Started From System Tab

This chapter explains the operations started from clicking **System** of the global navigation tab.

12.1 Operations for User Management

This section describes the operation related to user management.

12.1.1   Display/Change Contact Information

The procedure to display or change the setting values of the Contact information (Mail Settings, Business Administrator, System Administrator and Hardware Administrator) is as follows:

1. On the global navigation tab, click **System**.

2. On the Category pane, click **Contacts**.
   The current set value is displayed on the Main pane.

3. On the Action pane, click **Modify** under **Contacts**.
   The information input screen is displayed.

4. Enter the necessary information, and then click **Modify**.

12.1.2   Send Test E-mail

Regardless of the status of [Send Event Notification Mail] in "12.1.1 Display/Change Contact Information", the test mail is sent to the following users. By sending test mails, you can confirm whether the destination addresses are correctly configured or not.

- System Administrator

- Business Administrator.

The procedure to send test mails is as follows:

1. On the global navigation tab, click **System**.

2. On the Category pane, click **Contacts**.

3. On the Action pane, click **Send Test Email** under **Contacts**.

12.1.3   Set Maximum Number of Jobs in Queue

The procedure to set the maximum number of jobs in queue is as follows:

1. On the global navigation tab, click **System**.

2. On the Category pane, click **User Management**.

3. On the Main pane, check the checkbox to select a user that can set the maximum number of jobs in the queue.

4. On the Action pane, click **Set Max. Jobs in Queue** under **Session Management**.
   The information input screen is displayed.

5. Enter the necessary information, and then click **Modify**.

12.1.4   Forcible Logout

A forcible logout is executed to a user by the system administrator.

1. On the global navigation tab, click **System**.

2. On the Category pane, click **User Management**.

3. On the Main pane, check the checkbox to select a user that can execute forcible logout.

4. On the Action pane, click **Force Logout** under **Session Management**.

12.2 Web Console Control Settings

This section describes the operations related to Web Console control settings.

12.2.1 Display Values Set for Web Console Control

When clicking **System** on the global navigation tab, the values set for Web Console control is displayed on the Main pane as follows:

Category	Displayed Items
Log Preference	Operation History Events Login/Logout History Threshold Monitoring Alarms
Screen Refresh Preference	Target Screen Refresh Interval
Record Count Preference	Default Record Count
Session Preference	Session Timeout

12.2.2 Change Value for Log Preference

The procedure to display the values set for log preference is as follows:

1. On the global navigation tab, click **System**.
   The current value is displayed on the Main pane.

2. On the Action pane, click **Modify** under **Log Preference**.
   The information input screen is displayed.

3. Enter the necessary information, and then click **Modify**.

12.2.3 Change Value for Screen Refresh Preference

The procedure to change the screen refresh target and/or screen refresh interval for the Web Console is as follows:

1. On the global navigation tab, click **System**.
   The current value is displayed on the Main pane.

2. On the Action pane, click **Modify** under **Screen Refresh Preference**.
   The information input screen is displayed.

3. Enter the necessary information, and then click **Modify**.

12.2.4 Record Count Preference

The procedure to change the default record count in table is as follows:

1. On the global navigation tab, click **System**.
   The current value is displayed on the Main pane.

2. On the Action pane, click **Modify** under **Record Count Preference**.
   The information input screen is displayed.

3. Enter the necessary information, and then click **Modify**.

12.2.5 Change Value for Session Timeout

The procedure to change the session timeout value is as follows:

1. On the global navigation tab, click **System**.
   The current value is displayed on the Main pane.

2. On the Action pane, click **Modify** under **Session Timeout**.
   The information input screen is displayed.

3. Enter the necessary information, and then click **Modify**.

📌 Note

When the session timeout value is set to "0min", the session timeout value is invalid. The session remains connected as long as it does not log out.

12.2.6 Reload Configuration Files

The procedure to display/reload the configuration file is as follows:

1. On the global navigation tab, click **System**.

2. On the Category pane, click **System Settings**.
   The content of the configuration files is displayed.

3. On the Action pane, click **Refresh Config File** under **System Settings**.
   The information confirmation screen is displayed.

4. Confirm the information, and then click **Refresh**.

12.3 System Maintenance

This section describes the operation related to the system maintenance.

12.3.1 Collecting Troubleshooting Information

The procedure to collect the troubleshooting information is as follows:

1. On the global navigation tab, click **System**.

2. On the Category pane, click **Trouble Shootings**.

3. On the Action pane, click the operation to perform.

   Selectable operations are as follows:

Operation	Explanation
Download(Initial)	This function collects the information needed for the initial investigation.
Download(All)	This function collects the detailed troubleshooting data.

📌 Note

While the collection of the troubleshooting data is in progress, other processes may be kept waiting.
Therefore, do not execute other operations during the collection of troubleshooting data.

12.4 Patch Management

This section describes the operations related to the Consolidated Patch of ETERNUS SF Manager.

12.4.1   Apply Consolidated Patch/Display Application Status/Delete All Patches

The procedure to apply the Consolidated Patch of ETERNUS SF Manager program in the Management Server, the procedure to display the application status of the Consolidated Patch of ETERNUS SF Manager program, and the procedure to delete all patches applied to the ETERNUS SF Manager program in the Management Server are as follows:
To display the application status of the Consolidated Patch, perform from step 1 to step 2.
Otherwise, perform all steps.

1. On the global navigation tab, click **System**.

2. On the Category pane, click **Patch Management**.
   The information of the Consolidated Patch applied to the ETERNUS SF Manager program in the Management Server is displayed on the Main pane.

3. Perform the following procedures according to the operation purpose.

   For Applying a Consolidated Patch:

   a. On the Action pane, click **Apply** under **Consolidated Patch**.
      The **Apply Patch** page is displayed.

   b. Specify the file to be uploaded, and then click **Apply**.

   c. Check the displayed information dialog box, and then click **Done**.

   ### 🅿 Point
   ....
   Clicking the **Done** automatically logs out the logged-in user. Do not attempt re-login to the Web Console right after the logout as the ETERNUS SF Manager services will automatically stop 30 seconds later.
   The ETERNUS SF Manager services launch automatically once the patch application is complete. Try logging in afterwards.
   ....

   For Deleting All Patches:

   a. On the Action pane, click **Delete All** under **Consolidated Patch**.

   b. Check the displayed warning dialog box, and then click **OK**.

   c. Check the displayed information dialog box, and then click **Done**.

   ### 🅿 Point
   ....
   Clicking the **Done** automatically logs out the logged-in user. Do not attempt re-login to the Web Console right after the logout as the ETERNUS SF Manager services will automatically stop 30 seconds later.
   The ETERNUS SF Manager services launch automatically once the patch deletion is complete. Try logging in afterwards.
   ....

📖 Information
....
When the operation for deleting all of the patches is executed, all patches that had been applied to the ETERNUS SF Manager program up to that point will be deleted. However, patches applied to other products using the UpdateAdvisor (middleware) will not be deleted.
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