FUJITSU

Fujitsu Storage ETERNUS SF Express V16.9.1 / Storage Cruiser V16.9.1 / AdvancedCopy Manager V16.9.1

Web Console Guide

Windows

B1FW-6001-12ENZ0(00)
June 2024

Preface

Purpose of This Manual

This manual describes ETERNUS SF Web Console (hereafter abbreviated as "Web Console") used by the following products:

- ETERNUS SF Express (hereafter abbreviated as "Express")
- ETERNUS SF Storage Cruiser (hereafter abbreviated as "Storage Cruiser")
- ETERNUS SF AdvancedCopy Manager (hereafter abbreviated 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.

Structure of This Manual

The structure of this manual is as follows.

Chapter 1 Operating Environment and Environment Settings

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

Chapter 2 Web Console Screen Layout

This chapter explains the screen layout of 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 Web Console.

Chapter 5 Operations for Dashboard

This chapter explains operations of Dashboard.

Chapter 6 Operations for Quick Launch

This chapter explains operations of Quick Launch.

Chapter 7 Operations for Performance

This chapter explains operations of Performance.

Chapter 8 Operations Started From Main Tab

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

Chapter 9 Operations Started From Storage Tab

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

Chapter 10 Operations Started From Network Tab

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

Chapter 11 Operations Started From Server Tab

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

Chapter 12 Operations Started From Map View Tab

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

Chapter 13 Operations Started From Scheduler Tab

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

Chapter 14 Operations Started From Log Tab

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

Chapter 15 Operations Started From System Tab

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

Conventions

- "FUJITSU Storage" and "Fujitsu Storage" are omitted from the names of the products and manuals.
- This manual abides by the conventions listed in "Conventions" in the *ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Documentation Road Map*.
- Unless otherwise noted, this manual refers to "Dedup volume" as either a volume where the Deduplication is enabled or a volume where the Compression is enabled.

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Update History

Content of Update	Updated Section	Revision
The "FUJITSU Storage" part of the product name has been changed to "Fujitsu Storage".	Cover page	12
Information related to the following devices has been added. - ETERNUS DX S6 series Information related to the following device and software has been deleted. - ETERNUS DX200F - Internet Explorer - Firefox - AIX	General	

Content of Update	Updated Section	Revision
The term has been changed as follows. - "Master port" to "Primary port"		
The description of the operation procedure has been modified.	9.5.1, 9.5.2, 9.10.17, 9.10.19, 9.10.20, 9.15.1, 13.1	
In [Note], the explanation has been modified or added.	9.10.3, 9.10.5, 9.14.6, 9.14.7	
The version information has been changed to V16.9A.	Cover page	11
The URL of the Firefox Help has been corrected.	3.5.9	
[Point] has been added.	9.10, 11.3	
The description of the operation procedure has been modified.	11.4.5	
The description of the operation procedure has been modified.	1.4	10.2
The explanation of "Total Status" has been modified.	2.5.1	
In [Point], the explanation has been modified.	10.2	
In [Note], the explanation has been modified.	11.1.4	10.1
Information related to the supported web browsers has been updated.	General	10
A note has been added.	3.5.14	
In [Point], information has been added.	9.1.3	
[Point] has been added.	9.7.2	
[Note] has been added in step 8.	9.10.16	
Because the function that can display the Fibre Channel switch performance information in the Performance tab of Dashboard is supported, the related information has been added or modified.	2.3, 2.3.2, 2.3.3.1 - 2.3.3.3, 7.1.1 - 7.1.3, 7.2.1 - 7.2.3, 7.3.1 - 7.3.4, 10.11	9.4
[Note] has been deleted.	2.3	
Information related to the following devices has been added. - ETERNUS AX/HX series - ETERNUS AB/HB series	9.2.8 - 9.2.10	9.3
The explanation from Figure 2.1 to 2.6 has been modified.	Chapter 2	9.2
Information related to the shortcut menu to each screen of Detail View has been added.	2.4	
Information related to the following device has been added. - ETERNUS DX900 S5	General	9.1
Information related to the Model upgrade from ETERNUS AF150 S3 to ETERNUS AF250 S3 and from ETERNUS AF250 S3 to ETERNUS AF650 S3 has been added.	3.3	
Information related to the following devices and software has been added. - ETERNUS DX S5 series (excluding the ETERNUS DX900 S5) - ETERNUS AF S3 series - Microsoft Edge 44 - Firefox ESR 68 - Chrome 75	General	9

Content of Update	Updated Section	Revision
Information related to the following devices and software has been deleted. - ETERNUS DX60, DX400 series, DX8000 series - ETERNUS LT20, LT40, LT60, LT200, LT210, LT220, LT230, LT250, LT270 - Internet Explorer 9 - Firefox ESR 17, 24, 31, 38, 45, 52 - SQL Server 2008 R2		
The description for Conventions has been changed so that the *ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Documentation Road Map* is referenced.	"Conventions" in Preface	
The "Manual Organization and Reading Suggestions" section has been deleted from Preface.	Preface	
The explanation related to Performance has been added.	1.1, 2.3, Chapter 7	
Information related to the cookie has been added.	1.3	
Information related to the performance management has been added.	9.13	
[Point] has been added.	9.15.1, 9.15.3 - 9.15.6, 9.15.8, 9.15.9	
Information related to Microsoft Windows Server 2019 has been added.	"Notation" and "Others" in Preface	8.1
Information related to the ETERNUS LT140 has been added.	"Notation" in Preface, 8.3, 8.4	
Information about Virtual Volumes has been deleted from [Note].	8.8.3	
The reference section for the deletion procedure has been modified.	8.20.5.2	
Information related to the ETERNUS DX8900 S4 has been added.	"Notation" in Preface, 8.1.8, 8.1.10, 8.1.11, 8.10.1, 8.12.12, 8.13.2, 8.15.1	8
The explanation related to Quick Launch has been added.	"Organization" in Preface, 1.6, Chapter 6	
Microsoft Edge 42 and Firefox ESR 60 have been added as the Web browser that can use the Web Console.	1.1, 1.3	
The procedure to change the REC path settings has been described.	8.11.13	
Information related to Solaris 9 has been deleted.	"Notation" in Preface	7
Information related to the ETERNUS DX500 S4/DX600 S4 has been added.	"Notation" in Preface, 3.3, 7.15.1	
Information related to the ETERNUS AF250 S2/AF650 S2 has been added.	"Notation" in Preface, 3.1, 3.5.5, 7.1.1, 7.1.9, 7.7.1, 7.9.1, 7.10.1, 7.15.1	
Chrome 60 (for PC) has been added as web browsers that can use Web Console.	1.1, 1.5.1, 1.5.2, 3.4	
[Information] has been added.	1.5.1 (step 5 in "For Windows environment"), 13.3.4 (step 3)	
[Note] has been added.	3.3, 7.16.19, 9.1.7	
[Note] has been deleted.	7.12.9	

Content of Update	Updated Section	Revision
In [Note], the explanation has been modified or added.	7.1.8, 7.12.12, 9.4.7	
Information related to Microsoft Windows Server 2016 has been added.	"Notation" and "Others" in Preface	6
Information related to Windows Vista has been deleted.	"Notation" in Preface	
Information related to SUSE Linux Enterprise Server 11 has been deleted and information related to SUSE Linux Enterprise Server 12 for AMD64 & Intel64 has been added.	"Notation" in Preface	
Information related to the ETERNUS DX60 S4/DX100 S4/DX200 S4 has been added.	"Notation" in Preface, 3.1, 3.3, 3.5.5, 7.1.1, 7.1.9, 7.7.1, 7.9.1, 7.10.1, 7.15.1	
Firefox ESR 52 has been added as the Web browser that can use the Web Console.	1.1	
In [Note], the explanation has been modified or added.	7.8.1, 7.8.3, 7.11.4	
In [Point], information has been added.	7.10.1, 7.10.5, 7.14.3	
The description of the operation procedure has been modified.	7.10.1, 7.10.5, 7.15.27, 7.20.4.1	
[Information] has been added.	7.10.5	
The description location of [Note] has been changed. In addition, the task required before operating the beacon has been added in [Note].	8.9	
An explanation has been added in step 2.	9.1.7	
Information related to HP-UX 11i v1/v2 has been deleted.	"Notation" in Preface	5
Information related to VMware vSphere 4 has been deleted.	"Notation" in Preface	
Information related to the ETERNUS DX80/DX90 has been deleted.	"Notation" in Preface, 3,3, 3.5.5, 7.1.1, 7.7.1	
Information related to the ETERNUS AF250/AF650 has been added.	"Notation" and "Others" in Preface, 3.1, 3.5.5, 7.1.1, 7.1.9, 7.7.1, 7.9.1, 7.15.1	
Information related to the ETERNUS LT60 has been deleted.	"Notation" in Preface, 7.3, 7.4	
Information related to Internet Explorer 8 has been deleted.	1.1, 1.3, 1.4, Chapter 2, 3.4, 4.2, 5.5.1, Chapter 10	
Microsoft Edge 25, Firefox ESR 45, and Chrome 50 have been added to the supported web browsers.	1.1 - 1.3, 1.5.2	
The setting procedure of Firefox has been modified.	1.2, 1.3	
The description of the antivirus function has been deleted.	2.1.1, 5.2.1, 7.16.27 - 7.16.29	
The explanation related to the automatic updates of the device component status has been added.	2.2.1, 3.1, 5.1.1, 5.1.4, 7.1.1, 7.1.3, 7.1.4, 7.1.9	
[See] has been added in the section "Filter Setting".	2.2.3	
In [Note], the explanation has been modified.	3.1, 9.4.1	
The procedure of the Model upgrade from ETERNUS DX200 S3 to DX500 S3 has been added.	3.3	
[Information] has been added.	5.4.2, 5.4.3, 5.4.7	
In [Information], the explanation has been added.	5.4.4	
The term "Deduplication" has been changed to "Deduplication/ Compression".	7.8.1, 7.10.5	
[Point] has been deleted.	7.10.2	

Content of Update	Updated Section	Revision
Information related to SQL Server 2016 has been added.	7.11.18, 7.11.19	
The operation procedure of the functions that are supported from Version 16.4 has been described.	7.15.14, 7.15.15	
The **Status Update** operation has been deleted.	7.15.25, 7.15.26	
[Note] has been added.	9.5.10	
The explanation about the opened/closed status of the Filter Setting area after filtering has been added.	13.2.1, 13.2.4	
The procedure of the Model upgrade from ETERNUS DX80 S2/DX90 S2 to DX410 S2/DX440 S2 has been modified.	3.3	4.4
The description of the operation procedure has been modified.	7.1.6	
The following input items have been added: - **Usage** (in step 4) - **root Access Allowed Hosts** (in step 7)	7.16.1	
The description of the following input items has been added: - **Shared Folder Name**, **Protocol**, and **Access Based Enumeration** (in step 4) - **Type** and **Name** (in step 7)	7.16.1	
The input item **root Access Allowed Hosts** has been added.	7.16.3	
The description of the following input items has been added: - **Type**, **Name**, **Access Based Enumeration**, and **Writeable**	7.16.3	
[Point] has been added.	7.16.4	
The description of the input items **Type** has been added.	7.16.23	
In [Point], information has been added.	7.16.23	
The procedure to set the encryption mode AES-256 has been added.	7.7.4	4.3
The description of the operation procedure has been modified.	7.7.5	
In [Note], information has been added or modified.	7.7.5, 7.15.6, 7.15.7	
The procedure to view a list of Virtual Volumes created in all the VVOL datastores has been added.	7.20.5.1	
The information of web browsers for tablet has been added.	1.1 - 1.3, 1.5.2, Chapter 2, 3.4, 3.5.2, 4.1, 4.2, 5.5.1	4.2
Information related to the Model upgrade from ETERNUS DX8700 S3 to DX8900 S3 has been added.	3.3	4.1
The explanation of the input item **Shared Folder Name** and **Volume Number** has been modified.	7.16.1	
The input item name has been changed from **Using Snapshot** to **Using Automatic Snapshot**. In addition, the explanation of the input item has been modified.	7.16.1, 7.16.20	
The description of the operation procedure has been modified.	7.16.1, 7.16.3, 7.16.23 - 7.16.26	
The information of character strings that is displayed in the screen has been added. In addition, [Point] has been added.	7.16.21	
The section title has been changed from "Start/Stop Snapshot Collection" to "Start/Stop Automatic Snapshot Collection".	7.16.22	

Content of Update	Updated Section	Revision
Information related to Microsoft Windows Server 2003 has been deleted.	"Notation" in Preface	4
Information related to Windows 10 has been added.	"Notation" in Preface	
Firefox ESR 38 has been added as the Web browser that can use the Web Console.	1.1	
Information about Dashboard has been added.	Chapter 2, 2.1, 2.2.1, 3.4, 4.2, 4.3, Chapter 5	
In [Point], information has been added.	2.2.1	
The description about opening/closing the information area has been added.	2.2.3, 13.2.1, 13.2.4	
A note has been added.	3.5.13	
The term has been changed from "dashboard" to "Overview screen".	6.1, 7.11.16 - 7.11.19	
The special characters that can be used for password have been described.	7.1.1	
The description of the operation procedure has been modified.	7.1.1, 7.16.17, 7.16.18	
In [Note], information has been added or modified.	7.11.4, 7.11.5, 7.12.3, 7.12.6, 7.15.6, 7.15.7, 8.9	
In [See], information has been added.	7.14.7 - 7.14.12	
The explanation of input items has been deleted.	7.15.2, 7.15.4, 7.15.6, 7.15.7, 7.15.12, 7.15.13, 7.15.17, 7.15.20	
The input item **NAS FS Block Size** has been added.	7.16.1	
The explanation of the input item has been modified.	7.16.1	
In [Information], the explanation has been modified.	7.16.1	
The procedure to delete the NAS backup settings has been added.	7.16.16	
The section title and the action name of step 2 have been changed from "Record Count Preference" to "Display Preference".	13.2.4	
The procedures about the SNMP communication settings have been added.	13.3	
Information related to the ETERNUS DX8700 S3/DX8900 S3 has been added.	"Notation" in Preface, 6.15.1, 6.15.17, 6.15.20	3.2
The description of the operation procedure has been modified.	6.1.10, 6.13.2	
The procedure to display the Frontend Enclosure information has been described.	6.13.3	
The action name and button name in screens have been corrected.	6.20.2.1, 6.20.2.2, 6.20.3.1, 6.20.3.2	
The term "VMware Virtual Volumes" has been changed to "VMware vSphere Virtual Volumes" according to the terms used by VMware, Inc.	Throughout this manual	3.1
Information related to VMware vSphere 6 has been added.	"Notation" in Preface	
Information related to the Model upgrade from ETERNUS DX60 S3 to DX100 S3 has been added.	3.3	
The title of the reference target manual section has been changed.	6.7.4, 6.7.5	
In [Note], information has been added.	6.11.8, 6.20.2.3, 6.20.3.3, 8.1.4, 8.4.4	
The description of the operation procedure has been modified.	6.20.1	

Content of Update	Updated Section	Revision
In [Point], information has been added or modified.	6.20.2.1, 6.20.3.1, 6.20.4.3, 8.1.1	
The description that Virtual Volumes cannot be created/changed/deleted from the Web Console has been added.	6.20.5	
The explanation of the displayed item **Host name** has been added.	10.2	
Information related to the ETERNUS DX200F has been modified or added.	"Others" in Preface, 3.1, 3.3, 3.5.5, 6.1.9, 6.7.1, 6.9.1	3
Information related to the ETERNUS DX60 S3 has been added.	"Notation" in Preface, 3.1, 3.5.5, 6.1.9, 6.7.1, 6.9.1	
Information related to the ETERNUS LT260 has been added.	"Notation" in Preface, 6.3, 6.4	
Firefox ESR 31 has been added as the Web browser that can use the Web Console.	1.1	
The specification for performance management configuration information in Storage Cruiser has been improved.	3.1, 6.1.9	
The description for the values that are displayed in the screen has been added.	3.5.12	
The section title has been modified.	6.6.3, 6.6.4, 8.5.5, 8.5.6	
The term has been changed from "VMware vCenter/vSphere server" to "VMware vCenter Server".	6.6.3, 6.6.4, 8.5.5, 8.5.6	
The operational procedure concerning functions to support from Version 16.2 has been described.	6.8,1, 6.8.3 - 6.8.6, 6.10.1, 6.10.2, 6.10.5, 6.11.12, 6.11.15, 6.15.10, 6.15.13, 6.15.14, 6.15.17, 6.15.20 - 6.15.22, 6.15.27, 6.16.1, 6.16.3, 6.12.12, 6.16.22, 6.16.26 - 6.16.28, 6.20, 8.1.1, 8.2, 8.5.5, 10.2, 10.3	
The description for the Storage Cluster Continuous Copy function has been added.	6.11.3 - 6.11.5, 6.11.8, 8.2.2.1, 8.2.2.3, 8.2.2.9	
Information related to SQL Server 2014 has been added.	6.11.18, 6.11.19	
[Point] has been added.	6.14.7, 6.14.9, 6.14.11, 7.11.7, 8.1.1	
[Point] has been deleted.	6.15	
In [Note], information has been added or modified.	6.15.1, 9.11	
The explanation of the input item **Warning Threshold of Pool** has been added.	6.15.7	
Input item name has been changed from **Automated QoS:Tier Control** to **Tune by Quota Share**. In addition, the explanation of this input item has been modified.	6.15.17, 6.15.20, 6.17.2	
An input item has been added.	6.16.1	2.1
The naming rule of NAS backup volume, copy group, and NAS snapshot volume has been changed.	6.16.1	
The explanation concerning the input item has been added.	6.16.1, 6.16.19	
The explanation of the tab which displays the detailed information has been added.	6.16.7	
[Point] has been added.	6.16.23	
[Note] has been deleted.	6.16.23	

Content of Update	Updated Section	Revision
Information about Internet Explorer 8 has been added.	1.1	2
The explanation related to "Selections" has been described.	2.3	
The conditions that the Category pane, the Main pane, and the Action pane are not updated automatically have been modified.	3.1	
Information about the ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3 has been added.	3.3	
A note has been added.	3.5.4	
In [Point], information has been 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], information has been 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 has been modified.	6.9.1, 6.9.4	
The name of input items has been changed. Or, the explanation about the input items has been 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 has been described.	6.11.18, 6.11.19, 6.15.9, 6.15.19, 6.16.1, 6.16.6, 6.16.8 - 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 has been described.	6.15.17, 6.15.20, 6.17.2	
The firmware version required to operate the storage Automated Storage Tiering has been described.	6.15	
The section title and procedure have been modified.	7.1	
The "Record Count Preference" has been added to displayed information.	12.2.1	
The procedure to change the default record count in table has been described.	12.2.4	
Information related to the ETERNUS DX200F has been added.	"Others" in Preface	1.2
An error in the explanation concerning the input item has been corrected.	6.15.16	1.1
The explanation concerning the input item has been added.	6.16.1	
The number of maximum characters that is able to be specified for Allowed Hosts and Denied Hosts has been changed.	6.16.1, 6.16.3	
[Information] has been added.	6.16.2	

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Chapter 1 Operating Environment and Environment Settings

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

1.1 Supported Web Browsers

Web Console works through a web browser on a PC and a tablet. However, the tablet in this manual indicates a device on which iOS or Android is installed.
The following web browsers are supported by Web Console.

- For PC
  - Microsoft Edge 90
  - Chrome 90

Point

It is recommended that the screen resolution is 1,024 x 768 pixels or more.

- For Tablet
  - Safari 9 or later (iOS version)
  - Chrome 50 or later (Android version)

Point

- Screen resolution of 1,024 x 768 pixels or more is required.
- The above web browsers cannot display Quick Launch, Performance (new performance screen that is supported from Version 16.8), and Detail View. Refer to "Chapter 2 Web Console Screen Layout" for information on Dashboard, Quick Launch, Performance, and Detail View.

1.2 JavaScript Settings

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

For Microsoft Edge

No action is required because JavaScript is enabled in the initial settings.

For Safari

Follow the procedure listed in the Safari support site to enable JavaScript.

`https://support.apple.com`

For Chrome

Follow the procedure listed in the Chrome support site to enable JavaScript.

`https://support.google.com/chrome`

1.3 Cookie Settings

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

For Microsoft Edge

1. Click '**...**' icon on the top-right of screen.
   The **Setting** menu is displayed.
2. Click in order of **Settings** > **Cookies and site permissions** > **Manage and delete cookies and site data**.
   The **Cookies and site data** panel is displayed.
3. Set the option **Allow sites to save and read cookie data (recommended)** to On.

For Safari

Follow the procedure listed in the Safari support site to enable cookie.

`https://support.apple.com`

For Chrome

Follow the procedure listed in the Chrome support site to enable cookie.

`https://support.google.com/chrome`

1.4 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.

To disable the first connection warning message, 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.

1.4.1 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 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 environments

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.
   The *installDir* is the directory where ETERNUS SF Manager program is installed.

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. Modify the configuration file.

   a. Open the *installDir*\Common\sys\apache\conf\chrome_openssl.cnf file using the editor.
   The *installDir* is the directory where ETERNUS SF Manager program is installed.

   b. When specifying the IP address of the Management Server in the web browser address bar to access the Management Server, modify item **IP.1**.
   When specifying the hostname of the Management Server in the web browser address bar to access the Management Server, modify item **DNS.1**.
   In addition, if both of the above methods can be used to access the Management Server, modify both item **IP.1** and item **DNS.1**.

   ```
   [ alt_names ]
   IP.1=<IP Address of Management Server>
   DNS.1=<Host name of Management Server>
   ```

   Item **IP.1** is set to "1.1.1.1" and item **DNS.1** is set to "hostname.com" in the initial state.

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

Example

If you set the Management Server IP address to "192.0.2.10" and set the expiration date to 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 chrome_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) []:192.0.2.10<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 19th, 2038.

-config

Specify "chrome_openssl.cnf " as the name of the configuration file.

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 is entered in the web browser. Enter This item is mandatory. The enter example is as follows. - In the case of specifying IP address: 192.0.2.10 - In the case of specifying host name: myhost.company.com
Email Address	E-mail address for contact

Information

If the openssl command is executed, the following message may be output. Ignore the message because it does not affect the openssl command behaviors.

```
WARNING: can't open config file: c:/openssl-x.x.xx-win64/ssl/chrome_openssl.cnf
```

6. 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 environments

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. Modify the configuration file.

   a. Open the /etc/opt/FJSVesfcm/conf/apache/chrome_openssl.cnf file using the editor.

   b. When specifying the IP address of the Management Server in the web browser address bar to access the Management Server, modify item **IP.1**.
   When specifying the hostname of the Management Server in the web browser address bar to access the Management Server, modify item **DNS.1**.
   In addition, if both of the above methods can be used to access the Management Server, modify both item **IP.1** and item **DNS.1**.

   ```
   [ alt_names ]
   IP.1=<IP Address of Management Server>
   DNS.1=<Host name of Management Server>
   ```

   Item **IP.1** is set to "1.1.1.1" and item **DNS.1** is set to "hostname.com" in the initial state.

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

Example

If you set the Management Server IP address to "192.0.2.10" and set the expiration date to 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 chrome_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) []:192.0.2.10<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 19th, 2038.

-config

Specify "chrome_openssl.cnf" as the name of the configuration file.

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 is entered in the web browser. Enter This item is mandatory. The enter example is as follows. - In the case of specifying IP address: 192.0.2.10 - In the case of specifying host name: myhost.company.com
Email Address	E-mail address for contact

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

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

1.4.2 Certificate Import

The work procedure varies with the browser that you use. Follow the procedure below to import the certificate:

- For PC
  - For Microsoft Edge (for PC)
  - For Chrome (for PC)
- For tablet
  - For Safari (for tablet)
  - For Chrome (for tablet)

Note

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 are 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 Microsoft Edge (for PC)

1. Copy the certificate file created in "1.4.1 Certificate Creation" to any directory on a PC. The certificate file is the following one stored in the Management Server.
   - When the Management Server OS is Windows

     installDir\Common\sys\apache\conf\server.crt
     (The *installDir* is the directory where ETERNUS SF Manager program is installed.)
   - When the Management Server OS is Solaris or Linux

     /etc/opt/FJSVesfcm/conf/apache/server.crt
2. On Edge, click in order of **Settings** > **Privacy, search, and services** > **Manage certificates**.
3. On the **Trusted Root Certification Authorities** tab in a displayed dialog box, click **Import**.
4. On the **Welcome to the Certificate Import Wizard** dialog box, click **Next**.
5. On the **File to Import** page, click **Browse**.
6. Select the file copied in step 1, click **Open**, and then click **Next**.
7. Confirm that "Trusted Root Certification Authorities" is displayed in the **Certificate store** field, and then click **Next**.
8. Confirm that "Trusted Root Certification Authorities" is specified in the **Certificate Store Selected by User** field, and then click **Finish**.
9. On the **Security Warning** pop-up window, click **Yes**.
10. Restart the web browser, and then enter the URL of the Management Server in the web browser address bar.

For Chrome (for PC)

1. Copy the certificate file created in "1.4.1 Certificate Creation" to any directory on a PC. The certificate file is the following one stored in the Management Server.
   - When the Management Server OS is Windows

     installDir\Common\sys\apache\conf\server.crt
     (The *installDir* is the directory where ETERNUS SF Manager program is installed.)
   - When the Management Server OS is Solaris or Linux

     /etc/opt/FJSVesfcm/conf/apache/server.crt
2. On Chrome, click in order of **Settings** > **Privacy and security** > **Security** > **Manage certificates**.
3. On the **Trusted Root Certification Authorities** tab in a displayed dialog box, click **Import**.
4. On the **Welcome to the Certificate Import Wizard** dialog box, click **Next**.
5. On the **File to Import** page, click **Browse**.
6. Select the file copied in step 1, click **Open**, and then click **Next**.
7. Confirm that "Trusted Root Certification Authorities" is displayed in the **Certificate store** field, and then click **Next**.
8. Confirm that "Trusted Root Certification Authorities" is specified in the **Certificate Store Selected by User** field, and then click **Finish**.
9. On the **Security Warning** pop-up window, click **Yes**.
10. Restart the web browser, and then enter the URL of the Management Server in the web browser address bar.

For Safari (for tablet)

1. In the web browser address bar, enter the IP address or host name (FQDN) specified in the **Common Name** at the certificate creation.

   Example

   - In the case of entering IP address (192.0.2.10)

     ```
     https://192.0.2.10:9855/
     ```

   - In the case of entering FQDN (myhost.company.com)

     ```
     https://myhost.company.com:9855/
     ```

2. The Security Certificate Warning screen is displayed at the time of initial connection, and tap **Details** on the screen.
3. The Certificate screen is displayed, and tap **Trust** at the upper right of the screen.

For Chrome (for tablet)

1. Copy the certificate file created in "1.4.1 Certificate Creation" to the root directory in internal storage device on a tablet. The certificate file is the following one stored in the Management Server.

   - When the Management Server OS is Windows

     installDir\Common\sys\apache\conf\server.crt
     (The *installDir* is the directory where ETERNUS SF Manager program is installed.)

   - When the Management Server OS is Solaris or Linux

     /etc/opt/FJSVesfcm/conf/apache/server.crt

2. On the tablet, tap in order of **Settings** > **Personal** > **Security** > **CREDENTIAL STORAGE - Install from storage**.
3. Input the file name of the certificate file copied in step 1 in the **Certificate name** field in a displayed dialog box, and tap **OK**.
   If a password is required for the tablet, input the password.
4. Tap **Trusted credentials**.
5. Tap **USER** tab in the displayed dialog box, and make sure that the certificate specified in step 3 is displayed.

1.5 Requirements for Using Quick Launch

To use Quick Launch, one of the following is required:

- Express
- Express and AdvancedCopy Manager
- Storage Cruiser and AdvancedCopy Manager

Perform a setup in advance by referring to the *Installation and Setup Guide* for the product and by referring to a suitable operation guide (the *Express Operation Guide*, the *Storage Cruiser Operation Guide*, or the *AdvancedCopy Manager Operation Guide*) for the product.

Supported Hardware

Quick Launch supports the following hardware:

- Storage devices
  - ETERNUS DX S6/S5/S4/S3 series (V10L70 or later firmware is required for the ETERNUS DX S4/S3 series.)

    - ETERNUS AF All-Flash Arrays (V10L70 or later firmware is required for the ETERNUS AF series.)
- Business servers
    - When Express is used

      There are no restrictions.
    - When Storage Cruiser is used
        - Servers which the Storage Cruiser's agent can be installed

          For details about servers, refer to "Operating Environment of Storage Cruiser's Agent" in the *Installation and Setup Guide*.
        - VMware vSphere and VMware vCenter Server

          For information on the supported version, refer to "Devices Supported by Storage Cruiser" under "Supported Devices" in the *Installation and Setup Guide*.
- Fibre Channel switches

  Fibre Channel switches are supported only when Storage Cruiser is used. For information on the supported devices, refer to "Devices Supported by Storage Cruiser" under "Supported Devices" in the *Installation and Setup Guide*.
- Supported connection types between business servers and storage devices

  FC connections and iSCSI connections are supported.

Supported Operations

The following operations can be performed with Quick Launch.

- Creating pools

  You can create Thin Provisioning Pools (TPP).
- Creating and assigning volumes to a server

  You can create Thin Provisioning Volumes (TPV).

  If Storage Cruiser is used, FC switch zoning is set when the created TPV is assigned to a server.
- Snapshot-type high-speed copies with the Advanced Copy function of storage devices

  You can create snapshots and restore from snapshots to a business volume with SnapOPC+ of Advanced Copy function of storage devices and the Copy command via LAN.
  In addition, you can delete snapshots.

Point

If volumes other than Thin Provisioning Volumes exist in the target storage device, perform the above operations from Detail View.

Information

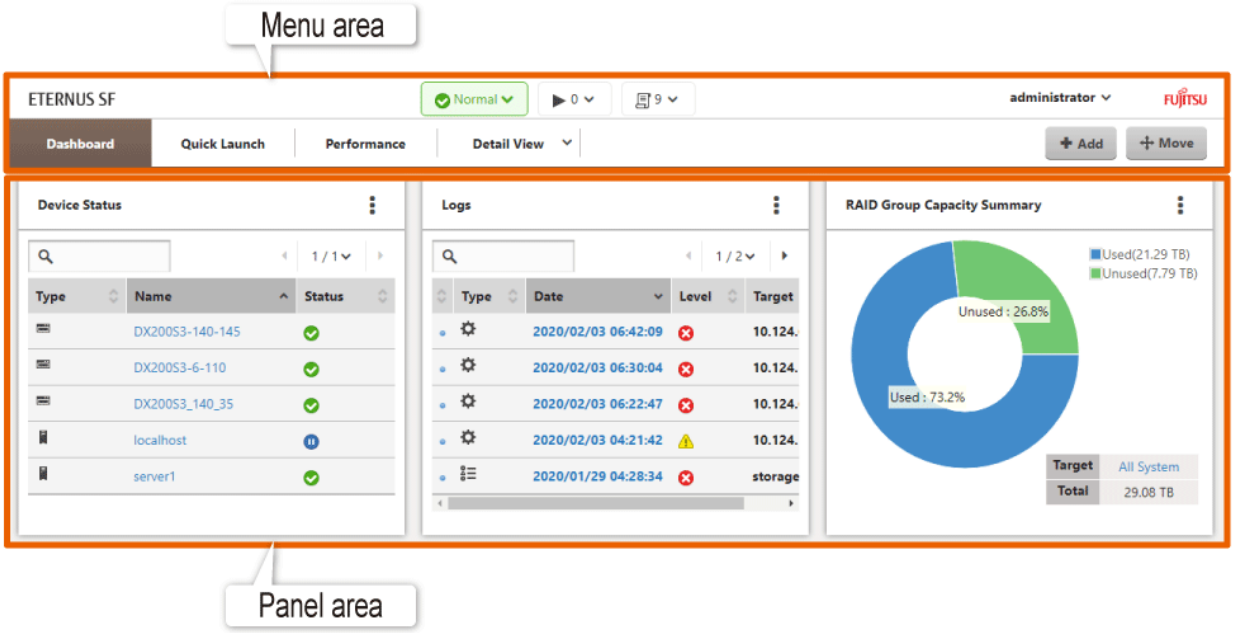
In manuals of this product, a business volume is called "transaction volume".

Chapter 2 Web Console Screen Layout

Logging in to Web Console displays Dashboard as the Home screen by default.
Whenever you use a tablet, Dashboard is displayed.
Refer to "5.5.1 Home Screen Settings" for information on how to change the Home screen.

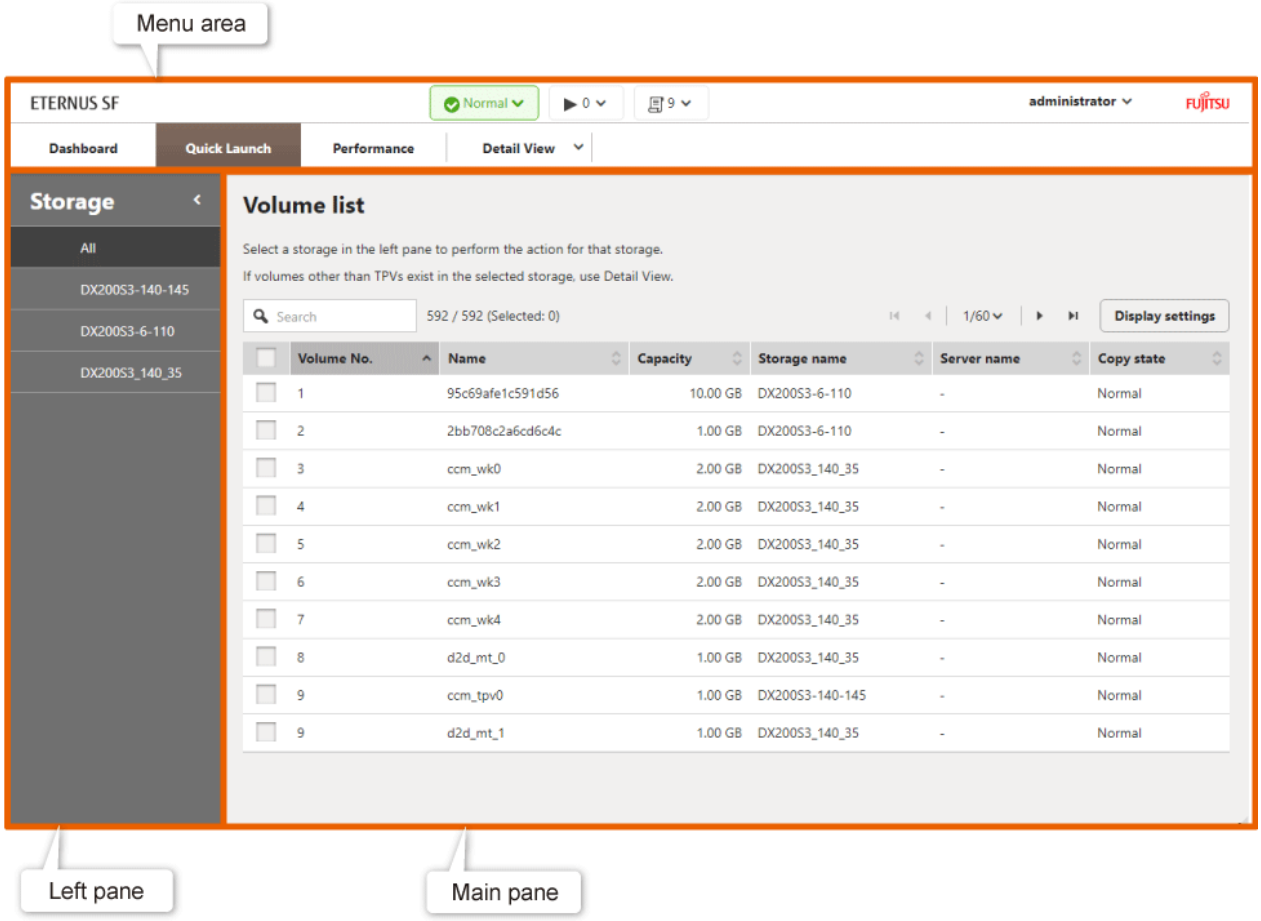
The screen layout when the **Dashboard** tab is clicked is as follows.

Figure 2.1 Dashboard Screen Layout



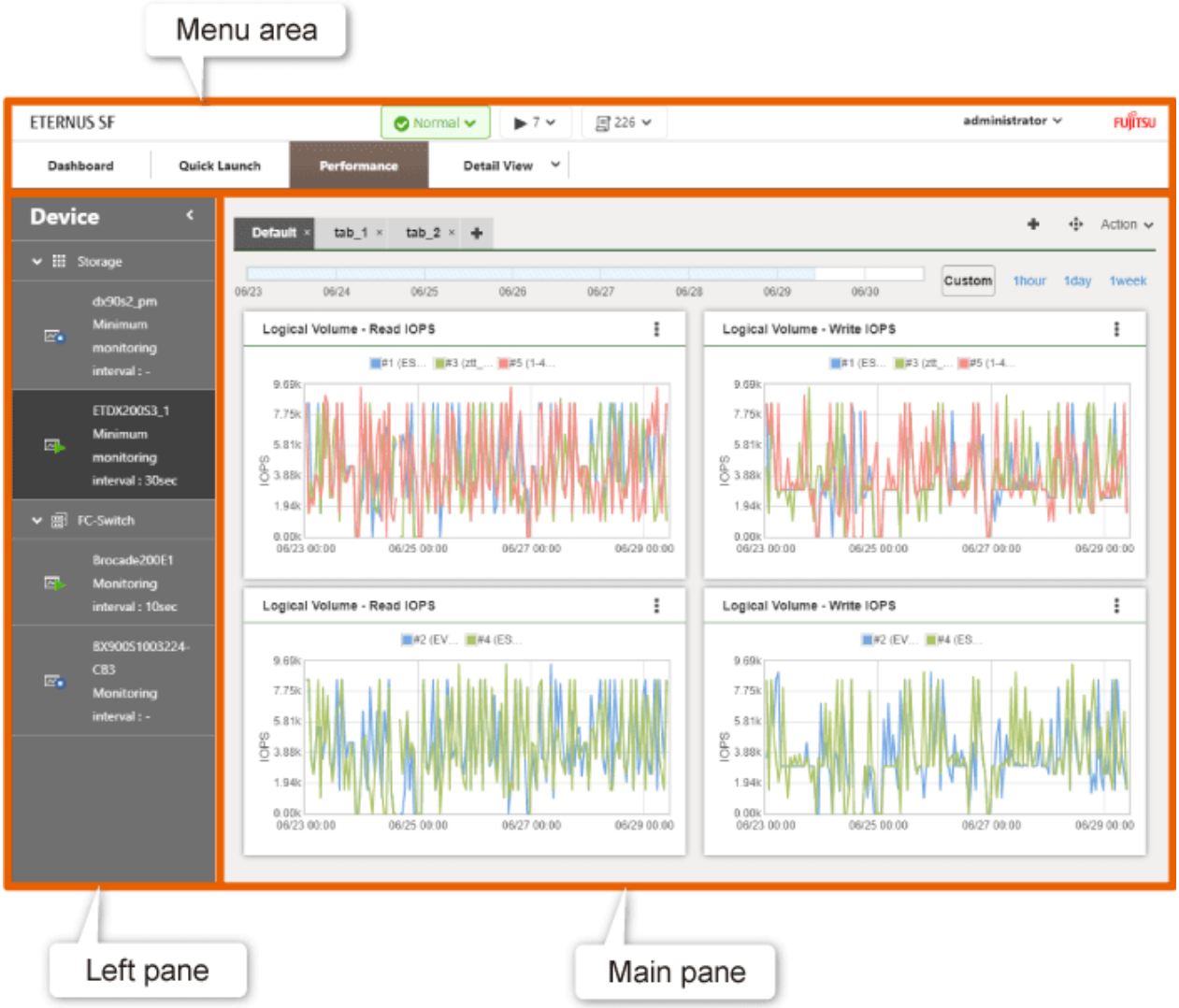
The screen layout when the **Quick Launch** tab is clicked is as follows.

Figure 2.2 Quick Launch Screen Layout



The screen layout when the **Performance** tab is clicked is as follows.

Figure 2.3 Performance Screen Layout

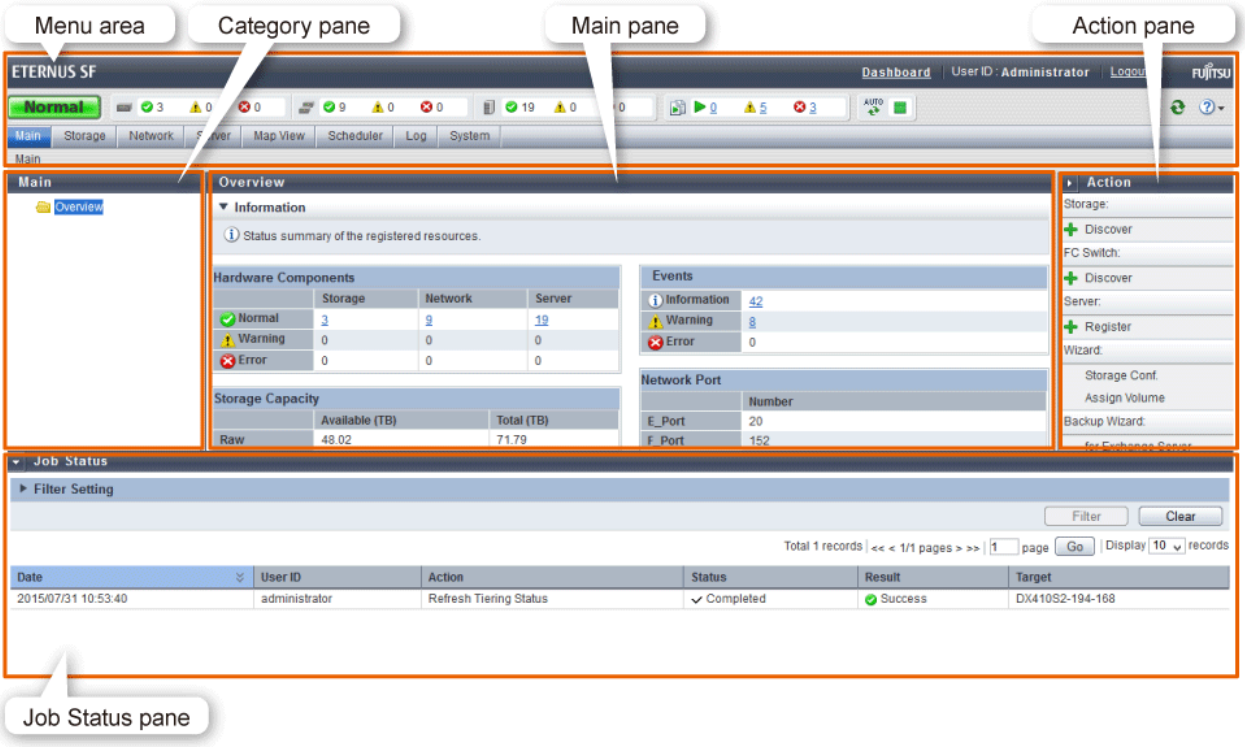


The screen layout of Detail View is as follows. This screen is displayed when either of the following operation is performed.

- The Detail View shortcut menu is clicked from the **Detail View** tab of Dashboard.

- **Detail View** is clicked from the **User** menu in the Dashboard Menu area.

Figure 2.4 Detail View Screen Layout



When **Map View** is clicked in the global navigation tab of Detail View, the displayed map view screen layout is as follows.

Figure 2.5 Map View Screen Layout (Overview Screen)

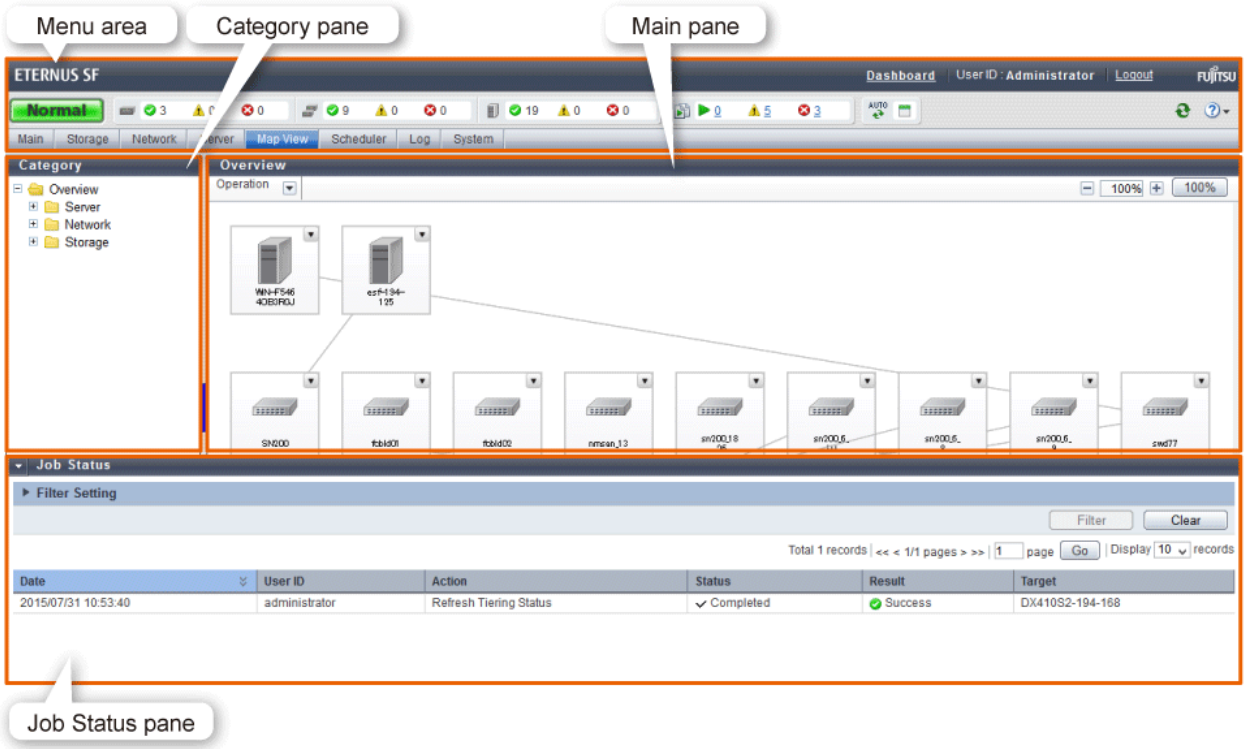
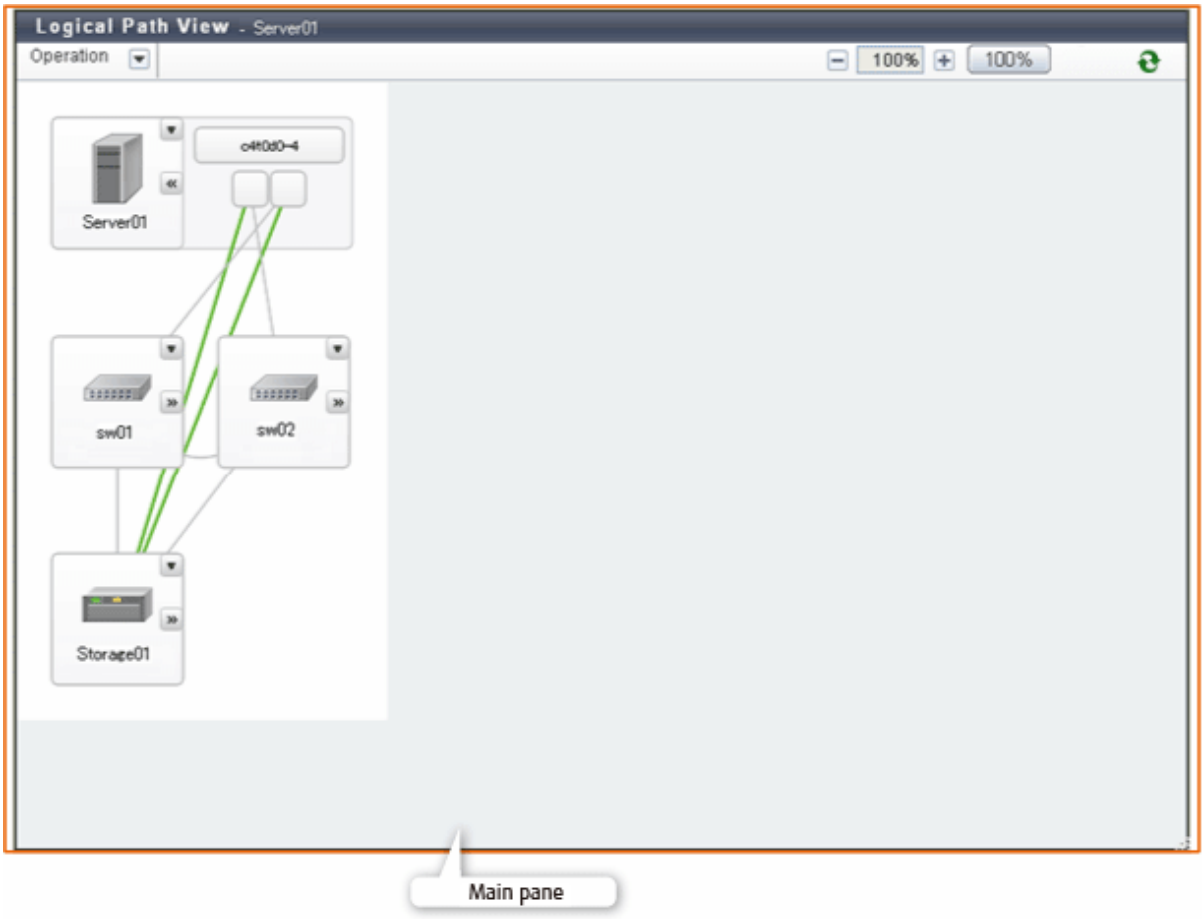


Figure 2.6 Map View Screen Layout (Logical Path View Screen)

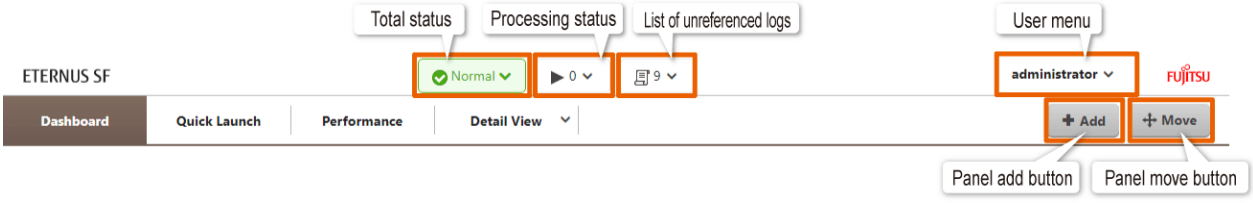


Each component of the Web Console screen is described hereinafter.

2.1 Dashboard

This section describes the respective elements that make up Dashboard.

2.1.1 Menu Area



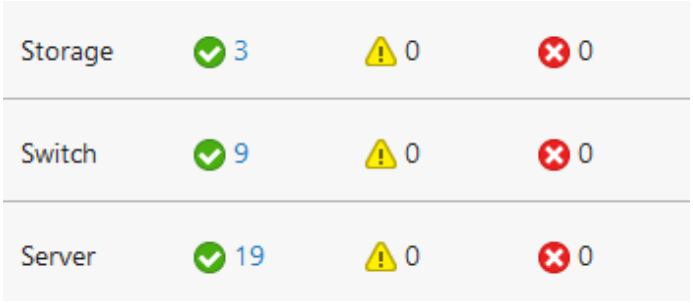
Total Status

The comprehensively evaluated status of storage devices, switches, and servers are displayed with icons. The types of icons that are displayed are as follows.

Icon	Meaning
Normal	All devices are running normally.
Warning	Some devices require attention.

Icon	Meaning
Error	An error is occurring in some devices.

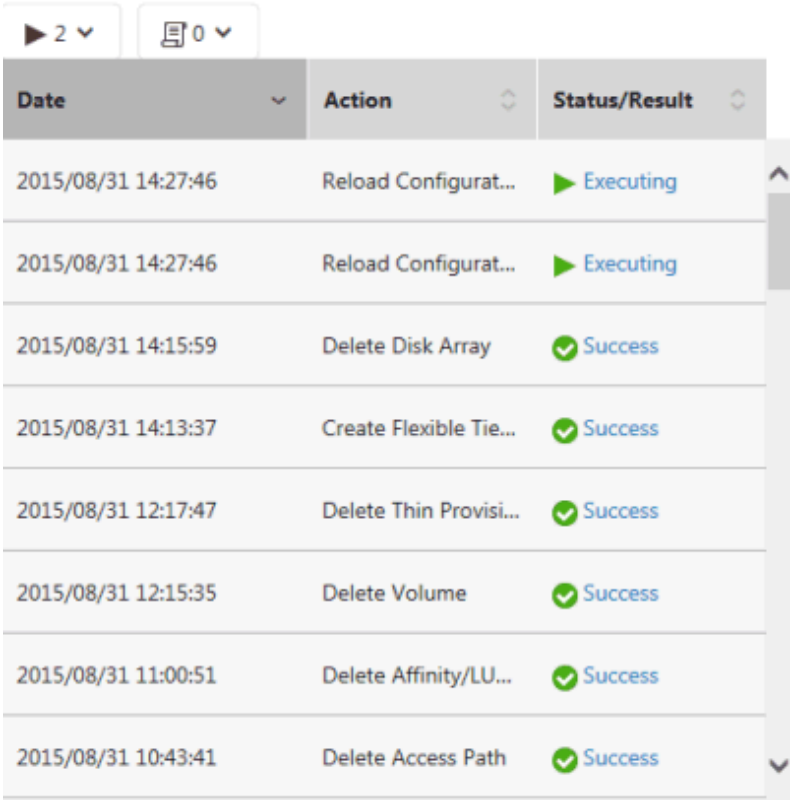
Clicking the above icons displays the status of storage devices, switches, and servers respectively in a pull-down list.



Clicking the link changes the screen to Detail View to display a list of storage devices, switches, or servers with the filter set so that only the status corresponding to an icon is displayed.

Processing Status

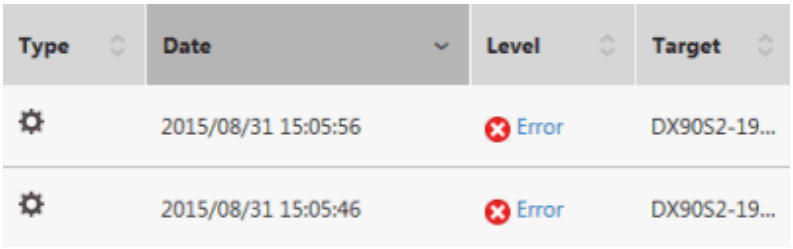
The number of processes that are running in the ETERNUS SF system is displayed.
Clicking this icon displays a list of process status in a pull-down list.



Clicking an element in the **Status/Result** column displays a dialog box showing the details about the process status of the clicked line. The meaning of displayed items is the same with the Job Status pane.

List of Unreferenced Logs

Among the various logs, the number of unreferenced logs with a level of "Warning" or "Error", is displayed.
Clicking this icon displays a list of unreferenced logs in a pull-down list.



Clicking an element in the **Level** column displays a dialog box showing the details about the log content of the clicked line in detail.

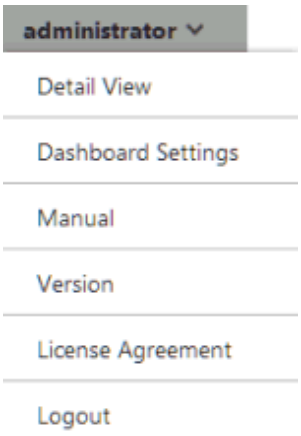
Point

The following logs are displayed:

- Operation History
- Events
- Threshold Monitoring Alarms
- Quota Management (NAS Management)

User Menu

The name of the user logged in to Web Console is displayed.
Clicking the **Menu** to the right of the user name displays a pull-down menu.



The Dashboard action when clicking each menu is as follows.

Menu Name	Dashboard Action
Detail View	Moves to the Detail View screen.
Dashboard setting	Displays a dialog box for performing settings related to Dashboard. Refer to "5.5.1 Home Screen Settings" for details.
Manual	Displays the online manual index screen.
Version	Displays the product version information.
License Agreement	Displays the License Agreement.
Logout	Logs out from Web Console.

Panel Add Button

This is a button for adding a panel to the Panel area. This button appears on the Dashboard screen.
Clicking **Add** displays a menu to add a panel with icons under the Menu area.

In this status, when clicking the icon corresponding to the information that you want to add, a panel is added to the Panel area or a configuration dialog box for adding a panel is displayed.
Actions executed when each icon is clicked, names of added panels, and panel function overview are shown below.

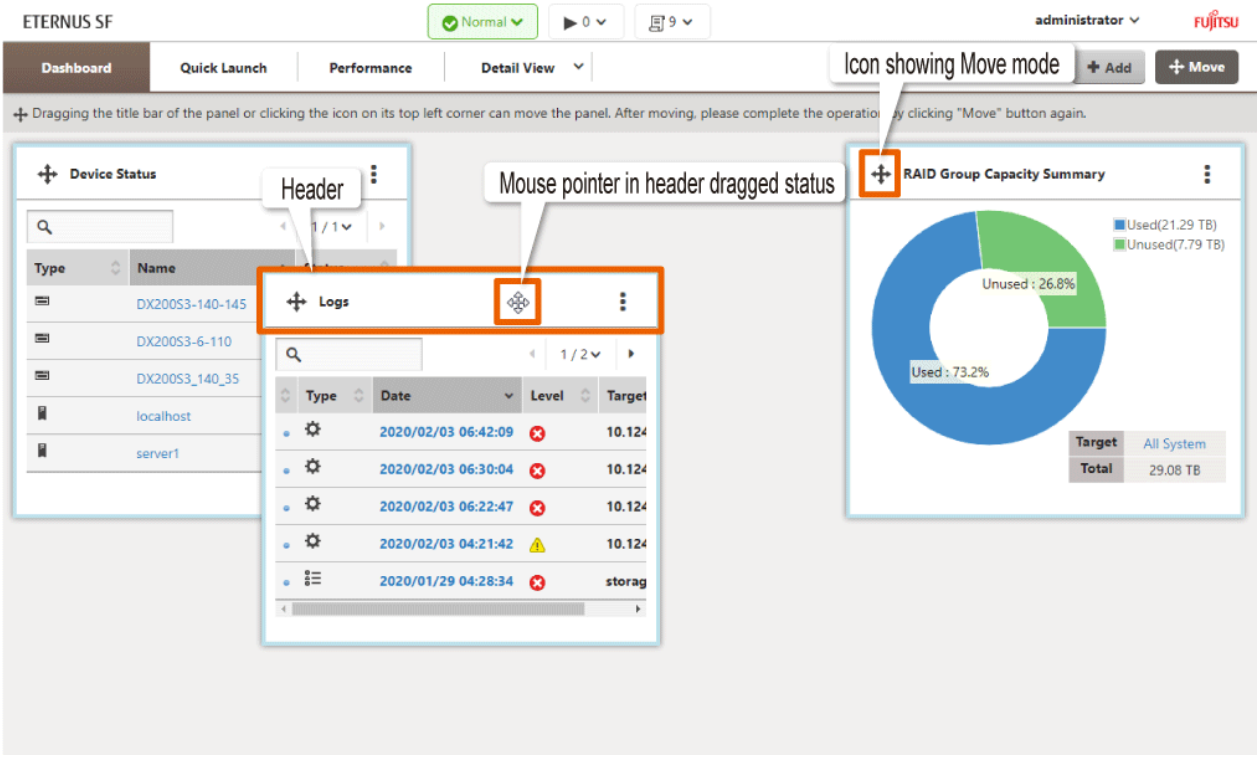
Icon Name	Action	Name of Added Panel	Function Overview of Panel
Status	Adds a panel to the Panel area.	Device Status panel	Displays the status of devices that are managed by the ETERNUS SF system.
Log		Logs panel	Displays various logs of the ETERNUS SF system.
Automated Storage Tiering	Displays a configuration dialog box to add a panel. Setting the display information in the configuration dialog box adds a panel to the Panel area according to the settings.	Access Status Chart panel	Graphically displays access status to Tier pools or volumes for devices that use Automated Storage Tiering among devices managed by the ETERNUS SF system.
Capacity		Capacity panel	Displays information for capacity usage of devices that are managed by the ETERNUS SF system. The change of capacity usage can be viewed in a graph, too.

Refer to "Chapter 5 Operations for Dashboard" for details about panels to be added.

Panel Move Button

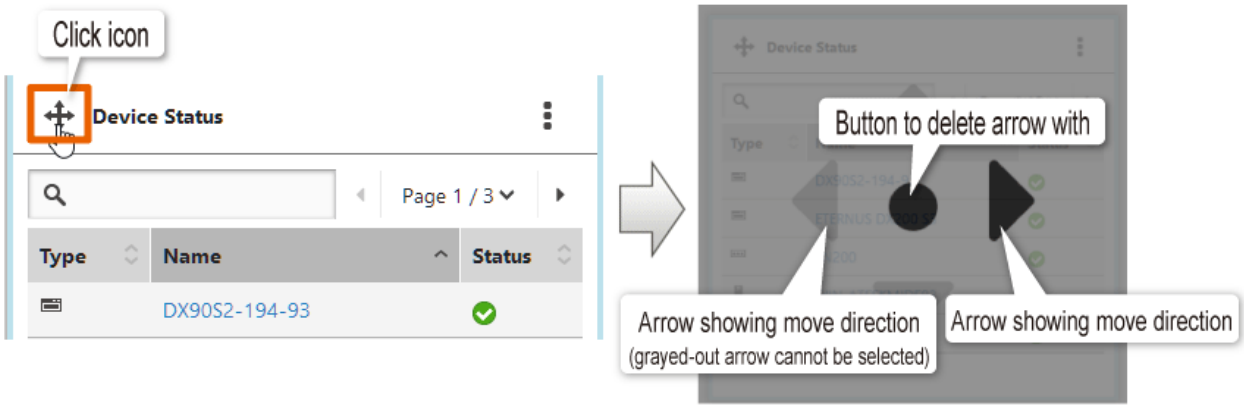
This is a button for changing the panel display location in the Panel area. This button appears on the Dashboard screen.

Clicking **Move** changes all the panels in the Panel area to the Move mode.
When the panels change to the Move mode, an icon indicating the Move mode is displayed on the upper left portion of each panel.



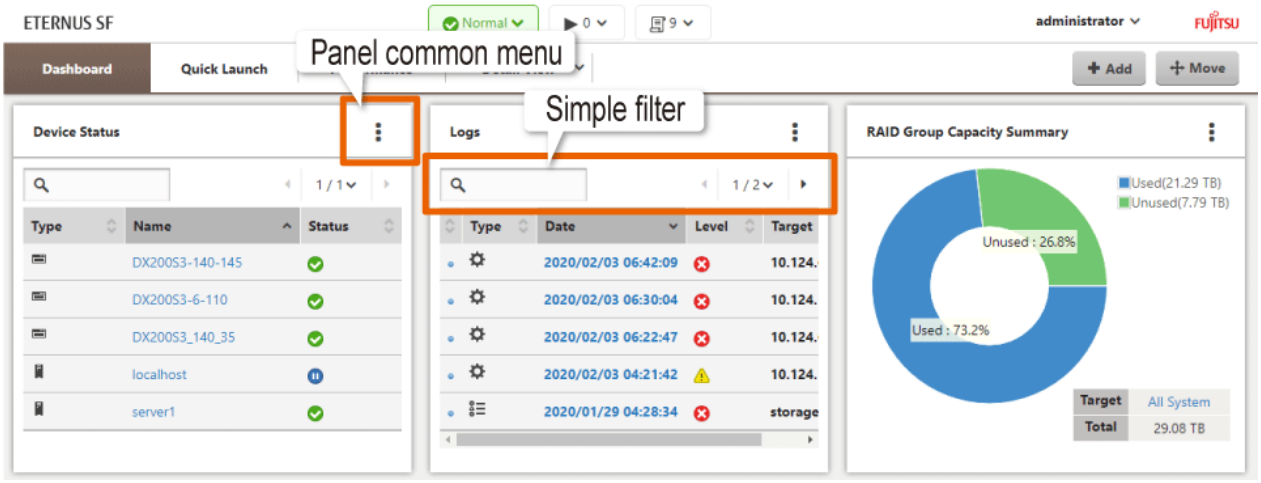
In this status, the panel display location can be changed. The two ways of changing the panel display location are as follows:

- Replace the display location by dragging and dropping the header portion of the panel that you want to change with a different panel.
- Click the icon on the upper left portion of the panel you want the display location changed to display an arrow to move display location. Next, click the arrow in the direction of the other to change locations.
  To delete the arrow, click the button in the center.



If you click **Move** when the panels are in the Move mode, all the panels are returned to the Display mode.

2.1.2 Panel Area



The Panel area is an area that displays information required to operate and monitor the system. A maximum of 24 panels can be displayed in this area.
Each panel is customizable, such as adding/deleting panels, changing the panel display location, and the display content.

The following settings in the Panel area are saved for each user. For this reason, as long as the settings are not changed, even when performing a screen transition or a re-login, the same number of panels, the same locations, and the same panel contents are displayed as before.

- Number of displayed panels
- Panel displayed location
- Panel customized content

Panel Common Menu

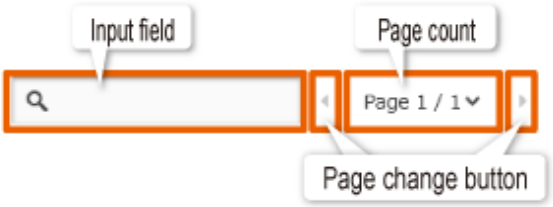
This is an operation menu for each panel.
Clicking the button at the upper right of the panel displays a pull-down menu.

The Dashboard action when clicking each menu is as follows.

Menu Name	Dashboard Action
Modify	Displays a dialog box for customizing the display content of the panel.
Refresh	Updates the display content of the panel to the latest status.
Download	Downloads the display content of the panel to a CSV file.
Remove	Deletes the panel.

Simple Filter

A simple filter is displayed only for a tabular panel.
Using a simple filter can display just a line that includes a specified character string or move to a specified page.



Information

The information entered in a simple filter are not saved. Changing the screen or a re-login clears entered information.

2.2 Quick Launch

This section describes the respective elements that make up Quick Launch.

2.2.1 Menu Area

The menu area of Quick Launch is the same as the one for Dashboard. Refer to "2.1.1 Menu Area" for details.

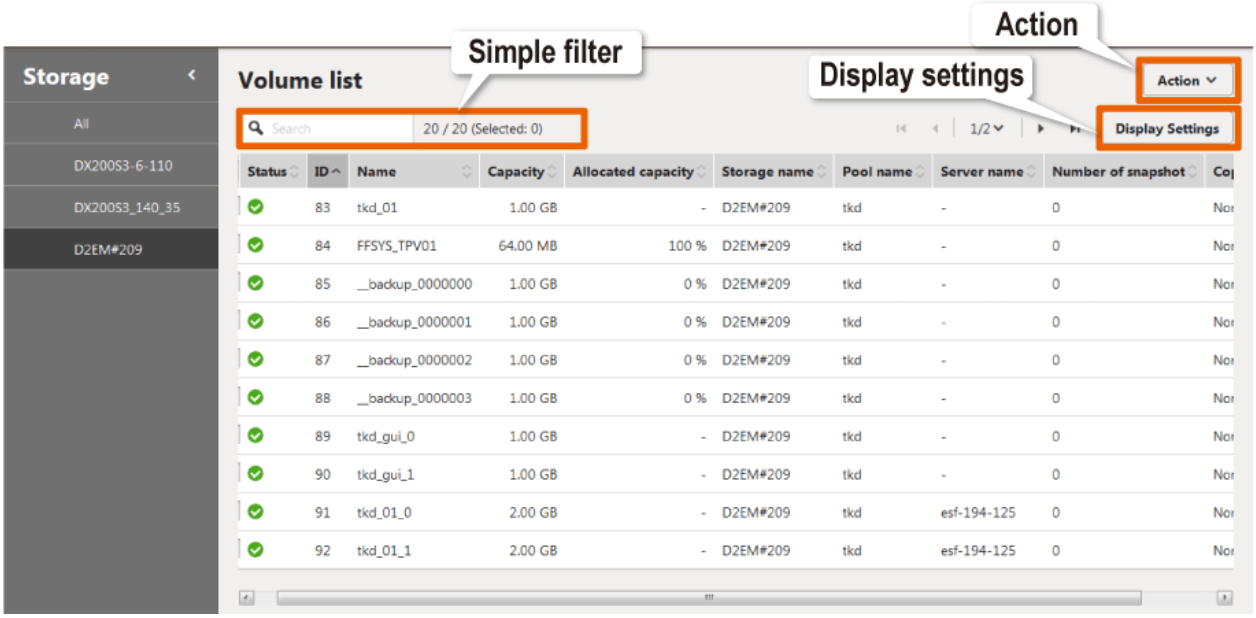
2.2.2 Left Pane

In the left pane of the screen, the storage devices managed by this software appear.

The selection state of the storage devices is saved for each user even after they log out.

If the left pane is open, click ‹ to close it. If the left pane is closed, click › at the left corner of the screen to open it.

2.2.3 Main Pane



On the Main pane, Thin Provisioning Volumes of the storage devices registered with this software are displayed.

If **All** is selected in the left pane, Thin Provisioning Volumes of all the storage devices registered with this software are displayed.
If a storage device is selected in the left pane, Thin Provisioning Volumes for that storage device are displayed.

Point

Volumes that satisfy any of the following conditions do not appear on the Main pane.

- Volumes used for System or Migration
- They exist in REC copy groups

- They are specified as a copy destination of AdvancedCopy Manager CCM
- They are specified as a replication destination of AdvancedCopy Manager
- They are used as a backup volume of AdvancedCopy Manager

Simple Filter

You can use this filter to narrow down the information displayed on the Main pane.
Use this filter so that only information that matches the filtering condition is displayed in the information display area.
In the input field, you can search for multiple strings by separating them with the AND condition.

Action

From the menus in **Action**, you can perform operations related to the resources or setting values displayed on the screen.
The following action menus appear when you move the mouse over **Action**.

- Create Pool
- Create & assign volumes
- Save snapshot
- Delete snapshot
- Restore from snapshot

Refer to "Chapter 6 Operations for Quick Launch" for details about each action.

Display Settings

Use this settings to customize the information displayed on the screen. Each user can customize the settings.

Customized settings can be saved for each login user. This enables customized information to be displayed even after a different screen is displayed or after logging in again.

The display settings can be set for the following items.

- Default sort
- Select column
- Record count
- Filter

2.3 Performance

On the Performance screen, various performance information of the devices can be displayed in each panel (tabs in the main pane). For example, panels for displaying the following chart can be allocated side by side.

- Volume read performance chart and volume write performance of storage devices
- Port throughput of Fibre Channel switches

Unlike the performance charts displayed in "9.13 Operations for Performance Management of Storage Device" and "10.11 Operations for Performance Management of Network Device", the correlation between the performance factors can be comprehensively checked on the same screen.

The setting information of the panels displayed on the Performance screen is not deleted even after logging out from Web Console and is taken over as the panel display setting information for the next login. Therefore, the panel display settings do not need to be configured every time a user logs in and performance monitoring can be started with the previously saved settings.

The following section describes the respective elements that make up the Performance screen.

2.3.1 Menu Area

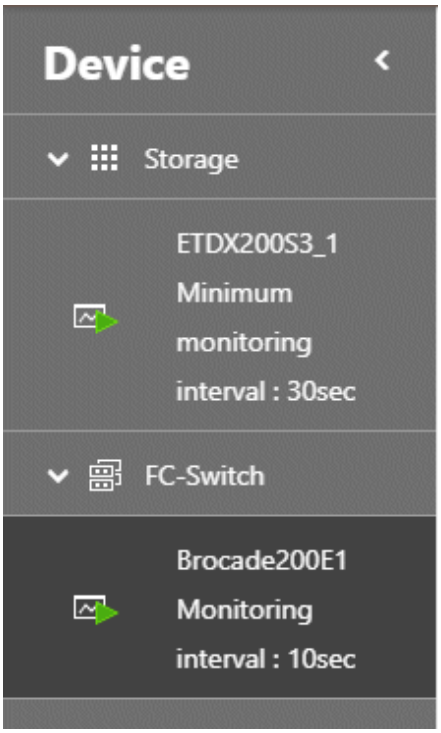
The menu area of the Performance screen is the same as the one for Dashboard. Refer to "2.1.1 Menu Area" for details.

2.3.2 Left Pane

In the left pane of the screen, the devices managed by this software appear.

The selection state of the devices is saved for each user even after they log out.

If the left pane is open, click ‹ to close it. If the left pane is closed, click › at the left corner of the screen to open it.



The following information is displayed for each device.

Device Type	Displayed Information
Storage device	- Device name - Status - Minimum monitoring interval
Fibre Channel switch	- Device name - Status - Monitoring interval

If the mouse is moved over a specific device, the following information related to that device is displayed as the tooltip.

Device Type	Displayed Information in the Tooltip
Storage device	- Status - Monitoring interval - Minimum monitoring interval - Oldest retention date

Device Type	Displayed Information in the Tooltip
	- Monitoring volumes
Fibre Channel switch	- Status - Monitoring interval - Oldest retention date

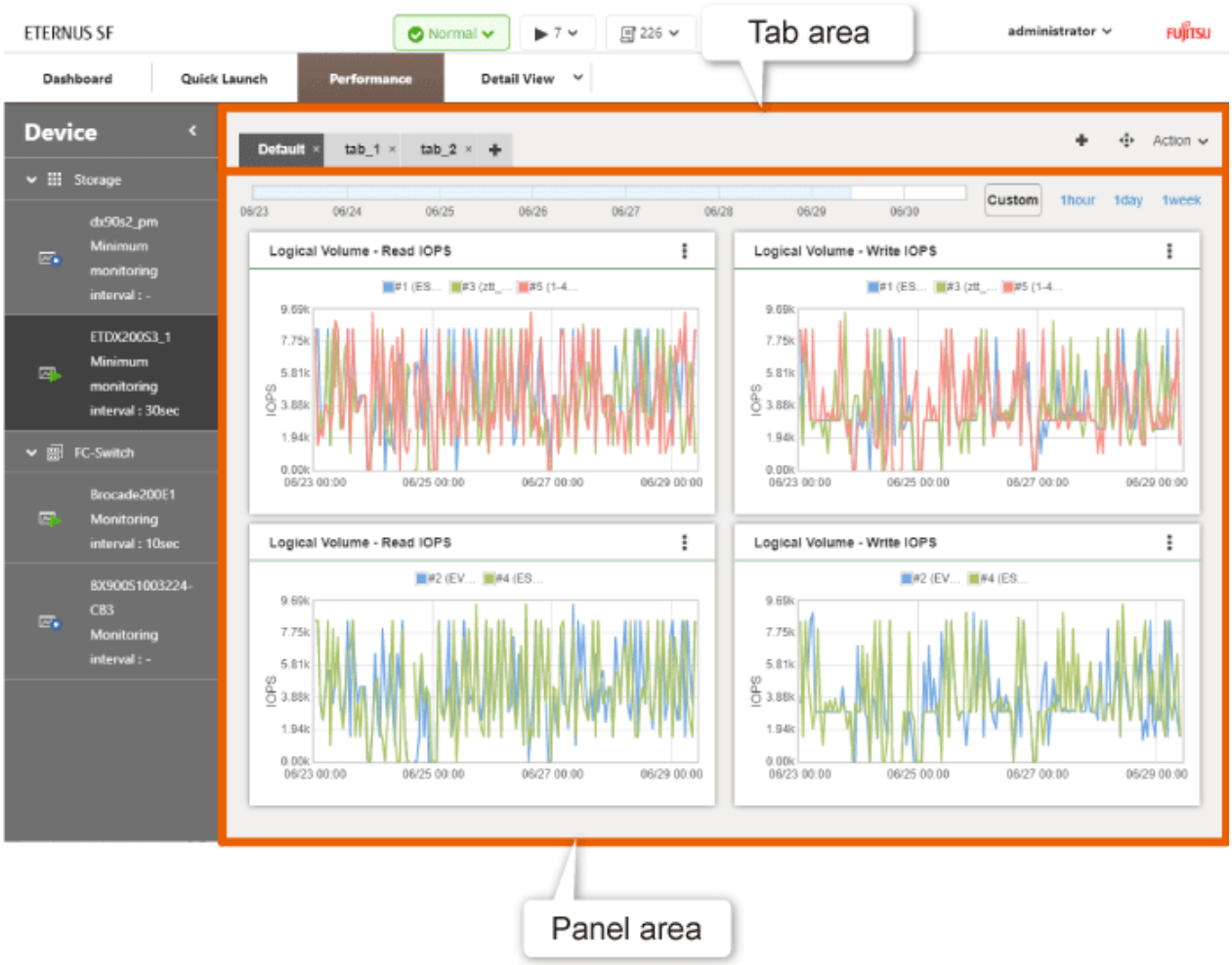
An explanation of the display items are as follows.

Item	Explanation
Status	The performance monitoring status of a device is displayed with an icon. However, no icons are displayed if the Storage Cruiser and Express licenses are not registered. - : Monitoring (operating normally) - : Recovering (recovery in process) - : Error (error state) - : Stop (stopped) For details about each status when Storage Cruiser is used, refer to "Setting Monitoring Intervals" in the *Storage Cruiser Operation Guide*. If Express is used, refer to "Instruction for Performance Management" in the *Express Operation Guide*.
Monitoring interval	The specified monitoring interval is displayed. If the **Status** is not ""(Monitoring), a hyphen (-) is displayed.
Minimum monitoring interval	The performance monitoring interval automatically determined based on the number of target volumes is displayed. If the **Status** is not ""(Monitoring), a hyphen (-) is displayed.
Oldest retention date	The date of the oldest stored performance data is displayed. If performance data does not exist, a hyphen (-) is displayed.
Monitoring volumes	The range of performance monitoring target volumes is displayed.

When a device is selected in the left pane and if panels have already been configured for the device, those panels are displayed in the main pane.

2.3.3 Main Pane

The main pane of the Performance screen consists of the tab area and the panel area.



2.3.3.1 Relationship between Tabs and Panels

Panels can be allocated to the tabs in the main pane.
The number of tabs per device and the number of panels that can be allocated to the tabs are limited. The maximum number of these values vary depending on the product as shown below.

Product Name to be Used	Maximum Number of Tabs per Device	Maximum Number of Panels That Can Be Allocated to a Tab
Storage Cruiser	5	24
Express	1	1

The display settings of the tabs and panels are automatically saved for each user. Therefore, the screen is displayed with the previous setting the next time the user logs in or when Web Console is restarted.

Inheriting the Number of Panels Added to a Tab and the Display Location

The number of panels added to a tab and the display location are saved as a setting for that specific tab. Therefore, that tab is displayed with the same settings even if the tab is switched or the user logs out and back in.

Inheriting the Previously Displayed Tab of Each Device

If multiple tabs are used for a device, the tab displayed in the main pane is the last tab displayed in the previous session when that device is selected in the left pane.

Information

The performance chart can be easily changed by switching the display tab.

2.3.3.2 Tab Area

The following explains the role of each button and action when each button is clicked.

Button Name	Explanation
Delete tab button	Deletes a tab. Clicking this button displays the **Delete tab** dialog box for the selected tab.
Add tab button	Adds a tab. Clicking this button displays the **Add tab** dialog box for adding a new tab.
Add panel button	Adds a panel to the selected tab. Clicking this button displays the **Add performance chart panel** dialog box for the selected tab.
Move panel button	Changes the panel display location of the selected tab. This procedure is the same as moving panels on the Dashboard. Refer to "Panel Move Button" in the "2.1.1 Menu Area" for details.

The following are the available actions. Refer to "Chapter 7 Operations for Performance" for each procedure.

Action Menu Name	Explanation
Start monitoring	Starts the performance monitoring of the selected device.
Stop monitoring	Stops the performance monitoring of the selected device.
Modify monitoring conditions	Changes the monitoring conditions for the selected device.
Modify tab name	Renames the selected tab.

2.3.3.3 Panel Area

The performance chart of the selected resource can be displayed in the panel.

Point

- Up to five charts of the same performance data type can be displayed in a single panel. To display the charts of different performance data type or to display six or more charts, multiple panels are required.
- The display range of the vertical axis in a panel can be changed freely when adding a panel.
- The average value or peak value can be displayed in the performance chart. Select one when adding a panel. Average value is selected by default.
- If a threshold is specified for the device and threshold monitoring is performed, the performance chart can be used to check whether the threshold is exceeded. For the procedure to set a threshold value for the device and how to start or stop threshold monitoring, refer to the following sections.
  - For storage devices: "9.13 Operations for Performance Management of Storage Device"
  - For Fibre Channel switches: "10.11 Operations for Performance Management of Network Device"
- The display items (performance data type, vertical axis display range, whether the average value or peak value is displayed) of a chart in the panel can be changed at any time with the procedure described in "7.3.2 Changing the Panel Display Items".

How to Set the Time Axis for a Performance Chart

There are three methods for changing the time axis (hereinafter referred to as "display range") of a performance chart. The methods are "display range selection bar", "display range selection button", and "select in panel". This operation targets all the panels that exist in the currently displayed tab.

- Display range selection bar

  The entire period of this bar is automatically determined from the number of storage days or the last 45 days, whichever is closer to the current time. For example, if the number of storage days for the performance data is seven, a range between the current time and seven days prior is specified.

  Drag this bar to change the display range. If the selected range includes the right edge of the range, the performance chart in the panel is automatically updated.

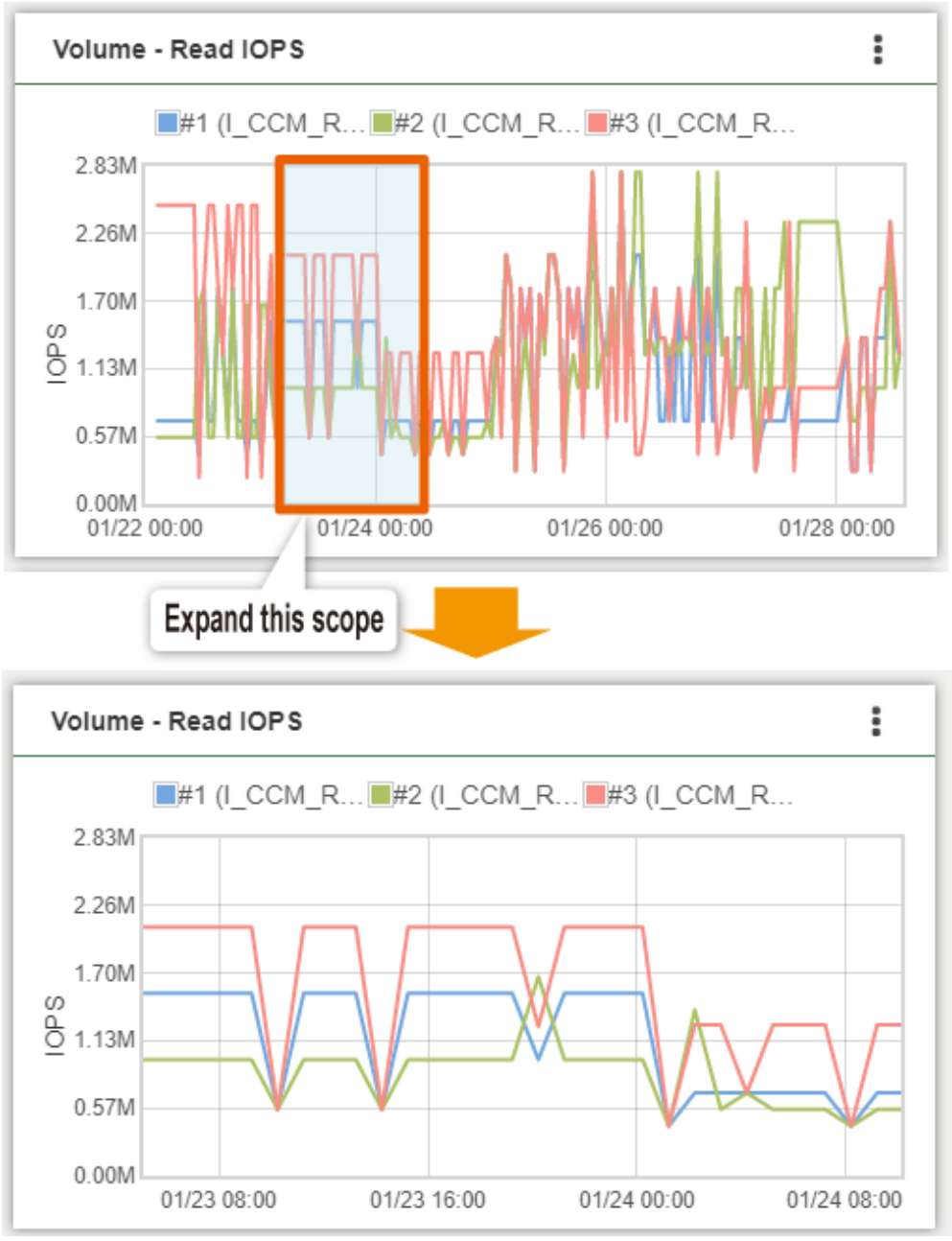
- Display range selection button

  Select any of the following buttons to change the display range.

Button Name	Explanation
Custom	Displays the **Modify display range** dialog box where a display range can be specified. Click the input field to enter the date and time. Check the "Always update within the latest range" checkbox to automatically update the performance chart as time passes.
1hour	Changes the display range to the latest hour. After this button is selected, the performance chart is automatically updated as time passes.
1day	Changes the display range to the latest day. After this button is selected, the performance chart is automatically updated as time passes.
1week	Changes the display range to the latest week. After this button is selected, the performance chart is automatically updated as time passes.

- Select in panel

  The performance charts of all the panels can be zoomed when a performance chart of a panel is dragged to the time axis. To restore the display setting to the state before the zoom operation is performed, use the display range selection bar or the display range selection button.



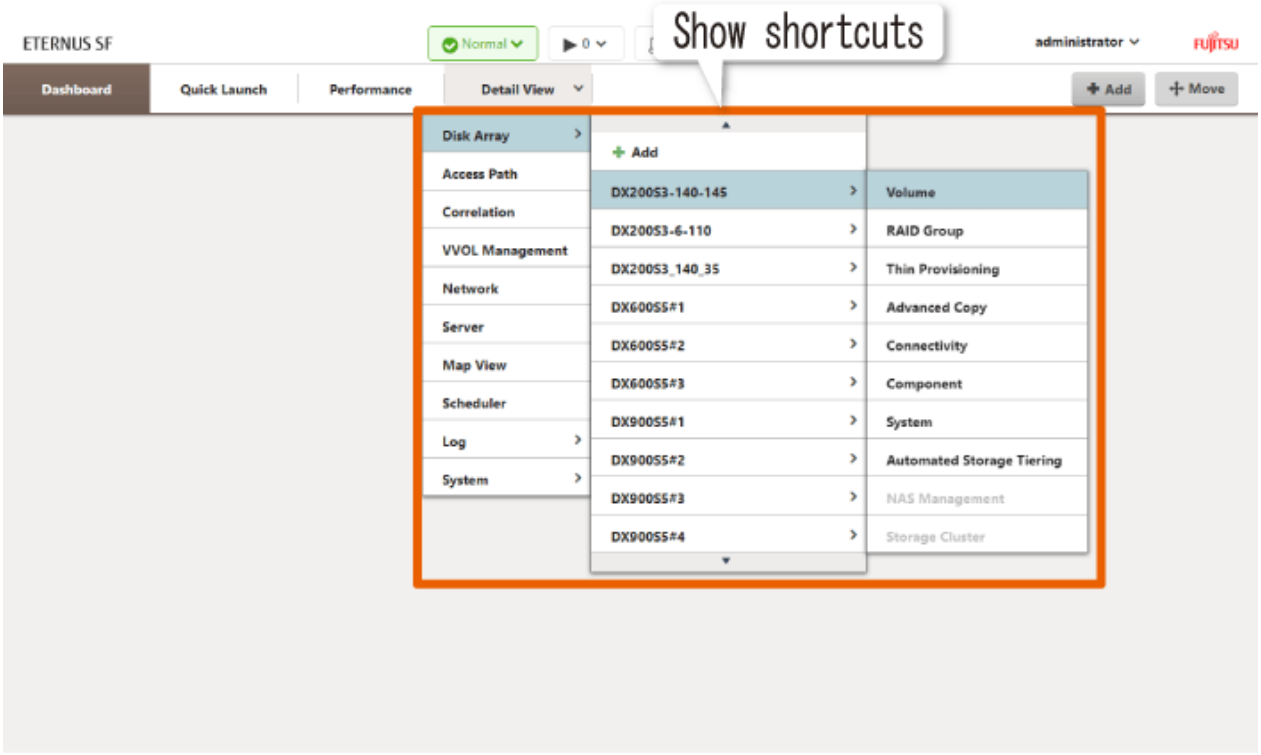
Panel Menu

The following panel menus are available. Refer to "Chapter 7 Operations for Performance" for each procedure.

Menu Name	Explanation
Modify	Changes the items displayed in the selected panel.
Download	Downloads the performance chart data displayed in the selected panel as a file.
Remove	Deletes the selected panel.

2.4 Shortcut to Detail View

A shortcut menu to each screen of Detail View is available in the Dashboard tab as shown in the following screen. If a menu is selected from the drop-down list, the Detail View screen of the selected menu is displayed in a new browser tab.



Note

- The number of Detail View screens that can be opened from the shortcut menu is only one.
- If pop-ups are blocked by the browser, change the setting to allow pop-ups.
- When changing where the new pop-up screen is displayed, make sure that there is no screen opened from the shortcut menu. If a screen opened from the shortcut menu remains, the changed setting may not be reflected correctly.
- If Web Console is open in two browser tabs and you log out from one of the screens, performing an operation from the remaining screen may display a session timeout screen in English regardless of the set language.

Scrolling Up and Down the Drop-down List

If the number of devices registered in this product is 11 or more, the drop-down list displays buttons (up and down triangle buttons) for scrolling up and down the list. The list can be scrolled through just by hovering the mouse over those buttons.

List of Displayed Menus

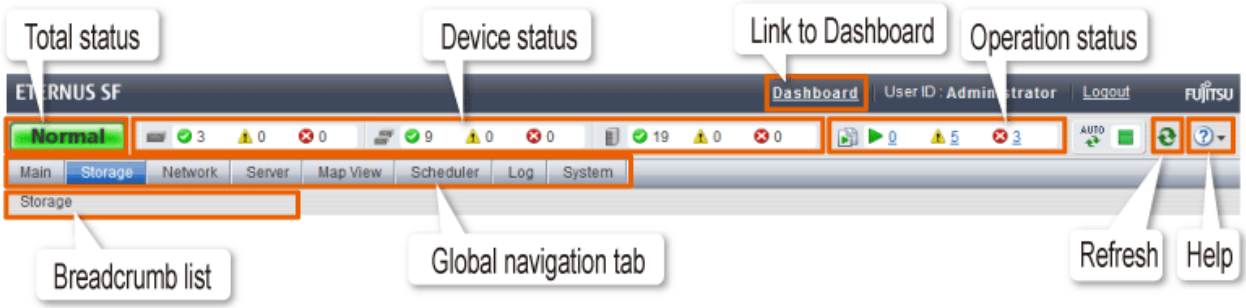
The list of menus displayed in the drop-down list and the sections describing how to operate the displayed screens when a menu is clicked are as follows.

Menus Displayed in the Drop-down List			Section Describing How to Operate the Displayed Screen
First Level	Second Level	Third Level	
Disk Array	+ Add	-	9.1.1 Register ETERNUS Disk Storage System
	Disk Array Name	Volume	9.7 Operations for Volume
		RAID Group	9.8 Operations for RAID Group
		Thin Provisioning	9.9 Operations for Thin Provisioning
		Advanced Copy	9.10 Operations for Advanced Copy
		Connectivity	9.11 Operations for Storage Device Connectivity
		Component	9.12 Operations for Storage Device Component
		System	9.6 Operations for System Management
		Automated Storage Tiering	9.14 Operations for Automated Storage Tiering
		NAS Management	9.15 Operations for NAS Management
		Storage Cluster	9.18 Operations for Storage Cluster
Access Path	-	-	11.4 Operations for Access Path
Correlation	-	-	9.5 Operations for Correlation Management
VVOL Management	-	-	9.19 Operations for VMware vSphere Virtual Volumes Function
Network	-	-	Chapter 10 Operations Started From Network Tab
Server	-	-	11.1 Operations for Server
Map View	-	-	Chapter 12 Operations Started From Map View Tab
Scheduler	-	-	Chapter 13 Operations Started From Scheduler Tab
Log	Operation History	-	14.1 Display Operation History
	Events	-	14.3 Display Events
	Login/Logout History	-	14.5 Display Login/Logout History
	Threshold Monitoring Alarms	-	14.7 Display Threshold Monitoring Alarms
System	Preferences	-	15.2 Web Console Control Settings
	User Management	-	15.1 Operations for User Management
	Trouble Shootings	-	15.4 System Maintenance
	Patch Management	-	15.5 Patch Management

2.5 Detail View

This section describes the respective elements that make up Detail View.

2.5.1 Menu Area



Total Status

The comprehensively evaluated status of storage devices, switches, and servers are displayed with icons.
The types of icons that are displayed are as follows.

Icon	Meaning
Normal	All devices are running normally.
Warning	Some devices require attention, including devices for which the state cannot be acquired (devices whose state is "Unknown").
Error	An error is occurring in some devices.

Device Status

Displays the status of storage devices, switches, and servers.
The types of icons that are displayed are as follows.

Icon	Meaning
	Storage devices
	Switches
	Servers

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

Icon	Meaning
	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	Action
Manual	Displays the online manual index screen.
Version	Displays the product version.
License Agreement	Displays the License Agreement.

Link to Dashboard

Clicking the link displays Dashboard.

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

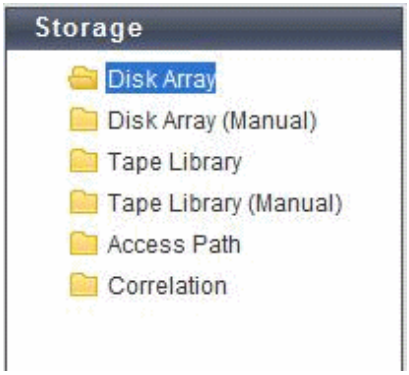
Indicates where the current page is.

Point

- If an Error or Warning level event is reported from a device that does not support automatic updates of the device component status, update the corresponding device element status manually. Also, when the device is recovered, update the corresponding device element status manually.
  Refer to "9.1.9 Reload ETERNUS Disk Storage System Configuration Information" about updating the configuration information.
  If an Error or Warning level event is reported from a device that supports automatic updates of the device component status, this product acquires the device component status automatically from the device. For this reason, no operation is required to update the corresponding device element status manually. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.
- Refer to "Windows Displayed in Event of Fault and Troubleshooting" in the *Storage Cruiser Operation Guide* for solutions when an Error or Warning level event is reported.

- 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 "2.5.3 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.

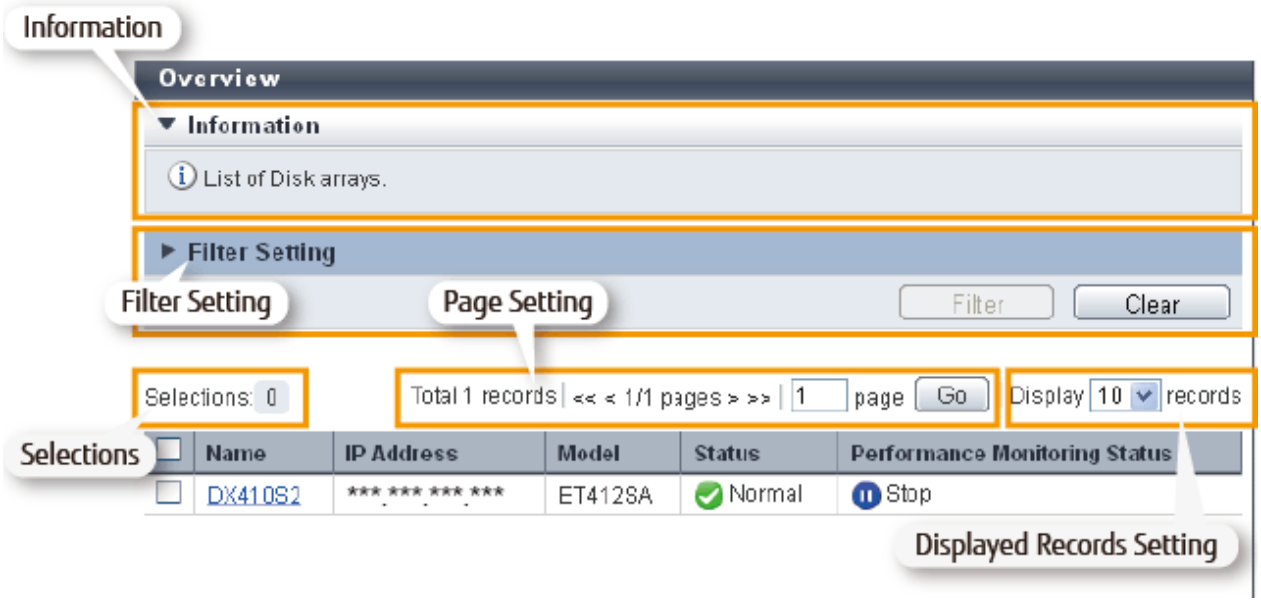
2.5.2 Category Pane



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.

2.5.3 Main Pane



Information

Displays explanation for the current Main pane. Clicking the title area can open/close the message displayed area.

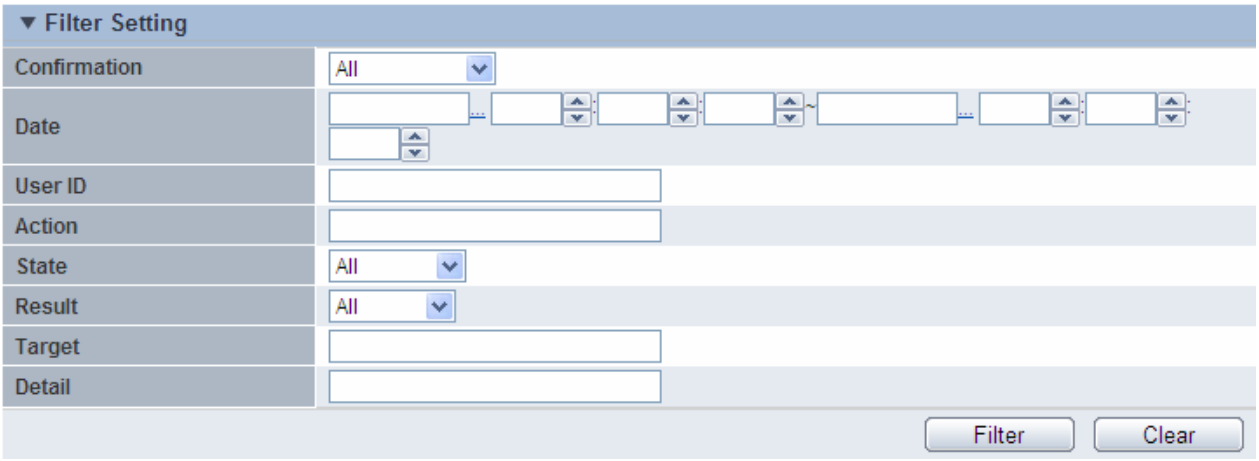
See

The default for opening/closing the message displayed area can be changed. Refer to "15.2.4 Display Preference" for information on how to change.

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 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 9 GB to 11 GB to detect 10 GB.

See

The settings related to the opened/closed status of the Filter Setting area after filtering can be changed. Refer to "15.2.4 Display Preference" for information on how to change the configuration.

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 information displayed in the line being selected is deleted, the selected state of its line is also 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**.

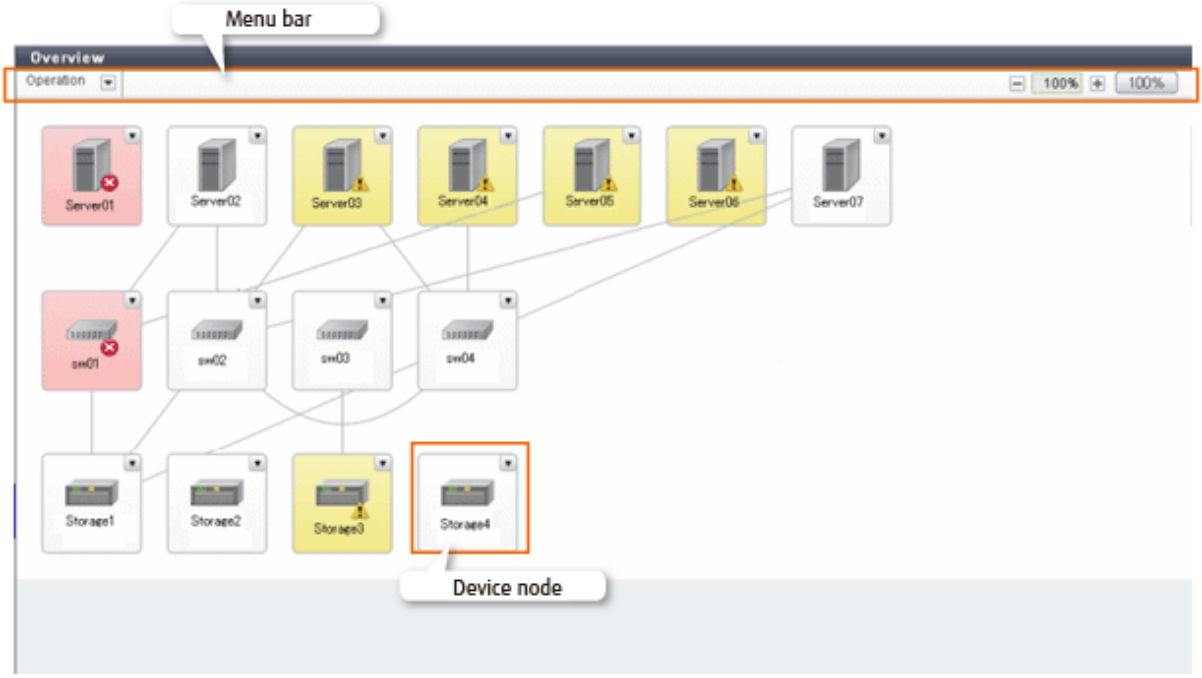
Displayed Records Setting

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 "15.2.4 Display Preference" for information on how to change the default record count.

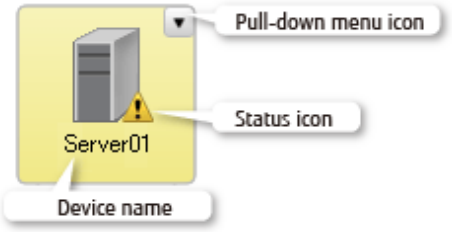
For Map View (Overview Screen)



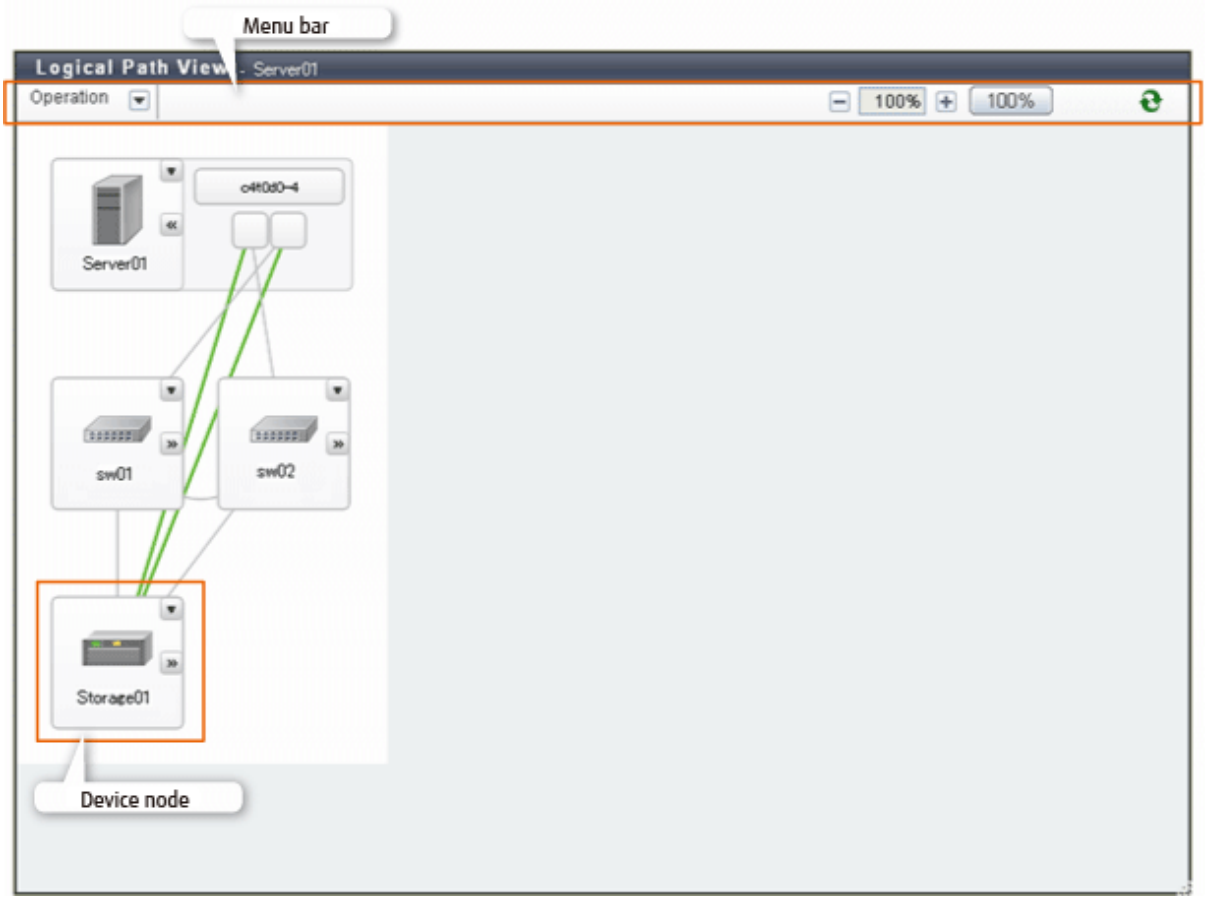
Menu Bar

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



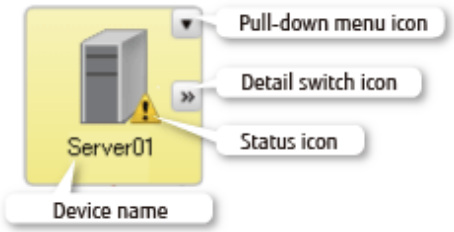
For Map View (Logical Path View Screen)



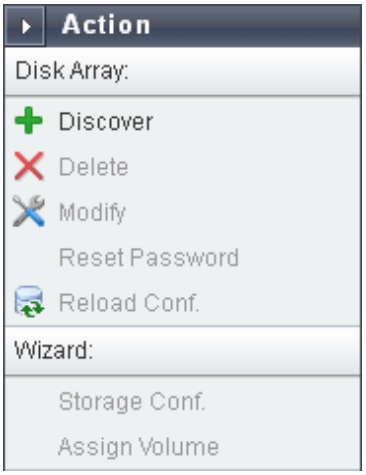
Menu Bar

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



2.5.4 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.

2.5.5 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 the ETERNUS Disk storage system, server, switch, etc. are displayed.

*1: If the **Status** column is "Waiting", since the **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

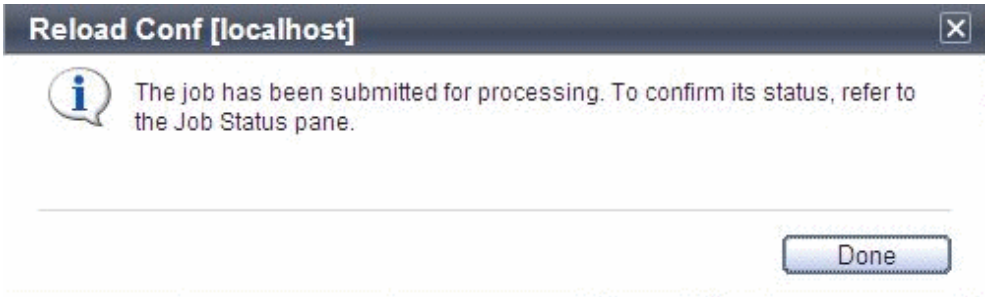
  Click in the menu area.

- Opening/closing this pane

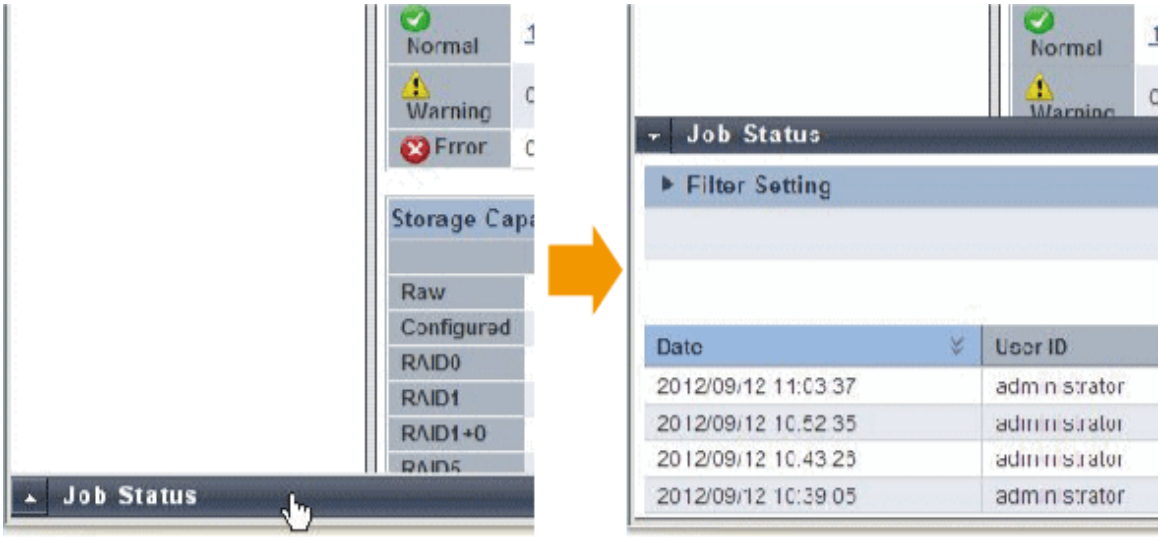
  Opening this pane always displays the latest updated information.

Note

- In the following cases, the recorded information is automatically deleted and no longer displayed on this pane.
  - 24 hours has passed since the **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 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

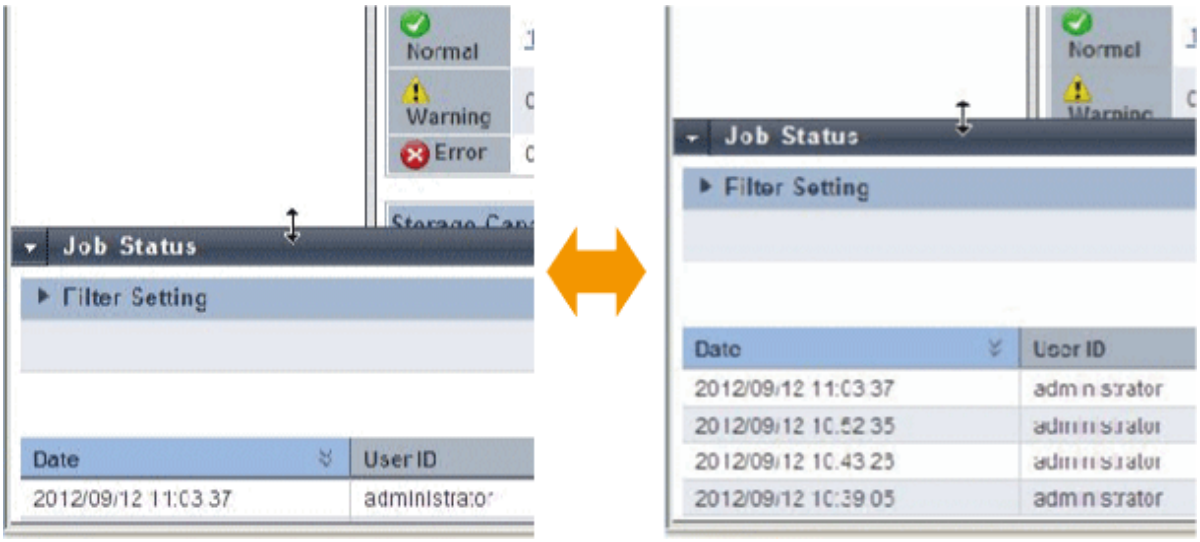


Left-click on the bar that opens/closes this pane.
The above figure shows the screen transition when opening this pane.

Information

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 "2.5.1 Menu Area" for details.
- Refer to "15.2.3 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 balancing level of the Tier pool balancing is not refreshed automatically. To show the latest balancing level, perform the Status Update operation of Automated Storage Tiering.
- Clicking resets the following setting values in the Main pane to the default value. Refer to "2.5.3 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. To update the information of Automated Storage Tiering to the latest status, you need to perform the procedure that is described in "9.14.25 Update Automated Storage Tiering Information".
  However, automatically collected device information excludes system information, status (*1), device resource usage capacity / rate and performance management configuration information (*2) for the following devices. Clicking displays the automatically collected information.
  - ETERNUS DX S6/S5/S4/S3 series (All firmware versions)
  - ETERNUS DX S2 series (excluding the ETERNUS DX60 S2. V10L40 or later firmware)
  - ETERNUS AF All-Flash Arrays (All firmware versions)

  *1: For devices that support automatic updates of the device component status, this product acquires the device configuration status automatically from the device. For this reason, you do not need to perform the **Reload Conf.** operation for the device. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

  *2: The performance management configuration information is automatically updated when "All" is selected for the range of monitored volumes at the start of performance management. Refer to "Instruction for Performance Management" in the *Storage Cruiser Operation Guide* for details.

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 the Web Console screen, to a Management Server from 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 "15.2.5 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 "15.1.3 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 1,024 is fixed.

Point

For Number of Operations

Processing requests from 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 Web Console.

Before Applying Model Upgrade Options	After Applying Model Upgrade Options	Operation
ETERNUS DX60 S5	ETERNUS DX100 S5	Refer to "Operation on Model Upgrade from DX60 S5 to DX100 S5, from DX100 S5 to DX200 S5, from DX500 S5 to DX600 S5, from DX60 S4 to DX100 S4, from DX100 S4 to DX200 S4, from DX500 S4 to DX600 S4, from DX60 S3 to DX100 S3, from DX100 S3 to DX200 S3, from DX500 S3 to DX600 S3, from DX8700 S3 to DX8900 S3, from AF150 S3 to AF250 S3".
ETERNUS DX100 S5	ETERNUS DX200 S5	
ETERNUS DX500 S5	ETERNUS DX600 S5	
ETERNUS DX60 S4	ETERNUS DX100 S4	
ETERNUS DX100 S4	ETERNUS DX200 S4	
ETERNUS DX500 S4	ETERNUS DX600 S4	
ETERNUS DX60 S3	ETERNUS DX100 S3	
ETERNUS DX100 S3	ETERNUS DX200 S3	
ETERNUS DX500 S3	ETERNUS DX600 S3	
ETERNUS DX8700 S3	ETERNUS DX8900 S3	
ETERNUS AF150 S3	ETERNUS AF250 S3	
ETERNUS DX200 S5	ETERNUS DX500 S5	Refer to "Operation on Model Upgrade from DX200 S5 to DX500 S5, from DX200 S4 to DX500 S4, from DX200 S3 to DX500 S3, from AF250 S3 to AF650 S3".
ETERNUS DX200 S4	ETERNUS DX500 S4	
ETERNUS DX200 S3	ETERNUS DX500 S3	
ETERNUS AF250 S3	ETERNUS AF650 S3	
ETERNUS DX80 S2	ETERNUS DX90 S2	Refer to "Operation on Model Upgrade from DX80 S2 to DX90 S2, from DX410 S2 to DX440 S2".
ETERNUS DX410 S2	ETERNUS DX440 S2	
ETERNUS DX80 S2/DX90 S2	ETERNUS DX410 S2/DX440 S2	Refer to "Operation on Model Upgrade from DX80 S2/DX90 S2 to DX410 S2/DX440 S2".

Note

Do not change the IP address of the ETERNUS Disk storage system when Model upgrade options are applied. Change the IP address after applying Model upgrade options.

Operation on Model Upgrade from DX60 S5 to DX100 S5, from DX100 S5 to DX200 S5, from DX500 S5 to DX600 S5, from DX60 S4 to DX100 S4, from DX100 S4 to DX200 S4, from DX500 S4 to DX600 S4, from DX60 S3 to DX100 S3, from DX100 S3 to DX200 S3, from DX500 S3 to DX600 S3, from DX8700 S3 to DX8900 S3, from AF150 S3 to AF250 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 the target ETERNUS Disk storage system.
3. Perform the following steps on Web Console:
    a. Reload the latest information about the upgraded ETERNUS Disk storage system. Refer to "9.1.9 Reload ETERNUS Disk Storage System Configuration Information" for information on how to reload the latest information.
    b. Delete the license registered with the upgraded ETERNUS Disk storage system. Refer to "9.6.3 Delete License" for information on how to delete the license.
    c. Register the license with the upgraded ETERNUS Disk storage system. Refer to "9.6.1 Register License" for information on how to register the license.

Note

- The device model name after applying the following Model upgrade options is displayed as "*nameAfterApplyingModelUpgradeOptions*"/"*nameBeforeApplyingModelUpgradeOptions*".
    - From DX60 S4 to DX100 S4
    - From DX100 S4 to DX200 S4
    - From DX500 S4 to DX600 S4
    - From DX60 S3 to DX100 S3
    - From DX100 S3 to DX200 S3
    - From DX500 S3 to DX600 S3
    - From DX8700 S3 to DX8900 S3

  For Model upgrade options other than the above, the device model name that is displayed stays the same even after a model upgrade.
- 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.

Operation on Model Upgrade from DX200 S5 to DX500 S5, from DX200 S4 to DX500 S4, from DX200 S3 to DX500 S3, from AF250 S3 to AF650 S3

- When the VMware vSphere Virtual Volumes function is not used

  Use the following procedure for applying Model upgrade options:

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

2. If Automated Storage Tiering has already been started for Tier pools, stop it for all the Tier pools. If a Tier pool with two or more layers exists, record the Tiering policy name for the Tier pool and the values set for level of each sub-pool in the Tier pool.
3. If the Automated QoS function is used, perform the following steps on Web Console:
    a. Check the Automated QoS settings for the target ETERNUS Disk storage system.

       On the Overview screen of the target ETERNUS Disk storage system, check which the Automated QoS status is set to "Activate" or "Stop", and record the status. Refer to "9.1.2 Display ETERNUS Disk Storage System" for information on how to check the status.

    b. Check the Automated QoS settings for FTVs.

       Check the Automated QoS settings for all FTVs and record them. For the Automated QoS settings for each FTV, check them on the Automated QoS settings configuration screen which is listed in "9.16.2 Change Configuration of Automated QoS Function". In the Automated QoS settings configuration screen, only check the settings but do not change them.
       For all FTVs, check the settings and record them.
4. If the Reporting function is used, check the Reporting status for the target ETERNUS Disk storage system on Web Console. On the Overview screen of the target ETERNUS Disk storage system, check which the Reporting status is set to "Activate" or "Stop", and record the status. Refer to "9.1.2 Display ETERNUS Disk Storage System" for information on how to check the status.
5. If the Storage Cluster function is used, deconstruct the Storage Cluster environment. Refer to the following section in the *Storage Cruiser Operation Guide*.

   Chapter "Storage Cluster Function" > "Operation Overview" > "Deconstruction of Storage Cluster Environment"
6. If the performance monitoring is performed, stop it.
7. Perform the following steps on Web Console:
    a. Delete the license registered with the target ETERNUS Disk storage system. Refer to "9.6.3 Delete License" for information on how to delete the license.
    b. Delete the target ETERNUS Disk storage system. Refer to "9.1.3 Delete ETERNUS Disk Storage System" for information on how to delete the ETERNUS Disk storage system.
8. Apply Model upgrade options for the target ETERNUS Disk storage system.
9. Perform the following steps on Web Console:
    a. Register the upgraded ETERNUS Disk storage system. Refer to "9.1.1 Register ETERNUS Disk Storage System" for information on how to register.
    b. Register the license with the upgraded ETERNUS Disk storage system. Refer to "9.6.1 Register License" for information on how to register the ETERNUS Disk storage system.
    c. If you have used the Advanced Copy function before applying Model upgrade options, reconfigure the connection type for the upgraded ETERNUS Disk storage system. Refer to "9.10.2 Configure Connection Type for ETERNUS Disk Storage System" for information on how to reconfigure the connection type.
    d. If you have performed the performance monitoring before applying Model upgrade options, restart it.
10. If you used Automated Storage Tiering, refer to "Recycling of Tier Pool Made in Storage Device" in the *Storage Cruiser Operation Guide for Optimization Function* to recycle Tier pools that exist in the upgraded ETERNUS Disk storage system. For the Tiering policy name and level of sub-pools for the Tier pool, specify the same values as those recorded in step 2. On completion of settings, start Automated Storage Tiering for the Tier pool.
11. If you used the Automated QoS function, perform the following steps on Web Console:
    a. Reflect the Automated QoS settings, which were recorded in step 3-a, to the upgraded ETERNUS Disk storage system. Refer to "9.16.1 Enable/Disable Automated QoS Function" for information on how to reflect the settings.

b. Reflect the Automated QoS settings for all FTVs, which were recorded in step 3-b, to the upgraded ETERNUS Disk storage system. Refer to "9.16.2 Change Configuration of Automated QoS Function" for information on how to reflect the settings.

12. If you used the Reporting function, reflect the Reporting settings, which were noted down in step 4, to the upgraded ETERNUS Disk storage system. Refer to "9.17.1 Enable/Disable Reporting Function" for information on how to reflect the settings.

13. If you used the Storage Cluster function, reconstruct the Storage Cluster environment. Refer to the following section in the *Storage Cruiser Operation Guide*.

    Chapter "Storage Cluster Function" > "Installation" > "Configuring Storage Cluster Structure"

- When the VMware vSphere Virtual Volumes function is used

  Use the following procedure for applying Model upgrade options:

  1. Power off the VMware Guest on the vSphere Web Client.
  2. Delete backups of the virtual machine, which is obtained by the Snapshot backup.
  3. Delete ETERNUS VASA Provider that is managing the ETERNUS Disk storage system to be upgraded from VMware vCenter Server.
  4. If Advanced Copy is in progress, stop Advanced Copy processing.
  5. If Automated Storage Tiering has already been started for Tier pools, stop it for all the Tier pools. If a Tier pool with two or more layers exists, record the Tiering policy name for the Tier pool and the values set for level of each sub-pool in the Tier pool.
  6. If the Automated QoS function is used, perform the following steps on Web Console:

     a. Check the Automated QoS settings for the target ETERNUS Disk storage system.

        On the Overview screen of the target ETERNUS Disk storage system, check which the Automated QoS status is set to "Activate" or "Stop", and record the status. Refer to "9.1.2 Display ETERNUS Disk Storage System" for information on how to check the status.

     b. Check the Automated QoS settings for FTVs.

        Check the Automated QoS settings for all FTVs and record them. For the Automated QoS settings for each FTV, check them on the Automated QoS settings configuration screen which is listed in "9.16.2 Change Configuration of Automated QoS Function". In the Automated QoS settings configuration screen, only check the settings but do not change them.
        For all FTVs, check the settings and record them.

  7. If the Reporting function is used, check the Reporting status for the target ETERNUS Disk storage system on Web Console. On the Overview screen of the target ETERNUS Disk storage system, check which the Reporting status is set to "Activate" or "Stop", and record the status. Refer to "9.1.2 Display ETERNUS Disk Storage System" for information on how to check the status.
  8. If the Storage Cluster function is used, deconstruct the Storage Cluster environment. Refer to the following section in the *Storage Cruiser Operation Guide*.

     Chapter "Storage Cluster Function" > "Operation Overview" > "Deconstruction of Storage Cluster Environment"

  9. If the performance monitoring is performed, stop it.
  10. With Web Console, check the pre-upgrade serial number of the target ETERNUS Disk storage system.
  11. Perform the following steps on Web Console:

      a. Delete the license registered with the target ETERNUS Disk storage system. Refer to "9.6.3 Delete License" for information on how to delete the license.

      b. Delete the target ETERNUS Disk storage system without deleting the VVOL access path, so do not check the **Remove Access Path** checkbox. Refer to "9.1.3 Delete ETERNUS Disk Storage System" for information on how to delete the ETERNUS Disk storage system.

12. Apply Model upgrade options for the target ETERNUS Disk storage system.
13. Perform the following steps on Web Console:
    a. Register the upgraded ETERNUS Disk storage system. Refer to "9.1.1 Register ETERNUS Disk Storage System" for information on how to register.
    b. Register the license with the upgraded ETERNUS Disk storage system. Refer to "9.6.1 Register License" for information on how to register the ETERNUS Disk storage system.
    c. If you have used the Advanced Copy function before applying Model upgrade options, reconfigure the connection type for the upgraded ETERNUS Disk storage system. Refer to "9.10.2 Configure Connection Type for ETERNUS Disk Storage System" for information on how to reconfigure the connection type.
    d. If you have performed the performance monitoring before applying Model upgrade options, restart it.
14. With Web Console, check the post-upgrade serial number of the target ETERNUS Disk storage system.
    After checking it, execute the following batch file with a user with OS administrator privileges on the Management Server.

```
> $INS_DIR\ESC\Manager\opt\FJSVssmgr\bin\esfvvolmodelupgrade.bat preUpgradeSerialNumber
postUpgradeSerialNumber
>
```

    $INS_DIR is "Program Directory" specified at the ETERNUS SF Manager installation.
    If the return value of the batch file is "0", the batch file is completed successfully.
15. Execute the esfadm esfdata backup command on the Management Server.
    Refer to "Command References" in the *Storage Cruiser Operation Guide* for information on the command.
16. Register ETERNUS VASA Provider that was deleted in step 3 to VMware vCenter Server.
17. If you used Automated Storage Tiering, refer to "Recycling of Tier Pool Made in Storage Device" in the *Storage Cruiser Operation Guide for Optimization Function* to recycle Tier pools that exist in the upgraded ETERNUS Disk storage system. For the Tiering policy name and level of sub-pools for the Tier pool, specify the same values as those recorded in step 5. On completion of settings, start Automated Storage Tiering for the Tier pool.
18. If you used the Automated QoS function, perform the following steps on Web Console:
    a. Reflect the Automated QoS settings, which were recorded in step 6-a, to the upgraded ETERNUS Disk storage system. Refer to "9.16.1 Enable/Disable Automated QoS Function" for information on how to reflect the settings.
    b. Reflect the Automated QoS settings for all FTVs, which were recorded in step 6-b, to the upgraded ETERNUS Disk storage system. Refer to "9.16.2 Change Configuration of Automated QoS Function" for information on how to reflect the settings.
19. If you used the Reporting function, reflect the Reporting settings, which were noted down in step 7, to the upgraded ETERNUS Disk storage system. Refer to "9.17.1 Enable/Disable Reporting Function" for information on how to reflect the settings.
20. If you used the Storage Cluster function, reconstruct the Storage Cluster environment. Refer to the following section in the *Storage Cruiser Operation Guide*.

    Chapter "Storage Cluster Function" > "Installation" > "Configuring Storage Cluster Structure"
21. Power on the VMware Guest on the vSphere Web Client.

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.
- The output result of the Reporting function is counted per storage device. Accordingly, if a serial number is changed due to Model upgrade, it is counted as the one belonging to a different storage device. If you want to count it as the one belonging to the same storage device, modify the accounting application.

Operation on Model Upgrade from DX80 S2 to DX90 S2, from DX410 S2 to 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 the target ETERNUS Disk storage system.
3. Perform the following steps on Web Console:
   a. Reload the latest information about the upgraded ETERNUS Disk storage system. Refer to "9.1.9 Reload ETERNUS Disk Storage System Configuration Information" for information on how to reload the latest information.
   b. Delete the license registered with the upgraded ETERNUS Disk storage system. Refer to "9.6.3 Delete License" for information on how to delete the license.
   c. Register the license with the upgraded ETERNUS Disk storage system. Refer to "9.6.1 Register License" for information on how to register the license.

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 the 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 the ETERNUS DX440 S2 are deleted.
  - When no license is registered with the device which is applied Model upgrade options to the 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 from DX80 S2/DX90 S2 to DX410 S2/DX440 S2

Use the following procedure for applying Model upgrade options:

1. If Advanced Copy is in progress, stop Advanced Copy processing.
2. If Automated Storage Tiering has already been started for Tier pools, stop it for all the Tier pools. If a Tier pool with two or more layers exists, record the Tiering policy name for the Tier pool and the values set for level of each sub-pool in the Tier pool.
3. Perform the following steps on Web Console:
   a. Delete the license registered with the target ETERNUS Disk storage system. Refer to "9.6.3 Delete License" for information on how to delete the license.

b. Delete the target ETERNUS Disk storage system. Refer to "9.1.3 Delete ETERNUS Disk Storage System" for information on how to delete the ETERNUS Disk storage system.

4. Apply Model upgrade options for the target ETERNUS Disk storage system.

5. Perform the following steps on Web Console:

   a. Register the upgraded ETERNUS Disk storage system. Refer to "9.1.1 Register ETERNUS Disk Storage System" for information on how to register the ETERNUS Disk storage system.

   b. Register the license with the upgraded ETERNUS Disk storage system. Refer to "9.6.1 Register License" for information on how to register the license.

   c. If you have used the Advanced Copy function before applying Model upgrade options, reconfigure the connection type for the upgraded ETERNUS Disk storage system. Refer to "9.10.2 Configure Connection Type for ETERNUS Disk Storage System" for information on how to reconfigure the connection type.

6. If you used Automated Storage Tiering, refer to "Recycling of Tier Pool Made in Storage Device" in the *Storage Cruiser Operation Guide for Optimization Function* to recycle Tier pools that exist in the upgraded ETERNUS Disk storage system. For the Tiering policy name and level of sub-pools for the Tier pool, specify the same values as those recorded in step 2. On completion of settings, start Automated Storage Tiering for the Tier pool.

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.

3.4 Restrictions

End to End View (VMware)

Filter setting function is not available for the **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

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

Detail View

When a web browser for tablet (Safari or Chrome) is in use, Detail View cannot be displayed. For this reason, Detail View cannot be set as the Home screen.
When using Detail View, use a web browser for PC.

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 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 a proxy server, the following events may occur:

- The client IP addresses may not be displayed properly in the following screens:
  - **Login Result** pop-up window displayed at the time of login
  - Login/Logout History screen
  - User Management screen
- When a web browser is Safari, the Login screen of Web Console may not be displayed.

To avoid those events, set a web browser or a client PC operating system so that it may access the Management Server without going through the proxy server. For example, you can take the following actions:

- Specify the Management Server to the exceptional setting without going through the proxy server of a web browser.
- Use an Proxy Automatic Configuration (PAC) file.
- Only when using Web Console, set so that a web browser or a client PC operating system may not go through the proxy server.

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 Web Console might terminate abnormally if ETERNUS Web GUI or ETERNUS CLI is used simultaneously with Web Console.

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

3.5.5 Note for Management Software Call

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

- ETERNUS DX series
- ETERNUS AF All-Flash Arrays

Set URL with HTTP connection to "Management Software" as a setting item for the storage device.

See

Refer to "9.1.4 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 ETERNUS Web GUI for the following operations:

- Change the port settings

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

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

3.5.9 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

3.5.10 Note for IPv6

This sub section describes the notes on IPv6 on 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 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. 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:192.0.2.10, ::<192.0.2.10>, 2002:192.0.2.10:) and a format that adds an interface number or name with "%" (fe80::1234%fx0) are not available.

On 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.
- There are not more than nine fields separated with ":".
- The ":" alone is not specified.

If the above conditions are met, an IPv6 address can be configured on 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 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 Web Console, they are sorted by their displayed values. If IPv4 and IPv6 addresses coexist, they are not separated to be sorted.

3.5.11 Values That Are Displayed in Screen

For the values that are displayed in the Web Console screen, if the "0x" is added to the beginning of the numeric value, it is a hexadecimal number. If the "0x" is not added, the numeric value is a decimal number.

3.5.12 Note for Management of Tier Pool and FTV

The Tier pools (FTRPs) and FTVs that were created with a different Management Server are not correctly displayed on Web Console before they are recycled. Refer to "Recycling of Tier Pool Made in Storage Device" in the *Storage Cruiser Operation Guide for Optimization Function* for the operation procedure and note for recycling Tier pools.

After having recycled Tier pools, do not perform concurrent operation onto the same Tier pool and FTV from multiple Management Servers.

3.5.13 Notes Related to Communication Protocols When Accessing the Management Server

TLS 1.1 or earlier cannot be used as the communication protocol when accessing the Management Server from a browser.
If the Management Server cannot be accessed from a browser, check and modify the communication protocol settings on the browser as required.

Chapter 4 Starting and Stopping Web Console

Note

- Web Console is optimized for a screen size of 1,024 x 768 pixels and the browser default font. If the web browser window settings differ significantly from these values, Web Console may be displayed incorrectly.
- Web Console uses JavaScript and Cookies. Setup the web browser beforehand to enable both these features.

4.1 How to Start Web Console

Web Console is started according by the following procedure:

1. Start a web browser on a PC or tablet that is connected to the Management Server.

   Information

   Refer to "1.1 Supported Web Browsers" for information on the supported web browsers and 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 "192.0.2.10" to *ipv4Address* and "9855" to *portNumber*.

     ```
     https://192.0.2.10:9855/
     ```

   - 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.
     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

Refer to "1.4 HTTPS Connection" for information on the HTTPS connection between Web Browser and Management Server.

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.
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.

Note 3

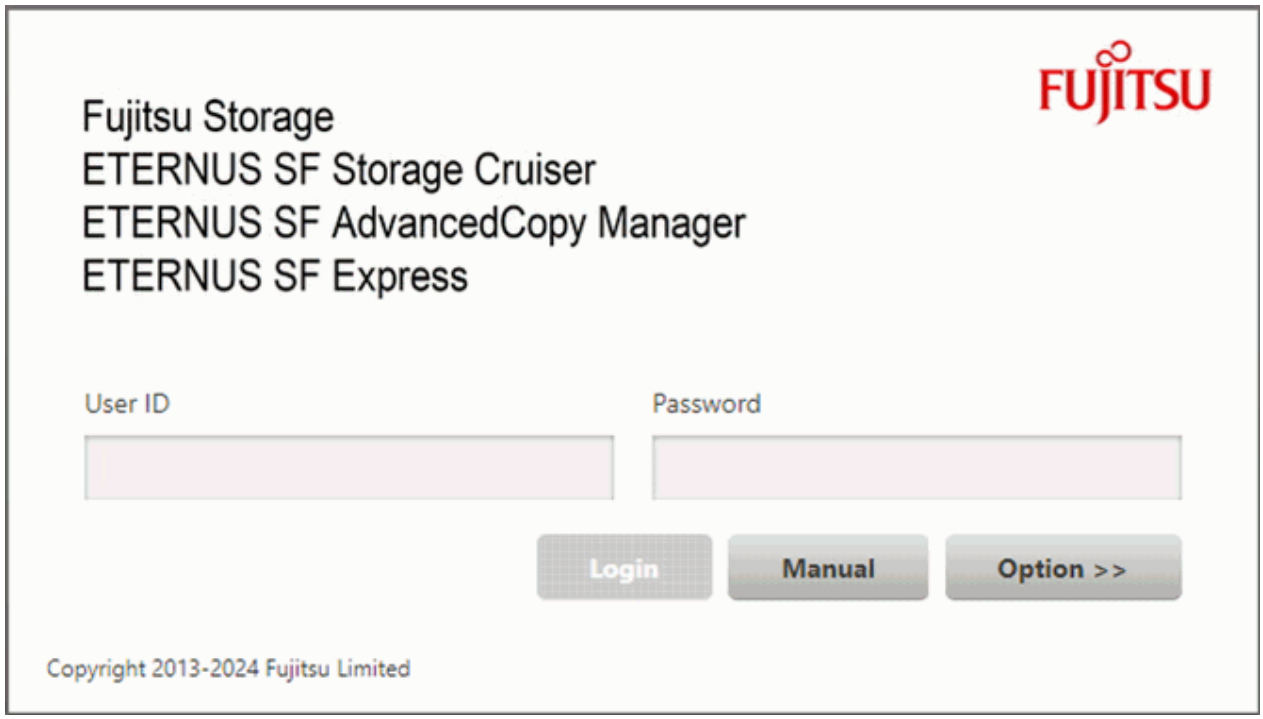
To remove the warning and error notifications about the security certificate, a certificate corresponding to the Management Server IP address or host name must be created and installed in the web browser.
Refer to "1.4 HTTPS Connection" for details.

Note 4

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.

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

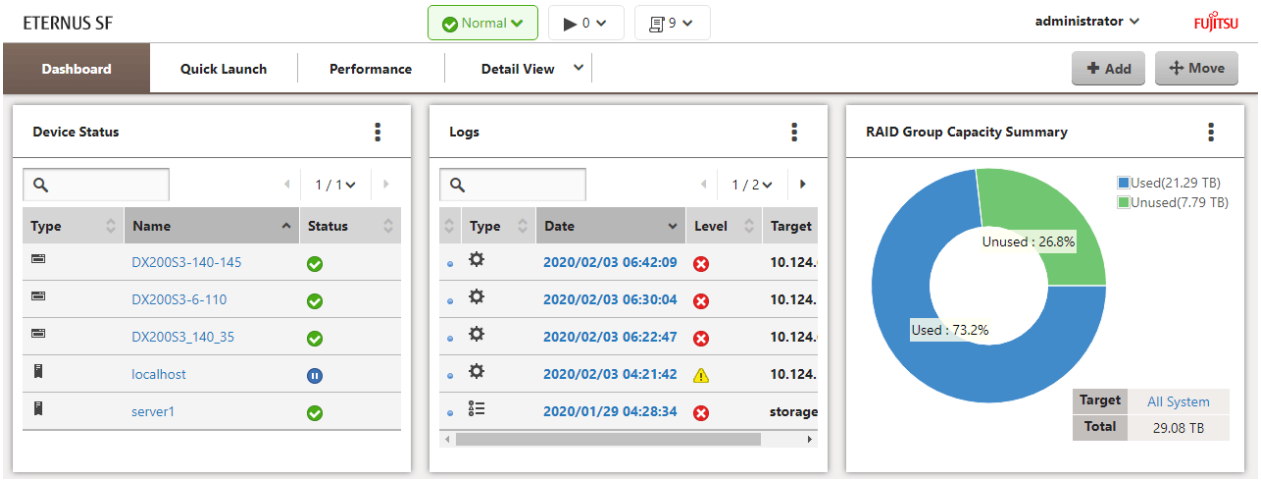
When the user of the same name has already logged in, the dialog box including the following message is displayed.

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

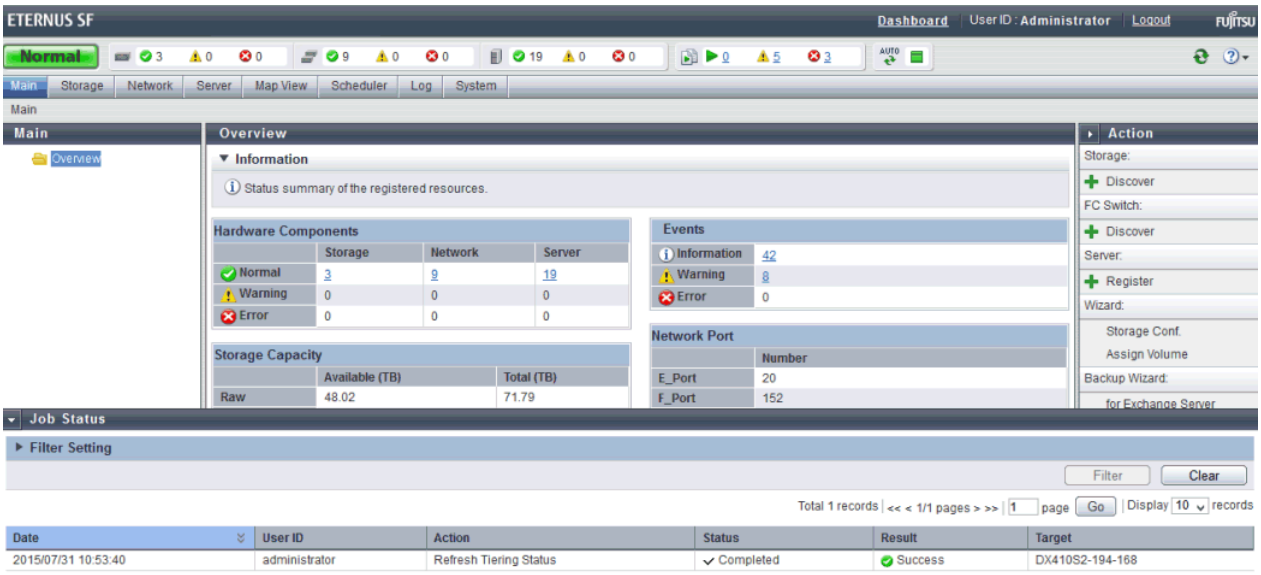
If you click **OK** in the dialog box, the user logged in currently is forcibly logged out and you can log in.

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

- When Dashboard is set as the Home screen (default) or when Web Console is displayed on tablet.



- When Detail View is set as the Home screen



Note

A different user cannot login concurrently from the same computer.

See

Refer to "5.5.1 Home Screen Settings" for information on how to set the Home screen.

4.3 How to Logout from Web Console

The procedure to log out from Web Console is as follows:

- When Dashboard is displayed

  Click **Logout** in the User menu in the Menu area of Dashboard.

- When Detail View is displayed

  Click **Logout** at the upper 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 Web Console, always logoff.
If the web browser is closed while still logged in, the user authentication is not 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 Web Console.

Chapter 5 Operations for Dashboard

The types of panels displayable in Dashboard and the sections that describe the procedure to display those panels are shown below.

Panel Name	Function Overview	Described Section of Displaying Procedure
Device Status panel	Displays the status of devices that are managed by the ETERNUS SF system.	"5.1.1 Display Device Status"
Logs panel	Displays various logs of the ETERNUS SF system.	"5.2.1 Display Log List"
Access Status Chart panel	Graphically displays access status to Tier pools or volumes for devices that use Automated Storage Tiering among devices managed by the ETERNUS SF system.	- For displaying the access status chart for a Tier pool "5.3.1 Display Configuration Dialog Box for Access Status Chart Panel" and "5.3.2 Display Access Status Chart for Tier Pool" - For displaying the access status chart for a volume "5.3.1 Display Configuration Dialog Box for Access Status Chart Panel" and "5.3.3 Display Access Status Chart for Volume"
Capacity panel	Displays information for capacity usage of devices that are managed by the ETERNUS SF system. The change of capacity usage can be viewed in a graph, too. Capacity is displayed in the following formats: - Capacity ranking (list format) - Capacity ranking (chart format) - Capacity list - Capacity summary	- For displaying the capacity ranking (list format) "5.4.1 Display Configuration Dialog Box of for Capacity Panel" and "5.4.2 Display Capacity Ranking (List Format)" - For displaying the capacity ranking (chart format) "5.4.1 Display Configuration Dialog Box of for Capacity Panel" and "5.4.3 Display Capacity Ranking (Chart Format)" - For displaying the capacity list "5.4.1 Display Configuration Dialog Box of for Capacity Panel" and "5.4.4 Display Capacity List" - For displaying the capacity summary "5.4.1 Display Configuration Dialog Box of for Capacity Panel" and "5.4.5 Display Capacity Summary"

5.1 Operations for Status

5.1.1 Display Device Status

The device status is a comprehensively evaluated status of devices that are managed by the ETERNUS SF system. For every device that are managed by the ETERNUS SF system, Dashboard displays a list of its status on the Device Status panel.

The procedure to display the Device Status panel is as follows:

1. Click **Add** in the Menu area of Dashboard.
   A menu to add a panel is displayed.

2. Click **Status** in the menu.
   The Device Status panel is added to the Panel area.

Point

For devices that support automatic updates of the device component status, this product acquires the device component status automatically from the device. For this reason, the latest status is automatically displayed in the Device Status panel that has been added in Dashboard once. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

5.1.2 Change Displayed Content of Device Status

The content that is displayed on the Device Status panel can be changed.
To change the current settings, use the configuration dialog box that is displayed by clicking **Modify** in the common menu on the Device Status panel.
The items and the specification methods that can be set in the configuration dialog box are as follows.

Item	Explanation	Specification Method
Default Sort	A field for specifying a column name that is sorted by default and a display order of the sorted information.	Select the column name to be sorted from the pull-down menu. Select the radio button to either display in ascending or descending order.
Select Column	A field for specifying a display column. One or more column names must be selected.	Select the column name from the checkbox for the item that is to be displayed. If the checkbox is unchecked, that column is no longer displayed.
Filter Column	Entering a display condition in the field corresponding to a column name in the information display area displays only the information matching the condition.	Select a column name and a condition for the column as a pair, and click **Add**. The number of conditions that can be specified at the same time is up to 30.
Record Count	A field for specifying the number of lines to display in a panel.	Select the number of lines from the pull-down menu. 5, 10, or 50 can be selected.

5.1.3 Display Status Detail

Clicking the name of a device on the Device Status panel displays a detail dialog box for the clicked device status. The detail dialog box displays the following information according to a selected tab.

Selected Tab	Displayed Information	Remarks
Error Components	Displays a list of components whose status is other than Normal, which indicates , , , or , for a selected device.	When the selected device is one of the following devices, this tab is not displayed: - Manually embedded storage device - Manually embedded tape library
Related Server	Displays a list of servers related to components whose status is other than Normal, which indicates , , , or , for a selected device.	When the selected device is one of the following devices, this tab is not displayed: - Server - Manually embedded storage device - Tape library - Manually embedded tape library

Selected Tab	Displayed Information	Remarks
Logs	Displays a list of logs where the level has become "Error" ( ) or "Warning" ( ) for the selected device.	

5.1.4 Collect Error Data

For devices that do not support automatic updates of the device component status, the component status of devices that are displayed in the detail dialog box can be updated to the latest status by performing the following procedures:

1. On the Device Status panel, click the name of the device you want to update to the latest status.
   The detailed information about the status of the selected device is displayed in the detail dialog box.
2. Click **Collect Error Data** in the detail dialog box.

If the selected device is a manually embedded storage device or a manually embedded tape library, the error information cannot be collected.

For devices that support automatic updates of the device component status, the latest status is automatically displayed in the detail dialog box. For this reason, you do not need to perform the above procedures. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

5.2 Operations for Logs

5.2.1 Display Log List

Dashboard displays a list of various logs on the Logs panel for all the devices that are managed by the ETERNUS SF system.

The procedure to display the Logs panel is as follows:

1. Click **Add** in the Menu area of Dashboard.
   A menu to add a panel is displayed.
2. Click **Log** in the menu.
   The Logs panel is added to the Panel area.

The following logs are displayed on the Logs panel:

- Operation History
- Events
- Threshold Monitoring Alarms
- Quota Management (NAS Management)

For an unreferenced log is displayed the " " icon. If you refer to the log even once, the icon is no longer displayed from then on.

Point

The filter is set so that only Error and Warning level logs are displayed immediately after a panel is added. Refer to "5.2.2 Change Displayed Content of Log" for information on how to change the content that is displayed on the Logs panel.

5.2.2 Change Displayed Content of Log

The content that is displayed on the Logs panel can be changed.

To change the current settings, use the configuration dialog box that is displayed by clicking **Modify** in the common menu on the Logs panel.
The items and the specification methods that can be set in the configuration dialog box are the same as the items that are listed in "5.1.2 Change Displayed Content of Device Status".

The Modify Logs screen can change all the logs to a confirmed state all at once.
The operation procedure is as follows:

1. Click **Modify** in the common menu on the Logs panel.
   The configuration dialog box is displayed.
2. Click **Mark all logs as confirmed** in the configuration dialog box.

5.2.3 Display Log Detail

The detailed information regarding a specific log can be displayed.

The operation procedure is as follows:

1. On the Logs panel, click the date of the log you want to display the detailed information.
   The detailed information about the selected log is displayed in the detail dialog box.

5.3 Operations for Automated Storage Tiering

5.3.1 Display Configuration Dialog Box for Access Status Chart Panel

To display the Access Status Chart panel for Automated Storage Tiering in Dashboard, you must display a configuration dialog box to add a panel and set the displayed information in the dialog box as described in "Panel Add Button" in the "2.1.1 Menu Area".

The procedure to display a configuration dialog box is as follows:

1. Click **Add** in the Menu area of Dashboard.
   A menu to add a panel is displayed.
2. Click **Automated Storage Tiering** in the menu.
   The configuration dialog box for the Access Status Chart panel is added to the Panel area.

Point

For access status chart of Automated Storage Tiering, the advanced settings can be configured with the definition file. Refer to the *Storage Cruiser Operation Guide for Optimization Function* for details.

5.3.2 Display Access Status Chart for Tier Pool

The distribution of access (IOPS) to each Tier pool is displayed on a per capacity basis. For a two layer or three layer Tier pool, the distribution of capacity that is allocated to each tier is displayed in different colors. In addition, the set data range of High/Middle/Low is displayed in a horizontal line.

The display procedure is as follows:

1. In the configuration dialog box, select a device in the **Target** field and "Tier Pool" in the **Resource** field.
2. If you want to specify the displayed range of IOPS (vertical axis of the panel), select "Manual" in the **IOPS Range** field and input minimum/maximum values. Default is "Auto", which displays all the ranges in which data exists.
   If you want to display an interval of IOPS (vertical axis of the panel) on a logarithm scale, select "Logarithm" in the **IOPS Scale** field. Default is "Linear", which is displayed on a linear scale.
3. Select one Tier pool from a table, and then click **Add**.
   The Access Status Chart panel for the Tier pool is added to the Panel area.
4. The evaluation result of the latest generation is set to be displayed by default. When changing a displayed generation, select the target generation from the drop-down list of the **Generation** field. You can select from the latest generation to four generations back.

Point

- Access status is displayed only when Automated Storage Tiering is enabled.
- Hovering the mouse over a graph area on the panel displays the values of the IOPS and the capacity indicated by the location as a tooltip.
- You can use an access status chart to quantitatively evaluate the introduction effect of Automated Storage Tiering and SSDs. Refer to the *Storage Cruiser Operation Guide for Optimization Function* for details.

5.3.3 Display Access Status Chart for Volume

The distribution of access (IOPS) to each volume is displayed on a per capacity basis. For volumes included in a two layer or three layer Tier pool, the distribution of capacity that is allocated to each tier is displayed in different colors. In addition, the set quota share of High/Middle is displayed in a vertical line.

The display procedure is as follows:

1. In the configuration dialog box, select a device in the **Target** field and "FTV" in the **Resource** field.
2. If you want to specify the displayed range of IOPS (vertical axis of the panel), select "Manual" in the **IOPS Range** field and input minimum/maximum values. Default is "Auto", which displays all the ranges in which data exists.
   If you want to display an interval of IOPS (vertical axis of the panel) on a logarithm scale, select "Logarithm" in the **IOPS Scale** field. Default is "Linear", which is displayed on a linear scale.
3. Select one volume from a table, and then click **Add**.
   The Access Status Chart panel for the volume is added to the Panel area.
4. The evaluation result of the latest generation is set to be displayed by default. When changing a displayed generation, select the target generation from a drop-down list of the **Generation** field. You can select from the latest generation to four generations back.

Point

- Access status is displayed only when Automated Storage Tiering is enabled.
- Hovering the mouse over a graph area on the panel displays the values of the IOPS and the capacity indicated by the location as a tooltip.
- You can use an access status chart to evaluate the validity of FTV quota share specified by Automated Storage Tiering. Refer to the *Storage Cruiser Operation Guide for Optimization Function* for details.
- During the period between evaluation by Automated Storage Tiering and capacity information acquisition by the polling service, the horizontal axis for quota share in the top of the graph and the vertical line for quota share may not be displayed, or quota share may be calculated based on the capacity information before the polling service starts. If you refer to an access status chart during this period, perform the procedure that is described in "9.14.25 Update Automated Storage Tiering Information" beforehand.

5.3.4 Change Displayed Content of Access Status Chart Panel

The content that is displayed on the added panel can be changed.

To change the current settings, use the configuration dialog box that is displayed by clicking **Modify** in the common menu on the panel.
The items that can be set in the configuration dialog box are the same as the items that are listed in "5.3.2 Display Access Status Chart for Tier Pool" and "5.3.3 Display Access Status Chart for Volume".

5.3.5 Display Automated Storage Tiering Detail

The detailed information for Automated Storage Tiering can be displayed with the detail dialog box.

To display the detail dialog box, click the link of the **Target** field, the **FTRP** field, or the **FTV** field on the Access Status Chart panel.

In addition, clicking the link in the detail dialog box can switch the information displayed in the detail dialog box.

The information that can be displayed in the detail dialog box is as follows.

Item	Explanation
FTRP List	Displays a list of FTRPs in the whole system or the selected device.

FTRP Detail	Displays the following information related to the selected FTRP in the tab:
	- **Capacity** graph (Line graph)
	  - Displays the changes of the provisioned rate (logical quota share) and the used rate (physical quota share).
	  - Displays the thresholds (warning/caution) in a horizontal line.
	  - The display period is a maximum of one month or one year.
	  - The display range can be adjusted with the slider.
	- **Sub-pool** graph (Piled up line graph)
	  - Displays the changes of quota share for each sub-pool.
	  - The display period is a maximum of one month or one year.
	  - The display range can be adjusted with the slider.
	- **Relocation** list (Table)
	  - Displays the relocation history (maximum five generations)
	- **RAID Group** list (Table)
	- **Volume** list (Table)

RAID Group Detail	Displays a list of disks that are included in the selected RAID group.

Volume Detail	Displays the following information related to the selected volume in the tab:
	- **Capacity** graph (Line graph)
	  - Displays the changes of the used rate (physical quota share).
	  - The others are the same as the **Capacity** graph in [FTRP Detail].
	- **Sub-pool** graph (Piled up line graph)
	  - Same as the **Sub-pool** graph in [FTRP Detail].
	- **Server** list (Table)
	  - Displays the information for the allocated servers.

Relocation Detail	Displays the relocation history for each FTV that is created in a selected FTRP.

Point

The breadcrumb list is displayed in the detail dialog box.

"All System", "*deviceName*", "*poolName*", and "*volumeName*" are displayed in the breadcrumb list. Whether a link exists or not depends on the currently displayed item.

Clicking the link in the detail dialog box can switch the information displayed in the detail dialog box.

5.4 Operations for Capacity

5.4.1 Display Configuration Dialog Box of for Capacity Panel

To display the Capacity panel in Dashboard, you must display a configuration dialog box to add a panel and set the displayed information in the dialog box as described in "Panel Add Button" in "2.1.1 Menu Area".

The procedure to display a configuration dialog box is as follows:

1. Click **Add** in the Menu area of Dashboard.
   A menu to add a panel is displayed.
2. Click **Capacity** in the menu.
   The configuration dialog box for the Capacity panel is displayed.

Point

The plot interval of the Capacity panel is all on a per daily basis. However, for the latest date and time, the capacity when the Reload Configuration was executed is displayed.

5.4.2 Display Capacity Ranking (List Format)

The used capacity of the specified resources is displayed in descending order in a table. In addition, a minigraph of the capacity changes for the latest month can be displayed within the table.

The display procedure is as follows:

1. In the configuration dialog box, select "Ranking" in the **Type** field and "List" in the **Chart Type** field.
2. Select the following items as display options.

Item	Explanation
Target	A target device for ranking can be selected. The default is "All" (all devices).
Resource	A resource type to be displayed can be selected from the following items: - FTRP - TPP

Item	Explanation
	- FTV (excluding volumes that the Allocation is "Thick") - TPV (excluding volumes that the Allocation is "Thick") - NAS Volume
Unit	Select either "Rate" or "Actual Capacity" for the unit order. The default is "Rate". If multiple resources whose capacity is the same exist, they are displayed in order of name.
Order	Select either "Desc by used capacity" or "Asc by used capacity" for the sort order. The default is "Desc by used capacity". Desc by used capacity: Descending order by used capacity Asc by used capacity: Ascending order by used capacity

3. Click **Add**.
   A panel that displays the capacity ranking is added to the Panel area.

Information

Dedup volumes are not displayed in the capacity ranking.

5.4.3 Display Capacity Ranking (Chart Format)

The top 5 among the largest used capacity of the specified resource can be displayed in a single chart as a line graph of the changes of the capacity.

The display procedure is as follows:

1. In the configuration dialog box, select "Ranking" in the **Type** field and "Chart" in the **Chart Type** field.
2. Select the display options. The items that can be selected are the same as the items that are listed in "5.4.2 Display Capacity Ranking (List Format)".
3. Click **Add**.
   A panel that displays the capacity ranking is added to the Panel area.

Information

Dedup volumes are not displayed in the capacity ranking.

5.4.4 Display Capacity List

A capacity list of the specified resource can be displayed.

The display procedure is as follows:

1. In the configuration dialog box, select "List" in the **Type** field.
2. Select the display options. The items that can be selected are **Target** and **Resource**.
   From **Target**, select one device of the devices that are registered to the ETERNUS SF system.
   The selectable types in the **Resource** field are the same as the resource types that are listed in "5.4.2 Display Capacity Ranking (List Format)".
3. After checking the checkbox of the resource you want to display in a table, click **Add**.
   A panel that displays the table is added to the Panel area.

Point

The resources that have been added to the panel are displayed in order of addition.
The maximum number of resources displayable at one time on the panel without scrolling the panel is 5.
If there are resources that you want to display at all times without scrolling the panel, it is recommended that the number of resources that can be registered on one panel should be up to 5, and that you display resources using multiple panels.

Information

- The maximum number of resources that can be registered on one panel is 50.
- When adding/deleting a resource to be displayed on the panel after adding it to the Panel area, perform the following operation:

  1. Click **Add/Delete** on the panel.
     A configuration dialog box is displayed.
  2. In the configuration dialog box, after checking the checkbox of the resource to be newly displayed and unchecking the checkbox of the resource you want to stop displaying, click **Change**.

- The minigraph of a Dedup volume is not displayed.

5.4.5 Display Capacity Summary

The used capacity rate and the free space of the whole system can be displayed in a circle graph by resource type.

The display procedure is as follows:

1. In the configuration dialog box, select "Summary" in the **Type** field and a displayed resource in the **Resource** field.
   The items that can be selected as the resource type are as follows:
   - FTRP
   - TPP
   - RAID Group
   - SDP
2. Click **Add**.
   A panel that displays the circle graph is added to the Panel area.

5.4.6 Change Displayed Content of Capacity Panel

The content that is displayed on the added panel can be displayed.

To change the current settings, use the configuration dialog box that is displayed by clicking **Modify** in the common menu on the panel.
The items that can be changed in the configuration dialog box are as follows.

Panel Type	Changeable Item	Explanation
Panel added in "5.4.2 Display Capacity Ranking (List Format)"	- Target - Resource - Unit - Order	Same as the items that can be set when a panel is added.
	- Record Count	The number of lines displayed in one panel page can be changed.

Panel Type	Changeable Item	Explanation
Panel added in "5.4.3 Display Capacity Ranking (Chart Format)"	- Target - Resource - Unit - Order	Same as the items that can be set when a panel is added.
Panel added in "5.4.4 Display Capacity List"	- Record Count	The number of lines displayed in one panel page can be changed.
Panel added in "5.4.5 Display Capacity Summary"	- Resource	Same as the items that can be set when a panel is added.

Point

If you want to display a different resource on the panel added in "5.4.4 Display Capacity List", add it with **Add/Delete** on the panel. Refer to [Information] in "5.4.4 Display Capacity List" for the operation procedure.

5.4.7 Display Capacity Detail Information

The detailed information regarding the capacity can be displayed with the detail dialog box.

The display procedure is as follows:

1. Display a panel in the Panel area with the same procedure described in "5.4.3 Display Capacity Ranking (Chart Format)", "5.4.4 Display Capacity List", or "5.4.5 Display Capacity Summary".
2. Click the link of **Target** or **Name** on the displayed panel.
   A detail dialog box corresponding to the link is displayed. In addition, clicking the link in the detail dialog box can switch the information displayed in the detail dialog box.

The information that can be displayed in the detail dialog box is as follows.

Item	Explanation
Pool List	Displays a list of FTRPs/TPPs in the whole system or the selected device.
RAID Group List	Displays a list of RAID groups in the whole system.
SDP List	Displays a list of SDPs in the whole system.

Pool Detail	Displays the following information related to the selected FTRP/TPP in the tab:
	- **Capacity** graph (Line graph)
	  - Displays the changes of the provisioned rate (logical quota share) and the used rate (physical quota share).
	  - Displays the thresholds (warning/caution) in a horizontal line.
	  - The display period is a maximum of one month or one year.
	  - The display range can be adjusted with the slider.
	- **Sub-pool** graph (Piled up line graph)
	  - Displays only FTRP.
	  - Displays the changes of the quota share for each sub-pool.
	  - The display period is a maximum of one month or one year.
	  - The display range can be adjusted with the slider.
	- **Relocation** list (Table)

Item	Explanation
	- Displays only FTRP. - Displays the relocation history (maximum five generations) - **RAID Group** list (Table) - **Volume** list (Table)
RAID Group Detail	Displays a list of disks that are included in the selected RAID group.
Volume Detail	Displays the following information related to the selected volume in the tab: - **Capacity** graph (Line graph) - Displays the changes of the used rate (physical quota share). - The others are the same as the **Capacity** graph in [Pool Detail]. - **Capacity (File System)** graph (Line graph) - Displays only NAS Volume. - Displays the changes of the used rate (physical quota share). - The others are the same as the **Capacity** graph in [Pool Detail]. - **Sub-pool** graph (Piled up line graph) - Displays only FTV. - The others are the same as the **Sub-pool** graph in [Pool Detail]. - **Server** list (Table) - Displays only volumes other than NAS Volume. - Displays the information for the allocated servers.
Relocation Detail	Displays the relocation history for each FTV that is created in a selected FTRP.

Point

The breadcrumb list is displayed in the detail dialog box.

"All System", "*deviceName*", "*poolName*", and "*volumeName*" are displayed in the breadcrumb list. Whether a link exists or not depends on the currently displayed item.

Clicking the link in the detail dialog box can switch the information displayed in the detail dialog box.

Information

- For pools with Deduplication/Compression enabled, a graph of the capacity ratio is not displayed in the **Capacity** graph in [Pool Detail].

- For Dedup volumes, a graph of the usage rate is not displayed in the **Capacity** graph in [Volume Detail].

5.5 Operations for Dashboard Common Function

5.5.1 Home Screen Settings

The Home screen is a screen that is displayed immediately after logging in to Web Console. Each user can set their Home screen with either of the following:

- Dashboard
- Overview screen on the **Main** tab of Detail View

The procedure to set the Home screen is as follows:

1. Click the user name that is displayed in the Menu area of Dashboard.
   A user menu is displayed in a pull-down format.
2. Click **Dashboard Settings** in the menu.
   A configuration dialog box is displayed with the currently reflected settings.
3. In the configuration dialog box, after selecting the screen you want to display immediately after logging in, click **Modify**.

Note

In the case that Web Console is used on a web browser of a tablet, you cannot configure the Home screen.

Chapter 6 Operations for Quick Launch

On the Quick Launch screen, perform the following operations in the order shown:

1. Creation of pools
2. Creation of volumes and assignment of volumes to a server
3. Creation of snapshots

6.1 Creation of Pools

You can create Thin Provisioning Pools with Quick Launch.

The procedure for creating pools is shown below.

1. In the left pane of Quick Launch, select a storage device in which to create the pool.
2. Move the mouse over **Action** in the menu area and click **Create Pool**.
   The Create Pool screen is displayed.
3. Enter the required values.
4. Click **Done**.

Point

- The RAID level that is used when a pool is created varies depending on the number of disks available. RAID6 is used if the number of disks selected in the **Disk type** field is six or more, and RAID5 is used if the number of disks selected is four or five. If the number of disks is three or less, pools cannot be created.
- If the target storage device is an ETERNUS DX S4/S3 series (excluding the ETERNUS DX8900 S4) or ETERNUS AF All-Flash Arrays, 12 disks are required to create a pool by checking "Enable" for the **Deduplication** or **Compression** field. The RAID level of the created pool is RAID6.
- If "HDD" or "HDD SED" is selected for the **Disk type** field, Online disks are preferentially used. If the number of Online disks is insufficient, Nearline disks are used.
- If you create a pool with Quick Launch, an SNMP Trap is sent when the pool usage reaches 75 % and 90 %. You can change the notification of the pool usage rate from **Detail View**.

6.2 Creation of Volumes and Assignment of Volumes to a Server

You can create Thin Provisioning Volumes with Quick Launch.

The entire procedure from creating volumes to assigning them to a server is shown below.

1. In the left pane of Quick Launch, select a storage device that contains volumes to assign to a server or a storage device in which to create volumes that are then assigned to a server.
2. Move the mouse over **Action** in the menu area and click **Create & assign volumes**.
   The Access path setting page in the Create & assign volumes screen is displayed.
3. Set an access path between the server to assign volumes and the ETERNUS Disk storage system. More than one combination of connected server ports and storage device ports can be defined at the same time.
   a. Select a server port and a storage device port, and then click **Add**.
   b. Add all the required access paths and then click **Next**.

Point

- If you set access paths, defining multiple ports of different CMs is recommended in case of a CM failure. If a server has multiple ports for connections, specifying a combination that uses two or more server ports (multipath configuration) is recommended.
- If an access path is already set between the specified server and the storage device, the set access path is displayed on the screen. You can skip to the next step without adding access paths by clicking **Next**.

4. If there are no volumes to assign to a server, create a volume.
   If a volume creation is not required, proceed to step 5.
   a. Click **Create Volume** on the Volume creation and assignment page in the Create & assign volumes screen. The Create Volume window is displayed.
   b. Enter the required values and then click **Next**.
   c. Check the contents of the confirmation screen and then click **Done**.

Information

Volume names are in the *volumeName_n* format. The *volumeName* part is a name that you specify and *n* is an automatically assigned number (starting from 0) according to the number of created volumes.

5. Select a volume to assign to a server on the Volume creation and assignment page in the Create & assign volumes screen and then click **Add**. If you create volumes in step 4, the created volumes are selected automatically. Add all the volumes to be assigned to a server and then click **Next**.

Note

While this screen is open, do not let other users add volumes to the selected storage device.
Note that if volumes have been added from other screens, make sure the volumes to be assigned are correct on this screen.

6. Check the contents of the confirmation screen and then click **Done**.

Point

If you are using Storage Cruiser and a supported Fibre Channel switch is registered, zoning and volume detection by the server are automatically performed.

6.3 Creation of Snapshots

The procedure for creating transaction volume snapshots is shown below.

1. In the main pane of Quick Launch, select a volume that you want to create snapshots.
2. Move the mouse over **Action** in the menu area and click **Create snapshot**.
3. Check the contents of the confirmation screen and then click **Done**.

Point

- You can create up to 512 generations of snapshots.
- After a snapshot is created, a snapshot volume (copy destination volume) is automatically created in the pool where the volume selected in step 1 (copy source volume) exists. The name for snapshot volumes is in the

"__backup_[*number*]" format (where number consists of a seven-digit number). The snapshot volume is not displayed on the Volume list screen of Quick Launch.

- The pool space is not consumed only when snapshots are created. After a snapshot is created, the pool capacity is consumed because the storage device copies the pre-updated data from the copy source volume to the copy destination volume every time the copy source volume is updated. If the free space of the pool is insufficient, delete unnecessary snapshots.
- When using Express only, the maximum number of snapshots is eight sessions per storage device. The number of sessions is the total number of generations that are used in each volume. The session during restore is also counted as one session.

Note

- Create snapshots when access from the business server to the transaction volume (copy source volume) is stopped.
- Be sure to delete the created snapshots before deleting the storage device where those snapshots exist. Refer to "6.5 Deletion of Snapshots" for details on how to delete snapshots.

6.4 Restoration from Snapshots

You can restore the contents of the transaction volumes to the creation time of the snapshot.

The procedure for restoring from the time of the snapshot creation is shown below.

1. In the main pane of Quick Launch, select a restore destination volume.
2. Move the mouse over **Action** in the menu area and click **Restore from snapshot**.
   The Restore from snapshot screen is displayed.
3. Select a snapshot to restore from and then click **Next**.
4. Check the contents of the confirmation screen and then click **Done**.

Note

- If the copy source volume is damaged, snapshots cannot be restored. To protect the copy source volume, it is recommended that you copy all the data in the copy source volume with OPC/QuickOPC/EC/REC.
- Restore from snapshots when access from the business server to the transaction volume (copy source volume) is stopped.

6.5 Deletion of Snapshots

The procedure for deleting a snapshot is shown below.

1. In the main pane of Quick Launch, select a volume that you want to delete snapshots.
2. Move the mouse over **Action** in the menu area and click **Delete snapshot**.
   The Delete snapshot screen is displayed.
3. Select the snapshot you want to delete and then click **Next**.
4. Check the contents of the confirmation screen and then click **Done**.

Note

All the snapshots from the oldest to the selected snapshot are deleted.

Information

The snapshot volume may appear on the Volume list screen of Quick Launch immediately after the snapshot is deleted. However, those volumes are automatically deleted and then removed from the Volume list screen after several minutes.

Chapter 7 Operations for Performance

7.1 Operations for Tabs

7.1.1 Adding Tabs

The procedure for adding tabs is shown below.

1. In the left pane of the Performance screen, select a device in which to add a tab.
2. Click "**+**" button of the Tab area on the main pane.
   The **Add tab** dialog box is displayed.
3. Enter a name for the tab in the **Add tab** dialog box.
4. Click **OK**.

Point

Tabs can be added for each device. The following shows the number of tabs that can be added for each device.

- If the ETERNUS SF Storage Cruiser Basic License or the ETERNUS SF Storage Cruiser Standard License is registered: 5
- Other than above: 1

7.1.2 Changing the Tab Name

The procedure for changing the tab name is shown below.

1. In the left pane of the Performance screen, select a device in which the tab to be changed is configured.
2. Click the tab to be changed in the Tab area of the main pane.
   The tab of the main pane changes to the tab to be changed.
3. Move the mouse over **Action** in the Tab area of the main pane, and select **Modify tab name** from the displayed menu.
   The **Modify tab name** dialog box is displayed.
4. Enter a name for the tab in the **Modify tab name** dialog box.
5. Click **OK**.

7.1.3 Deleting Tabs

Note

If a tab is deleted, the panels that were added in that tab are also deleted. Note that the deleted tabs cannot be restored so be sure to select the correct tab to delete.

The procedure for deleting tabs is shown below.

1. In the left pane of the Performance screen, select a device in which the tab to be deleted is configured.
2. Select "**X**" button for the tab to be deleted in the Tab area of the main pane.
   The **Delete tab** dialog box is displayed.
3. Check the contents displayed in the dialog box and click **OK**.

7.2 Operations for the Performance Monitoring

7.2.1 Starting the Performance Monitoring

The procedure for starting the performance monitoring is shown below.

1. In the left pane of the Performance screen, select a device to start the performance monitoring.
2. Move the mouse over **Action** in the Tab area of the main pane, and select **Start monitoring** from the displayed menu.
   The **Start performance monitoring** dialog box is displayed.
3. Enter the required values in the **Start performance monitoring** dialog box.
4. Click **OK**.

7.2.2 Stopping the Performance Monitoring

The procedure for stopping the performance monitoring is shown below.

1. In the left pane of the Performance screen, select a device to stop the performance monitoring.
2. Move the mouse over **Action** in the Tab area of the main pane, and select **Stop monitoring** from the displayed menu.
   The **Stop performance monitoring** dialog box is displayed.
3. Check the contents displayed in the dialog box and click **OK**.

7.2.3 Changing the Performance Monitoring Conditions

The procedure for changing the monitoring conditions of the device where the performance is being monitored is shown below.

1. In the left pane of the Performance screen, select a device to change the monitoring conditions.
2. Move the mouse over **Action** in the Tab area of the main pane, and select **Modify monitoring conditions** from the displayed menu.
   The **Modifying monitoring conditions** dialog box is displayed.
3. Enter the required values in the **Modifying monitoring conditions** dialog box.
4. Click **OK**.

7.3 Operations for Panels

7.3.1 Adding Panels

The procedure for adding panels is shown below.

1. In the left pane of the Performance screen, select a device in which to add a panel.
2. Click the tab to add a panel in the Tab area of the main pane.
   The tab of the main pane changes to the tab to be operated.
3. Click the Add panel button of the Tab area on the main pane.
   The **Add performance chart panel** dialog box is displayed.
4. Configure the settings required for the performance data type to be displayed as a chart in the **Add performance chart panel** dialog box.
5. Click **Next**.
6. Configure the settings required for the chart to be displayed (for example, range of vertical axis and whether to display the threshold value).

7. Click **OK**.

Point

The following shows the number of panels that can be added for each tab.

- If the ETERNUS SF Storage Cruiser Basic License or the ETERNUS SF Storage Cruiser Standard License is registered: 24
- Other than above: 1

7.3.2 Changing the Panel Display Items

The procedure for changing the display items in the panel is shown below.

1. In the left pane of the Performance screen, select a device where the panel to be changed is configured.
2. In the Tab area of the main pane, click the tab that has the panel to be changed.
   The selected tab is displayed on the main pane.
3. Select **Modify** from the menu of the panel to be changed.
   The **Modify performance chart panel** dialog box is displayed.
4. Configure the settings required for the performance data type to be displayed as a chart in the **Modify performance chart panel** dialog box.
5. Click **Next**.
6. Configure the settings required for the chart to be displayed.
7. Click **OK**.

7.3.3 Deleting Panels

The procedure for deleting panels is shown below.

1. In the left pane of the Performance screen, select a device where the panel to be deleted is configured.
2. In the Tab area of the main pane, click the tab that has the panel to be deleted.
   The selected tab is displayed on the main pane.
3. Select **Remove** from the menu of the panel to be changed.
   The **Remove performance chart panel** dialog box is displayed.
4. Check the contents displayed in the dialog box and click **OK**.

7.3.4 Downloading the Performance Chart Data

The procedure for downloading the performance chart data displayed on the panel is as follows.
The format of the downloaded file is fixed to the CSV format. Note that the file format cannot be changed.

1. In the left pane of the Performance screen, select a device where the panel to be downloaded is configured.
2. In the Tab area of the main pane, click the tab that has the panel to be downloaded.
   The selected tab is displayed on the main pane.
3. Select **Download** from the menu of the panel to be downloaded.
   The performance chart data is downloaded as a CSV file.

Information

Depending on the browser, the procedure varies when **Download** is selected from the menu (for example, whether the dialog box is displayed and confirmation of the save destination of the file). Check the browser settings in your environment.

Chapter 8 Operations Started From Main Tab

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

8.1 Display Overview Screen

If clicking **Main** of the global navigation tab, the Overview screen is displayed.
The information displayed on the Overview screen 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 status is 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
	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

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

Chapter 9 Operations Started From Storage Tab

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

9.1 Operations for ETERNUS Disk Storage System

9.1.1 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.

   c. When using the SNMPv1 protocol, check the "v1" radio button in the **SNMP Version** field and enter the SNMP community name.
   When using the SNMPv3 protocol, check the "v3" radio button in the **SNMP Version** field and check the radio button of the target user from among the SNMPv3 MIB access users.

   d. 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.

   The symbols that can be used for password are as follows.

Storage Device Name	Usable Symbols	Unusable Symbols
ETERNUS DX series (excluding the ETERNUS DX60 S2) ETERNUS AF All-Flash Arrays	! - . _ # $ & ( ) + , / @ [ ] ^ ` { | } ~ : ; < = >	\ ? " ' % *
ETERNUS DX60 S2	! - . _	# $ & ( ) + , / @ [ ] ^ ` { | } ~ : ; < = > \ ? " ' % *

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

- 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.
- When using the SNMPv3 protocol, the checkbox is grayed out. Perform the SNMP Trap settings in the setup of the SNMP Trap transmission destination on the ETERNUS Disk storage system.
- To automatically update the device component status, enable the "SNMP Trap destination address automatic setting" function by checking the **SNMP Trap Setting** checkbox. For devices that support automatic updates

of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

7. Click **Register**.

Note

- The registration process of an 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 an ETERNUS Disk storage system registration process. However, since the information in the Job Status pane is automatically deleted 24 hours after process is completed, check deleted information in "14.1 Display Operation History". The ETERNUS Disk storage system registration process 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

  Do not perform any operation for this ETERNUS Disk storage system until the registration process 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.

9.1.2 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.

9.1.3 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**.

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.
- If the ETERNUS Disk storage system is removed from this product, the event notification settings for SNMP Traps that were changed when the device was registered return to the settings prior to the device registration. Refer to [Point] in "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide* for details.
- If the above procedure is performed when AdvancedCopy Manager CCM is operating in the Management Server, the ETERNUS Disk storage system with the same ETERNUS name is also deleted from AdvancedCopy Manager CCM. To continue using the deleted ETERNUS Disk storage system with AdvancedCopy Manager CCM, register it in AdvancedCopy Manager CCM again.

9.1.4 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 *Storage Cruiser Operation Guide for Optimization Function* after re-registering the storage device.
- To automatically update the device component status, enable the "SNMP Trap destination address automatic setting" function by checking the **SNMP Trap Setting** checkbox. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

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

The procedure to register the information of the account that can access the 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 the ETERNUS Disk storage system
  - Changing the account information registered in the ETERNUS Disk storage system
- If account information in the ETERNUS Disk storage system is registered or changed, execute this procedure immediately to match the account information in the ETERNUS Disk storage system and this product.

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

9.1.6 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.

For Changing Storage System Name

- When using AdvancedCopy Manager CCM

  Refer to "Changing Registered Information for ETERNUS Disk Storage System" in the *AdvancedCopy Manager Operation Guide for Copy Control Module*.
- When not using AdvancedCopy Manager CCM
  1. Use ETERNUS Web GUI to change the ETERNUS Disk storage system name.
  2. Use Web Console to perform the **Reload Conf.** operation for the ETERNUS Disk storage system whose name was changed.

For Changing Box ID

- When using AdvancedCopy Manager CCM
  1. Use ETERNUS Web GUI to change the Box ID of the ETERNUS Disk storage system.
  2. Delete the target ETERNUS Disk storage system. Refer to "9.1.3 Delete ETERNUS Disk Storage System" for details.
  3. Re-register the target ETERNUS Disk storage system. Refer to "9.1.1 Register ETERNUS Disk Storage System" for details.
  4. Re-configure the connection conditions of the ETERNUS Disk storage system. Refer to "9.10.2 Configure Connection Type for ETERNUS Disk Storage System" for details.
- When not using AdvancedCopy Manager CCM
  1. Use ETERNUS Web GUI to change the Box ID of the ETERNUS Disk storage system.
  2. Delete the target ETERNUS Disk storage system. Refer to "9.1.3 Delete ETERNUS Disk Storage System" for details.
  3. Re-register the target ETERNUS Disk storage system. Refer to "9.1.1 Register ETERNUS Disk Storage System" for details.

9.1.7 Configure ETERNUS Disk Storage System

The procedure to configure an 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 an 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:

- "11.1.4 Delete Server"
- "9.7.3 Delete Volume"
- "9.8.3 Delete RAID Group"

9.1.8 Assign ETERNUS Disk Storage System Volumes to Server

The procedure to assign volumes of an 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 an 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.
- Operations that modify the affinity group for the BS2000 can be performed only in environments where the following storage devices are connected to the BS2000:
  - ETERNUS DX S6/S5 series
  - ETERNUS DX8000 S4 series
  - ETERNUS DX S4/S3 series with a firmware version V10L80 or later (excluding the ETERNUS DX8000 S4 series)
  - ETERNUS AF All-Flash Arrays with a firmware version V10L80 or later

9.1.9 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. (*2)

- Clear the Error status after the recovery because of trouble in the ETERNUS Disk storage system. (*2)

*1: For the following devices, automatically collected device information excludes performance management configuration information, so the above-mentioned operation is not required. The performance management configuration information is automatically updated when "All" is selected for the range of monitored volumes at the start of performance management. Refer to "Instruction for Performance Management" in the *Storage Cruiser Operation Guide* for details.

- ETERNUS DX S6/S5/S4/S3 series (All firmware versions)
- ETERNUS DX S2 series (excluding the ETERNUS DX60 S2. V10L40 or later firmware)
- ETERNUS AF All-Flash Arrays (All firmware versions)

*2: For devices that support automatic updates of the device component status, because the status information is automatically updated when trouble occurs or is recovered, the above operation is not required. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.

Note

The reloading of the 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 the ETERNUS Disk storage system configuration information reloading. However, since the information in the Job Status pane is automatically deleted 24 hours after process is completed, check deleted information in "14.1 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

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

9.1.10 Enable/Disable Extreme Cache and Update Extreme Cache Capacity

Point

The procedure explained in this section applies to storage devices other than the ETERNUS DX500 S5/DX600 S5/DX900 S5, DX8900 S4 and applies to ETERNUS Disk storage systems that support the Extreme Cache function. For Extreme Cache operations for the ETERNUS DX500 S5/DX600 S5/DX900 S5, DX8900 S4, refer to "9.1.11 Enable/Disable Extreme Cache and Configure/Release Extreme Cache".

The procedure to enable/disable the Extreme Cache of an ETERNUS Disk storage system and the procedure to update capacity of the Extreme Cache that is installed in an ETERNUS Disk storage system are as follows:

If, though the capacity of Extreme Cache has been increased on the ETERNUS Disk storage system, it is not displayed on Web Console, also take the following steps. At step 6, execute the operation "For Enabling Extreme Cache or Updating Extreme Cache Capacity".

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/Update capacity** under **Extreme Cache**.
6. Perform the following procedures according to the operation purpose.

   For Enabling Extreme Cache or Updating Extreme Cache Capacity

   Click the **Enable/Update capacity** radio button.
   In addition, if the storage device selected in step 2 is other than the ETERNUS DX8000 S3 series, specify the Extreme Cache capacity (in units of 100 GB).

   Information

   If the storage device is the ETERNUS DX8000 S3 series, the Extreme Cache capacity specification is not required because the Extreme Cache capacity is set automatically.

   For Disabling Extreme Cache

   Click the **Disable** radio button.
7. Click **Configure**.

9.1.11 Enable/Disable Extreme Cache and Configure/Release Extreme Cache

Point

The procedure explained in this section applies to the ETERNUS DX500 S5/DX600 S5/DX900 S5, DX8900 S4. For Extreme Cache operations for ETERNUS Disk storage systems that support the Extreme Cache function, excluding the ETERNUS DX500 S5/DX600 S5/DX900 S5, DX8900 S4, refer to "9.1.10 Enable/Disable Extreme Cache and Update Extreme Cache Capacity".

The procedure to enable/disable the Extreme Cache of an ETERNUS Disk storage system and the procedure to configure/release the Extreme Cache that is added in an ETERNUS Disk storage system 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 **System**.
   The items of the Category pane change into the items concerning the system.
4. On the Category pane, click **Extreme Cache**.
5. Perform the following procedures according to the operation purpose.

   For Enabling Extreme Cache or Adding Extreme Cache

   a. On the Action pane, click **Setup** under **Extreme Cache**.
      The information input screen is displayed.
   b. Click the **Enable** radio button and then click **Configure**.

   For Disabling Extreme Cache

   a. On the Action pane, click **Setup** under **Extreme Cache**.
      The information input screen is displayed.
   b. Click the **Disable** radio button and then click **Configure**.

Note

- For the ETERNUS DX500 S5/DX600 S5, before disabling Extreme Cache, release it.
- For the ETERNUS DX900 S5, DX8900 S4, before disabling Extreme Cache, release all the Extreme Cache installed in all the Controller Enclosures.

For Releasing Extreme Cache (for the ETERNUS DX500 S5/DX600 S5)

On the Action pane, click **Release** under **Extreme Cache**.

For Releasing Extreme Cache (for the ETERNUS DX900 S5, DX8900 S4)

Perform the following procedures to release the Extreme Cache installed in a Particular Controller Enclosure.

a. On the Action pane, click **Release** under **Extreme Cache**.
The information input screen is displayed.

b. Check the target Controller Enclosure checkbox and then click **Release**.

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

9.2.1 Register Storage Device

The procedure to register a storage device other than ETERNUS Disk storage systems 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.

9.2.2 Display Storage Device

The procedure to display the storage device (other than ETERNUS Disk storage systems) 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.

9.2.3 Delete Storage Device

The procedure to delete the storage device other than ETERNUS Disk storage systems 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**.

9.2.4 Change Storage Device Information

The procedure to change the storage device (other than ETERNUS Disk storage systems) 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.

9.2.5 Register Port of Storage Device

The procedure to register the port of the storage device other than ETERNUS Disk storage systems 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. Check the target port checkbox.

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

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

9.2.6 Display Port Information of Storage Device

The procedure to display the port information for the storage device other than ETERNUS Disk storage systems 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.

9.2.7 Delete Port of Storage Device

The procedure to delete the port of the storage device other than ETERNUS Disk storage systems 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, check 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**.

9.2.8 Register License of ETERNUS AX/HX series, ETERNUS AB/HB series

The procedure to register a license of the ETERNUS AX/HX series, ETERNUS AB/HB series 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 **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**.

9.2.9 Display License of ETERNUS AX/HX series, ETERNUS AB/HB series

The procedure to display the registered and registerable licenses of the ETERNUS AX/HX series, ETERNUS AB/HB series 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 **License Management**.
   The registered and registerable license list is displayed on the Main pane.

Point

The difference between registered licenses and unregistered licenses can be distinguished in the **Registration Date** column. For registered licenses, the license registration date is displayed in the **Registration Date** column.

9.2.10 Delete License of ETERNUS AX/HX series, ETERNUS AB/HB series

The procedure to delete a license of the ETERNUS AX/HX series, ETERNUS AB/HB series 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 **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**.

9.3 Operations for ETERNUS LT series

9.3.1 Register Tape Library

The procedure to register an ETERNUS LT series 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 and name that have already been registered as a tape library 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.

9.3.2 Display Tape Library

The procedure to display the registered ETERNUS LT series 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.

9.3.3 Delete Tape Library

The procedure to delete the ETERNUS LT series 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.

9.3.4 Change Tape Library Status

The procedure to change the status of an ETERNUS LT series 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

- Web Console can only change the status of the tape library.
  The tape library information cannot be changed using Web Console. In 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.

9.3.5 Add/Display/Delete Device in Tape Library

The procedure to add a device to the registered ETERNUS LT series and the procedure to display/delete the device in the registered ETERNUS LT series 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.

9.3.6 Add/Display/Delete Port in Tape Library

The procedure to add the port to the registered ETERNUS LT series and the procedure to display/delete the port in the registered ETERNUS LT series 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.

9.4 Operations for Access Path

Refer to "11.4 Operations for Access Path".

9.5 Operations for Correlation Management

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.

9.5.1 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 Action pane, click **Download** under **End to End View**.

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

   c. Click **Save**.

   Note

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

9.5.2 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 Action pane, click **Download** under **End to End View (VMware)**.

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

   d. Click **Save**.

9.5.3 Register/Reload VMware vCenter Server and Change User Information of VMware vCenter Server

The procedure of server registration/reloading of the VMware vCenter Server and the procedure of changing the user information of the VMware vCenter Server 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 **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 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 Server is not automatically updated. When the configuration is changed, reload the VMware vCenter Server according to the above-mentioned procedure.

Note

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

9.5.4 Delete VMware vCenter Server

The procedure to delete the VMware vCenter 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 Server**.
   VMware vCenter Server is displayed in a pop-up window.
7. Click the button at the lower right in the pop-up window.

9.5.5 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**.

Point

- To register the server as a Hyper-V host, it is required that the server has already been registered in this product. Refer to "11.1.1 Register Server" for the server registration method.
- The Hyper-V configuration information is not automatically updated. If you have changed the configuration information, perform the above procedure to reload the Hyper-V host configuration information.
- For a multipath configuration, the End to End list for Hyper-V displays only one path.
- When the Hyper-V host information is reloaded on a multipath configuration, the using path information is displayed.
- If initiator IP address is not set to the iSCSI initiator when connecting it, the correlation management of Hyper-V is not supported.

9.5.6 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.

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.

9.5.7 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, check 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.

9.5.8 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.

9.6 Operations for System Management

9.6.1 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 DX series (excluding the ETERNUS DX60 S2)	SSH connection
ETERNUS DX60 S2	Telnet connection
ETERNUS AF All-Flash Arrays	SSH connection

9.6.2 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 a hyphen (-) in the **Registration Date** column.
In addition, a trial license displays the expiration date in the **Expiry Date** column and a regular license displays a hyphen (-) in the **Expiry Date** column.

9.6.3 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**.

9.6.4 Enable Encryption Mode

The procedure to enable the encryption mode of an 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. Perform the following procedures according to the target storage device model.

   When the Target Storage Device Model Supports the Encryption Mode AES-256

   a. On the Action pane, click **Enable/Modify** under **Encryption Mode**.

   b. On the displayed Enable/modify Encryption mode screen, select the encryption mode to be set, and then click **Enable**.

   When the Target Storage Device Model Does Not Support the Encryption Mode AES-256

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

Note

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

9.6.5 Disable Encryption Mode

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

1. Check whether any volume, Thin Provisioning pool, or Tier pool, which is encrypted by CM, exists in a target ETERNUS Disk storage system. If any, remove the relevant resource.
   Refer to the following sections to display/delete each resource:
   - "9.7.2 Display Volume", "9.7.3 Delete Volume"
   - "9.9.2 Display Thin Provisioning Pool", "9.9.4 Expand Capacity of/Format/Change Threshold Value of/Delete Thin Provisioning Pool"
   - "9.14.8 Display Tier Pool", "9.14.16 Delete Tier Pool"
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

- If any volume, Thin Provisioning pool, or Tier pool, which is encrypted by CM, exists in an ETERNUS Disk storage system, the encryption of the ETERNUS Disk storage system cannot be disabled.
- There are storage device models that cannot set the encryption mode from Web Console. Refer to "Encryption Mode Management" in the *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.

9.6.6 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.

9.6.7 Configure Eco-mode

The procedure to enable/disable 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.

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**.

9.7 Operations for Volume

9.7.1 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**.

- 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 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 an 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 process time to carry it out.
- There are storage device models that cannot set the encryption mode from Web Console. Refer to "Volume Management" in the *Storage Cruiser Operation Guide* for details.

- In Web Console, the volume that is LUN concatenated and Wide Striping Volume cannot be created.
- The type of the volume that can create a Dedup volume is Thin Provisioning Volume only. When creating a Dedup volume, perform the following actions according to the target ETERNUS Disk storage system:
  - For devices that support enabling Deduplication alone or Compression alone

    If you create a Dedup volume in a Thin Provisioning Pool that has Deduplication enabled, click the "Enable" radio button of the **Deduplication** field.
    If you create a Dedup volume in a Thin Provisioning Pool that has Compression enabled, click the "Enable" radio button of the **Compression** field.
    In addition, you must enable Deduplication and Compression of the Thin Provisioning Pool where a Dedup volume is to be created in advance.
  - For devices other than above

    Click the "Enable" radio button of the **Deduplication/Compression** field.
    In addition, you must enable Deduplication/Compression of the Thin Provisioning Pool where a Dedup volume is to be created in advance.
- The Allocation setting is available only when creating a Thin Provisioning Volume in an ETERNUS Disk storage system that supports the Allocation function.
  If "Thin" is selected, the physical area is allocated for use when I/O is issued.
  If "Thick" is selected, the physical area of the volume capacity is allocated when creating a volume.

9.7.2 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.

Point

The **Status** column of the volume information shows the status obtained from the storage device. Refer to the manual of the target storage device for the meaning of the status.

9.7.3 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, check 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 process time to carry it out.
- In Web Console, it is not possible to delete Wide Striping Volumes.

9.7.4 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 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
- Format of Virtual Volume

9.7.5 Change Extreme Cache/Extreme Cache Pool Configuration of Volume

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

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Specify whether to use Extreme Cache/Extreme Cache Pool 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. In addition, this configuration is also common in Extreme Cache Pools.

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

- The Extreme Cache cannot be set to SDV or SDPV.
- When using Extreme Cache Pool, prior initialization of Extreme Cache Pool by using ETERNUS Web GUI of the target ETERNUS Disk storage system is required.

9.7.6 Set Volume Allocation

The procedure to set the Allocation of 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 **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 Setting Allocation to Thin

   a. On the Action pane, click **Set to Thin** under **Allocation**.
      The information confirmation screen is displayed.
   b. Confirm the information, and then click **Set**.

For Setting Allocation to Thick

a. On the Action pane, click **Set to Thick** under **Allocation**.
   The information confirmation screen is displayed.

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

9.7.7 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**.

9.7.8 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**.

9.8 Operations for RAID Group

9.8.1 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 DX series (excluding the ETERNUS DX60 S2)

- ETERNUS AF All-Flash Arrays

How to Create RAID Group Automatically

The procedure to create the RAID group within an 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**, the **RAID Type** and the **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 an 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**, the **RAID Type** and the **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.

The **Name** field cannot be input for the model that cannot give a name to the RAID group.

9.8.2 Display RAID Group

The procedure to display the list/details about RAID Groups created in the 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 the 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.

9.8.3 Delete RAID Group

The procedure to delete a RAID group created in 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 target ETERNUS Disk storage system.
3. On the Category pane, click **RAID Group**.
   The RAID groups in the 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**.

9.8.4 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 the 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**.

9.8.5 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 the 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**.

9.9 Operations for Thin Provisioning

9.9.1 Create Thin Provisioning Pool

The methods for creating Thin Provisioning Pools are automatic creation and manual creation.
If automatic creation is selected, a Thin Provisioning Pool that is configured with suitable disks based on a specified disk type, reliability, and the total capacity of the Thin Provisioning Pool is automatically created. Automatic creation of Thin Provisioning Pools can be performed for the following storage devices:

- ETERNUS DX S6/S5/S4/S3 series (V10L70 or later firmware is required for the ETERNUS DX S3 series.)
- ETERNUS AF All-Flash Arrays (V10L70 or later firmware is required for the ETERNUS AF series.)

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- Automatic creation is recommended due to the advanced knowledge required to create Thing Provisioning Pools that have Deduplication/Compression enabled for the above models excluding the ETERNUS DX S6/S5 series, ETERNUS DX8900 S4, ETERNUS AF S3 series. Refer to the following section in the Chapter "Operation" in the *Storage Cruiser Operation Guide*.
  - "Resource Management" > "Thin Provisioning Management"
- During manual creation, if you select "High Reliability(RAID6-FR)" in the **Reliability** field, you must specify the parameter in the **Fast Recovery Configuration** field. In addition, creating RAID groups based on the number of disks for the specified configuration is required. During automatic creation, you must specify the parameter in the **Select Drives** field.

Note

To use the Self Encryption Drive (SED) for a disk in a Thin Provisioning Pool, specify "No" for the **Encryption** field of the pool.

Procedure for Automatic Creation of Thin Provisioning Pools

The procedure to create Thin Provisioning Pool within an 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 **Thin Provisioning**.
4. On the Action pane, click **Create** under **Thin Provisioning Pool**.
   The information input screen is displayed. (Specify Pool Information)
5. Click the "Automatic" radio button of the **Create Mode** field.
6. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.
7. Confirm the information, and then click **Create**.

Procedure for Manual Creation of Thin Provisioning Pools

The procedure to create Thin Provisioning Pool within an 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 **Thin Provisioning**.
4. On the Action pane, click **Create** under **Thin Provisioning Pool**.
   The information input screen is displayed. (Specify Pool Information)
5. Click the "Manual" radio button of the **Create Mode** field.
6. Enter the necessary information, and then click **Next**.
   The information input screen is displayed. (Specify disks to create RAID Groups)
7. Enter the necessary information, and then click **Next**.
   The information confirmation screen is displayed.
8. Confirm the information, and then click **Create**.

9.9.2 Display Thin Provisioning Pool

The procedure to display the list/details about Thin Provisioning Pools created in the 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 the 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.

9.9.3 Display Capacity Graph of Thin Provisioning Pool

The procedure to display the capacity graph of the Thin Provisioning Pool created in 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 target ETERNUS Disk storage system.
3. On the Category pane, click **Thin Provisioning**.
   Thin Provisioning Pools in the 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.

Point

- 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.

9.9.4 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 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 target ETERNUS Disk storage system.
3. On the Category pane, click **Thin Provisioning**.
   Thin Provisioning Pools in the 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**.

9.9.5 Enable/Disable Deduplication/Compression of Thin Provisioning Pool

The procedure to enable/disable the Deduplication/Compression of the Thin Provisioning Pool created in the ETERNUS Disk storage system is as follows.

Note

If a Dedup volume exists in the target Thin Provisioning Pool, deduplication cannot be disabled.

Information

If a Thin Provisioning Pool that has Deduplication/Compression enabled is created, the procedure to enable Deduplication/Compression is not required.

Procedure to Enable Deduplication/Compression

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 Main pane, check the target Thin Provisioning Pool checkbox.
5. Perform the following works according to the target ETERNUS Disk storage system:
   - For devices that support enabling Deduplication alone or Compression alone
     a. On the Action pane, click **Enable** under **Deduplication/Compression**.
        The information input screen (Enable Deduplication/Compression) is displayed.
     b. If you enable Deduplication, click the "Enable" radio button of the **Deduplication** field.
        If you enable Compression, click the "Enable" radio button of the **Compression** field.
     c. Confirm the input information, and then click **Enable**.
   - For devices other than above
     a. On the Action pane, click **Enable** under **Deduplication/Compression**.
        The information confirmation screen is displayed.
     b. Confirm the information, and then click **Enable**.

Procedure to Disable Deduplication/Compression

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 Main pane, check the target Thin Provisioning Pool checkbox.
5. Perform the following works according to the target ETERNUS Disk storage system:
   - For devices that support enabling Deduplication alone or Compression alone
     a. On the Action pane, click **Disable** under **Deduplication/Compression**.
        The information input screen (Disable Deduplication/Compression) is displayed.
     b. If you disable Deduplication, click the "Disable" radio button of the **Deduplication** field.
        If you disable Compression, click the "Disable" radio button of the **Compression** field.
     c. Confirm the input information, and then click **Disable**.
   - For devices other than above
     a. On the Action pane, click **Disable** under **Deduplication/Compression**.
        The information confirmation screen is displayed.
     b. Confirm the information, and then click **Disable**.

Point

It is recommended that you create a Thin Provisioning Pool that Deduplication/Compression is enabled with the automatic creation. Refer to the following section in the Chapter "Operation" in the *Storage Cruiser Operation Guide*.

- "Resource Management" > "Thin Provisioning Management"

9.10 Operations for Advanced Copy

Point

If operations related to Advanced Copy are performed using commands, they may not be reflected on the Web Console display. The latest information can be displayed by performing the **Reload Conf.** operation for the target storage device.

9.10.1 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**.

9.10.2 Configure Connection Type for ETERNUS Disk Storage System

The procedure to configure the connection type for an 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**.

9.10.3 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**.
      When using the Storage Cluster Continuous Copy function, refer to [Point] later in this section to enter required information.

   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**.

Point

When using the Storage Cluster Continuous Copy function, perform the following procedure with step 5-b of "For Creating Copy Group". However, Storage Cluster must be preconfigured for the selected ETERNUS Disk storage system:

1. For **Copy Type**, select either "Clone(One Time)[OPC]", "Clone(Recurring)[QuickOPC]", or "Clone(Split Mirror)[EC]".
   The **Storage Cluster Continuous Copy** column is displayed.
2. Check the **Enable** checkbox to enable continuous copy.
3. Select the remote ETERNUS Disk storage system that is configured with Storage Cluster from the pull-down list.

Note

- When deleting the Storage Cluster environment, prior deletion of copy pairs/copy groups that contain TFOV (volumes that have "/TFOV" in the character string in the **Usage** column) is required.
- REC copy groups can be created or displayed if both the copy source and copy destination devices are registered using Web Console. If REC copy groups cannot be created or displayed using the procedure in this section, after registering the copy destination device using Web Console, perform the **Reload Conf.** operation for the copy source device.

9.10.4 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**.
   When using the Storage Cluster Continuous Copy function, refer to [Point] later in this section to select a copy group.
   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**.

Point

When using the Storage Cluster Continuous Copy function, specify the copy group that was enabled for the Storage Cluster Continuous Copy function when selecting a copy group in step 6. In this case, when selecting a copy pair in step 7, the volumes that can be specified as pairs are limited to TFOVs (volumes that have "/TFOV" in the character string in the **Usage** column).

Note

- 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 *AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

- When not using the Storage Cluster Continuous Copy function, do not specify TFOV for both copy source and copy destination. However, you can specify TFOV for either copy source or copy destination.

- In Web Console, backups for volume content to partitions using the LU to Partition function of AdvancedCopy Manager CCM is not supported. For the LU to Partition function, use the AdvancedCopy Manager CCM commands. Refer to "LU to Partition" in the *AdvancedCopy Manager Operation Guide for Copy Control Module* for information on using LU to Partition function.

- In an environment using the Copy command via LAN, creating lots of copy pairs all at once for the copy group of the SnapOPC+ copy type from Web Console may take some ten minutes to some hours to finish the processing. Consider the processing time to create copy pairs from Web Console or use the acpair add command to create copy pairs. Refer to "Command References" in the *AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

9.10.5 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.
      When using the Storage Cluster Continuous Copy function, refer to [Point] later in this section to select a copy group.

   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**.

Point

When using the Storage Cluster Continuous Copy function, specify the copy group that was enabled for the Storage Cluster Continuous Copy function when selecting a copy group in step 5-a of "For Adding Copy Pair". In this case, when selecting a copy pair in step 5-c of "For Adding Copy Pair", the volumes that can be specified as pairs are limited to TFOVs (volumes that have "/TFOV" in the character string in the **Usage** column).

Note

- 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 *AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

- When not using the Storage Cluster Continuous Copy function, do not specify TFOV for both copy source and copy destination. However, you can specify TFOV for either copy source or copy destination.

- When deleting the Storage Cluster environment, prior deletion of copy pairs/copy groups that contain TFOV (volumes that have "/TFOV" in the character string in the **Usage** column) is required.

- In Web Console, backups for volume content to partitions using the LU to Partition function of AdvancedCopy Manager CCM is not supported. For the LU to Partition function, use the AdvancedCopy Manager CCM commands. Refer to "LU to Partition" in the *AdvancedCopy Manager Operation Guide for Copy Control Module* for information on using LU to Partition function.

- REC copy pairs can be added or displayed if both the copy source and copy destination devices are registered using Web Console. If REC copy pairs cannot be added or displayed using the procedure in this section, after registering the copy destination device using Web Console, perform the **Reload Conf.** operation for the copy source device.

9.10.6 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**.

9.10.7 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**.

Point

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

9.10.8 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**.

Note

- If the Storage Cluster Continuous Copy function is in use and an unlinked copy session remains in the standby system, the copy session must be forcibly stopped. Refer to "When Recovering Storage Cluster Continuous Copy Function" in the *AdvancedCopy Manager Operation Guide* for details.
- In the following VVOL sessions, the value of the **Progress** field on the Copy Sessions screen may not reach 100 % depending on the data update status:
  - VVOL-Snapshot
  - VVOL-Fastclone

9.10.9 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.

9.10.10 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**.

9.10.11 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.

9.10.12 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 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 compression ratio is not set.
- To set a Bandwidth Limit with Web Console, both the local and remote disk storage systems must support Bandwidth Limit. Use ETERNUS Web GUI when setting a Bandwidth Limit for paths that are mixed with devices that do not support Bandwidth Limit.
- The copy destination device should have the same IP address version as the copy source device (both should have either IPv4 or IPv6).

9.10.13 Change the REC Path Settings

The procedure to change the REC path 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 **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 Main pane, check the target REC path checkbox.
6. On the Action pane, click **Modify** under **REC Path**.
   The Modify REC Path screen is displayed.
7. Enter the value to be changed, and then click **Modify**.

Point

To change the REC path settings with Web Console, at least one of the REC connection storage devices must support the REC path changing function.

9.10.14 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**.

9.10.15 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 is set to both of REC copy source and destination ETERNUS Disk storage systems when using the 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, refer to the hardware manual.

9.10.16 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 tab
   le 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**.

   ### Note

   After clicking **Next**, the following message may be displayed in a dialog box.

   ```
   After the operations in this wizard are completed, measure the round trip time separately.
   ```

   At this time, the state of the REC path in the storage device may take time to become normal due to the network environment and the distance between the Management Server and the target storage device. If the message is output, after performing the wizard operations described in this section until the end, measure the round trip time of the REC path with the following procedure.

   1. In the REC path details screen, make sure the **Status** column is "Normal".
      If it is not "Normal", wait until it becomes "Normal". Depending on the operating environment, it may take about 10 minutes to become "Normal".
   2. Measure the round trip time.
      Refer to "9.10.14 Measure Round Trip Time for REC Path" for information how to measure it.

   The measured state of the round trip time can be checked in the character string displayed in the **Round Trip Time (ms)** column on the REC path list screen.

Displayed Characters	Explanation
Numerical value	Measured round trip time.
Hyphen (-)	Measurement of the round trip time has not been performed.

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 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 compression ratio is not set.
- To set a Bandwidth Limit with Web Console, both the local and remote disk storage systems must support Bandwidth Limit. Use ETERNUS Web GUI when setting a Bandwidth Limit for paths that are mixed with devices that do not support Bandwidth Limit.
- The REC transfer buffer is set to both of REC copy source and destination ETERNUS Disk storage systems when using the 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, refer to the hardware manual.

9.10.17 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 of the Overview screen on the **Main** tab, 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**.

   ### 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.

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**.

   ### Information

   The transaction log file (.log) registered as backups by executing the backup wizard can be checked with the 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 process may be kept waiting. Therefore, when any backup script is being created, do not perform any other process.

Information

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 *AdvancedCopy Manager Operation Guide* for information on the command.

*1: Refer to "Fetching Device Information on Managed Server" in "Replication" in the *AdvancedCopy Manager Operation Guide* for information on fetching device information.

9.10.18 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 of the Overview screen on the **Main** tab, 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 1,024.
User Name	Required	Specify a user name of the backup server. The maximum length of the input character is 1,024. It is necessary to specify a name of the user with all the following authorities: - Exchange Server management role group "Organization Management" - Domain Admins
Password	Required	Specify a password for the user name of the backup server. The maximum length of the input character is 1,024.

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).

9.10.19 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 of the Overview screen on the **Main** tab, 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.

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 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)

Item Name	Specification	Explanation
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**.

- The instances that meet all the following conditions are displayed on the page:
  - An instance of SQL Server 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 depends 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 are displayed.
    When the physical node of a clustered configuration has been selected, only the instance of that physical node is displayed.
  - When a logical server has been selected
    Instances of clustered configurations are displayed.

7. The **Select of Database** page is displayed. Select the database to be backed up, and then click **Next**.

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**.

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.

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 is applied to the name of the script file that is generated in this task. If a script file of the same name (upper and lower case letters not distinguished) already exists, this results 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 is 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 process may be kept waiting. Therefore, when any backup script is being created, do not perform any other process.

- 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 *AdvancedCopy Manager Operation Guide* for information on the command.

  *1: Refer to "Fetching Device Information on Managed Server" in "Replication" in the *AdvancedCopy Manager Operation Guide* for information on fetching device information.

9.10.20 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 of the Overview screen on the **Main** tab, 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.

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. - *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

Item Name	Specification	Explanation
		- 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 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 depends 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 are displayed.
    When the physical node of a clustered configuration has been selected, only the instance of that physical node is displayed.
  - When a logical server has been selected
    Instances of clustered configurations are 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 are displayed together. Similarly, **Restore Method** and **Backup Date** are displayed together.
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 are also 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).

9.11 Operations for 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.

9.11.1 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.

9.11.2 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 the **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.

9.11.3 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 the **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**.

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.
- Refer to [Note] in "Connectivity Management" in the *Storage Cruiser Operation Guide* for the conditions related to the iSCSI port setting.
- If the port is iSCSI-RA, Transfer Rate and iSCSI Name cannot be changed by Web Console.
  If it needs to be changed, use ETERNUS Web GUI.

9.11.4 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.

9.11.5 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 the **Number of Hosts** field for the target host.

9.11.6 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

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.
- Refer to [Note] in "Connectivity Management" in the *Storage Cruiser Operation Guide* for the conditions related to the iSCSI host setting.

9.11.7 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 the **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**.

9.11.8 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 the **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.

9.11.9 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.

9.11.10 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 the **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.

9.11.11 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**.

9.11.12 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

From the **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.

Note

Operations that modify the affinity group for the BS2000 can be performed only in environments where the following storage devices are connected to the BS2000:

- ETERNUS DX S6/S5 series
- ETERNUS DX8000 S4 series
- ETERNUS DX S4/S3 series with a firmware version V10L80 or later (excluding the ETERNUS DX8000 S4 series)
- ETERNUS AF All-Flash Arrays with a firmware version V10L80 or later

9.11.13 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.

9.11.14 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**.

9.11.15 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.

9.12 Operations for Storage Device Component

9.12.1 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.

9.12.2 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.
   - If the storage device selected in step 2 is the ETERNUS DX900 S6/S5, DX8900 S6/S4, or DX8000 S3 series:
     The Controller Enclosure information is displayed on the Main pane.
     When selecting Controller Enclosure on the Main pane, the detailed information of selected Controller Enclosure is displayed.
   - If the storage device selected in step 2 is other than the above storage devices:
     The detailed information of Controller Enclosure is displayed on the Main pane.

9.12.3 Display Frontend Enclosure Information

The procedure to display the Frontend 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 **Frontend Enclosure**.
   The Frontend Enclosure information is displayed on the Main pane.

   Information

   If **Frontend Enclosure** in the Category pane is grayed out, the Frontend Enclosure is not installed in the storage device selected in step 2.

9.12.4 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.

9.12.5 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.

9.12.6 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, check 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**.

9.12.7 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.

9.12.8 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**.

9.12.9 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**.

9.12.10 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**.

9.13 Operations for Performance Management of Storage Device

This section describes the procedures when Detail View is used.
For the procedures on using the Performance tab of Dashboard, refer to "Chapter 7 Operations for Performance".

9.13.1 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.

9.13.2 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**.

9.13.3 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.

Point

- If you display the performance graph, the number of graphs that can be displayed simultaneously varies depending on the status of the ETERNUS SF Storage Cruiser Standard Edition license registration.
  - When the license is registered: 10 graphs
  - When the license is not registered: one graph

- 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 is 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.

9.13.4 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**.

Point

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**.

9.13.5 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**.

9.13.6 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**.

9.13.7 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**.

Point

- Enter Minimum Alarm Tolerance Time in the range of the Monitoring Interval Time value or more to the Minimum Threshold Monitoring Interval value or less.

- Enter Minimum Threshold Monitoring Interval in the range of the Minimum Alarm Tolerance Time value or more to 1,440 minutes or less.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.8 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**.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.9 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**.

Point

- Enter Minimum Alarm Tolerance Time in the range of the Monitoring Interval Time value or more to the Minimum Threshold Monitoring Interval value or less.
- Enter Minimum Threshold Monitoring Interval in the range of the Minimum Alarm Tolerance Time value or more to 1,440 minutes or less.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.10 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**.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.11 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**.

Point

- Enter Minimum Alarm Tolerance Time in the range of the Monitoring Interval Time value or more to the Minimum Threshold Monitoring Interval value or less.

- Enter Minimum Threshold Monitoring Interval in the range of the Minimum Alarm Tolerance Time value or more to 1,440 minutes or less.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.12 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**.

See

Refer to "Setting Threshold Monitoring Information" in the *Storage Cruiser Operation Guide* for details about input items about the Threshold Monitoring.

9.13.13 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**.

9.14 Operations for Automated Storage Tiering

See

Refer to the *Storage Cruiser Operation Guide for Optimization Function* for details about input items.

9.14.1 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

- 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. A working volume is a save volume used when the relocation is performed, it is also required to operate one layer Tier pool. The working volumes are 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:

Storage Device	Number of Working Volumes to be Required
ETERNUS DX100 S5/DX200 S5 ETERNUS DX100 S4/DX200 S4 ETERNUS DX100 S3/DX200 S3 ETERNUS DX80 S2/DX90 S2 ETERNUS AF150 S3/AF250 S3 ETERNUS AF250 S2 ETERNUS AF250	32
ETERNUS DX600 S6/DX900 S6, DX8900 S6 ETERNUS DX500 S5/DX600 S5/DX900 S5 ETERNUS DX500 S4/DX600 S4, DX8900 S4 ETERNUS DX500 S3/DX600 S3, DX8700 S3/DX8900 S3 ETERNUS DX400 S2 series, DX8000 S2 series ETERNUS AF650 S3 ETERNUS AF650 S2 ETERNUS AF650	64

- To disable Automated Storage Tiering, it is necessary to delete all Flexible Tier Pools (FTRPs).

9.14.2 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. Enter the necessary information, and then click **Create**.

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 are 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)

9.14.3 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.

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

Note

The **Policy Name** is cannot be changed.

9.14.5 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

The Tiering policy that is currently assigned to any Tier pool cannot be deleted.

9.14.6 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. Enter the necessary information, and then click **Next**.
7. The screen to configure the sub-pool is displayed.
   Enter the necessary information, and then click **Next**.
8. The information confirmation screen is displayed. Confirm the information, and then click **Create**.

Note

- For a Tier pool for which SED disk is selected in **Disk Type**, its encryption status is displayed as "No".
- When "Yes" is selected in **Encryption Status**, a Tier pool is encrypted by CM. Its encryption status is displayed as "Yes" or "Yes(CM)".
- When a FTV is created in a Tier pool encrypted by CM, the encryption status of the FTV is displayed as "Yes" or "Yes(CM)" on the Volume Overview screen.
- Depending on the device model and firmware version, SED disks are displayed as "NVMe SSD SED", "SED-SAS", "Online SED", "Nearline SED", or "SSD SED". "SED-SAS" and "Online SED" indicate the same disk.

9.14.7 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. Enter the necessary information, and then click **Next**.
7. The screen to configure the Low sub-pool is displayed.
   Enter the necessary information, and then click **Next**.
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, enter the necessary information, and then click **Next**.
9. The screen to configure the High sub-pool is displayed.
   Enter the necessary information, and then click **Next**.
10. The information confirmation screen is displayed. Confirm the information, and then click **Create**.

Note

- For a Tier pool for which SED disk is selected in **Disk Type**, its encryption status is displayed as "No".
- When "Yes" is selected in **Encryption Status**, a Tier pool is encrypted by CM. Its encryption status is displayed as "Yes" or "Yes(CM)".
- When a FTV is created in a Tier pool encrypted by CM, the encryption status of the FTV is displayed as "Yes" or "Yes(CM)" on the Volume Overview screen.
- Depending on the device model and firmware version, SED disks are displayed as "NVMe SSD SED", "SED-SAS", "Online SED", "Nearline SED", or "SSD SED". "SED-SAS" and "Online SED" indicate the same disk.

9.14.8 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.

9.14.9 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

- 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.

9.14.10 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**.

Point

About Access Status Data for Automated Storage Tiering

- By setting the access status data synchronization function to "enable", if Automated Storage Tiering of the synchronization target Tier pool is operating, when the Automated Storage Tiering of the Tier pool is started, the access status data synchronization process that is between the Tier pools starts. The synchronization target Tier pool can be checked with the **Operation History** screen.
- When Automated Storage Tiering for the Tier pools that are operating the access status data synchronization process is stopped, the access status data synchronization process is automatically stopped.

Note

- 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.
- To start the access status data synchronization process for Automated Storage Tiering, the Tier pools that include FTVs that are defined in the TFO group must have a one-to-one relationship between the Primary Storage and the Secondary Storage of the Storage Cluster environment. If a one-to-one relationship does not exist, review the settings of the Affinity/LUN group for each storage device.
- If the synchronization target Tier pool has been changed due to a change in the Storage Cluster settings while synchronizing the access status data, the access status data synchronization process is terminated. To restart the synchronization process, Automated Storage Tiering must be re-executed for the synchronization target Tier pool.
- If the TFO group where FTVs in a Tier pool belong was created/recreated after starting Automated Storage Tiering, the access status data synchronization process for that Tier pool is not performed. To perform the access status data synchronization, Automated Storage Tiering for one of the synchronization target Tier pools must be restarted.

9.14.11 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

- 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.

9.14.12 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. Enter the necessary information, and then click **Next**.
8. The screen to configure the sub-pool is displayed.
   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**.

9.14.13 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 about 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.
   - Assigned CM
   - Disk Selection
9. Enter the necessary information, and then click **Next**.
   The sub-pool information input screen is displayed.
10. Enter the necessary information, and then click **Next**.
11. The information confirmation screen is displayed. Confirm the information, and then click **Expand**.

Point

If **Balancing:Level** for the Tier pool is "Middle" or "Low" after performing the sub-pool capacity expansion, start the Tier pool balancing.

Note

- If any of the following conditions are satisfied, the **Balancing** checkbox becomes inactive (cannot be checked):
  - **Pool Status** of the target Tier pool is not "Available", "Partially Readying", or "Exposed".
  - **Operating Status** of the target Tier pool is "Start".
  - **Balancing:Status** of the target Tier pool is "Active" or "Error".
  - A Tier pool of an ongoing Tier pool balancing exists within the storage device.
  - FTVs do not exist in the target Tier pool.
- If a Tier pool balancing is performed simultaneously with a sub-pool capacity expansion, the process may take some time to complete. It may take a few minutes to a few hours depending on the usage capacity of each sub-pool within the Tier pool and the number of FTVs. If the usage capacity of each sub-pool and the number of FTVs are high, the process time should be taken into consideration when operating.

9.14.14 Delete RAID Group in Tier Pool

The procedure to delete a RAID group that constitutes 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 about 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 RAID group checkbox.
8. On the Action pane, click **Delete** under **RAID Group in Tier Pool**.
   The confirmation screen to delete the target RAID group is displayed.
9. Confirm the information, and then click **Delete**.

Note

Upon deletion of the RAID group that constitutes the Tier pool, Automated Storage Tiering may not be automatically started and may change the configurations of the Tier pool and FTV. Refer to "Deletion of RAID Groups" in the *Storage Cruiser Operation Guide for Optimization Function* for details.

9.14.15 Stop Deletion Process of RAID Group in Tier Pool

The procedure to stop the deletion process of a RAID group that constitutes 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 about 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 Action pane, click **Cancel Deleting** under **RAID Group in Tier Pool**.
   The confirmation screen to stop the deletion process of the target RAID group is displayed.
8. Confirm the information, and then click **Cancel Deleting**.

Note

If you stop the deletion process of the RAID group that constitutes the Tier pool, Automated Storage Tiering is not started.

9.14.16 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

The following Tier pools cannot be deleted:

- Tier pools on which any FTV is present
- Tier pools that have Virtual Volumes
- Tier pools in which Automated Storage Tiering has already been started
- Tier pools that have configured VVOL datastores
- Tier pools that have configured Clone backup VVOL datastores

9.14.17 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**.

9.14.18 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 process, the target FTRP is displayed on the Main pane.

9.14.19 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. Enter the necessary information, and then click **Create**.

9.14.20 Display FTV

The procedure to display the list/details about 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.

9.14.21 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

- 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 is 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.

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

9.14.23 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

- An FTV that is currently assigned to a server cannot be deleted.
- Virtual Volumes cannot be deleted.
  As an exception, Virtual Volumes with an "Unknown" VVOL type can be deleted. When deleting multiple Virtual Volumes, each one must be deleted individually since a batch delete is not possible.

9.14.24 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**.

Note

Virtual Volumes cannot be formatted.

9.14.25 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

9.14.26 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.

9.14.27 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

   On the Action pane, click **Execute** under **Automated Storage Tiering**.
   The relocation process is started.

   For Stopping of Relocation

   On the Action pane, click **Stop** under **Automated Storage Tiering**.
   The relocation process is stopped.

9.14.28 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**.

9.14.29 Start/Stop Tier Pool Balancing

The procedure to start/stop Tier pool balancing 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 Tier pool balancing

   a. On the Action pane, click **Start Balancing** under **Tier Pool**.
      The **Start Tier pool Balancing** page is displayed.
   b. Confirm the information, and then click **Start**.

   For Stopping of Tier pool balancing

   a. On the Action pane, click **Stop Balancing** under **Tier Pool**.
      The **Stop Tier pool Balancing** page is displayed.
   b. Confirm the information, and then click **Stop**.
7. On the Action pane, click **Status Update** under **Automated Storage Tiering**.
   On the Main pane, the target Tier pool **Balancing** information is updated.
8. To confirm the progress of the Tier pool balancing process, click the pool number of the target Tier pool on the Main pane.
   The details about the selected Tier pool are displayed in the Main pane.

   Check the progress in **Balancing:Progress** of the **Basic** tab screen.

9.15 Operations for NAS Management

9.15.1 Create Shared Folder

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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
e. Quota 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
Usage	This is an intended use of the shared folder to be created. File Sharing: Select this when sharing files and folders. Home Directory: Select this when it is an automatically created destination of home directory for user. Refer to the shared folder specification described in the ETERNUS Disk storage system manuals for details. If a shared folder by the name of "homes" exists in the storage device, "Home Directory" cannot be selected.
Shared Folder Name	This is the shared folder name. When "Home Directory" is selected for **Usage**, "homes" becomes fixed. The input conditions are as follows: - 1 to 76 characters - One-byte and UTF-8 double-byte characters are available. - Blank spaces and the following symbols are prohibited: **\ / : * ? " < > | = , ; [ ] % +** - The following names are prohibited regardless of case sensitivity: ".snap", "global", "homes", "printers", "ipc$", "."(one dot character), and ".." (two dot characters)

Item Name	Explanation
	- Setting character strings with "@gmt" as the prefix is prohibited regardless of case sensitivity. - Setting character strings with "$bak" as the suffix is prohibited. However, the folder name that can be used varies with the device model and firmware version. Refer to the shared folder specification described in the ETERNUS Disk storage system manual.
Protocol	This is the protocol type that the shared folder uses. When "Home Directory" is selected for **Usage**, "CIFS" becomes fixed.
Oplocks Setting	This is a setting of the Oplocks function to avoid the file access confliction. When "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.
SMB Encryption of Data Access	This sets the SMB encryption function. When "CIFS" is checked for **Protocol**, specification is required. When the SMB encryption function is enabled, communications between the client and the ETERNUS Disk storage system are encrypted. To use this function, the client must be compatible with SMB 3.0.
Access Based Enumeration	This sets the Access Based Enumeration (ABE) function. When "Home Directory" is selected for **Usage**, "Disable" becomes fixed. When "CIFS" is checked for **Protocol**, specification is required. When the ABE function is enabled, the folders and files that cannot be viewed by the user accessing the shared folder are not displayed.
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: - 1 to 16 alphanumeric characters (excluding **? * ,**)
NAS FS Block Size	This is a selection of NAS file system block sizes. When "New" is selected for **Destination NAS Volume to create Shared Folder**, specification is required. If you increase the block size, the maximum volume capacity and the maximum file size increases, but the capacity efficiency decreases.
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 300 GB is automatically allocated for the NAS volume. The input condition is as follows: - An integer from 400(GB) to 128(TB)

Item Name	Explanation
	However, the capacity that can be created as a file system varies with the device model, firmware version, and NAS file system block size. 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. The input conditions are as follows: - 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.
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.

Note

If **SMB Encryption of Data Access** is set to "Enable", clients that are incompatible with SMB 3.0 cannot access the shared folders.

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, are displayed.

Item Name	Explanation
	When NAS backup has already been set, the NAS backup volume which has been set is displayed.

Information

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, *2)
Copy Group Type	QuickOPC

*1: "*N*" is a sequential number from 0. The number of digits varies.

*2: Characters other than those listed below in *nasVolumeName* are replaced with hash (#):
One-byte alphanumeric character, minus (-), underscore (_), hash (#), period (.), plus (+)

- Copy Pair

Items	Value to Be Set
Source Volume	NAS volume
Destination Volume	NAS backup volume

6. Enter the necessary information, and then click **Next**.
The **Set Snapshot** page is displayed.

Item Name	Explanation
Using Automatic 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 Automatic Snapshot**, specification is required. The input condition is as follows: - An integer from 1 to 128

Item Name	Explanation
	The settable number of NAS snapshot generations varies with the device model and firmware version number, and with the total number of NAS snapshot generations specified for a target device. Set a value in this item for a target device so that the maximum settable number of NAS snapshot generations is not exceeded. The total number of NAS snapshot generations specified for a device means the sum of NAS snapshot generations set for all the NAS volumes in the device. The number of generations includes the number of generations taken in Automatic mode and the number of generations taken in Manual mode, as well. Refer to the NAS snapshot specification described in the ETERNUS Disk storage system manual for details. 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 Automatic Snapshot**, specification is required. - Cycle This is the selection of the cycle by which snapshot is collected. Daily: A snapshot is collected every day at the time selected in **Hours**. Weekly: A snapshot is 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 is 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 is collected. Check the checkbox for 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. 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 Automatic Snapshot**, specification is required. When there is only one RAID group, the RAID group is selected automatically. When the RAID group has already been set, only the set RAID group is displayed.

Point

- The snapshots are collected based on the time in the ETERNUS Disk storage system.
- When the selection for **Using Automatic Snapshot** has been changed from "No" to "Yes", collection of the snapshot is automatically started.

Information

When starting the use of NAS snapshot, a NAS snapshot volume is 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

Items	Value to Be Set
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: - 1 to 255 alphanumeric characters (excluding **? "**)
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: - 1 to 255 alphanumeric characters (excluding **? "**)
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: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0)
Denied Hosts	This is a denied access setting of the unit of host for the shared folder. When "CIFS" is checked for **Protocol** at step 4, specification is allowed. The input condition is as follows: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0)
root Access Allowed Hosts	This is an allowed access setting of the unit of host for the shared folder with root privileges. When "NFS" is checked for **Protocol** at step 4, specification is allowed. The input condition is as follows: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0)

Item Name	Explanation
	Only the hosts specified in NFS **Allowed Hosts** can be configured. For details about setting this item, refer to "Host Access Configurations of Shared Folder" in "Creating Shared Folder" in the chapter "Operation" in the Operation Guide (*Express Operation Guide* or *Storage Cruiser Operation Guide*) of the product in use.
Type	This is a target for CIFS access permission. When "Home Directory" is selected for **Usage** at step4, this item cannot be specified. When "CIFS" is checked for **Protocol** at step 4, specification is allowed. User: Select this when user is a target. Group: Select this when group is a target. Everyone: Select this when all users are a target. Handled as a group that all users belong to.
Name	This is a name of a target for CIFS access permission. When "Home Directory" is selected for **Usage** at step4, this item cannot be specified. When "CIFS" is checked for **Protocol** at step 4, specification is allowed. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**) - "Everyone" cannot be specified. - Case-insensitive - When specifying a trusted domain user/group for a target, it is necessary to enter the name in the form of "*domainName**targetName*".

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.

Denied Hosts Setting		Allowed 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	Deny Subnet A only. Permit all others.	Permit all addresses.	Deny Subnet A only. Permit all others.	Deny Subnet A only.

Denied Hosts Setting		Allowed Hosts Setting				
		Specified (specify the address below)				Not specified
		IP Address A	IP Address B	Subnet A	Subnet B	-
		A. Permit all others.				Permit all others
	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.

- The CIFS access permission settings are used according to the following rules:
  - When accessing a shared folder for which **Type** and **Name** are set with CIFS protocol, the settings of write permission is ignored.
  - When **Type** and **Name** are set for a shared folder, an unspecified user/group cannot access the shared folder with CIFS protocol.
  - When "Everyone" is specified for **Type**, the same access permission level is set for all users.
  - When other access permission level is specified for a user and a group that the user belongs to, priority is given to "Read/Write".

Access conditions for shared folders with CIFS protocol based on the above rules are as follows.
In the table, "Read Only" is abbreviated to "RO" and "Read/Write" to "RW".

Settings					CIFS Access Permission to be Set				
Writable	User		Group		group-A		group-B		User Other Than on The Left
	Read Only	Read/Write	Read Only	Read/Write	user-A	User Other Than user-A	user-B	User Other Than user-B	
No	-	-	-	-	RO	RO	RO	RO	RO
Yes	-	-	-	-	RW	RW	RW	RW	RW
No	-	-	-	Everyone	RW	RW	RW	RW	RW
Yes	-	-	Everyone	-	RO	RO	RO	RO	RO
No	-	user-A	-	-	RW	-	-	-	-
Yes	user-B	-	-	-	-	-	RO	-	-
No	-	-	-	group-A	RW	RW	-	-	-
Yes	-	-	group-A	-	RO	RO	-	-	-
No	-	user-A	-	group-B	RW	-	RW	RW	-
Yes	user-B	-	-	group-A	RW	RW	RO	-	-
Yes	-	user-A	group-A	-	RW	RO	-	-	-
Yes	user-A	-	-	group-A	RW	RW	-	-	-

Settings					CIFS Access Permission to be Set				
Writable	User		Group		group-A		group-B		User Other Than on The Left
	Read Only	Read/Write	Read Only	Read/Write	user-A	User Other Than user-A	user-B	User Other Than user-B	
Yes	user-A	-	-	Everyone	RW	RW	RW	RW	RW
Yes	-	user-A	Everyone	-	RW	RO	RO	RO	RO

8. Enter the necessary information, and then click **Next**.
The Quota Setting screen 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: - 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: - 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: - 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: - An integer from 0 to 134,217,723 If Zero (0) is specified, a limit value is not set (no limit).

Point

- When Zero (0) is entered in all the above items, quota settings for the shared folder are not executed.
- 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 shared folder.

9. Enter the necessary information, and then click **Next**.
The information confirmation screen is displayed.
10. 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 process. 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 recreate the NAS volume, try to create it again after deleting the remained NAS volume from the Volume Management screen. Refer to "9.7.3 Delete Volume" for information on how to delete the NAS volume.

9.15.2 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.

Information

The size displayed in **NAS Volume Total Free Space** excludes the access client reserved area. The access client reserved area is an area that a certain amount of capacity is secured in advance by a file system to write out data efficiently and its capacity is 1.5 to 6.0 GB according to the size of the NAS volume.

9.15.3 Change Shared Folder

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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, check the target shared folder checkbox.
5. Perform the following procedures according to the operation purpose.

   For Changing Owner/Group, Host Access Settings, or CIFS Access Permission Settings

   On the Action pane, click **Modify Access Setting** under **Shared Folder**.
   The Changes the Access Setting page is displayed.

Item Name	Explanation
Owner	This is an owner to whom the access privilege for the shared folder is given. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**)
Group	This is a group to which the access privilege for the shared folder is given. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**)
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: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0)
Denied Hosts	This is a denied access setting of the unit of host for the shared folder. When the protocol is CIFS or CIFS/NFS, specification is allowed. The input condition is as follows: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0)
root Access Allowed Hosts	This is an allowed access setting of the unit of host for the shared folder with root privileges. When the protocol is NFS or CIFS/NFS, specification is allowed. The input condition is as follows: - 1 to 1,023 alphanumeric characters (excluding **? "**) Specify by the following formats. To specify more than one, input a comma (,) as delimiter. - Single specification (Example: 192.0.2.10) - Subnet specification (Example: 192.0.2.0/255.255.255.0) Only the hosts specified in NFS **Allowed Hosts** can be configured.

Item Name	Explanation
	For details about setting this item, refer to "Host Access Configurations of Shared Folder" in "Creating Shared Folder" in the chapter "Operation" in the Operation Guide (*Express Operation Guide* or *Storage Cruiser Operation Guide*) of the product in use.
Type	This is a target for CIFS access permission. When the shared folder name is "homes" (shared folder for home directory), this item cannot be specified. When the protocol is CIFS or CIFS/NFS, specification is allowed. User: Select this when user is a target. Group: Select this when group is a target. Everyone: Select this when all users are a target. Handled as a group that all users belong to.
Name	This is a name of a target for CIFS access permission. When the shared folder name is "homes" (shared folder for home directory), this item cannot be specified. When the protocol is CIFS or CIFS/NFS, specification is allowed. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**) - "Everyone" cannot be specified. - Case-insensitive - When specifying a trusted domain user/group for a target, it is necessary to enter the name in the form of "*domainName**targetName*".

See

For access conditions to a shared folder based on settings of **Allowed Hosts** and **Denied Hosts** and access conditions to a shared folder with CIFS protocol based on settings of CIFS access permission, refer to [Information] in step 7 in "9.15.1 Create Shared Folder".

For Changing Settings Other Than Owner/Group, Host Access Settings, and CIFS Access Permission Settings

On the Action pane, click **Modify Basic Setting** under **Shared Folder**.
The Changes the Basic 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 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.
SMB Encryption of Data Access	This sets the SMB encryption function. When the protocol is CIFS or CIFS/NFS, specification is required. When the SMB encryption function is enabled, communications between the client and the ETERNUS Disk storage system are encrypted. To use this function, the client must be compatible with SMB 3.0.
Access Based Enumeration	This sets the Access Based Enumeration (ABE) function. When the shared folder name is "homes" (shared folder for home directory), this item

Item Name	Explanation
	cannot be changed. When the protocol is CIFS or CIFS/NFS, specification is required. When the ABE function is enabled, the folders and files that cannot be viewed by the user accessing the shared folder are not displayed.
Writeable	This is a selection whether to be able to write to the shared folder. When the shared folder name is "homes" (shared folder for home directory), this item cannot be changed.

Note

If **SMB Encryption of Data Access** is set to "Enable", clients that are incompatible with SMB 3.0 cannot access the shared folders.

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

Information

When the shared folder configuration is changed, sharing is temporarily stopped.

9.15.4 Delete Shared Folder

Point

- This operation is available only for the following storage devices installed with the NAS option.
  - ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
  - ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3
- If you delete the shared folder for home directory "homes", before performing the following steps, use the Clear NAS Data function of the ETERNUS Disk storage system to delete all the files and folders (including home directory) under "homes". Refer to the ETERNUS Disk storage system manuals for details about the Clear NAS Data function.

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, check 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**.

9.15.5 Start/Stop Sharing

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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, check 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**.

9.15.6 Create NAS Interface

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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.

Item Name	Explanation
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 primary 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 is not 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 primary port exists - Port to which a NAS interface has already been allocated - A duplicated port - A primary port 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
M	-	-	-	Member port to which a NAS interface has not been allocated	N/A	N/A	A (*3)
P	-	-	-	Primary port to which a NAS interface has not been allocated	A	A	N/A
P	-	Y	No	Primary port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A	N/A
P	-	Y	Yes	Primary port to which a NAS interface having a VLAN ID has been allocated	A	A	N/A
P	-	Y	Mix	Primary 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
P	Y	-	-	Primary and standby port to which a NAS interface has not been allocated	A	A (*2)	N/A
P	Y	Y	No	Primary and active port to which a NAS interface not having a VLAN ID has been allocated	A (*1)	A (*2)	N/A
P	Y	Y	Yes	Primary and active port to which a NAS interface having a VLAN ID has been allocated	A	A (*2)	N/A
P	Y	Y	Mix	Primary 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 is only 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 is displayed.
*3: Only the member port configured to the allocation port is displayed.

The meaning of the "Port Configuration Status" in the above table is as follows:

- Port Bonding

  M: A status of being configured to the member port
  P: A status of being configured to the primary 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 are 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:

Item Name	Explanation
	- *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: - 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: - An integer from 1 to 4,094

Point

The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.10 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**.

9.15.7 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.

9.15.8 Change NAS Interface

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4

- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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, check 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: - 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 primary 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 is not 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 primary port exists

Item Name	Explanation
	- Port to which a NAS interface has already been allocated - A duplicated port - A primary port 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 IEEE802.3ad.

Information

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
-	Y	Y	Active port	A	N/A	A	N/A	N/A
P	-	Y	Primary port	A	N/A	A	A	A
P	Y	Y	Primary 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

  P: A status of being configured to the primary 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 "9.15.6 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.

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. 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: - An integer from 3 to 128

Point

The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.10 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**.

9.15.9 Delete NAS Interface

Point

This operation is available only for the following storage devices installed with the NAS option.

- ETERNUS DX100 S4/DX200 S4, DX500 S4/DX600 S4
- ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3

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, check 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.

9.15.10 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 conditions are as follows: - 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**.

9.15.11 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)
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)

Point

- 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**.

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

Information

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 Web Console.

9.15.12 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: - 1 to 255 alphanumeric characters (excluding **? "**)
Domain Administrator	This is an administrator name of the domain in which it participates. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**)
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: - 1 to 255 alphanumeric characters (excluding **? "**)
Authentication Server	This is an IP address or FQDN of the authentication server. FQDN can be input when a DNS server is set. 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 1 to 255 alphanumeric characters, dot (.), hyphen (-)

Point

- The IPv6 address can be input in abbreviated notation. Refer to "Configuration" of "3.5.10 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

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

Point

To delete the authentication server configuration, click **Set** after deleting all of values for domain information and authentication server information.

9.15.13 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.

9.15.14 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, check 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 are displayed.

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

Information

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 "9.15.1 Create Shared Folder" for details.

9.15.15 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.

9.15.16 Delete NAS Backup Settings

The procedure to delete the NAS backup 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 **Backup Management**.
   The backup information of NAS volumes is displayed on the Main pane.
5. On the Main pane, check the target NAS volume checkbox.
6. On the Action pane, click **Delete NAS Backup** under **NAS Backup**.
   The Delete Backup Setting of NAS Volume page is displayed.

Item Name	Explanation
Delete NAS Backup Volume	Select "Yes" when deleting the NAS backup volume. If a copy group and copy pair do not exist between the NAS volume and the NAS backup volume, this item cannot be selected.

7. Check that the selected NAS volume is correct, and then click **Delete**.
   The warning dialog box is displayed.
   After confirming that there are no problems by deleting the NAS backup settings, click **OK**.

Note

- Copy sessions that exist between the NAS volume and the NAS backup volume are forcibly stopped.
  If a NAS backup volume remains, delete the NAS backup settings when there are no physical copy sessions or copy sessions in an error state.
- When using the secondary backup or the inter-box backup/restore of NAS volume, stop the copy session in advance.

- Do not delete the NAS backup settings related to that NAS volume while restoring the NAS volume. If deleted, the NAS volume data is not guaranteed.

9.15.17 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, check 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**.
   The warning dialog box is displayed.
   After confirming that there are no problems by performing the backup, click **OK**.

Information

- 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.

9.15.18 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, check 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**.
   The warning dialog box is displayed.
   After confirming that there are no problems by performing the restore, click **OK**.

Information

- 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.

9.15.19 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, check 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

When the backup has not been performed, the backup destination volume cannot be mounted.

Note

If an error occurs in the storage device when you unmount the NAS backup volume, Web Console may display that the NAS backup volume is mounted even though it is unmounted in the storage device. In this case, by unmounting the NAS backup volume again, Web Console displays the unmounted state.

9.15.20 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, check the target NAS volume checkbox.
6. On the Action pane, click **Set** under **Automatic Snapshot**.
   The Set Automatic Snapshot page is displayed.

Item Name	Explanation
Using Automatic 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 Automatic Snapshot**, specification is required. The input condition is as follows: - An integer from 1 to 128 The settable number of NAS snapshot generations varies with the device model and firmware version number, and with the total number of NAS snapshot generations specified for a target device. Set a value in this item for a target device so that the maximum settable number of NAS snapshot generations is not exceeded. The total number of NAS snapshot generations specified for a device means the sum of NAS snapshot generations set for all the NAS volumes in the device. The number of generations includes the number of generations taken in Automatic mode and the number of generations taken in Manual mode, as well. Refer to the NAS snapshot specification described in the ETERNUS Disk storage system manual for details.
Schedule Setting	This is the configuration of the schedule for collecting the snapshot. When "Yes" is selected for **Using Automatic Snapshot**, specification is required. - Cycle This is the selection of the cycle by which snapshot is collected. Daily: A snapshot is collected every day at the time selected in **Hours**. Weekly: A snapshot is 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 is 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 is collected. Check the checkbox for 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 Automatic Snapshot**, specification is required. When there is only one RAID group, the RAID group is selected automatically. When the RAID group has already been set, only the set RAID group is displayed.

Note

When the selection for **Using Automatic Snapshot** has been changed from "Yes" to "No", snapshots that have already been collected are deleted. Also, the NAS snapshot volume is deleted.

Point

- The snapshots are 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 Automatic Snapshot** to "No" and reset after having stopped the operation.

Information

When the selection for **Using Automatic Snapshot** has been changed from "No" to "Yes" or number of snapshot generations has been increased, NAS snapshot volume is automatically created. Refer to [Information] in step 6 in "9.15.1 Create Shared Folder".

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

Point

When the selection for **Using Automatic Snapshot** has been changed from "No" to "Yes", collection of the snapshot is automatically started.

9.15.21 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.

In the **Mode** field in the **Snapshot** tab, either of the following strings is displayed.

Displayed Strings	Explanation
Automatic	This is displayed for Automatic mode that collects snapshots according to the schedule set from Web Console or ETERNUS Disk storage system.
Manual	This is displayed for Manual mode that collects snapshots at any timing from the VMware vSphere Web Client. Refer to the ETERNUS Disk storage system manuals for details.

Point

To check a list of snapshots collected in Manual mode, perform the **Reload Conf.** operation for a target ETERNUS Disk storage system. Refer to "9.1.9 Reload ETERNUS Disk Storage System Configuration Information" for information on how to perform the **Reload Conf.** operation for the ETERNUS Disk storage system.

9.15.22 Start/Stop Automatic Snapshot Collection

The procedure to start/stop the automatic 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, check the target NAS volume checkbox.
6. Perform the following procedures according to the operation purpose.

   For Starting of Automatic Snapshot Collection

   a. On the Action pane, click **Start** under **Automatic Snapshot**.
      The Start Snapshot page is displayed.
   b. Check that the selected NAS volume is correct, and then click **Start**.

   For Stopping of Automatic Snapshot Collection

   a. On the Action pane, click **Stop** under **Automatic Snapshot**.
      The Stop Snapshot page is displayed.
   b. Check that the selected NAS volume is correct, and then click **Stop**.

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

   On a per User/Group Basis

   On the Action pane, click **Add** under **Quota Setting (User/Group)**.
   The Add Quota page for the user/group 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. Enter the user or group name set to the authentication server. The input condition is as follows: - 1 to 255 alphanumeric characters (excluding **? "**). ("root" cannot be set.) - When specifying a trusted domain user/group, it is necessary to enter the name in the form of "*domainName**targetName*".
Type	This is a selection of the type of quota target.

Item Name	Explanation
	User: Select this when quota target is a user name. Group: Select this when quota target is a group name. The quota setting for a group is enabled only when accessing with NFS protocol.
Disk Space (Warning)	This is a warning value of disk space usage set to quota target. The input condition is as follows: - 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: - 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: - 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: - An integer from 0 to 134,217,723 If Zero (0) is specified, a limit value is not set (no limit).

On a per Shared Folder Basis

a. On the **Shared Folder** tab, check the target shared folder checkbox.

b. On the Action pane, click **Add** under **Quota Setting (Shared Folder)**.
The Add Quota page for the shared folder 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: - 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: - 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:

Item Name	Explanation
	- 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: - 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**.

Point

- Quota can be set for users, groups, and shared folders that are registered to the authentication server.
- When accessing a shared folder with CIFS protocol, quotas can be set for users and shared folders.
  When accessing a shared folder with NFS protocol, quotas can be set for users, groups, and shared folders.
- 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.

9.15.24 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
User/Group	The information of quota setting and usage status for the user/group is displayed.
Shared Folder	The information of quota setting and usage status for the shared folder is displayed.
Log	Event log indicating that a quota warning value has been exceeded and a limit value has been exceeded is displayed.

Point

In **Used Status** of the **User/Group** tab or the **Shared Folder** tab, the following status is displayed according to the disk usage and the number of files.

Status	Explanation
Normal	Disk usage and the number of files are normal, which is below the warning value.

Status	Explanation
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 are not 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.

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

   On a per User/Group Basis

   a. On the **User/Group** tab, check the target quota setting checkbox.

   b. On the Action pane, click **Modify** under **Quota Setting (User/Group)**.
      The Modify Quota page for the user/group is displayed.

   On a per Shared Folder Basis

   a. On the **Shared Folder** tab, check the target shared folder checkbox.

   b. On the Action pane, click **Modify** under **Quota Setting (Shared Folder)**.
      The Modify Quota page for the shared folder 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: - An integer from 0 to **Disk Space (Limit)**

Item Name	Explanation
	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: - 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: - 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: - 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 **Modify**.

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

   On a per User/Group Basis

   a. On the **User/Group** tab, check the target quota setting checkbox.
   b. On the Action pane, click **Delete** under **Quota Setting (User/Group)**.
      The Delete Quota page for the user/group is displayed.

   On a per Shared Folder Basis

   a. On the **Shared Folder** tab, check the target shared folder checkbox.
   b. On the Action pane, click **Delete** under **Quota Setting (Shared Folder)**.
      The Delete Quota page for the shared folder is displayed.

6. Check that the selected quota setting is correct, and then click **Delete**.

9.16 Operations for Automated QoS

9.16.1 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**.

Information

The QoS enable/disable state of the ETERNUS Disk storage system can be checked with ETERNUS Web GUI or the command.

9.16.2 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 **Tune by Quota Share** can be specified. If select "Enable" and not specify **Automated QoS:Priority** or **Target Response Time**, the device is affected by the adjustments by the Automated QoS function of the other volumes to which those items are specified. If select "Disable", the values set in **Automated QoS:Priority**, **Target Response Time**, or **Tune by Quota Share** are discarded and the QoS performance setting of the ETERNUS Disk storage system is set to Limitless (0). 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 is performed in accordance with the current load. When "Unlimited" has been selected, this is of the topmost priority and of the volumes

Item Name	Explanation
	sharing the same resources, performance is the highest. When "No Set" is selected, there is no priority and therefore adjustments are 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 - 10,000, specify the target value (millisecond) of the response time of the volume the user is using. When "0" has been specified, the bandwidth of the volume concerned is unlimited. Although a space may be entered, when a space is entered, a target response time is not configured for that volume. Accordingly, the response time depends 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.
Tune by Quota Share	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 is 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".

9.17 Operations for Reporting

9.17.1 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**.

9.18 Operations for Storage Cluster

Refer to "Operation Method" in the Chapter "Storage Cluster Function" in the *Storage Cruiser Operation Guide* for information on the procedures related to Storage Cluster.

9.19 Operations for VMware vSphere Virtual Volumes Function

9.19.1 Create Tier Pool for Configuring VVOL Datastore / Clone Backup VVOL Datastore

The procedure to create a Tier pool for configuring the VVOL datastore or Clone backup VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The VVOL datastore list is displayed on the Main pane.
3. On the Action pane, click **Create** or **Create (One Layer)** under **Tier Pool**.
   Click **Create** if you use the Automated Storage Tiering function, and click **Create (One Layer)** if you do not use that function.
   The Select Disk Array page is displayed.
4. Select the ETERNUS Disk storage system for creating the Tier pool, and then click **Next**.
   The information input screen is displayed.
5. Refer to "9.14.7 Create Tier Pool" to enter the necessary information, and then click **Next**.
6. The information confirmation screen is displayed. Confirm the information, and then click **Create**.

Point

Tier pools that are created by the above-described operation can be confirmed in the Tier pools list screen of Automated Storage Tiering. Refer to "9.14.8 Display Tier Pool" for information on how to display the Tier pools list screen.

9.19.2 Operations for VVOL Datastore

9.19.2.1 Create VVOL Datastore

The procedure to create a VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The VVOL datastore list is displayed on the Main pane.
3. On the Action pane, click **Create / Modify** under **VVOL Datastore**.
   The Specify VVOL Datastore Information page is displayed.
4. Input a VVOL datastore name.
   In addition, select the Tier pool for adding to the VVOL datastore from the Tier Pool List, and then click **Add**.
   When the input is completed, click **Next**.
5. The information confirmation screen is displayed. Confirm the information, and then click **Create / Modify**.

Point

- A VVOL datastore that is configured with multiple Tier pools can be created. However, Tier pools that exist within different ETERNUS Disk storage systems in a single VVOL datastore cannot be mixed.

When creating a VVOL datastore that is configured with multiple Tier pools, specify Tier pools that exist within the same ETERNUS Disk storage system.

- VVOL datastores can be configured of a maximum of 16 Tier pools.
- Multiple VVOL datastores can share the same Tier pools as desired. A maximum of 16 can be shared.
- Up to a total of 1023 VVOL datastores or Clone backup VVOL datastores can be created.
- A name of up to 16 characters can be applied to a VVOL datastore. Characters that can be used in names are alphanumerical characters, sharps (#), hyphens (-), and underscores (_). Names are not case-sensitive. Names starting with "POOLGROUP" cannot be configured.

Information

The VVOL datastore created by the above operation can be selected when creating Virtual Volumes from VMware vCenter Server after setting the VVOL access path.

9.19.2.2 Change VVOL Datastore

The procedure to change the VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The VVOL datastore list is displayed on the Main pane.
3. On the Main pane, check the target VVOL datastore checkbox.
4. On the Action pane, click **Create / Modify** under **VVOL Datastore**.
   The Specify VVOL Datastore Information page is displayed.
5. Perform the following procedures according to the operation purpose.

   For Adding Tier Pool

   Select the Tier pool for adding to the VVOL datastore from the Tier Pool List, and then click **Add**.

   For Deleting Tier Pool

   Select the target Tier pool from the **Tier Pool Configuration of VVOL Datastore**, and then click **Remove**.

   For Changing VVOL Datastore Name

   Input a new name.

   When the input is completed, click **Next**.
6. The information confirmation screen is displayed. Confirm the information, and then click **Create / Modify**.

Point

- A VVOL datastore that is configured with multiple Tier pools can be created. However, Tier pools that exist within different ETERNUS Disk storage systems in a single VVOL datastore cannot be mixed.
  When creating a VVOL datastore that is configured with multiple Tier pools, specify Tier pools that exist within the same ETERNUS Disk storage system.
- Tier pools where Virtual Volumes are created cannot be deleted. When deleting Tier pools where Virtual Volumes have been created, delete the Tier pool after deleting all Virtual Volumes.

9.19.2.3 Delete VVOL Datastore

The procedure to delete the VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Datastore**.
   The VVOL datastore list is displayed on the Main pane.
4. On the Main pane, check the target VVOL datastore checkbox.
5. On the Action pane, click **Delete** under **VVOL Datastore**.
   The Delete VVOL Datastore page is displayed.
6. Confirm that the target VVOL datastore is displayed, and then click **Delete**.

Note

The VVOL datastore that Virtual Volumes are created cannot be deleted.

9.19.3 Operations for Clone Backup VVOL Datastore

Point

To use a clone backup of the Virtual Machine backup, a Clone backup VVOL datastore is required. Create one Clone backup VVOL datastore for each ETERNUS Disk storage system that the target virtual machine of the clone backup is connected.

9.19.3.1 Create Clone Backup VVOL Datastore

The procedure to create a Clone backup VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The VVOL datastore list is displayed on the Main pane.
3. On the Action pane, click **Create / Modify** under **for Clone Backup**.
   The Specify VVOL Datastore Information for Clone Backup page is displayed.
4. Input a Clone backup VVOL datastore name.
   In addition, select the Tier pool to add to the Clone backup VVOL datastore from the Tier Pool List, and then click **Add**. Select a Tier pool that exists in the ETERNUS Disk storage system where the virtual machine is connected to.
   When the input is completed, click **Next**.
5. The information confirmation screen is displayed. Confirm the information, and then click **Create / Modify**.

Point

- By specifying the Clone backup VVOL datastore that are created with this operation, a Virtual Volume cannot be created.
- A Clone backup VVOL datastore that is configured with multiple Tier pools can be created. However, Tier pools that exist within different ETERNUS Disk storage systems in a single Clone backup VVOL datastore cannot be mixed. When creating a Clone backup VVOL datastore that is configured with multiple Tier pools, specify Tier pools that exist within the same ETERNUS Disk storage system.
- Clone backup VVOL datastores can be created one at a time in each ETERNUS Disk storage system. However, this area is only valid for Virtual Volumes that are created in the same ETERNUS Disk storage system.
- Clone backup VVOL datastores can be configured of a maximum of 16 Tier pools.
- Multiple Clone backup VVOL datastores can share the same Tier pools as desired. A maximum of 16 can be shared.

- Up to a total of 1023 Clone backup VVOL datastores or VVOL datastores can be created.
- A name of up to 16 characters can be applied to a Clone backup VVOL datastore. Characters that can be used in names are alphanumerical characters, sharps (#), hyphens (-), and underscores (_). Names are not case-sensitive. Names starting with "POOLGROUP" cannot be configured.

9.19.3.2 Change Clone Backup VVOL Datastore

The procedure to change the Clone backup VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The VVOL datastore list is displayed on the Main pane.
3. On the Main pane, check the target Clone backup VVOL datastore checkbox.
4. On the Action pane, click **Create / Modify** under **for Clone Backup**.
   The Specify VVOL Datastore Information for Clone Backup page is displayed.
5. Perform the following procedures according to the operation purpose.

   For Adding Tier Pool

   Select the Tier pool for adding to the Clone backup VVOL datastore from the Tier Pool List, and then click **Add**.

   For Deleting Tier Pool

   Select the target Tier pool from the **Tier Pool Configuration of VVOL Datastore for Clone Backup**, and then click **Remove**.

   For Changing Clone Backup VVOL Datastore Name

   Input a new name.

   When the input is completed, click **Next**.
6. The information confirmation screen is displayed. Confirm the information, and then click **Create / Modify**.

Point

- A Clone backup VVOL datastore that is configured with multiple Tier pools can be created. However, Tier pools that exist within different ETERNUS Disk storage systems in a single Clone backup VVOL datastore cannot be mixed. When creating a Clone backup VVOL datastore that is configured with multiple Tier pools, specify Tier pools that exist within the same ETERNUS Disk storage system.
- Tier pools where Virtual Volumes are created cannot be deleted. When deleting Tier pools where Virtual Volumes have been created, delete the Tier pool after deleting all Virtual Volumes.

9.19.3.3 Delete Clone Backup VVOL Datastore

The procedure to delete the Clone backup VVOL datastore is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Datastore**.
   The VVOL datastore list is displayed on the Main pane.
4. On the Main pane, check the target Clone backup VVOL datastore checkbox.
5. On the Action pane, click **Delete** under **for Clone Backup**.
   The Delete VVOL Datastore for Clone Backup page is displayed.

6. Confirm that the target Clone backup VVOL datastore is displayed, and then click **Delete**.

Note

The Clone backup VVOL datastore that Virtual Volumes are created cannot be deleted.

9.19.4 Operations for VVOL Access Path

VVOL access path is the connection setting for the VMware host, FC switch, and the ETERNUS Disk storage system. The setting is necessary in order to recognize the created VVOL datastore in the VMware host.

9.19.4.1 VVOL Access Path Setting

The procedure to set a VVOL access path is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Access Path**.
   The VVOL access path list is displayed on the Main pane.
4. On the Action pane, click **Set** under **VVOL Access Path**.
5. The Welcome page is displayed. Click **Next**.
   The Specify Disk Array and Server page is displayed.
6. Select the ETERNUS Disk storage system and server for setting the VVOL access path, and then click **Next**.
   The Specify HBA and Port HBA page is displayed.
7. When performing an FC switch zoning setting, select "Yes", otherwise select "No".

   Perform the following operations for each HBA.

   a. Check the **Set Access Path** checkbox for the HBA where the access path setting is performed.

   b. Click **Connect** for the HBA that was loaded in the VMware host.
      In the displayed dialog box, check the checkbox for the port of the connection target ETERNUS Disk storage system and then click **OK**.

   c. Refer to the ETERNUS Disk storage system manuals and specify the host response that corresponds to the server.

   When the input is completed, click **Next**.
8. The information confirmation screen is displayed. Confirm the information, and then click **Set**.

Point

The FC switch between the VMware host and the ETERNUS Disk storage system is registered as a device and when selected to perform as a zoning settings in step 7, the zoning of this FC switch is automatically configured.

9.19.4.2 Change VVOL Access Path

When Replacing FC HBA of Management Target VMware Host

After replacing the HBA hardware for the same slot on the server, perform an access path inheritance. When performing an access path inheritance, an inheritance is also performed for the access path that is set for the same server HBA and disk storage system port. Refer to "11.4.7 Inherit Access Path" for information on the access path inheritance procedure.

When changing the connection to an FC HBA of a different slot on the server, delete the VVOL access path, and after changing the access path, perform a VVOL access path reconfiguration. Refer to "9.19.4.3 Delete VVOL Access Path", "11.4.5 Change Access Path", and "9.19.4.1 VVOL Access Path Setting" for information on the various operations.

When Replacing iSCSI HBA of Management Target VMware Host

For the replaced iSCSI HBA, set with the same iSCSI Name and IP address that was set before the replacement. An access path inheritance operation is not required.

When Changing Connection Ports for Same HBA

After deleting the VVOL access path and the access path, set the access path and VVOL access path again. Refer to "9.19.4.3 Delete VVOL Access Path", "11.4.4 Delete Access Path", "11.4.2 Add Access Path to ETERNUS Disk Storage System" and "9.19.4.1 VVOL Access Path Setting" for information on the various operations.

9.19.4.3 Delete VVOL Access Path

The procedure to delete the VVOL access path is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Access Path**.
   The VVOL access path list is displayed on the Main pane.
4. On the Main pane, check the target VVOL access path checkbox.
5. On the Action pane, click **Delete** under **VVOL Access Path**.
   The Delete VVOL Access Path page is displayed.
6. Confirm that the target VVOL access path is displayed, and then click **Delete**.

Point

- In environments in which multipath is not configured, the VVOL access path in use (path that the virtual machine is operating) cannot be deleted. In environments in which multipath is configured, VVOL access paths can be deleted until there is only one VVOL access path remaining.
- In an environment in which both an access path and a VVOL access path are set, if only one of access paths is deleted, FC switch zoning is not deleted. In both the access path and the VVOL access path are deleted, zoning is deleted.

9.19.4.4 Update VVOL Access Path Status

The VVOL access path status is updated only when reloading the configurations for both the related ETERNUS Disk storage system and the servers. However, by performing an operation for updating the VVOL access path status, the latest status of the VVOL access path can be checked.
Update the VVOL access path status for the following situations:

- When setting/changing/deleting the VVOL access path
- When notified of an event that is related to a device or part that is related to the VVOL access path

The procedure to update the VVOL access path status is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Access Path**.
   The VVOL access path list is displayed on the Main pane.

4. On the Action pane, click **Reload** under **VVOL Access Path**.

Information

When performing this operation, the VVOL access path status and access path status are updated simultaneously.

9.19.5 Operations for Virtual Volume

Virtual Volumes cannot be created/changed/deleted from Web Console. Refer to the VMware vCenter Server manuals and perform the operation.
However, Virtual Volumes where the management information (metadata) is broken can be deleted from Web Console.

9.19.5.1 Display Virtual Volume

The procedure to display the Virtual Volumes is as follows:

- To view a list of Virtual Volumes created in a specific VVOL datastore

  1. On the global navigation tab, click **Storage**.
  2. On the Category pane, click **VVOL Management**.
     The VVOL datastore list is displayed on the Main pane.
  3. On the Main pane, click the VVOL datastore that the Virtual Volume has been created.
  4. On the Main pane, click the **Virtual Volume** tab.
     The list of Virtual Volumes that are created in the selected VVOL datastore is displayed.
     Check whether the Virtual Volumes that have been created with VMware vCenter Server are displayed.

- To view a list of Virtual Volumes created in all the VVOL datastores

  1. On the global navigation tab, click **Storage**.
  2. On the Category pane, click **VVOL Management**.
  3. On the Category pane, click **VVOL List**.
     The list of Virtual Volumes that are created in all the VVOL datastores is displayed on the Main pane.
     Check whether the Virtual Volumes that have been created with VMware vCenter Server are displayed.

9.19.5.2 Delete Virtual Volume

Virtual Volumes where the management information (metadata) is broken are displayed as "Unknown" in the **VVOL Type** column in the Volume List screen of Web Console and can be deleted using the same procedure for FTVs. Refer to "9.14.23 Delete FTV" for information on how to delete the Virtual Volume which "Unknown" is displayed in the **VVOL Type** column.

9.19.6 Operations for Virtual Machine Backup

9.19.6.1 Automatic Execution Setting of Virtual Machine Backup

By setting a backup policy schedule on VMware vCenter Server, virtual machine backups are performed automatically. With Web Console, automatic execution of the virtual machine backup can be set to enable/disable.

The procedure to enable/disable the automatic execution of virtual machine backups is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup Management**.
   The VMware guest list is displayed on the Main pane.

4. On the Main pane, click the target VMware guest.
5. On the Action pane, click **Enable** or **Disable** under **Auto Execution**.

9.19.6.2 Manual Execution of Virtual Machine Backup

With Web Console, a virtual machine backup can be instantaneously executed manually.

The procedure to execute the virtual machine backup manually is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup Management**.
   The VMware guest list is displayed on the Main pane.
4. On the Main pane, check the target VMware guest checkbox.
5. On the Action pane, click **Execute** under **Manual Execution**.
   The warning dialog box is displayed. Check the displayed information, and then click **OK**.

9.19.6.3 Display Virtual Machine Backup History

The procedure to display the virtual machine backup history is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. When displaying the Snapshot backup history, click the **Snapshot Backup History** tab in the Main pane.
   When displaying the Clone backup history, click the **Clone Backup History** tab in the Main pane.

9.19.6.4 Restore from Snapshot Backup

Restoration from a Snapshot backup is a function that restores the VMware guest to the point in time when the backup was acquired.

The procedure to restore from the Snapshot backup is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. On the Main pane, click the **Snapshot Backup History** tab. Then, check the target backup history checkbox.
5. On the Action pane, click **Restore** under **Snapshot**.
   The warning dialog box is displayed. Check the displayed information, and then click **OK**.

Information

Executing a restore by specifying a VMware guest is also possible. The restoration procedure of the Snapshot backup where the VMware guest is specified is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.

3. On the Category pane, click **VVOL Backup Management**.
   The VMware guest list is displayed on the Main pane.
4. On the Main pane, click the target VMware guest.
   The VMware Guest Details screen is displayed.
5. Click the **Snapshot Backup History** tab. Then, check the target backup history checkbox.
6. On the Action pane, click **Restore** under **Snapshot**.
   The warning dialog box is displayed. Check the displayed information, and then click **OK**.

Note

If the VMware guest of the backup source has been deleted, a restoration of the Snapshot backup cannot be executed.

9.19.6.5 Single Item Restore from Snapshot Backup

Single item restore performs a restore to a temporary volume that is different from the Virtual Volume that was backed up. The temporary volume is automatically allocated to the VMware guest where the Snapshot backup was acquired. By referencing the temporary volume from the VMware guest, a restoration can be manually performed for each file.

The procedure to perform the single item restore from the Snapshot backup is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. On the Main pane, click the **Snapshot Backup History** tab. Then, check the target backup history checkbox.
5. On the Action pane, click **Single Item Restore** under **Snapshot**.
6. The Single Item Restore screen is displayed. Enter the allocation time duration of temporary volume and check the target VMDK files. Then, click **Restore**.

Information

Executing a Single item restore by specifying a VMware guest is also possible. The Single item restore procedure of the Snapshot backup where the VMware guest is specified is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup Management**.
   The VMware guest list is displayed on the Main pane.
4. On the Main pane, click the target VMware guest.
   The VMware Guest Details screen is displayed.
5. Click the **Snapshot Backup History** tab. Then, check the target backup history checkbox.
6. On the Action pane, click **Single Item Restore** under **Snapshot**.
7. The Single Item Restore screen is displayed. Enter the allocation time duration of temporary volume and check the target VMDK files. Then, click **Restore**.

Note

If the VMware guest of the backup source has been deleted, a single item restore of the Snapshot backup cannot be executed.

9.19.6.6 Delete Snapshot Backup

The procedure to delete the Snapshot backup is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. On the Main pane, click the **Snapshot Backup History** tab. Then, check the target backup history checkbox.
5. On the Action pane, click **Delete** under **Snapshot**.
   The warning dialog box is displayed. Check the displayed information, and then click **OK**.

Information

Even if this operation is performed, the Virtual Volume of the backup source is not deleted.

9.19.6.7 Restore from Clone Backup

Restore from the Clone backup is a function to restore newly created Virtual Volumes and VMware guests. Different from restore of the Snapshot backup, restore from the Clone backup is available even if a Virtual Volume as backup source is damage or deleted.

The procedure to restore from the Clone backup is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. On the Main pane, click the **Clone Backup History** tab. Then, check the target backup history checkbox.
5. On the Action pane, click **Restore** under **Clone Backup**.
6. The Restore Clone Backup screen is displayed. Enter the name of the VMware guest that is newly created, and then click **Restore**.

Information

Executing a restore by specifying a VMware guest is also possible. However, if the target VMware guest is deleted, the operation is not possible because the VMware guest is not displayed in the VMware Guest Overview screen. When restoring a deleted VMware guest, operate from the VVOL Backup History screen.

The restoration procedure of the Clone backup where the VMware guest is specified is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.

3. On the Category pane, click **VVOL Backup Management**.
   The VMware guest list is displayed on the Main pane.
4. On the Main pane, click the target VMware guest.
   The VMware Guest Details screen is displayed.
5. Click the **Clone Backup History** tab. Then, check the target backup history checkbox.
6. On the Action pane, click **Restore** under **Clone Backup**.
7. The Restore Clone Backup screen is displayed. Enter the name of the VMware guest that is newly created, and then click **Restore**.

Point

When restoring with the same name as the VMware guest where the backup was acquired, the VMware guest where the backup was acquired must be deleted before the restoration. Refer to the VMware vCenter Server manuals for information on the VMware guest deletion procedure.

9.19.6.8 Delete Clone Backup

The procedure to delete the Clone backup is as follows:

1. On the global navigation tab, click **Storage**.
2. On the Category pane, click **VVOL Management**.
   The items of the Category pane change into the items concerning the VVOL Management.
3. On the Category pane, click **VVOL Backup History**.
   The backup history list is displayed on the Main pane.
4. On the Main pane, click the **Clone Backup History** tab. Then, check the target backup history checkbox.
5. On the Action pane, click **Delete** under **Clone Backup**.
   The warning dialog box is displayed. Check the displayed information, and then click **OK**.

Information

Even if this operation is performed, the backup source Virtual Volume is not deleted.

Chapter 10 Operations Started From Network Tab

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

10.1 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.

10.2 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

- 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 "10.8 Reload FC Switch Configuration Information" on all the FC switches making up the fabric.

- For the FC switch, register the FC switch after enabling the SSH connection of the FC switch.

Note

- 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 is done.

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

10.3 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**.

10.4 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

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.

10.5 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**.

10.6 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.

Point

1GbE RJ45 port is not displayed.

10.7 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**.

10.8 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**.

Point

- 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.

10.9 Start/Stop Beacon

Note

- The beacon can be operated only with FC switches that are using the SNMPv1 protocol.
- 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 "10.4 Change FC Switch Information" to change the **SNMP Community Name(Write)**.
- Before operating the beacon, execute the snmpConfig command of the FC switch and check that SNMP SET Security Level is "No security". If SNMP SET Security Level is not "No security", re-execute the snmpConfig command and set SNMP SET Security Level to "No security". Refer to the manuals of the target FC switch for details.

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**.

10.10 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 page is displayed.
4. Click **Next**.
   The Select Server HBA page is displayed.
5. Click the target server and HBA radio button.
6. Click **Next**.
   The Select Storage Port page 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**.

10.11 Operations for Performance Management of Network Device

This section describes the procedures when Detail View is used.
For the procedures on using the Performance tab of Dashboard, refer to "Chapter 7 Operations for Performance".

10.11.1 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.

10.11.2 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**.

10.11.3 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.

Point

- 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.

10.11.4 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**.

10.11.5 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**.

10.11.6 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**.

10.11.7 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**.

Point

- Enter Alarm Tolerance Time in the range of the Monitoring Interval Time value or more to the Threshold Monitoring Interval value or less.
- Enter Threshold Monitoring Interval in the range of the Alarm Tolerance Time value or more to 1,440 minutes or less.

10.11.8 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**.

10.11.9 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 11 Operations Started From Server Tab

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

11.1 Operations for Server

11.1.1 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

- 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 "14.1 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

  Do not perform any operation for this server until the registration processing has been completed.
- 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

Point

- If the server where the ETERNUS SF Agent is installed is a clustered system, select/input each item as shown in the following table and register both the logical node and the physical node.
  However, when using the Storage Cruiser's agent only, registration of the logical node is not necessary.
  When not operating Storage Cruiser and when operating AdvancedCopy Manager with the logical node only, registration of the physical node is not necessary.

Item Name	Items That Should Be Selected / Input	
	For Logical Nodes	For Physical Nodes
VMware ESX	Set to "No".	Set to "No".
Register Mode	Set to "Manual".	- When not using the Storage Cruiser's agent, set to "Manual". - For situations other than the above, set to "Automatic".
Use AdvancedCopy Manager	Set to "Yes".	- When not using the AdvancedCopy Manager's agent or operating AdvancedCopy Manager with the logical node only, set to "No". - For situations other than the above, set to "Yes".
IP Address	Specify the IP address of the logical node.	Specify the IP address of the physical node.
AdvancedCopy Communication Port	Specify the transaction communication daemon/ service port number that was set during the cluster setup.	If "Yes" was selected for **Use AdvancedCopy Manager**, specify the following port numbers that were set during the installation of the AdvancedCopy Manager's agent. - For Windows environments Communication service port number - For Solaris, Linux, or HP-UX environments Port number that is used with the Managed Server

- When registering VMware host or VMware guest, select "Yes" for **VMware ESX**, and enter the VMware host user name, password, and IP address. When the VMware host is registered, all the VMware guests that were created in that VMware host are automatically registered.

  When VMware guests are not displayed, execute the following procedure:

  1. Install VMware Tools in the VMware guest. (Recommended)
  2. Check that the VMware guest has started.
  3. With Web Console, perform the **Reload Conf.** operation for the VMware host that is registered in the ETERNUS SF system.

- In a VMware vSphere Virtual Volumes environment, a VMware guest created in the VVOL datastore is automatically registered on the ETERNUS SF system after the power is turned on for the first time. However, the VMware host to which the VMware guest belongs must be registered to the ETERNUS SF system beforehand.
  After the VMware guest has been recognized, if you want to update the status of the VMware guest to the latest one, perform the **Reload Conf.** operation for the VMware host.

11.1.2 Display Server

The registered server list is displayed on the Main pane when clicking **Server** on the global navigation tab.

Note

- The servers registered by CLI are not displayed on 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

11.1.3 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".

11.1.4 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

  To continue server operations even after excluding the server as a management target of this product, do not delete the access paths that are connected to the server.
  To stop server operations such as by physically removing the server, delete all the access paths connected to the server and then delete the server.

- If the server is registered as the Hyper-V host

  Before deleting the server, delete the registration as the Hyper-V host.

- If you delete the VMware host

  After deleting all VMware guests that belong to the target VMware host, delete the VMware host.

11.1.5 Change Server Information

Information

To change the server information, there are operations that are required before and after use of 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 *Express Operation Guide*
- "Changing Operating Environment" in the *Storage Cruiser Operation Guide*
- "Changing Operating Environment" in "Operation Maintenance" in the *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

- If the following conditions apply, it is necessary to perform the above procedure to declare the use of AdvancedCopy Manager:
  - The server registered using Web Console has been set up the Managed Server of AdvancedCopy Manager using the command.
  - In addition, you perform the Advanced Copy functions in Web Console.
- When using the Advanced Copy function on the server registered by Web Console, specify "Yes" for [Use AdvancedCopy Manager]. In addition, when a server registered by 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.

11.1.6 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

- 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, Web Console cannot display the correct information.

11.1.7 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.
   If the target server is a VM guest, check the checkbox of the VM host where the VM guest exists.
3. On the Action pane, click **Reload Conf.** under **Server**.

Note

If you change the Management Server name or the Managed Server name with the stgxfwcmmodsrv command, the **AdvancedCopy Manager Server Name** field on the Server Detail screen is refreshed by reloading the server configuration information. The Sever List screen and the **Name** field of the Server Detail screen are not refreshed.

11.1.8 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

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	

Note

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.

11.1.9 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

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.

11.1.10 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.

11.1.11 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**.

11.1.12 Operations for Device

11.1.12.1 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.

11.1.12.2 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 the **Same Area Device** column for the target device.
   The information of devices that use the same copy area is displayed.

11.1.12.3 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**.

11.1.12.4 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**.

11.2 Operations for VMware vCenter Server

11.2.1 Register/Reload VMware vCenter Server and Change User Information of VMware vCenter Server

When using the VMware vSphere Virtual Volumes function, register on the ETERNUS SF system all the VMware vCenter Servers that manage target VMware hosts and VMware guests.

The procedure of server registration/reloading of the VMware vCenter Server and the procedure of changing the user information of the VMware vCenter Server are as follows:

1. On the global navigation tab, click **Server**.
2. On the Category pane, click **VMware vCenter Server**.
   The registered VMware vCenter Servers are displayed on the Main pane.

   When reloading the information, check the target VMware vCenter Server checkbox in the Main pane.
3. On the Action pane, click **Register/Reload** under **VMware vCenter Server**.
   The Register/Reload VMware vCenter Server screen is displayed.

   Enter an IP address, port number, user name, and password, and then click **Confirm**.
   If the VMware vCenter Server is already registered, the saved password can be used. In that case, select "Yes" for **Use saved access information**. When entering a new password, select "No".

   Point

   If the user information of the VMware vCenter Server has been changed, select "No" for **Use saved access information** and enter the username and password again.
4. Enter the necessary information, and then click **Confirm**.

Note

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

11.2.2 Delete VMware vCenter Server

The procedure to delete the VMware vCenter Server is as follows:

1. On the global navigation tab, click **Server**.
2. On the Category pane, click **VMware vCenter Server**.
   The registered VMware vCenter Servers are displayed on the Main pane.
3. On the Main pane, click the target VMware vCenter Server checkbox.
4. On the Action pane, click **Delete** under **VMware vCenter Server**.
5. The Delete VMware vCenter Server screen is displayed. Confirm that the target VMware vCenter Server is displayed, and then click **Delete**.

11.3 Operations for Advanced Copy

Point

If operations related to Advanced Copy are performed using commands, they may not be reflected on the Web Console display. The latest information can be displayed by performing the **Reload Conf.** operation for the target server.

11.3.1 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.

11.3.2 Operations for Replication Management Function

11.3.2.1 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.

Point

If the Storage Cluster Continuous Copy function is used, specify TFOV for the replication source device and the replication destination device. Whether the device is TFOV can be checked on the Volume Detail screen displayed by the following procedure. TFOV is a volume that has "/TFOV" in the string displayed in the **Usage** column.

1. Refer to "11.1.12.1 Display Device" to display the Device Overview screen.

2. Click the volume number that is displayed in the **Volume No.** column of the target device.

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.

11.3.2.2 Display Replication Pair

The replication pair defined in the replication group can be confirmed by displaying the replication group details. Refer to "11.3.2.1 Create/Display/Change/Delete Replication Group" for information on how to display the replication group details.

11.3.2.3 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.

Point

When using the Storage Cluster Continuous Copy function, SnapOPC and SnapOPC+ cannot be started.

11.3.2.4 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**.

11.3.2.5 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.

11.3.2.6 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.

11.3.2.7 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**.

11.3.2.8 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.

11.3.2.9 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.

Point

When using the Storage Cluster Continuous Copy function, REC cannot be started.

11.3.2.10 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.

11.3.2.11 Reverse REC Direction

The procedure to reverse the REC direction for a replication group is as follows:

1. Perform the procedure of "11.3.2.9 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 "11.3.2.10 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**.

11.3.2.12 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.

11.3.2.13 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**.

11.3.2.14 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.

11.3.2.15 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.

11.3.3 Operations for Backup Management Function

11.3.3.1 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**.

11.3.3.2 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 satisfies the following conditions:

- "Unassigned" is displayed in the **Device Type** column on the Backup Operation overview screen (displayed by performing the above step 4).
- "No" is displayed in the **In Use by Replication** column.

11.3.3.3 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 the **Device Type** column is a transaction volume.

In order to display the transaction volume details, click the target device name.

11.3.3.4 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**.

11.3.3.5 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**.

11.3.3.6 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.

11.3.3.7 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 "11.3.3.6 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.

11.3.3.8 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.

11.3.3.9 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**.

11.3.3.10 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.

11.3.3.11 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**.

11.3.3.12 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**.

11.3.3.13 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.

11.3.3.14 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**.

11.3.3.15 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.

11.3.3.16 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**.

11.4 Operations for Access Path

11.4.1 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

For devices that support automatic updates of the device component status, the status of the access path is automatically updated when the link status of a port is changed. It may take a few minutes to display the status of the access path after the link status is changed. For devices that support automatic updates of the device component status, refer to "Monitoring Device Component Status" in the *Storage Cruiser Operation Guide*.
If the link status of the port is not changed or if the device does not support automatic updates of the device component status, the status of the access path is not updated automatically. When you check the status of the access path, click **Refresh** on the Action pane to update the status of the access path.
It may take a few minutes to update the status of the access path. You can confirm the completion of the processing on the **Operation History** screen.

11.4.2 Add Access Path to ETERNUS Disk Storage System

The procedure to add an access path to an 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 "9.11.11 Delete Affinity/LUN Group".

Information

If you create a new Affinity/LUN group, you can check by the **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.

11.4.3 Add Access Path (Other Than ETERNUS Disk Storage System)

The procedures to add an access path to a device other than ETERNUS Disk storage systems 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 systems executes only the WWPN zoning setting to the FC switch because it cannot set the host affinity for devices other than ETERNUS Disk storage systems.
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.

11.4.4 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**.

Point

In an environment in which both an access path and a VVOL access path are set, if only one of access paths is deleted, FC switch zoning is not deleted. In both the access path and the VVOL access path are deleted, zoning is deleted.

11.4.5 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. On the Select Server HBA screen, click the target HBA radio button and then click **Next**.
6. Confirm the information, and then click **Modify**.

11.4.6 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.

11.4.7 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.
- For the ETERNUS DX S2 series, you must not be logged into ETERNUS Web GUI. Make sure you perform the operation after logging off from ETERNUS Web GUI.

11.5 Operations for Correlation Management

11.5.1 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**.

11.5.2 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**.

11.5.3 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.

11.5.4 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.

11.5.5 Register/Reload VMware vCenter Server and Change User Information of VMware vCenter Server

The procedure of server registration/reloading of the VMware vCenter Server and the procedure of changing the user information of the VMware vCenter Server 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, 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 Server**.
   The information input screen is displayed.

   Enter an IP address, port number, user name, and password, and then click **Confirm**.
   If the VMware vCenter Server is already registered, the saved password can be used. In that case, select "Yes" for **Use saved access information**. When entering a new password, select "No".

   Point

   If the user information of the VMware vCenter Server has been changed, select "No" for **Use saved access information** and enter the username and password again.
6. Enter the necessary information, and then click **Confirm**.

Note

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

11.5.6 Delete VMware vCenter Server

The procedure to delete the VMware vCenter 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 Server**.
   VMware vCenter Server is displayed in a pop-up window.
7. Click the button at the lower right in the pop-up window.

11.5.7 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**.

11.5.8 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.

11.5.9 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.

11.5.10 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.

If all of the following conditions are satisfied, the virtual hard disk is not displayed on the End to End View for Hyper-V if a Failover/Failback is executed:

- TFOV is used for the virtual hard disk.
- An iSCSI port is used for a CA port pair in a Storage Cluster environment.
- The IP address of the iSCSI port does not match that in the Primary Storage and the Secondary Storage.

To display the virtual hard disk on the End to End View for Hyper-V after a Failover/Failback has been executed, perform the procedure in "11.5.7 Register/reload Hyper-V Host".

11.5.11 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.

11.5.12 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 12 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 device nodes held by the ETERNUS SF system.
Logical Path View	Displays on the Main pane the physical configuration and logical configuration of device nodes selected on the Overview screen.

Note

When displaying the Overview and Logical Path View screens, the maximum number of registered devices is 1,000. If the number exceeds 1,000, a communication error may occur.
To confirm the device information when any communication error occurs, use "End to End view".

12.1 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 that includes 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 that includes 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.

12.2 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.

12.3 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.

12.4 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.

12.5 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.

12.6 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.

12.7 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.

12.8 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.

12.9 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%**.

12.10 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.

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.

12.11 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**.

Note

- If you click on the menu bar with the target device deleted, a dialog box that includes 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.

- Access paths for "Unknown" states, and access paths for manually embedded devices are not displayed in the Map View.

12.12 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.

Point

- 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) - 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

Device to Be Clicked	What Is Highlighted
	- 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.

12.13 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.

12.14 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.

12.15 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.

12.16 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%**.

12.17 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 13 Operations Started From Scheduler Tab

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

13.1 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.

5. Select a host that executes 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.

   Information

   The scripts that are stored in the following folder are displayed on the page:

- In the case that the selected host is a non-clustered system
  - <*AdvancedCopy Manager program directory*>\Wizard\bat
- In the case that the selected host is a clustered system
  - <*Drive of shared disk for shared data of AdvancedCopy Manager*>:\var\opt\swstorage\Wizard\bat

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.

Information

There is no limit in the number of scripts to be registered in one scheduler task.

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 is executed only once at the specified time. - Hourly The scheduler task is executed in intervals of the specified time. When this period is selected, the item of **Execution interval(Hour)** is displayed. - Daily The scheduler task is executed at the specified time of every day. - Weekly The scheduler task is executed on the specified day of the week. When this period is selected, the item of **Execution week** is displayed. - Monthly The scheduler task is executed on the specified day of every month. When this period is selected, the item of **Execution day** is 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 is entered into the text box. The scheduler is effective from the selected date. If either of "Once", "Hourly" or "Daily" is selected in **Execution period**, it is 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, is 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.
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.

Item Name	Explanation
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 is 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 is displayed.

9. Click **Done**.

13.2 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.
Status	This is the status of the scheduler task. One of the following statuses 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 scheduler task. One of the following types is displayed: - ACM Script: Executes a backup script that was generated with either Backup Wizard for Exchange Server or Backup Wizard for SQL Server. - VM Backup: Executes a virtual machine backup. - VM File Restore Finish: Deletes temporary volumes that were generated during execution of a Single item restore.
Host name	This is the name of the host that executes the scheduler task.
IP Address	This is the IP address of the host that executes the scheduler task.
Execution period	This is the execution period of the scheduler task. One of the following periods is displayed: - Once: The scheduler task is executed only once at the specified time. - Hourly: The scheduler task is executed in intervals of the specified time. - Daily: The scheduler task is executed at the specified time of every day. - Weekly: The scheduler task is executed on the specified day of the week. - Monthly: The scheduler task is executed on the specified day of every month.

Item Name	Explanation
Next start time	This is the scheduler task execution date for the next time. This is displayed in the yyyy/mm/dd hh:mm:ss format. If a scheduler task has never been executed, the first execution day is displayed. If the scheduler task was executed, the next execution day is 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 is displayed.
Last start time	This is the scheduler task execution date for the previous time. This is displayed in the yyyy/mm/dd hh:mm:ss format. A hyphen (-) is 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 results 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.
Type	This is the type of the scheduler task. One of the following types is displayed: - ACM Script: Executes a backup script that was generated with either Backup Wizard for Exchange Server or Backup Wizard for SQL Server. - VM Backup: Executes a virtual machine backup. - VM File Restore Finish: Deletes temporary volumes that were generated during execution of a Single item restore.
Host name	This is the name and IP address of the host that executes the scheduler task. A hyphen (-) is displayed when the host has been deleted. If no IP address is set to the host, it is displayed in the form of "*hostName*(-)".
Domain name	This is the domain name of the host that executes the scheduler task. A hyphen (-) is displayed in the following cases: - When input has been omitted in the creation of a scheduler task. - When the scheduler task type is "VM Backup" or "VM File Restore Finish".
User name	This is the user name for the scheduler task execution. A hyphen (-) is displayed when the scheduler task type is "VM Backup" or "VM File Restore Finish".
Script path	This is the path name for where the script of the scheduler task is stored. A hyphen (-) is displayed when the scheduler task type is "VM Backup" or "VM File Restore Finish".
Script name(Execution order)	The script names of the scheduler tasks are displayed in the order in which they are executed. Only the file name is displayed. A hyphen (-) is displayed when the scheduler task type is "VM Backup" or "VM File Restore Finish".
Execution period	This is the execution period of the scheduler task. One of the following periods is displayed:

Item Name	Explanation
	- Once: The scheduler task is executed only once at the specified time. - Hourly (*hour*): The scheduler task is executed in intervals of the specified time. - Daily: The scheduler task is executed at the specified time of every day. - Weekly (*dayOfWeek*): The scheduler task is executed on the specified day of the week. - Monthly (*date*): The scheduler task is executed on the specified day of every month.
Execution start date	The execution starting date configured with the scheduler task is displayed. The scheduler is 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 is displayed. This is displayed in the hh:mm format.
Detail	When the scheduler task type is "VM File Restore Finish", the information (VMDK file name) for the deletion target volume is displayed. A hyphen (-) is displayed when the scheduler task type is "ACM Script" or "VM Backup".

13.3 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 is displayed.

   Information

   If **Cancel** is clicked, the scheduler task is not deleted.
5. Click **Done**.

Point

When any of the following conditions is met, the scheduler task cannot be deleted.

- When the status of scheduler task is "Executing".
- When the scheduler task type is "VM Backup".

13.4 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 is 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.

13.5 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 is 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 is 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 enabled or disabled.

Chapter 14 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

14.1 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 the **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

- 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 *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.

14.2 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 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 the **Operation ID** column is currently unused.

14.3 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 the **Message** column for the confirmation object event. The detailed information is displayed in a pop-up window.

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 "9.15.24 Display Quota Information" to confirm.

14.4 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

- Even if Filter setting is enabled on 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.

14.5 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.

14.6 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 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.

14.7 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

The "Report ID" of the Threshold Monitoring Alarms circulates from 1 to 1,000.
The Report ID may overlap because it is not unique in the Threshold Monitoring Alarms.

14.8 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 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.

Chapter 15 Operations Started From System Tab

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

15.1 Operations for User Management

15.1.1 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**.

15.1.2 Send Test E-mail

Regardless of the status of [Send Event Notification Mail] in "15.1.1 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**.

15.1.3 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**.

15.1.4 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**.

15.2 Web Console Control Settings

15.2.1 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
Display Preference	Default Record Count Default Information Panel Status Open/Close Filter Setting Area After Filtering
Session Preference	Session Timeout

15.2.2 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**.

15.2.3 Change Value for Screen Refresh Preference

The procedure to change the screen refresh target and/or screen refresh interval for 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**.

15.2.4 Display Preference

You can change the set value of the following items related to the screen display:

- Default record count in table
- Default Information panel status (opened/closed status immediately after screen transition)
- Opened/closed status of the Filter Setting area after filtering

The procedure to change the set value is as follows:

1. On the global navigation tab, click **System**.
   The current set value is displayed on the Main pane.
2. On the Action pane, click **Modify** under **Display Preference**.
   The information input screen is displayed.

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

15.2.5 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.

15.2.6 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**.

15.3 SNMP Communication Settings

15.3.1 Display SNMP Communication Settings

The procedure to display SNMP communication settings is as follows:

1. On the global navigation tab, click **System**.
2. On the Category pane, click **SNMP Configuration**.

Point

The SNMP Configuration overview screen only displays devices that support the SNMPv3 protocol.

15.3.2 Change Manager Engine ID

Point

Change the ETERNUS SF Manager Engine ID only when multiple ETERNUS SF Managers exist within the system.

The procedure to change the ETERNUS SF Manager Engine ID is as follows:

1. On the global navigation tab, click **System**.
2. On the Category pane, click **SNMP Configuration**.

3. On the Action pane, click **Modify** under **Manager Engine ID**.
   The information input screen is displayed.
4. Enter a new Engine ID.
5. Confirm the information, if no problem then click **Modify**.

15.3.3 Change SNMP Communication Settings

The procedure to change the SNMP communication settings is as follows:

1. On the global navigation tab, click **System**.
2. On the Category pane, click **SNMP Configuration**.
3. On the Main pane, click the target device.
4. On the Action pane, click **Modify** under **SNMP Configuration**.
5. Enter a new SNMP Communication information.

   For Setting to SNMPv1

   a. Check the "v1" radio button in the **SNMP Version** field.

   b. Enter the SNMP community name.

   For Setting to SNMPv3

   a. Check the "v3" radio button in the **SNMP Version** field.

   b. Check the radio button of the target user from among the SNMPv3 MIB access users.
6. Confirm the information, if no problem then click **Modify**.

15.3.4 Display/Add/Change/Delete SNMPv3 User Configuration

The procedure to display/add/change/delete the SNMPv3 user configuration is as follows:
To display the SNMPv3 user configuration, perform from step 1 to step 3.
Otherwise, perform all steps.

1. On the global navigation tab, click **System**.
2. On the Category pane, click **SNMP Configuration**.
   The items of the Category pane change into the items concerning the SNMP communication settings.
3. On the Category pane, click **User Configuration (v3)**.
   The current SNMPv3 user configuration information is displayed on the Main pane.

   Information

   The ID that is displayed on the screen cannot be changed because it is part of the internal system management information. In addition, this ID is not relevant to the operation of this product.
4. Perform the following procedures according to the operation purpose.

   For Adding SNMPv3 User Configuration

   a. On the Action pane, click **Add/Modify** under **User Configuration**.
      The information input screen is displayed.

      Point

      If you select "Both" in the **Usage** field, both the usage for SNMP Traps and MIB access are created simultaneously.

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

For Changing SNMPv3 User Configuration

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

b. On the Action pane, click **Add/Modify** under **User Configuration**.
The information input screen is displayed.

c. Enter the necessary information, and then click **Add/Modify**.

For Deleting SNMPv3 User Configuration

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

b. On the Action pane, click **Delete** under **User Configuration**.
The deletion confirmation dialog box is displayed.

c. If there is no problem to delete, click **Yes**.

Note

If you change the user settings that are used for the SNMP communication settings, the SNMP communication settings for all of the devices that are using this user are changed. When the device side SNMP communication settings no longer match due to this change, an error log stating that the security level does not match is output to the event log. If an error log is output, reconfigure the user settings to match the device side settings.

Information

The user setting information that is used to configure the SNMP communication settings on the registered device cannot be deleted.

15.4 System Maintenance

15.4.1 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.

15.5 Patch Management

15.5.1 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 **Done** automatically logs out the logged-in user. Do not attempt re-login to Web Console right after the logout as the ETERNUS SF Manager services 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 **Done** automatically logs out the logged-in user. Do not attempt re-login to Web Console right after the logout as the ETERNUS SF Manager services 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 are deleted. However, patches applied to other products using the UpdateAdvisor for Middleware are not be deleted.