

ETERNUS SF Express V14.2



User's Guide

Windows

B1FN-5955-03ENZ0(00)
June 2011

Preface

Purpose

This manual gives an overview of ETERNUS SF Express (hereafter referred to as Express).

This manual describes the Express product features.

Reader

This manual is intended for people who are considering installing Express or who want an overall understanding of the product.

Readers will gain an understanding of the Express functions from this manual.

Organization

This manual consists of the following chapters:

Chapter 1 **Overview**

This chapter gives an overview of the Express.

Chapter 2 **Required Environment**

This chapter explains the environment required by a storage system including Express.

Chapter 3 **Flow from Installation to Operation**

This chapter explains the workflow from installing to operating a storage system.

Chapter 4 **List of Setting Items for Express**

This chapter explains the information managed by Express.

Chapter 5 **Installing**

This chapter explains the steps to install a storage system using Express.

Chapter 6 **Operation**

This chapter explains how to operate a storage system using Express.

Chapter 7 **Maintenance**

This chapter explains the maintenance of Express.

Appendix A **Configuration Information for Express**

This appendix explains the information to be specified to Express.

Appendix B **Advanced Copy Function**

This appendix explains Advanced Copy function.

Appendix C **Installing and Uninstalling Express**

This appendix explains installing and uninstalling Express.

Appendix D **Commands**

This appendix explains commands.

Appendix E **Messages**

This appendix explains the messages output from Express.

Appendix F **Detail Error Messages of ETERNUS**

This appendix explains the details of error messages for ETERNUS.

Appendix G **Events**

This appendix explains the events output from Express.

Appendix H Main Changes from Express V14.1

This appendix explains main changes from Express V14.1.

Notation

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

Product abbreviations

The following table shows how product names are abbreviated in this manual:

Abbreviation	Formal name
Option Products	ETERNUS SF Express Snap/Clone License ETERNUS SF Express Remote Copy License
ETERNUS Disk storage system	ETERNUS DX60 ETERNUS DX80/DX80 S2 ETERNUS DX90/DX90 S2
FibreCAT SX Disk storage system	FibreCAT SX60 FibreCAT SX80 FibreCAT SX80 iSCSI FibreCAT SX88 FibreCAT SX100
Windows Server 2003	Microsoft(R) Windows Server(R) 2003, Standard Edition Microsoft(R) Windows Server(R) 2003, Enterprise Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
Windows Server 2008	Microsoft(R) Windows Server(R) 2008 Standard(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter SP2(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper- V(TM)(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper- V(TM) SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper- V(TM)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper- V(TM) SP2(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Standard(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Enterprise(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Datacenter(64-bit)
Windows	Microsoft(R) Windows Server(R) 2003, Standard Edition Microsoft(R) Windows Server(R) 2003, Enterprise Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition

Abbreviation	Formal name
	Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition
	Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition
	Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
	Microsoft(R) Windows Server(R) 2008 Standard(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Standard SP2(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Enterprise(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Enterprise SP2(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Datacenter(64-bit)
	Microsoft(R) Windows Server(R) 2008 Datacenter SP2(64-bit)
	Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) SP2(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper- V(TM)(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper- V(TM) SP2(32-bit)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper- V(TM)(64-bit)
	Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper- V(TM) SP2(64-bit)
	Microsoft(R) Windows Server(R) 2008 R2 Standard(64-bit)
	Microsoft(R) Windows Server(R) 2008 R2 Enterprise(64-bit)
	Microsoft(R) Windows Server(R) 2008 R2 Datacenter(64-bit)

Command Prompt

Command prompt is shown as ">" and the command format is described as follows.

```
> Command name
```

The command path is omitted. If the product is installed the standard directory, add C:\Program Files (x86)\ETERNUS SF\Express\Manager\bin\ to the command if necessary.

The following path is used for the above command.

C:\Program Files (x86)\ETERNUS SF\Express\Manager\bin\Command name

Symbols

Notations in the following formats are used to indicate matters that must be noted and reference information:

Note

.....
This is important information which must be read and carefully noted.
.....

Point

.....
This is information which is useful to know.
.....

See

.....
This describes related reference items and where they are located.
.....

Information

This is reference information related to using the product.

Example

This is an example that is useful as a reference.

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Shipment date and revision history

September 2010 First Edition June 2011 Second Edition
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Contents

Chapter 1 Overview.....	1
1.1 Overview of a storage system.....	1
1.2 Overview of Express.....	1
1.2.1 Overview of Express.....	1
1.2.2 Configuration of Express.....	4
Chapter 2 Required Environment.....	7
2.1 Hardware conditions.....	7
2.2 Software conditions.....	9
Chapter 3 Flow from Installation to Operation.....	11
Chapter 4 List of Setting Items for Express.....	13
Chapter 5 Installing.....	15
5.1 Installing Express Manager.....	15
5.2 Registering User Information.....	15
5.3 Configuring the Network Environment.....	15
5.4 Registering Disk Storage Systems.....	16
5.5 Storage Configuration Wizard.....	22
5.6 Registering Servers.....	26
5.7 Creating RAID Groups.....	29
5.8 Creating Volumes.....	31
5.9 Assigning Volumes to a server.....	33
5.10 Registering Advanced Copy license.....	38
5.11 Advanced Copy Configuration Wizard.....	40
5.12 Remote Advanced Copy Configuration Wizard.....	40
5.13 Settings of Information Managed with Express.....	46
5.13.1 Settings of various information.....	46
5.13.2 Specifying contact information for trouble occurrence.....	47
5.14 Event notification test.....	48
5.14.1 Procedure for SNMP Trap reception test.....	48
5.14.2 Procedure for Email send test.....	50
Chapter 6 Operation.....	52
6.1 Starting the Express Web GUI.....	52
6.2 Performance Monitoring.....	53
6.2.1 Starting collection of Performance information.....	53
6.2.2 Stopping collection of Performance information.....	54
6.2.3 Showing the Performance information.....	55
6.2.4 Displaying Performance information in a graph.....	56
6.3 Detecting trouble.....	58
6.3.1 Identifying the trouble condition.....	59
6.3.2 Trouble analysis.....	60
6.3.3 Trouble response.....	61
6.4 Executing Advanced Copy.....	62
6.4.1 Setting Advanced Copy	62
6.4.1.1 Access Path Settings.....	63
6.4.1.2 Creating copy pairs.....	63
6.4.2 Creating copy groups.....	73
6.4.3 Executing Clone Copy.....	75
6.4.3.1 Executing Advanced Copy	78
6.4.3.1.1 Executing clone copy (OPC)	78
6.4.3.1.2 Executing clone copy (QuickOPC).....	79
6.4.3.1.3 Executing clone copy (EC).....	80
6.4.4 Executing Snapshot copy	82

6.4.4.1 Executing Advanced Copy	83
6.4.5 Executing remote copy (HA configuration)	84
6.4.5.1 Executing Advanced Copy	85
6.4.5.2 Operational procedure for fault occurrence on the ETERNUS Disk storage system.....	89
6.4.6 Executing Remote copy (DR configuration)	90
6.4.6.1 Executing Advanced Copy	91
6.4.6.2 Exporting/Importing copy group definition.....	98
6.4.6.2.1 Exporting copy group definition.....	98
6.4.6.2.2 Importing copy group definition.....	99
6.4.6.3 Operational procedure for fault occurrence on the ETERNUS Disk storage system	101
6.4.7 Checking copy status.....	102
6.4.8 Command line operation.....	103
6.4.8.1 Setting PATH environment variables	104
6.4.8.2 Setting access paths.....	105
6.4.8.3 Registering ETRNUS Disk storage system.....	105
6.4.8.4 Creating copy groups.....	105
6.4.8.5 Adding copy pairs.....	105
6.4.8.6 Executing copy.....	105
6.5 Changing configuration.....	106
6.6 Changing the contact addresses for trouble occurrence.....	106
6.7 Changing Advanced Copy function.....	106
6.7.1 Changing the settings of Advanced Copy	106
6.7.2 Changing the settings of Remote Advanced Copy	107
6.8 Changing the Host Interface Information.....	107
6.9 Changing various information.....	108
6.10 Diagnostic Tool.....	109
6.11 Operation Notices.....	109
Chapter 7 Maintenance.....	110
7.1 Backing up Express Manager Environment.....	110
7.2 Restoring Express Manager Environment.....	112
7.3 Changing Express Manager Environment.....	115
7.3.1 Changing port numbers.....	115
7.3.2 Changing the IP address.....	117
7.4 Changing Server Information.....	118
7.4.1 Additionally registering servers.....	118
7.4.2 Displaying server information.....	118
7.4.3 Changing server information.....	119
7.4.4 Changing HBA information.....	119
7.4.5 Deleting servers.....	119
7.5 Changing Disk Storage System Information.....	119
7.5.1 Additionally registering disk storage system.....	119
7.5.2 Changing disk storage system name.....	120
7.5.3 Changing the IP address.....	120
7.5.4 Changing the SNMP community name.....	120
7.5.5 Changing the User Name or Password.....	121
7.5.6 Deleting disk storage systems.....	121
7.6 Changing Volume Information.....	122
7.6.1 Additionally registering volumes.....	122
7.6.2 Assign volumes.....	122
7.6.3 Deleting volumes.....	123
7.7 Changing RAID Group Information.....	125
7.7.1 Additionally registering RAID groups.....	125
7.7.2 Deleting RAID groups.....	125
Appendix A Configuration Information for Express.....	126
A.1 Server Information.....	126
A.2 Disk Storage System Information.....	127

A.3 Volume Information.....	128
A.4 RAID Group Information.....	132
A.5 Information on Advanced Copy Function.....	133
A.6 E-mail Information.....	134
A.7 Host Interface Information.....	135
A.8 Various Information.....	137
Appendix B Advanced Copy Function.....	139
B.1 Overview of Advanced Copy Function.....	139
B.1.1 What is Advanced Copy Function?.....	139
B.1.2 What is Remote Advanced Copy?.....	141
B.1.3 Technical terms.....	142
B.1.4 Advanced Copy license.....	142
B.2 Configuration of Advanced Copy Function.....	142
B.2.1 Configuration common in all copy methods.....	142
B.2.2 Configuration of clone copy.....	142
B.2.3 Configuration of snapshot copy.....	143
B.2.4 Configuration for remote copy.....	145
B.3 Clone (EC).....	146
B.3.1 How to work.....	146
B.3.2 Restore.....	148
B.4 Clone (OPC).....	151
B.4.1 How to work.....	151
B.4.2 Restore.....	151
B.5 Clone copy (QuickOPC).....	152
B.5.1 How to work.....	152
B.5.2 Restore.....	154
B.6 Snapshot copy (SnapOPC+).....	155
B.6.1 How to work.....	155
B.6.2 Restore.....	157
B.6.3 SDV operations.....	157
B.6.4 SDP operation.....	157
B.7 Remote Advanced Copy (REC).....	158
B.7.1 How to work.....	159
B.7.2 Transfer buffer operations.....	164
B.7.3 Restore.....	164
B.8 Combinations of Advanced Copy.....	164
B.8.1 Multiple copy.....	164
B.8.2 Cascade copy.....	165
B.9 ECO mode.....	165
B.10 Note on Backup and Restore by Express.....	166
B.11 Troubleshooting.....	166
Appendix C Installing and Uninstalling Express.....	167
C.1 Installing.....	167
C.2 Uninstalling.....	174
C.3 Upgrade installation procedure.....	177
Appendix D Commands.....	182
D.1 Commands for Advanced Copy function.....	182
D.1.1 acarrray add (Command for resgistering ETERNUS Disk storage system).....	184
D.1.2 acarrray change (Command for changing ETERNUS Disk storage system name and access path).....	186
D.1.3 acarrray list (Command for displaying information about ETERNUS Disk storage systems).....	186
D.1.4 acarrray detail (Command for displaying detailed information about ETERNUS Disk storage systems).....	187
D.1.5 acarrray pathscan (Command for automatically setting access paths).....	188
D.1.6 acarrray remove (Command for removing registration information for ETERNUS Disk storage systems).....	189
D.1.7 acinq lv (Command for displaying logical volume information).....	190
D.1.8 acinq lunmap (Command for displaying LUN Mapping information).....	192

D.1.9 acinq ag (Command for displaying a list of affinity groups)	193
D.1.10 acinq hostag (Command for displaying a list of host affinity)	194
D.1.11 acinhibit set (Command for setting volume protection)	195
D.1.12 acinhibit unset (Command for unsetting volume protection)	196
D.1.13 acrecbuf set (Command for setting REC buffers)	197
D.1.14 acrecbuf stat (Command for displaying REC buffer status)	197
D.1.15 acgroup create (Command for creating copy groups)	199
D.1.16 acgroup list (Command for displaying copy groups)	200
D.1.17 acgroup detail (Command for displaying detailed information about copy groups)	201
D.1.18 acgroup remove (Command for removing copy groups)	202
D.1.19 acpair add (Command for adding copy pairs)	203
D.1.20 acpair remove (Command for removing copy pairs)	206
D.1.21 acopc start (Command for starting OPC or QuickOPC copy)	206
D.1.22 acopc query (Command for displaying the status of OPC or QuickOPC copy)	208
D.1.23 acopc cancel (Command for canceling OPC or QuickOPC copy)	211
D.1.24 acsnap start (Command for starting SnapOPC+ copy)	212
D.1.25 acsnap query (Command for displaying the status of SnapOPC+ copy)	213
D.1.26 acsnap cancel (Command for canceling SnapOPC+ copy)	216
D.1.27 acec start (Command for starting synchronous high speed copy)	218
D.1.28 acec query (Command for displaying the status of synchronous high speed copy)	220
D.1.29 acec suspend (Command for suspending synchronous high speed copy)	225
D.1.30 acec resume (Command for resuming synchronous high speed copy)	226
D.1.31 acec reverse (Command for reversing synchronous high speed copy)	228
D.1.32 acec change (Command for changing the mode of synchronous high speed copy)	229
D.1.33 acec cancel (Command for cancelling synchronous high speed copy)	230
D.1.34 acsdv init (Command for initializing Snap Data Volume)	231
D.1.35 acsdv stat (Command for displaying the status of Snap Data Volume)	232
D.1.36 acsdv poolstat (Command for displaying the status of Snap Data Pool)	233
D.1.37 acutil devs (Command for displaying logical volume information)	234
D.1.38 acetvolinfo (Command for displaying logical volume information)	235
D.1.39 acutil refresh (Command for refreshing partition table)	235
D.1.40 acmcapture (Command for collecting analysis data)	236
D.2 XML output format for Advanced Copy function	237
D.2.1 List of commands for supporting the XML output function	237
D.2.2 XML output format	238
D.3 storageadm perfdata (Command for managing performance information)	243
D.4 express_managersnap (Collecting Express Manager troubleshooting information)	247
D.5 express_diag(Diagnosis of Express Manager environment)	248
Appendix E Messages	251
E.1 Message Format	251
E.2 Messages output at installation or uninstallation	251
E.3 Message output from Manager	259
E.3.1 Messages Explanations	259
E.3.2 Detailed messages	276
E.4 Message output when Advanced Copy is executed	337
E.5 Message output from Command	359
E.5.1 Messages for "storageadm perfdata" command	359
E.5.2 Messages for "express_managersnap" command	361
E.5.3 Messages for "express_diag" command	363
E.5.4 Message for upgrade tool	364
E.6 Message output from Copy Control Module	369
E.6.1 Message Explanations	369
E.6.2 Detailed Messages	384
E.7 Error Messages on Troubleshooting Data Collection Command	399
Appendix F Detail Error Messages of ETERNUS	400

Appendix G Detailed messages of events.....	404
G.1 Detailed messages of events related to event notification email.....	404
G.2 Detailed messages of events related to Disk storage system configuration change.....	404
G.3 Detailed messages of events related to changing the IP address.....	406
G.4 Detailed messages of events related to performance monitoring.....	406
G.5 Event related to device polling function.....	407
Appendix H Main Changes from Express V14.1.....	408
H.1 Copy Operation.....	408
H.2 Message.....	409
H.3 Commands for Advanced Copy Functions.....	416
H.4 Messages output from Copy Control Module.....	416
H.5 SNMP trap reception program.....	417
Glossary.....	419
Index.....	421

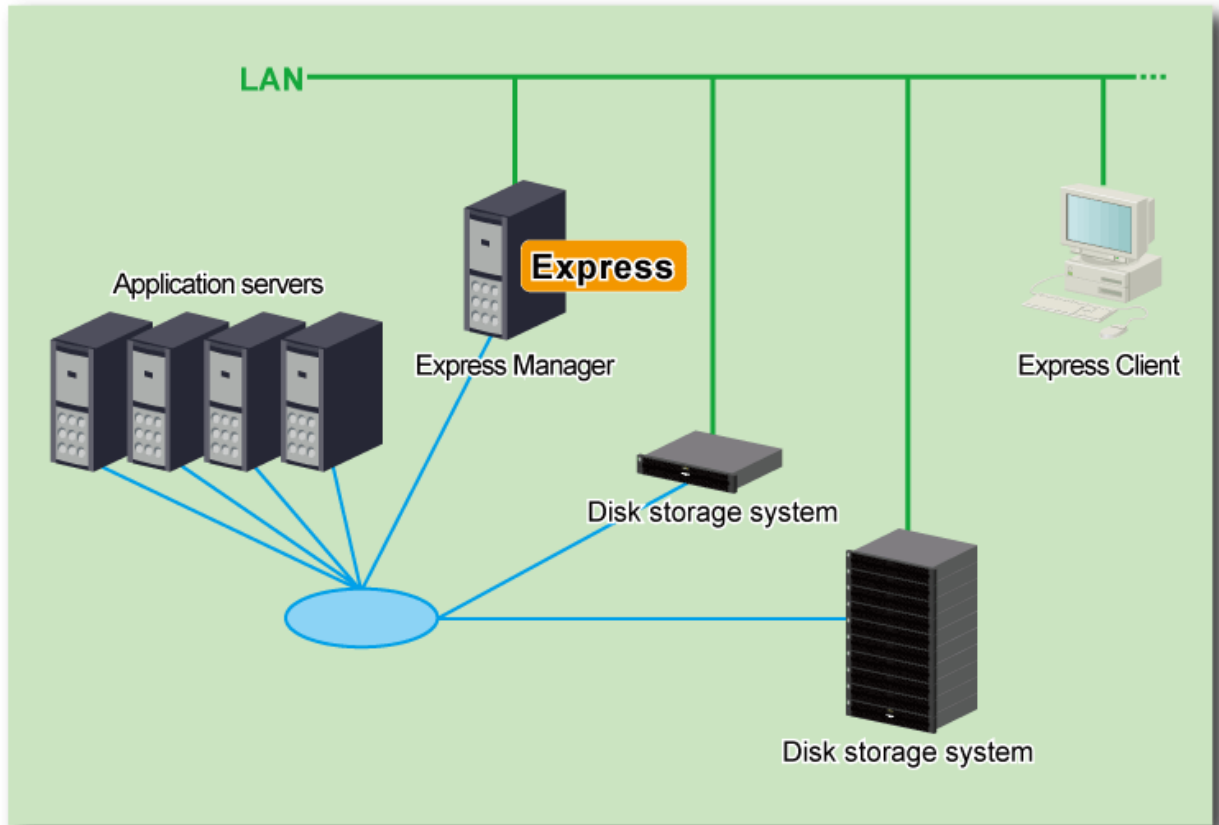
Chapter 1 Overview

This chapter gives an overview of Express.

1.1 Overview of a storage system

A storage system refers to the overall configuration of a system including servers that perform daily transactions and storage that holds data.

Figure 1.1 Overview image of a storage system



1.2 Overview of Express

Express is a kind of software designed to use the ETERNUS Disk storage system and FibreCAT SX Disk storage system more easily by using the GUI.

1.2.1 Overview of Express

Express makes it easy to manage ETERNUS Disk storage systems using ETERNUS functions such as Snapshots, Cloning or Remote copies.

Multiple storage management

Multiple ETERNUS Disk storage systems can be managed and monitored with 1 console. In addition, FibreCAT SX Disk storage system can be monitored.

Construction of the ETERNUS Disk storage system

ETERNUS SF Express provides a storage construction feature for ETERNUS Disk storage system. You can create RAID Groups and LUNs, and assign LUNs to server with a simple operation.

Health and status overview

The internal configurations of Disk storage systems, such as volumes and RAID groups are displayed in a list, so that they can easily be checked. Besides, the integrated management of multiple storage systems makes it easy to detect any error occurrence even if you do not pay attention to each individual storage system.

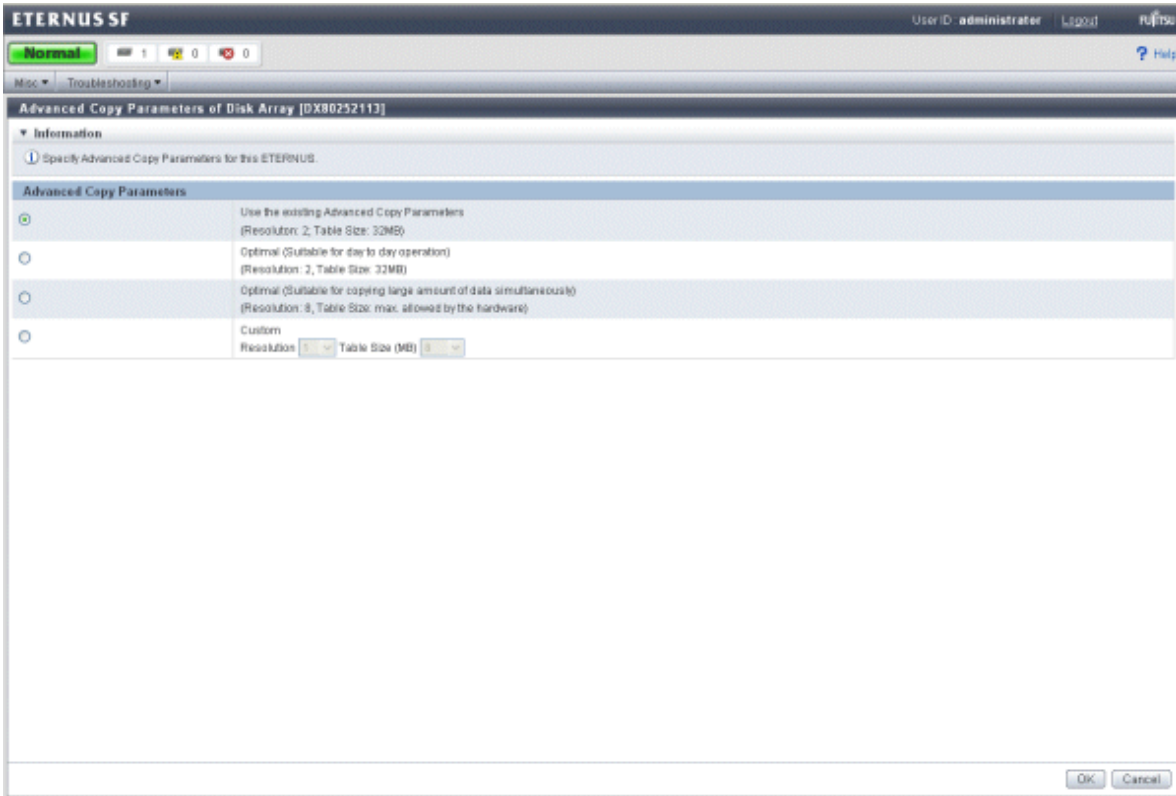
The screenshot displays the ETERNUS SF management console. The main window shows the 'Volumes' tab for a storage system. The table below represents the data shown in the interface:

No.	Name	Alias	Type	Size (MB)	RAID Group No.	Encrypted	Cascadation	Status	Reserved	Deletion	Server ID
0	Volume_0		Open	10240	1	-	-	Available	-	0	0
1	Volume_1		Open	10240	1	-	-	Available	-	0	0
2	Volume_2		Open	10240	1	-	-	Available	-	0	0
3	Volume_3		Open	10240	1	-	-	Available	-	0	0
4	Volume_4		Open	10240	1	-	-	Available	-	0	0
5	Volume_5		Open	10240	1	-	-	Available	-	0	0
6	Volume_6		Open	10240	1	-	-	Available	-	0	0
7	Volume_7		Open	10240	1	-	-	Available	-	0	0
8	Volume_8		Open	10240	1	-	-	Available	-	0	0
9	Volume_9		Open	10240	1	-	-	Available	-	0	0
10	SDV		SDV	1024	1	-	-	Available	-	0	0
16	SDV_0		SDV	1024	4	-	-	Available	-	0	0
17	SDV_1		SDV	1024	4	-	-	Available	-	0	0
18	SDV_2		SDV	1024	4	-	-	Available	-	0	0
19	SDV_3		SDV	1024	4	-	-	Available	-	0	0
20	SDV_4		SDV	1024	4	-	-	Available	-	0	0

The interface also includes an 'Action' panel on the right with expandable sections for Disk Array, Volume, RAID Group, Performance, Encryption, and Host & F. At the bottom, an 'Events' log shows several messages regarding configuration differences for the storage system.

Advanced Copy setting wizard

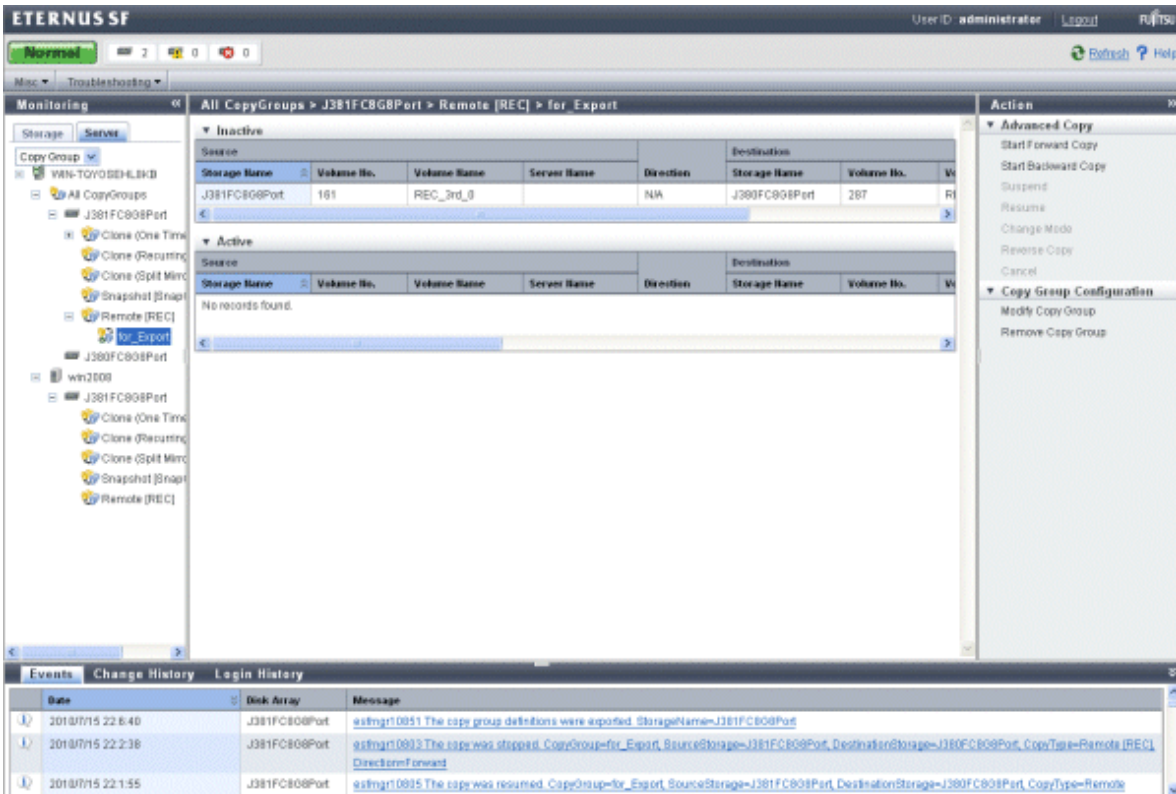
Using a wizard makes it easier to set up Advanced Copy to hardware. This setting should be done before using Advanced Copy functions of the ETERNUS Disk storage system.



Advanced Copy functions

Advanced Copy functions offered by ETERNUS Disk storage systems can be set with ease by using the Express Web GUI.

Also, using the command line interface for Express enables a series of copy operations, so that the above functions are available for purposes of making scripts to work together with other programs and executing copy periodically using an OS scheduler.



Types of Advanced Copy are as follows.

- Advanced Copy
 - Clone copy (EC)
 - Clone copy (OPC)
 - Clone copy (Quick OPC)
 - Snapshot copy (SnapOPC+)
- Remote Advanced Copy
 - Remote Copy (REC)
 - Synchronous mode
 - Consistency mode
 - Stack mode



.....

A maximum of 8 snapshot copy sessions can be processed simultaneously.
When processing 9 or more snapshot sessions simultaneously or when executing clone copy or remote copy, option products are required.
In addition, Advanced Copy License for ETERNUS Disk storage system is also required.

.....

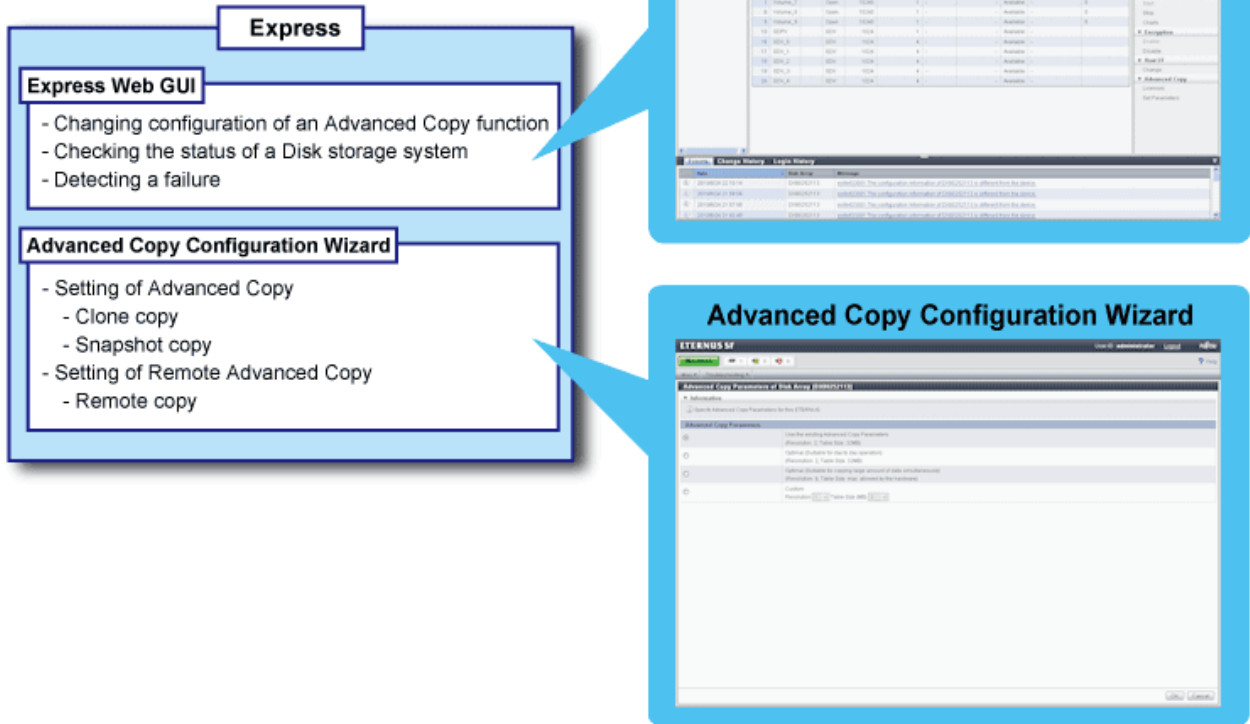
Performance management

The use of the GUI makes it possible to display in a graph the 24-hour performance information of the ETERNUS Disk storage system.
In addition, the command line operation makes it possible to output 1-hour or 24-hour performance information of the ETERNUS Disk storage system into a CSV file.

1.2.2 Configuration of Express

Express is comprised of the following components.

Figure 1.2 Configuration of Express



Express Web GUI

The following is the overview of the Express Web GUI.

When using the Express Web GUI, refer to it.

Figure 1.3 Overview of Express Web GUI

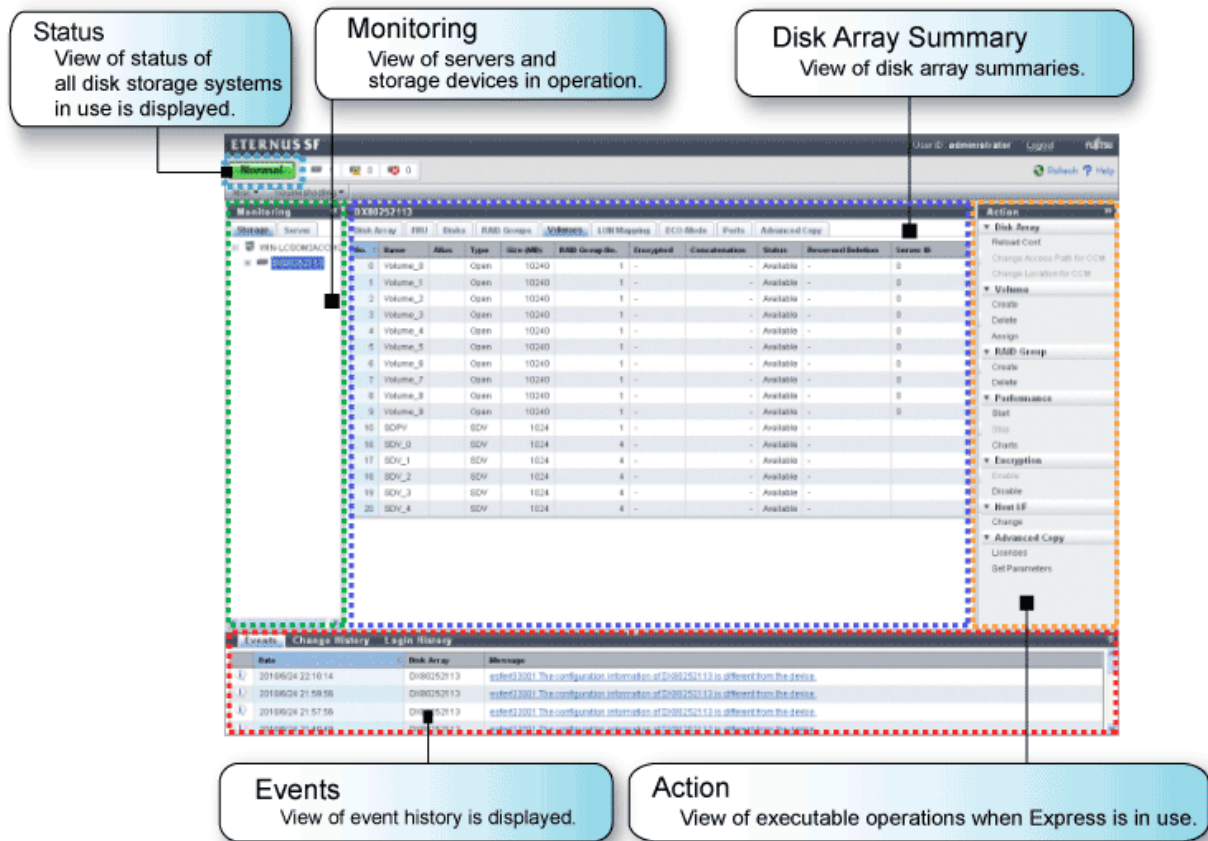






Table 1.1 Icons displayed on the Express Web GUI

Icon	Description
	Express installed server (management server).
	Express used server (business server).
	Disk storage system managed by Express.
	Volume in disk storage system.

Chapter 2 Required Environment

This chapter describes the environments required for a storage system including Express.

When you use the Advanced Copy function (except for Snapshot copy (SnapOPC+) within 8 sessions), you need to get a proper Advanced Copy License key in advance.

2.1 Hardware conditions

A storage system including Express requires the following hardware.

Table 2.1 Storage hardware conditions

Series name	Model name	Firmware version number
ETERNUS DX	DX60	V10L31 or later
	DX80	
	DX90	
	DX80 S2	V10L10 or later
	DX90 S2	
FibreCAT SX	SX60	J200P30 or later
	SX80	J200P30 or later
	SX80 iSCSI	J210P04 or later
	SX88	J200P30 or later
	SX100	K100P11 or later

Note

- For Remote Advanced Copy between DX90 and DX90 S2, the DX90 firmware must be updated to V10L60 or later.
- For FibreCAT SX Disk storage system, only monitoring is supported.

Table 2.2 Server hardware conditions

Series name
PRIMERGY

Note

PRIMERGY high reliability HA model and PRIMERGY high reliability FT model are unsupported.

Table 2.3 Capacities required for servers on which to install Express

Type of Express	Memory requirement (Unit : MB)	Disk space requirement (Unit : MB)	Remarks
Express Manager	128	1792 + (A)	See " Repository ".

Repository

When performance management is being performed, based on the type of target (ETERNUS DX60, DX80/DX80 S2, DX90/DX90 S2), the number of logical units involved, and the number of DE (Disk Enclosure), the required capacity given below becomes necessary.

$$(2) * (240 + (1.2 + 0.3 * \text{number of DEs} + 0.3 * (\text{number of LUs} + \text{number of RAIDGroups[*1]})) * (86400 / 60) + (95 * \text{number of DEs}) + (50 * (\text{number of LUs} + \text{number of RAIDGroups[*1]}))) / 1024 + 9 * (10.6 + 0.07 * (86400 / 60)) / 1024$$

[*1] The "number of RAIDGroups" is the number of RAIDGroups created from the LUs.

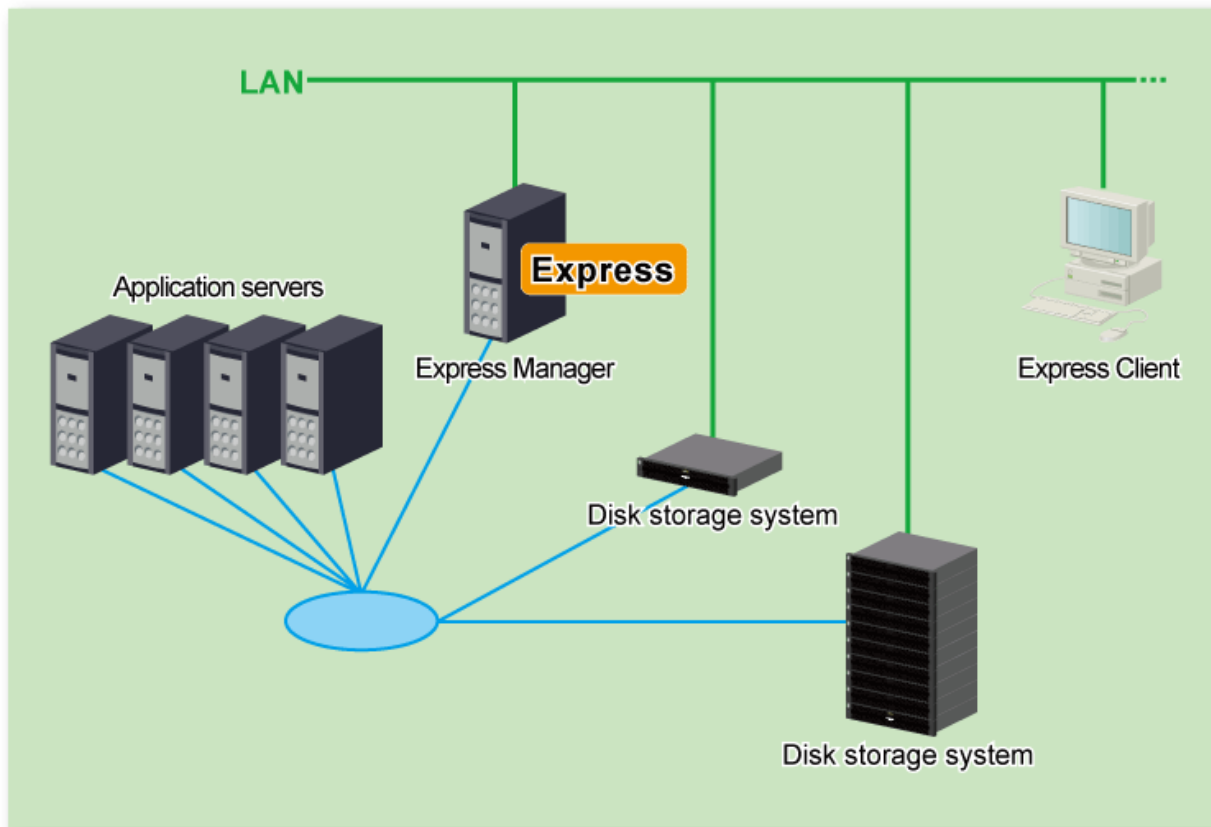
Example

When performing performance management of the ETERNUS DX80 system with 512 logical units, the following capacity is required.
 $(2 * (240 + (1.2 + 0.3 * 2 + 0.3 * (512 + 64))) * (86400 / 60) + (95 * 2) + (50 * (512 + 64))) / 1024 + (9 * (10.6 + 0.07 * (86400 / 60))) / 1024 = 549.1314\text{MB}$

Table 2.4 Recommended specs of PC that starts Express Web GUI

Type of Express	CPU requirement (Unit : GHz)	Memory requirement (Unit : MB)
Express Web GUI	2.0 or more	1024 or more

Figure 2.1 Schematic view showing hardware conditions



- Number of Disk storage systems to be managed
Express is recommended to manage less than 10 Disk storage systems.
- Connecting servers and Disk storage systems in any of the following methods
 - FC
 - iSCSI
 - SAS

2.2 Software conditions

Software conditions required for Express and software unavailable with Express are as follows.

Software conditions required for Express

Table 2.5 Software conditions for Express Manager

Service name	Comment
- SNMP Trap Service (for Windows Server 2003)	Windows SNMP standard trap reception service. Included in OS installed media.
- SNMP Trap (for Windows Server 2008)	

Table 2.6 Software conditions for Express Manager

OS	Comment
Microsoft(R) Windows Server(R) 2003, Standard Edition SP1,SP2 Microsoft(R) Windows Server(R) 2003, Enterprise Edition SP1,SP2 Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition SP2 Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition SP2	X64 supports only 32 bit compatibility mode (WOW64).
Microsoft(R) Windows Server(R) 2008 Standard(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter SP2(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM)(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) SP2(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM)(32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM) SP2(32-bit)(64-bit)	<ul style="list-style-type: none"> - (64 bit) supports only 32 bit compatibility mode (WOW64). - Server Core installation option is unsupported. - Guest OS in Hyper-V(TM) environment is unsupported.

OS	Comment
Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM) SP2(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Standard(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Standard(64-bit) SP1 Microsoft(R) Windows Server(R) 2008 R2 Enterprise(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Enterprise(64-bit) SP1 Microsoft(R) Windows Server(R) 2008 R2 Datacenter(64-bit) Microsoft(R) Windows Server(R) 2008 R2 Datacenter(64-bit) SP1	

Table 2.7 Software conditions for Express Web GUI

Web browser	Screen Resolution
Microsoft(R) Internet Explorer(R) 7	1024 * 786 pixels or more recommended
Microsoft(R) Internet Explorer(R) 8	
Mozilla(R) Firefox(R) 3.5 or later	

Exclusive software

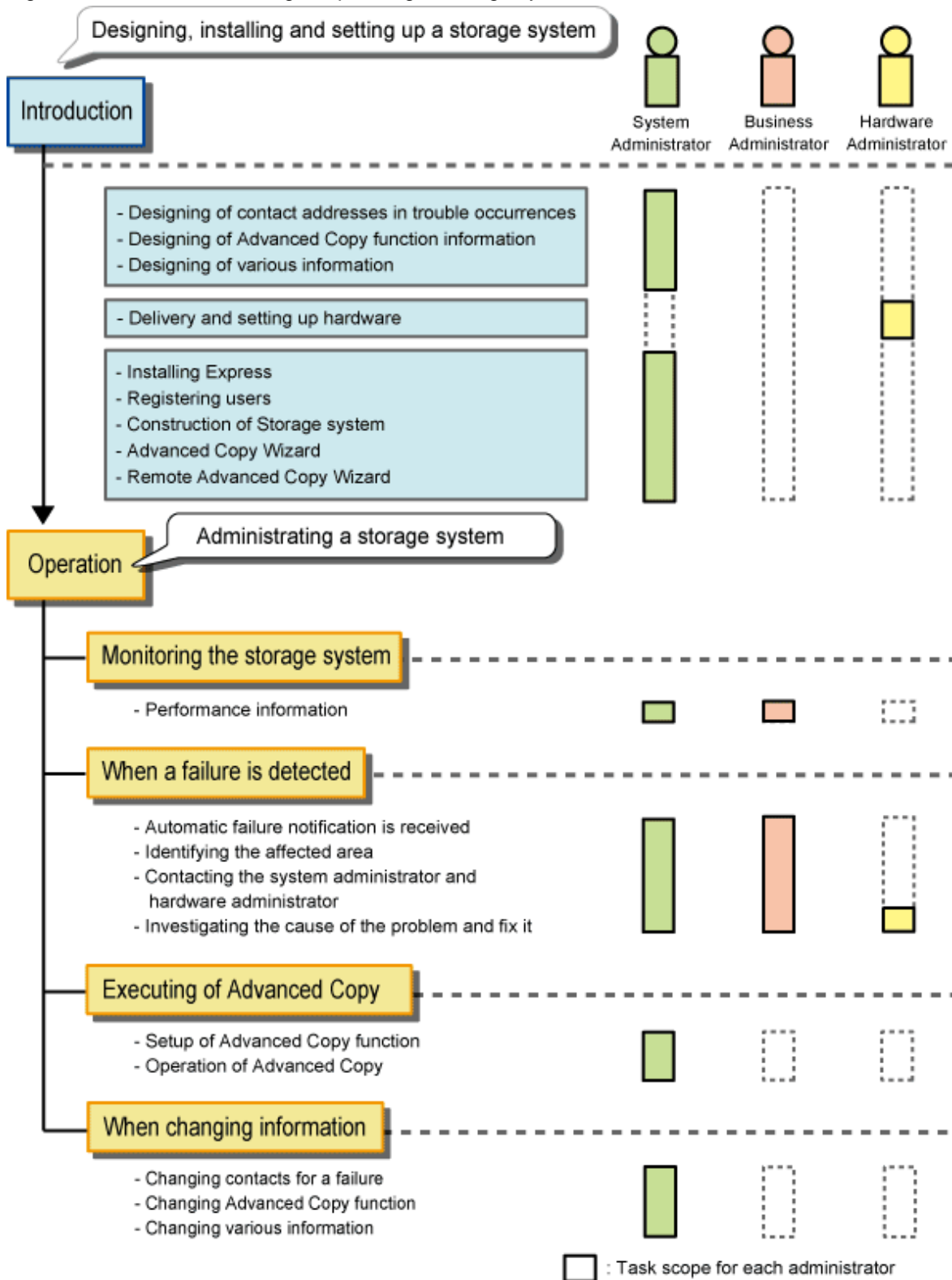
Express is not available for a server on which any of the following software is installed.

- ETERNUS SF Storage Cruiser
- Softek Storage Cruiser
- Systemwalker Resource Coordinator

Chapter 3 Flow from Installation to Operation

This chapter describes the flow from installation of a storage system to its operation.

Figure 3.1 Flow from installing to operating a storage system



Express defines the role of each administrator for installing and operating a storage system as follows.

Table 3.1 Roles of administrators

Administrator	Task
System administrator	Manages design through operation of storage systems. Handles all the tasks required to operate storage systems.
Business administrator	Manages business operations performed on servers. Performs backup and restore of business data and handles failures affecting managed business operations.
Hardware administrator	Manages storage system hardware. Handles hardware failures.

 **Information**

Administrator to be registered and required privileges

To use Express, it is necessary to register Administrator user information on the server on which to install Express. System administrator must be registered. Register Business administrator and Hardware administrator as required. For privileges given to each administrator, refer to "[5.2 Registering User Information](#)".

Chapter 4 List of Setting Items for Express

This chapter describes the information specified to Express to install and operate a storage system.

The following is the information specified to Express.

Table 4.1 List of information specified to Express

Information specified to Express	Item	For installation	During operation
"A.1 Server Information"	Name	A	B
	Alias	B	B
	HBA Type	A	C
	Host ID1 (Note1)	A	B
	Host ID2 (Note1)	B	B
"A.2 Disk Storage System Information"	Name	C	B
	Alias	B	B
	IP address or FQDN	A	B
	SNMP Community Name	A	B
	Username	A	B
	Password	A	B
	Encryption Mode	B	B
"A.3 Volume Information" (Note2)	Name	A	C
	Alias	B	C
	Size	A	C
	Type	A	C
	Source Volume Size	B	C
	Number of Volumes	A	C
	Encryption	B	C
	RAID Level	B	C
"A.4 RAID Group Information" (Note2)	Name	A	C
	RAID Level	A	C
	Assigned CM	A	C
	Disk Selection	A	C
	Number of Disks	A	C
"A.5 Information on Advanced Copy Function"	Configuration of Advanced Copy	A	B
	Configuration of Remote Advanced Copy	B	B
"A.6 E-mail Information"	SMTP server	A	B
	Mail Sender	A	B
	SMTP Port	A	B
	Person in Charge	A	B
	Phone	A	B
	Email	A	B
	Send Event Notification Email	B	B

Information specified to Express		Item	For installation	During operation
"A.7 Host Interface Information"	For FC connection	Connection	B	B
		Loop ID	B	B
		Transfer Rate	B	B
		Host Affinity	B	B
		Host Response	B	B
	For iSCSI connection	IP Address	A	B
		Subnet Mask	B	B
		Default Gateway	B	B
		iSCSI Name	A	B
		Alias Name	B	B
		Host Response	B	B
	For SAS connection	Host Affinity	B	B
Host Response		B	B	
"A.8 Various Information"		Events	B	B
		Login/Logout History	B	B
		Configuration Change History	B	B
		Screen Refresh Interval	B	B

A : Item that is required.

B : Item that can be added/changed.

C : Item that cannot be changed.

Note 1 : "Host ID1" and "Host ID2" are changed by the "HBA Type".

- When "HBA Type" is FC or SAS:
 - HBA#1WWN
 - HBA#2WWN
- When "HBA Type" is iSCSI:
 - HBA#1iSCSI Name
 - HBA#1IP Address
 - HBA#2iSCSI Name
 - HBA#2IP Address

Note 2 : Volumes and RAID groups, can be created and deleted during operation, however these settings can not be changed after creating the volumes and the RAID groups.

Chapter 5 Installing

This chapter describes the procedure to install a disk storage system using Express.

5.1 Installing Express Manager

To use a server on which Express is installed, install Express Manager (hereinafter referred to as "Express Manager") into a PC server. Refer to "[C.1 Installing](#)" for the installation method.

In addition, the PC server on which Express Manager is installed is referred to as "Management server".

5.2 Registering User Information

Register Express users before using a disk storage system.

With reference to the table below create user accounts of system administrator and business administrator on the management server.

Table 5.1 Privileges given to administrator user account

Administrator	Privileges
System administrator	User that is registered to the management server operating system and has administrator privileges
Business administrator	User registered to the management server operating system, who manages business operation and should have administrator privileges.



Note

Any user with privileges described in "[Table 5.1 Privileges given to administrator user account](#)" can use Express. Create user accounts used only for Express to prevent unexpected users from using it.

In addition, user's login history can be checked by [event] pane - [Login History] tab in the Express Web GUI.



Information

Refer to "[Chapter 3 Flow from Installation to Operation](#)" for the roles of system administrator and business administrator.

5.3 Configuring the Network Environment

Express uses SNMP to register disk storage systems. Therefore, before registering devices, it is required to start SNMP Agent. Those disk storage systems that have not SNMP Agent started cannot be registered.

Check the network environment, access privileges and settings of communication mode between management server and disk storage system. If either communication mode of the management server or the disk storage system is set to "Full (full duplex)", do not set the other to "Auto Negotiation".

Refer to the manual for each disk storage system and check the network environment settings.

If the network environment configurations are insufficient, set up them with the ETERNUS Web GUI or FibreCAT SX WBI (web-browser interface).

If a firewall is placed, set the following port numbers to the firewall.

Table 5.2 Setting up a firewall between the management server and the ETERNUS Disk storage system

Port Number	Protocol	Communication Start Direction
23	tcp	Communication from management server to ETERNUS Disk storage system.
161	udp	Communication from management server to ETERNUS Disk storage system.
162	udp	Communication from ETERNUS Disk storage system to management server.
1999	tcp	Communication from management server to ETERNUS Disk storage system.

 **Note**

The telnet connection and the Maintenance connection should be available in setting up interface on the ETERNUS Disk storage system.

Table 5.3 Setting up a firewall between the management server and the FibreCAT SX Disk storage system

Port Number	Protocol	Communication Start Direction
161	udp	From management server to FibreCAT SX Disk storage systems.
162	udp	From FibreCAT SX Disk storage systems to management server.

Table 5.4 Setting up a firewall between the management server and the PC using Express (or server)

Port Number	Protocol	Communication Start Direction
9855	tcp	Communication from PC or server using Express to management server.

 **Note**

Notes in combination with products using the SNMP trap reception function

As with ServerView AlarmService, Express use OS standard SNMP trap reception service for fault management with SNMP Trap reception.

Therefore, if any of the following products is mixed, take the same setting procedure as ServerView AlarmService is mixed.

- Systemwalker Centric Manager

For specific setting method, refer to each product's manual.

5.4 Registering Disk Storage Systems

Using the Express Web GUI, take the following procedure to register disk storage systems to be managed using Express.

This procedure should be taken by the system administrator.

1. Execute the following preparations to discover the storage system for the Express.

- For ETERNUS Disk storage system

Please set by ETERNUS Web GUI following item, refer to the ETERNUS Web GUI manuals for more information.

- Check the IP address of the management server.
Check this IP address with IP address list of permitted MNT ports on the "Setup Network Environment Screen".
- Enable the SNMP function of MNT port on the "Setup SNMP Agent (Basic Interface) Screen".
- Check the ETERNUS Disk storage system names displayed in the "Name" column on the "Modify Storage System Name Screen".

When using Advanced Copy functions, specify 16 or less alphanumeric characters for ETERNUS Disk storage system name.

- When you connect iSCSI, specify "Enable" the use of iSNS server in the target port.

For ETERNUS DX80 S2/DX90 S2, in addition to the above, please execute the following settings:

- In the ETERNUS Web GUI "Create SSH Server Key", create a new SSH server key. The number of bits for the key is at your discretion.
- In the ETERNUS Web GUI "Setup User Account", create a Software Role Account with the account information created at the step 6 of this procedure.
- If an SNMP community name is not already set for the ETERNUS Disk storage system, create the SNMP community name in the "Setup SNMP Community" of the ETERNUS Web GUI.

- For FibreCAT SX Disk storage system

Please set by FibreCAT SX WBI according to the following procedures, refer to FibreCAT SX Series Administrator's Guide for more information.

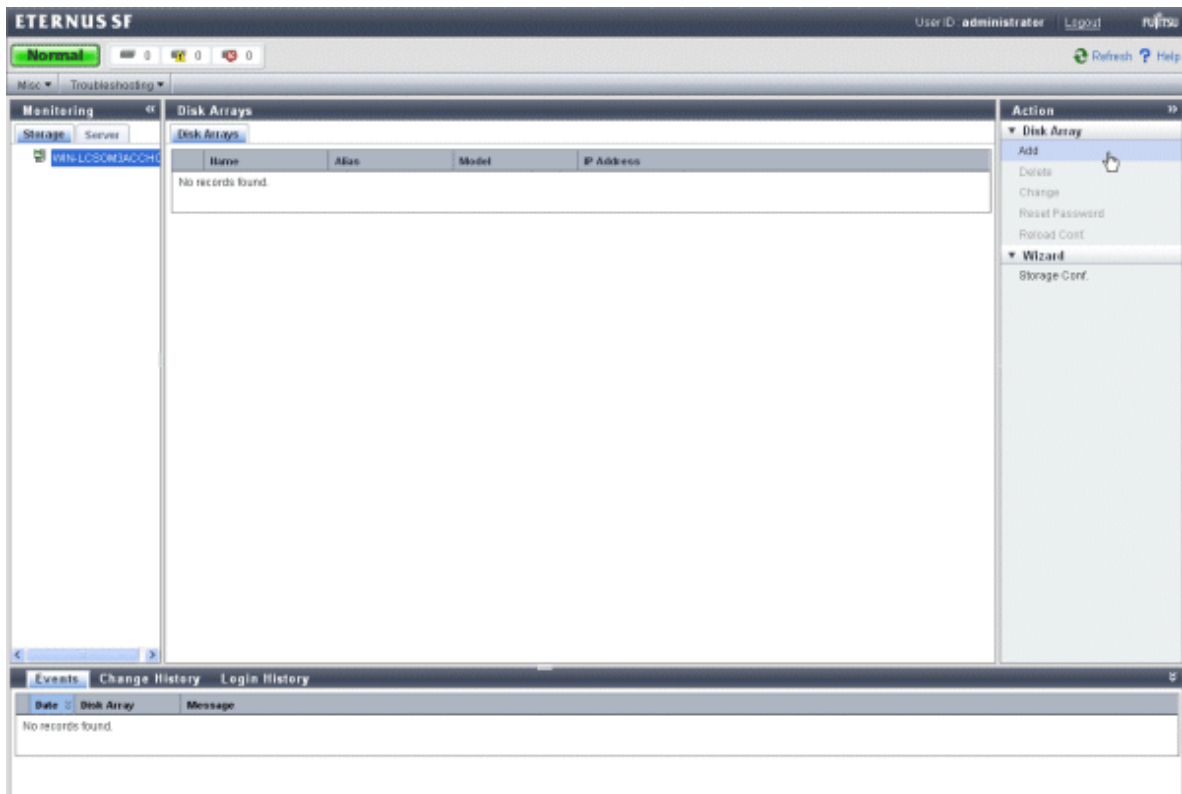
- Make the SNMP function effective at "Services Security" page.

2. Start the Express Web GUI.

To start the Express Web GUI, see "[6.1 Starting the Express Web GUI](#)".

3. Select a management server from [Monitoring] pane - [Storage] tab.

4. Select [Disk Array] - [Add] in [Action] pane and specify the IP address, Administrator ID and password for the disk storage system.



5. Specify an IP address and a SNMP community name. Also, you can specify FQDN(Fully Qualified Domain Name) instead of IP address.

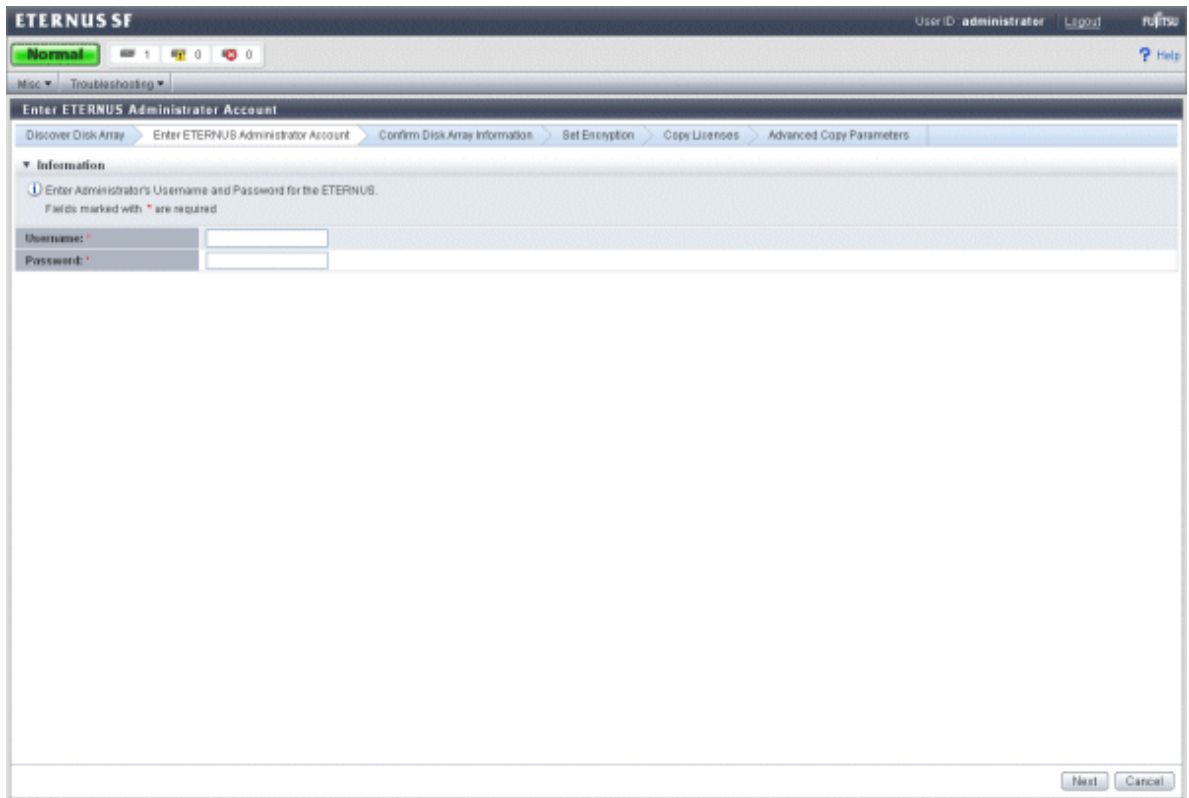
The screenshot shows the ETERNUS SF web interface. At the top, the user is logged in as 'administrator'. The main navigation bar includes 'Normal', 'Misc', and 'Troubleshooting'. The current page is titled 'Discover Disk Array' and features a progress bar with steps: 'Discover Disk Array', 'Enter ETERNUS Administrator Account', 'Confirm Disk Array Information', 'Set Encryption', 'Copy Licenses', and 'Advanced Copy Parameters'. The 'Information' section is expanded, showing instructions: 'Enter the details of the Disk Array to be added. Fields marked with * are required.' Below this are three input fields: 'IP Address or FQDN *', 'SNMP Community Name *' (with 'public' entered), and 'Alias:'. The 'Next' and 'Cancel' buttons are located at the bottom right of the form.

 Note

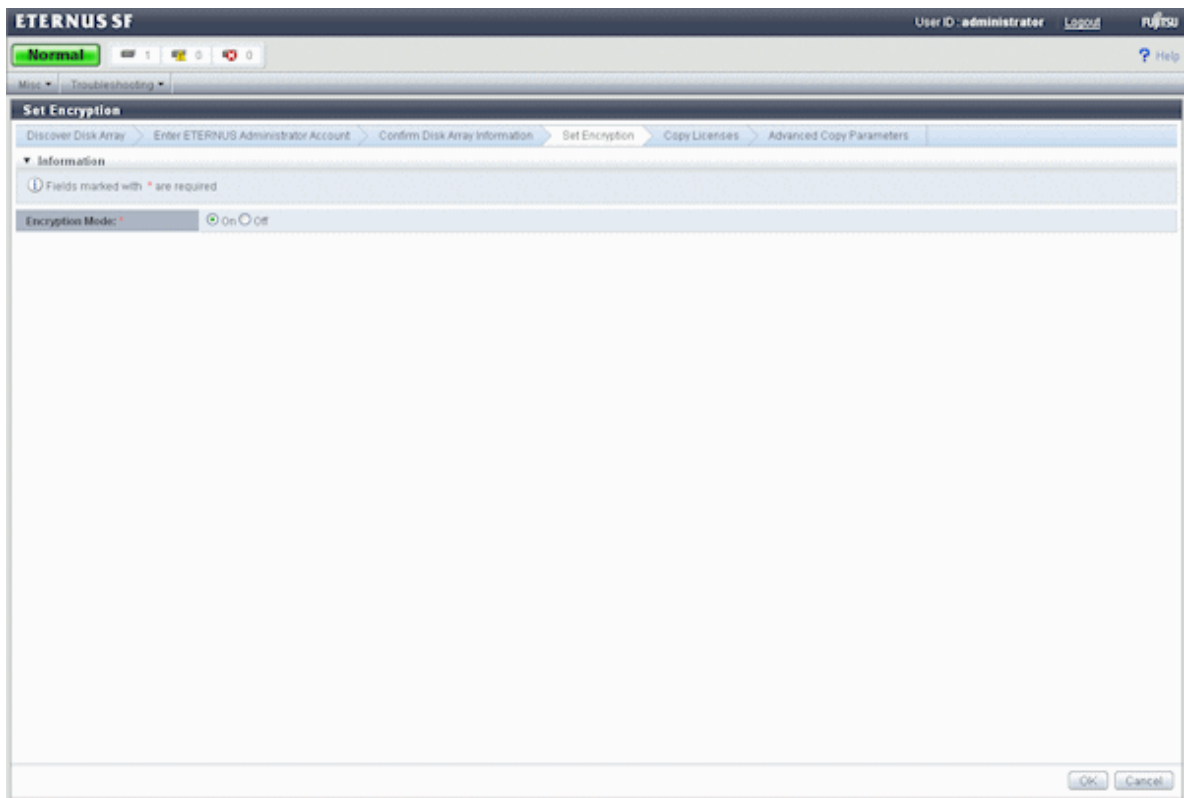
If the ETERNUS Disk storage system whose IP address is set to 2 CMs respectively is added by [Disk Array] - [Add], it is necessary to specify "Master IP" in the wizard.

6. Specify Administrator ID and password. (ETERNUS Disk storage system Only)
 - For ETERNUS DX60/DX80/DX90
Specify a user account with ETERNUS disk storage system administrator privileges.

- For ETERNUS DX80 S2/DX90 S2
Specify a user account with the ETERNUS disk storage system Software Role assigned.



7. Confirm displayed current configuration information is correct.
8. Set up Encryption mode. (ETERNUS Disk storage system Only)



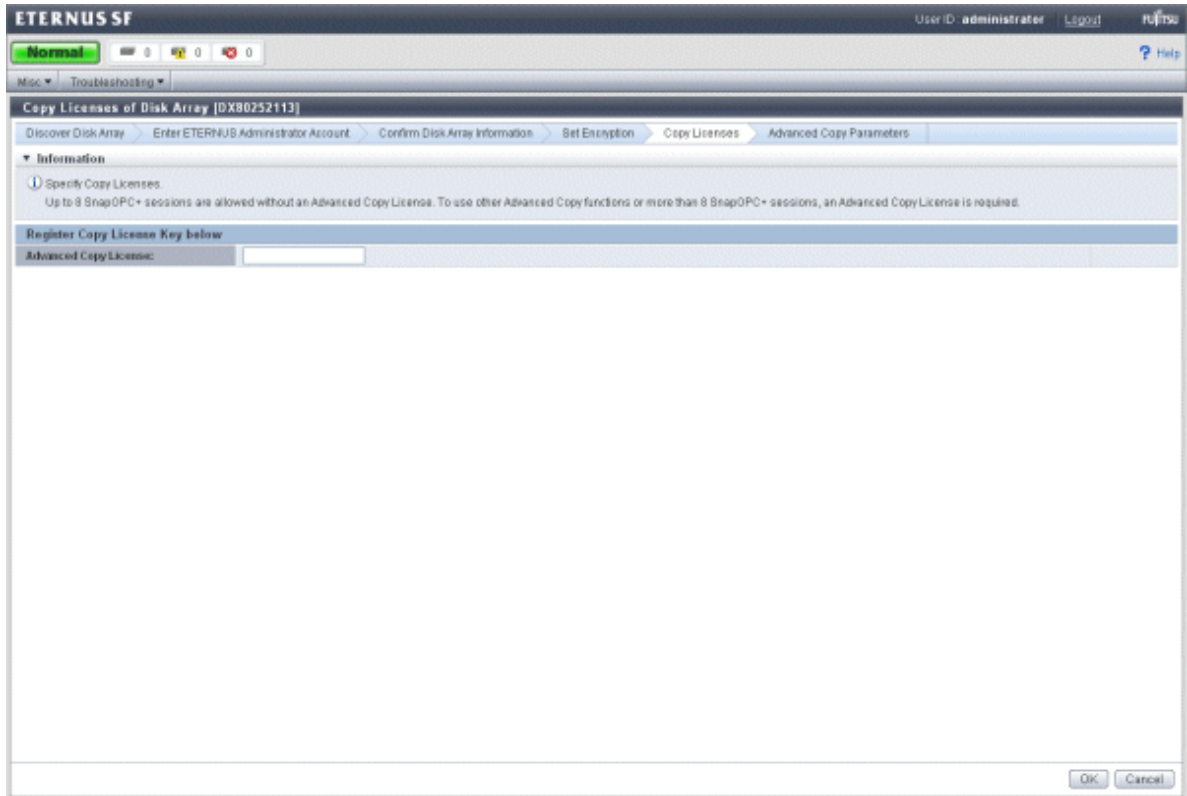
9. Input Advanced Copy License. (ETERNUS Disk storage system Only)

Displays Advanced Copy license status. If the Advanced Copy license is not registered, input the license key.

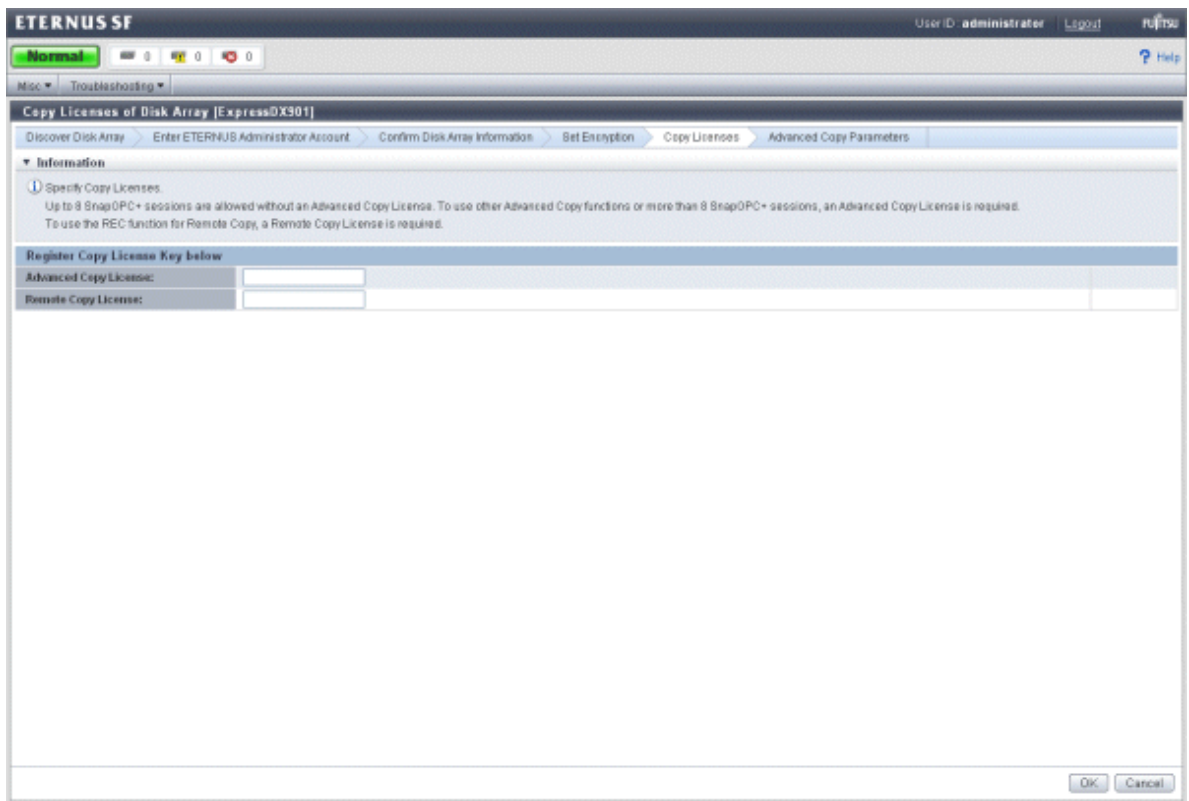
 **Point**

.....
To utilize Advanced Copy functions or Remote Advanced Copy functions, the corresponding Advanced Copy licenses are required. However, up to 8 SnapOPC+ sessions can be run by Express without license.
.....

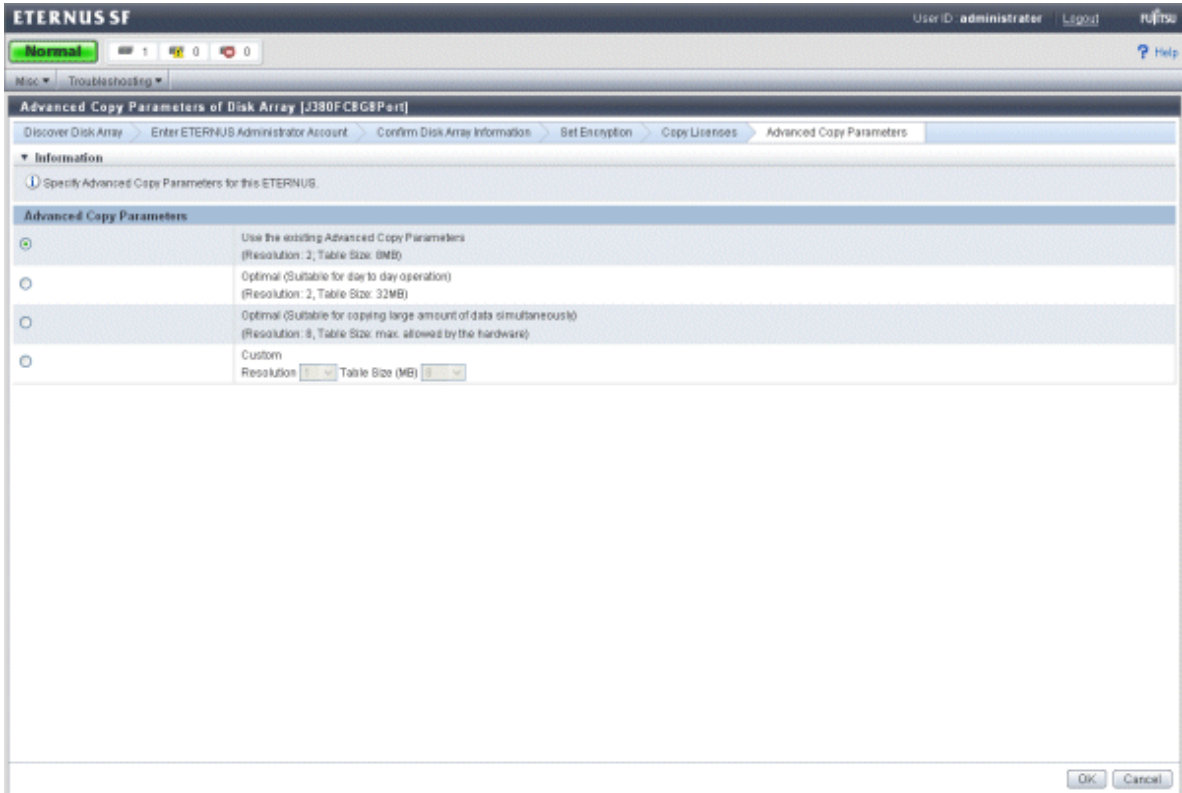
- In case of ETERNUS DX60/DX80:



- In case of ETERNUS DX90:



10. Set up Advanced Copy functions when you need to use it. (ETERNUS Disk storage system Only)



Note

To delete registered disk storage systems, select a disk storage system to be deleted on the Express Web GUI and click [Disk Array] - [Delete] in [Action] pane.

5.5 Storage Configuration Wizard

Assign volumes to a new server from registered ETERNUS disk storage system using the Storage Configuration Wizard.

1. Check server WWPN (World Wide Port Name), iSCSI or SAS addresses from the business server.
2. Start the Express Web GUI.
3. Select [Wizard] - [Storage Conf] in [Action] pane in the Express Web GUI to start the Storage Configuration Wizard.

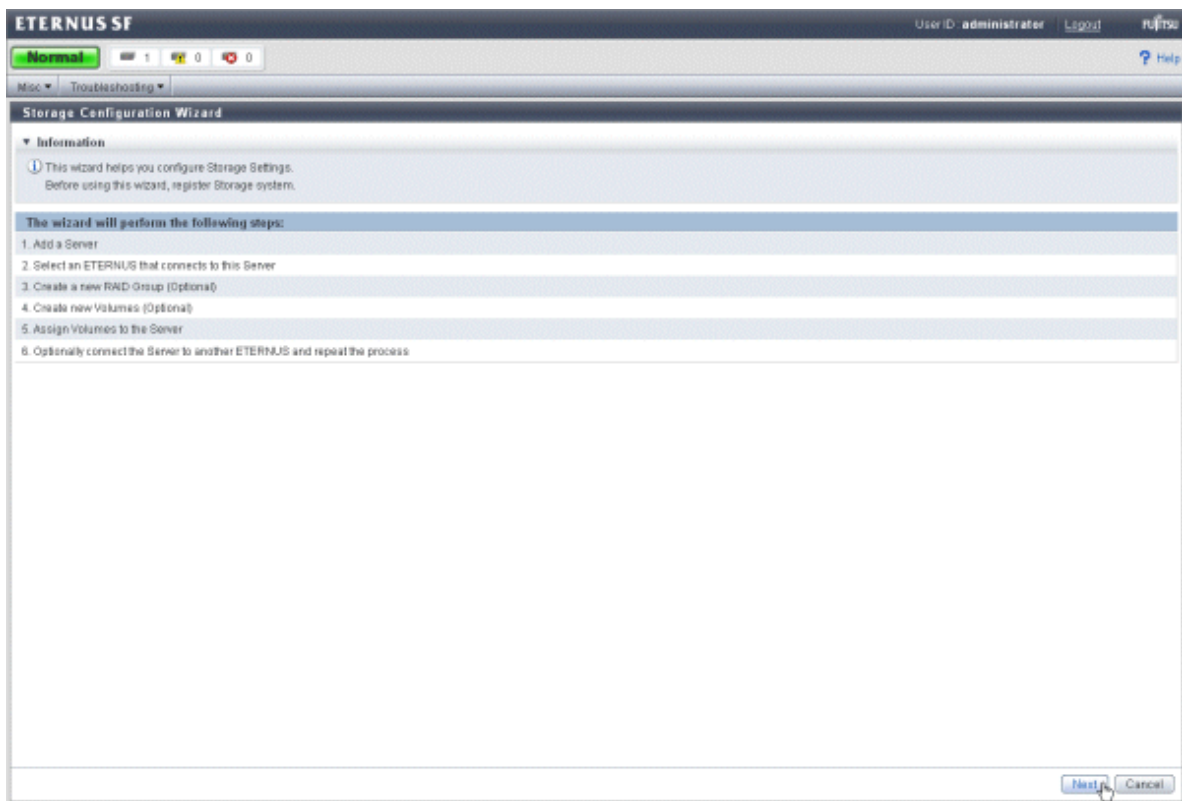
The screenshot displays the ETERNUS SF Express Web GUI interface. The main content area is divided into two panes: 'Monitoring' on the left and 'Disk Arrays' on the right. The 'Disk Arrays' pane contains a table with the following data:

Name	Alias	Model	IP Address
D080252113		ET00F21A	

The 'Action' pane on the right side of the interface is expanded to show the 'Wizard' section, where 'Storage Conf.' is selected. Below the main content area, there is an 'Events' pane showing a log of messages:

Date	Disk Array	Message
2010/7/15 18:45:55	D080252113	etnet23001 The configuration information of D080252113 is different from the device.
2010/7/15 18:17:43	D080252113	etnet23001 The configuration information of D080252113 is different from the device.
2010/7/15 18:0:45	D080252113	etnet23001 The configuration information of D080252113 is different from the device.
2010/7/15 18:5:46	D080252113	etnet23001 The configuration information of D080252113 is different from the device.

4. Confirm the procedure for registering servers.



5. Specify server information.

When a disk storage system is connected to a server, the server WWPN can automatically be specified.

Click the [Discover] button on the following screen to select checked step 1 information from a list.

For more information about items to be specified, see "A.1 Server Information".

ETERNUS SF User ID: administrator Logout Fujitsu

Normal 1 0 0

Misc Troubleshooting Help

Add Server

Information
Fields marked with * are required

Server Information
Name:
Alias:

Host Bus Adapter Information
HBA Type: FC iSCSI SAS
HBA1 WWN: Discover
HBA2 WWN: Discover

OK Cancel

Discover HBA

Select ETERNUS storage system and discover HBA. Help

ETERNUS DX80252113

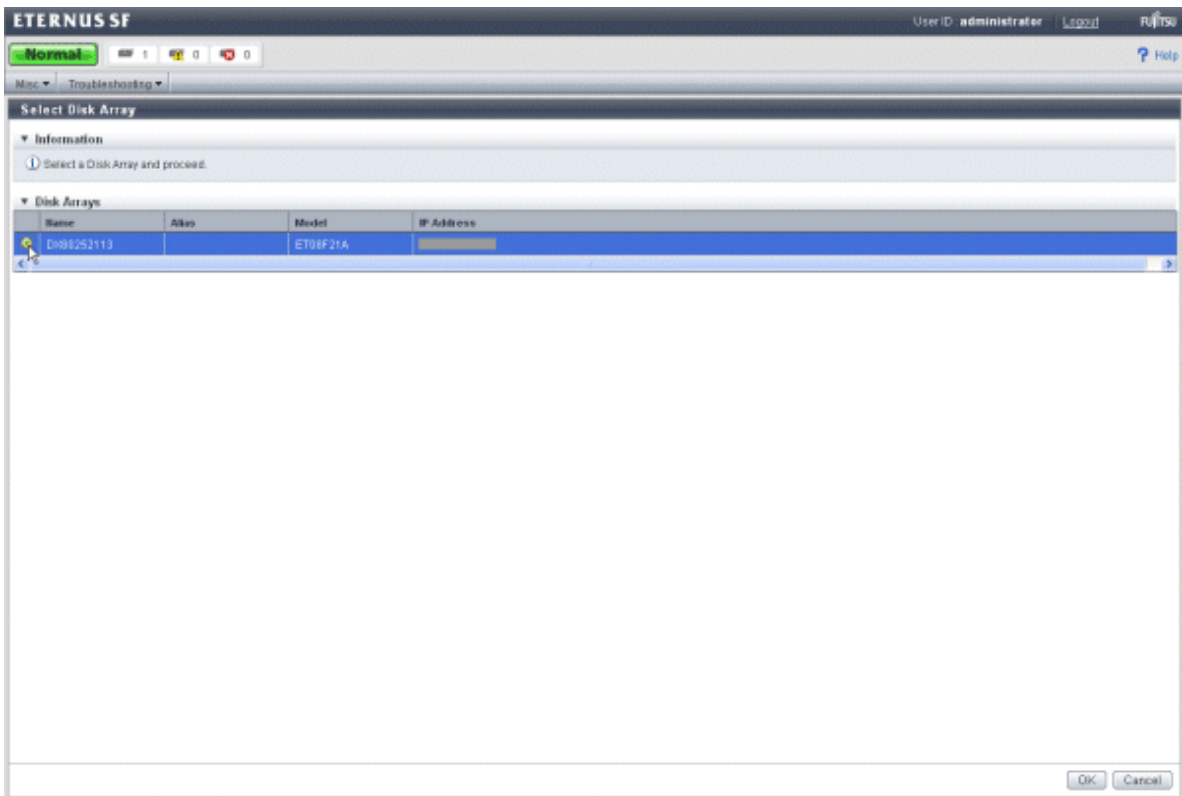
	HBA	Connected	
<input checked="" type="radio"/>		Yes	

OK Cancel

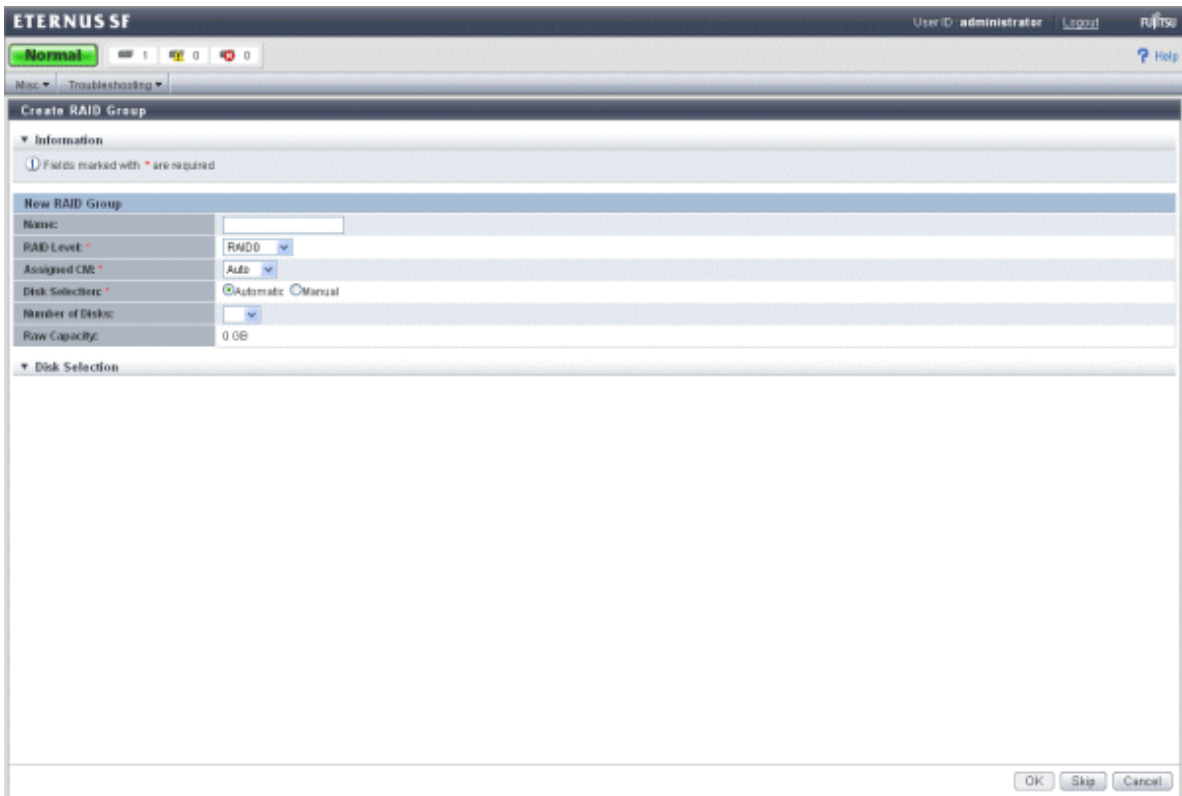
When specifying manually, enter each item of checked step 1 information manually.

6. Select a disk storage system.

Select a disk storage system used by the registered server.



7. Create a RAID Group to the disk storage system. (arbitrarily)



For more information about items to be specified, see "[A.4 RAID Group Information](#)".

8. Create new volumes to the disk storage system.(arbitrarily)

ETERNUS SF User ID: administrator Logout Fujitsu

Normal 1 0 0 0 Help

Mac Troubleshooting

Create Volume

Information
Fields marked with * are required

New Volumes

Name:

Alias:

Size: 0B

Type: Open

Source Volume Size: 0B

Number of Volumes:

Encryption: Enable Disable

RAID Level: All

RAID Group

Name	RAID Level	Allocation	Total	Free
raid01	RAID0	<input type="text"/>	5450B	4650B
raid02	RAID0	<input type="text"/>	5450B	4650B
raid03	RAID0	<input type="text"/>	818.500B	738.500B
100RAID	RAID1	<input type="text"/>	457.250B	441.250B

OK Skip Cancel

For more information about items to be specified, see "A.3 Volume Information".

9. Assign volumes to the server.

For more information about items to be specified, see "7.6.2 Assign volumes".

10. Specify other disk storage system.

When you use other disk storage system on the registered server, click the [Yes] button and repeat the above step 6 to step 9.

Confirmation

Do you want to select another Disk Array for configuration?

Yes No

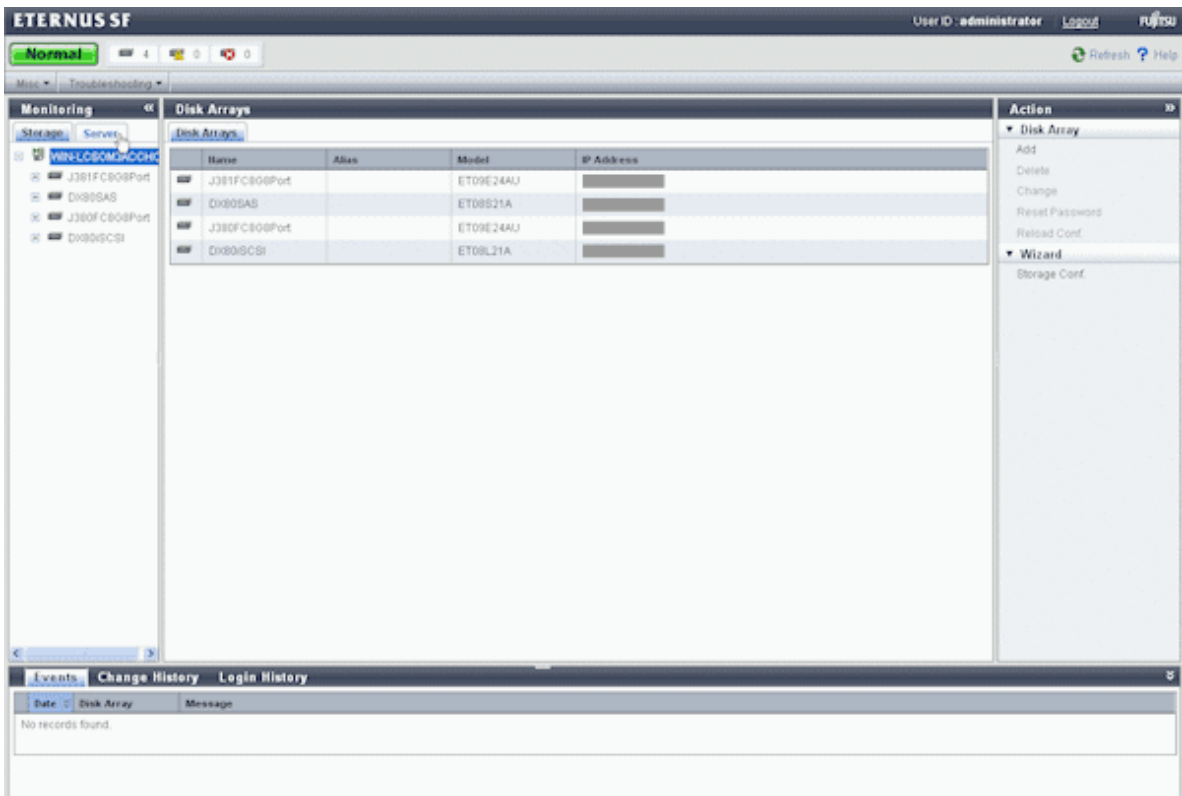
5.6 Registering Servers

Register a server used for storage system to Express.

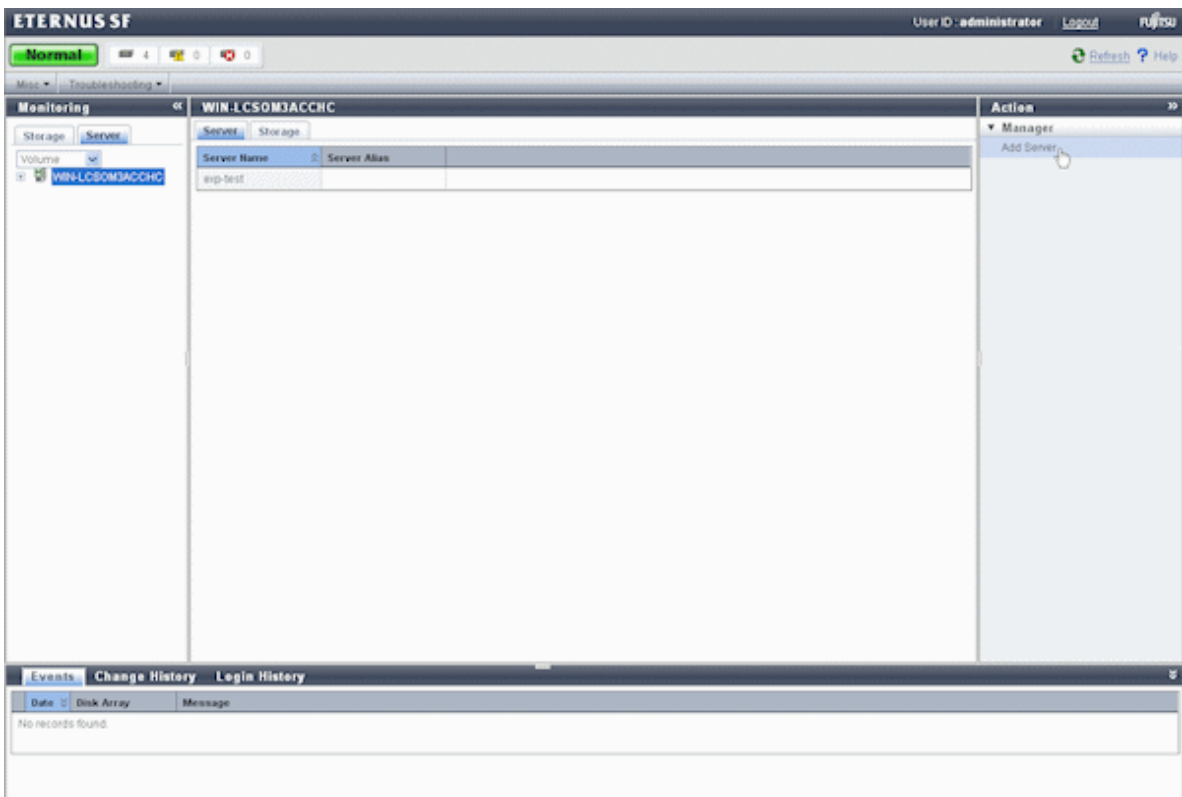
This function is for ETERNUS Disk storage system only.

1. Check server WWPN (World Wide Port Name), iSCSI or SAS addresses from the business server.
2. Start the Express Web GUI.

3. Click [Monitoring] pane - [Server] tab.



4. Click [Manager] - [Add Server] in [Action] pane.

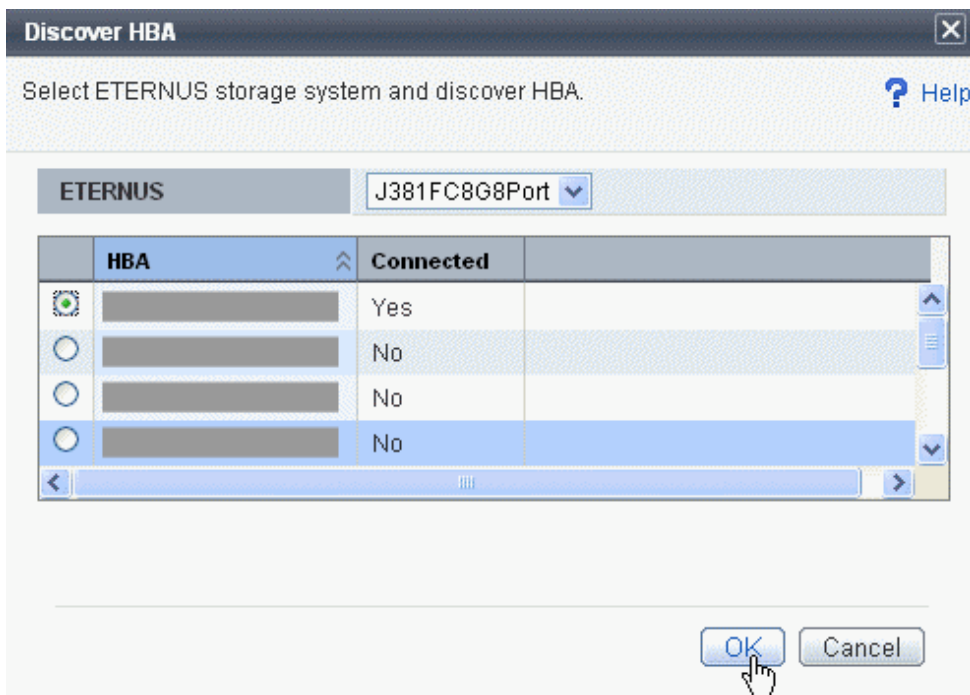
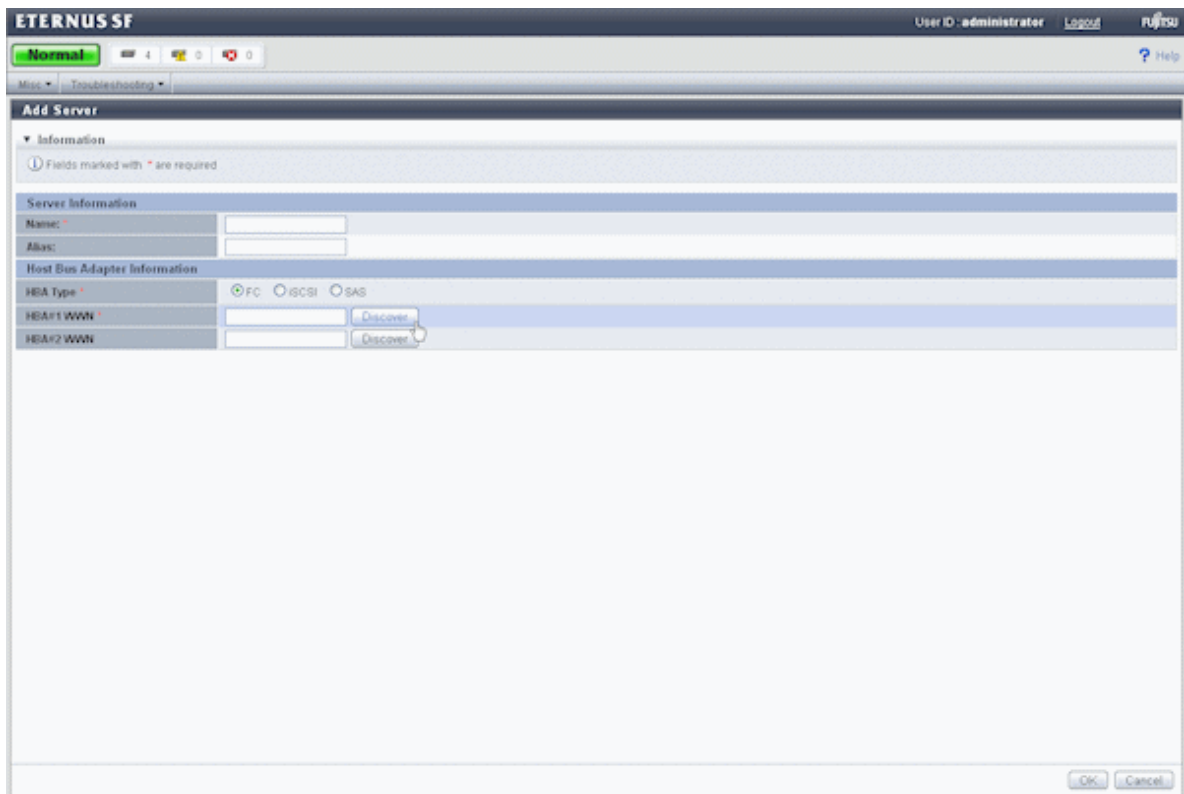


5. Specify server information.

When a disk storage system is connected to a server, the server WWPN can automatically be specified.

Click the [Discover] button on the following screen to select checked step 1 information from a list.

For more information about items to be specified, see "A.1 Server Information".



When specifying manually, enter each item of checked step 1 information manually.

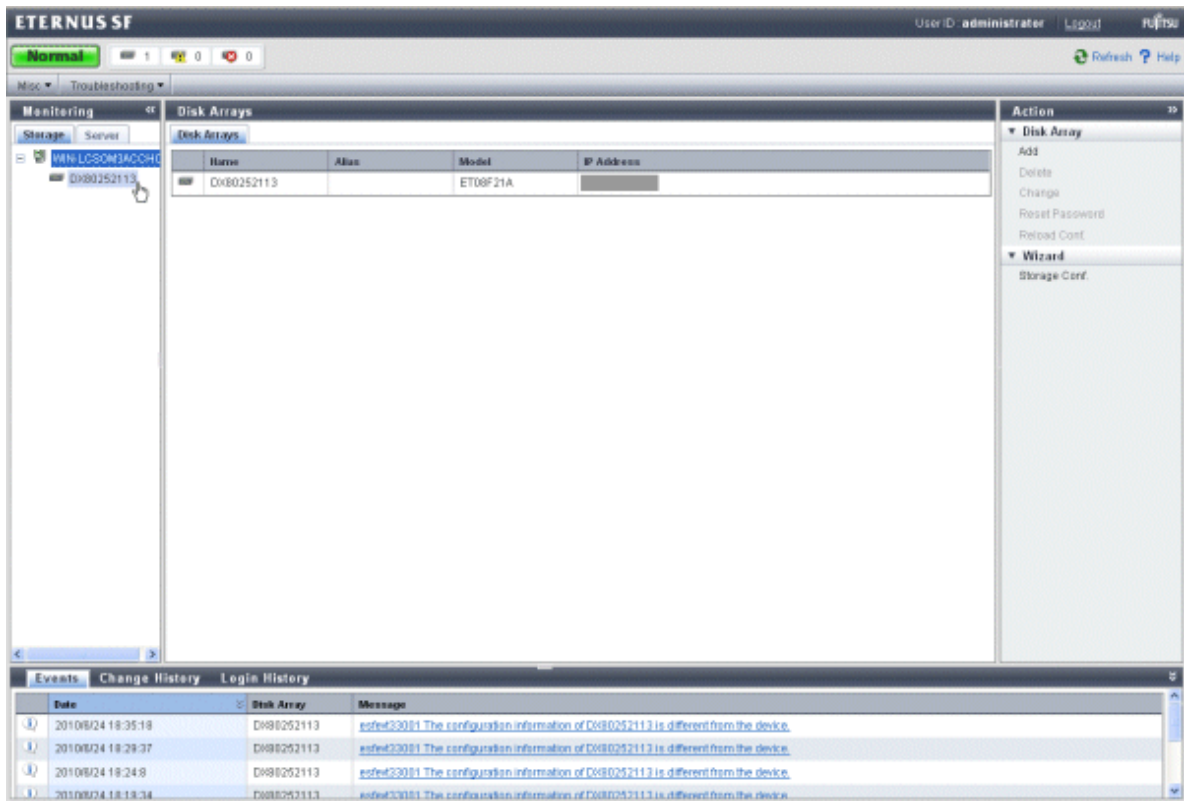
6. Click the [Yes] button in the Confirmation dialog box and register the server.

5.7 Creating RAID Groups

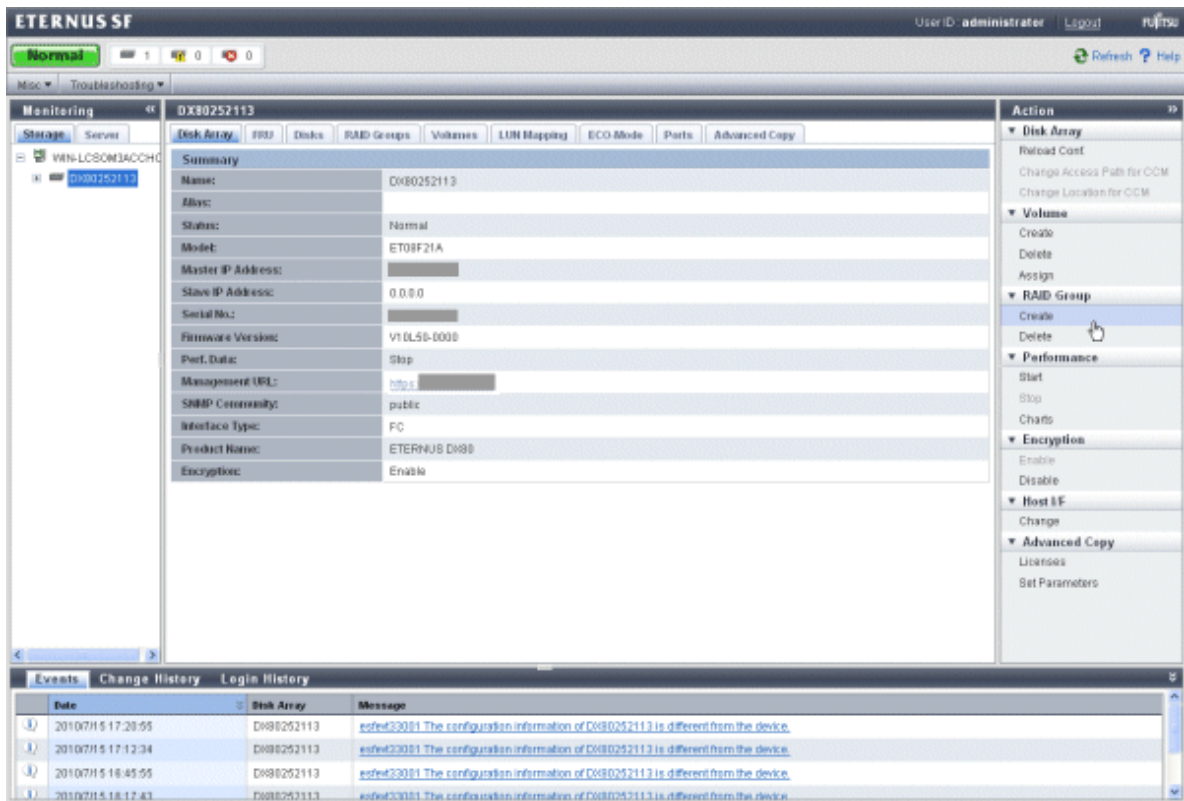
Creating RAID groups on a disk storage system.

This function is for ETERNUS Disk storage system only.

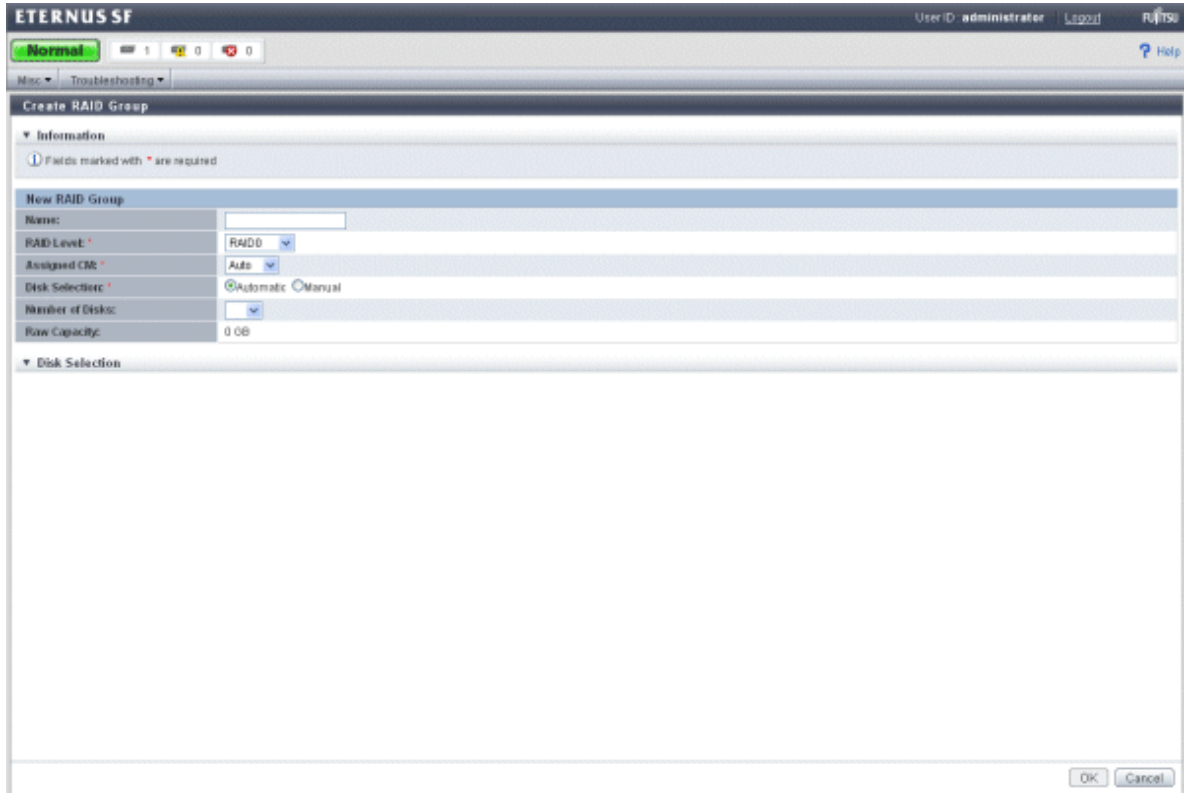
1. Start the Express Web GUI.
2. Select a disk storage system to which to create RAID groups, from [Storage] tab in [Monitoring] pane.



3. Select [RAID Group] - [Create] in [Action] pane.



4. Create a RAID group.



For more information about each item, refer to "A.4 RAID Group Information".

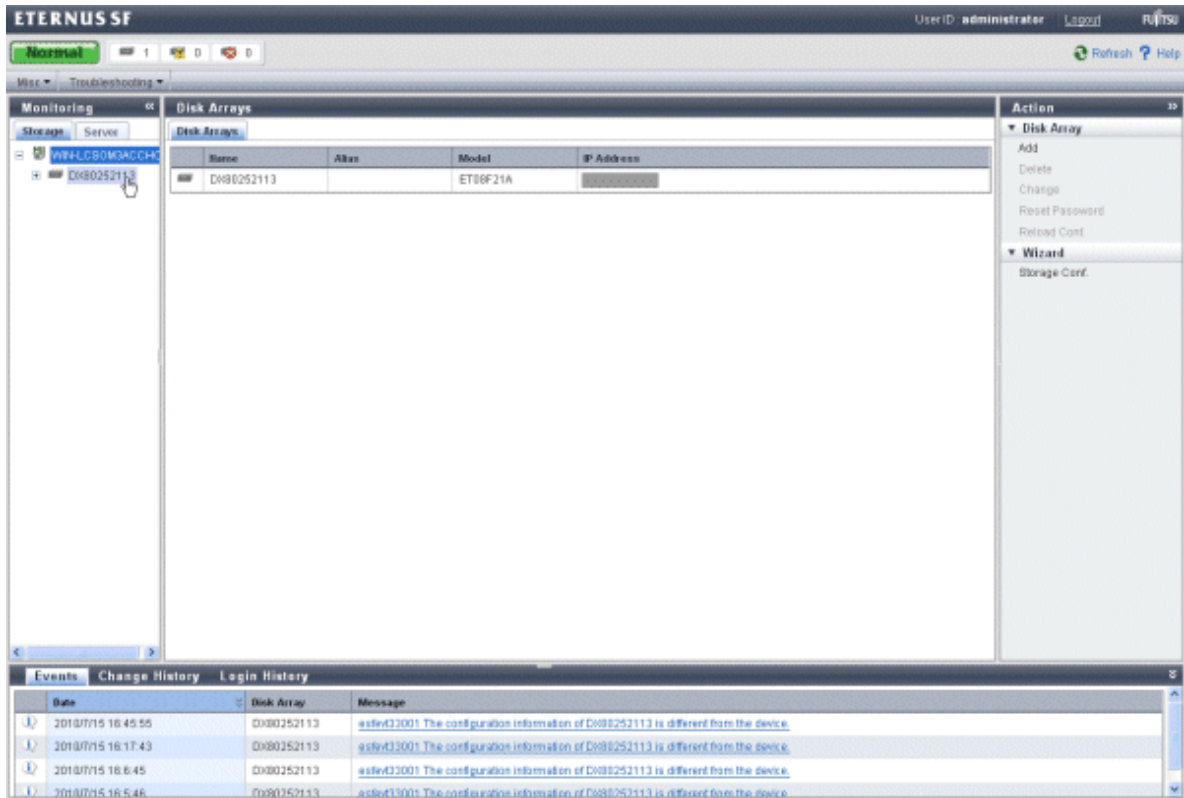
5. Click the [Yes] button in the Confirmation dialog box and create a RAID group.

5.8 Creating Volumes

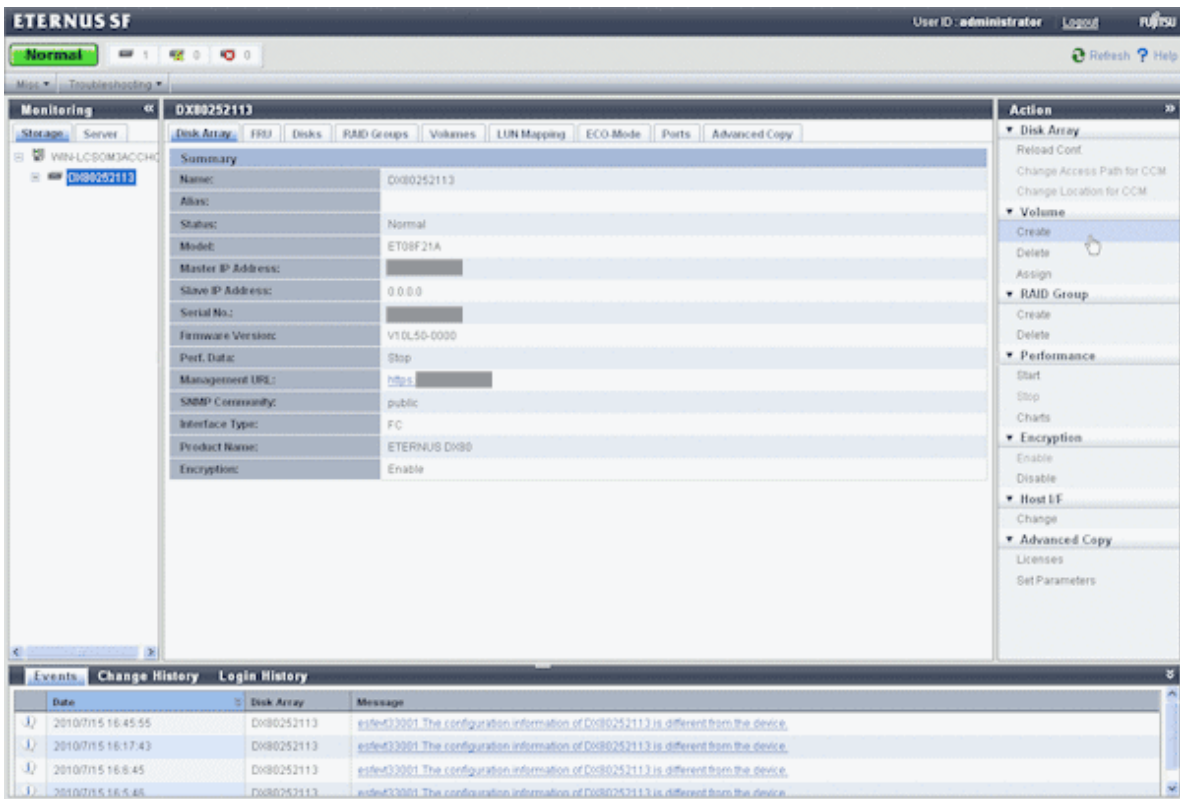
Creating volumes on a disk storage system.

This function is for ETERNUS Disk storage system only.

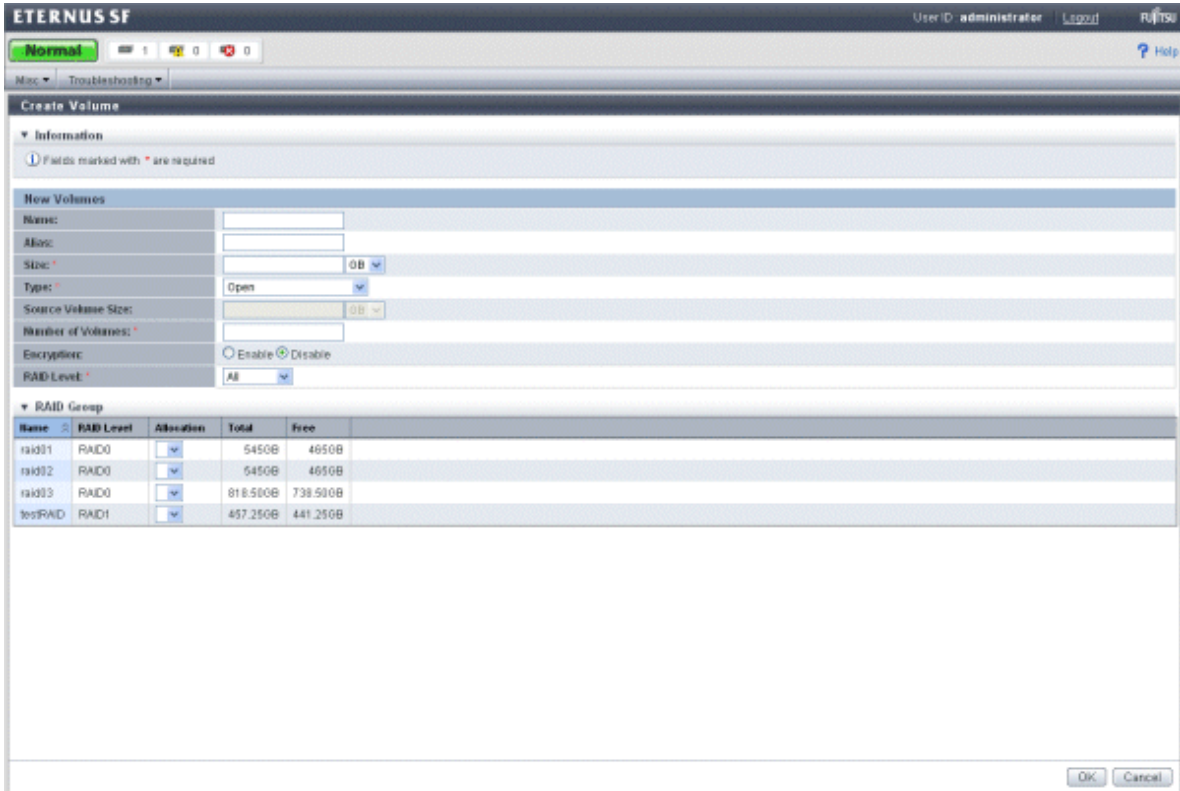
1. Select a storage system to which to create volumes, from [Storage] tab in [Monitoring] pane.



2. Select [Volume] - [Create] in [Action] pane.



3. Enter created volumes information and click [OK] button.



For more information about items to be specified, see "A.3 Volume Information".

Note

The number of volumes that can be created at one time is as follows.

- OPEN or SDV
100 or less
- SDPV
10 or less

4. Click the [Yes] button in the Confirmation dialog box and create volumes.

5.9 Assigning Volumes to a server

Specifying volumes to be assigned to a server.

This function is for ETERNUS Disk storage system only.

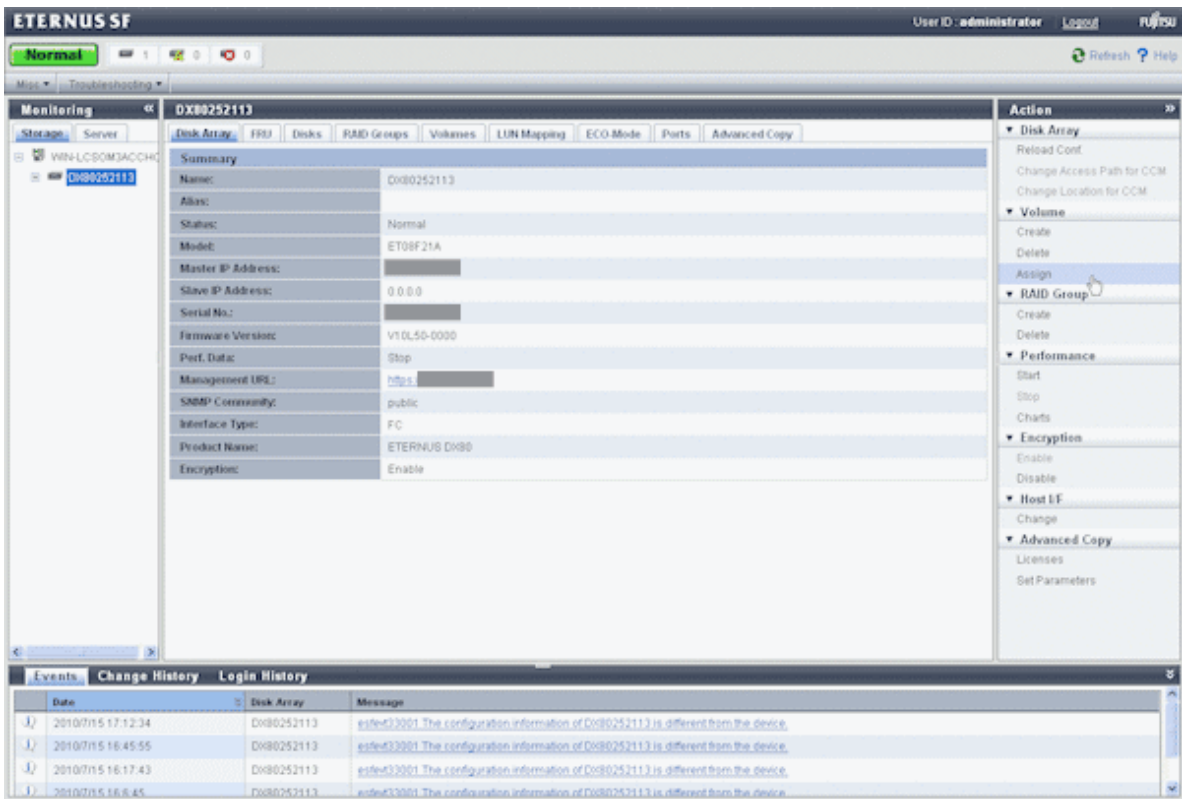
1. Select a storage system to which to assign the volumes, from [Storage] tab in [Monitoring] pane.

The screenshot displays the ETERNUS SF web interface. The top navigation bar includes the user ID 'administrator' and a 'Logout' button. The main interface is divided into several sections:

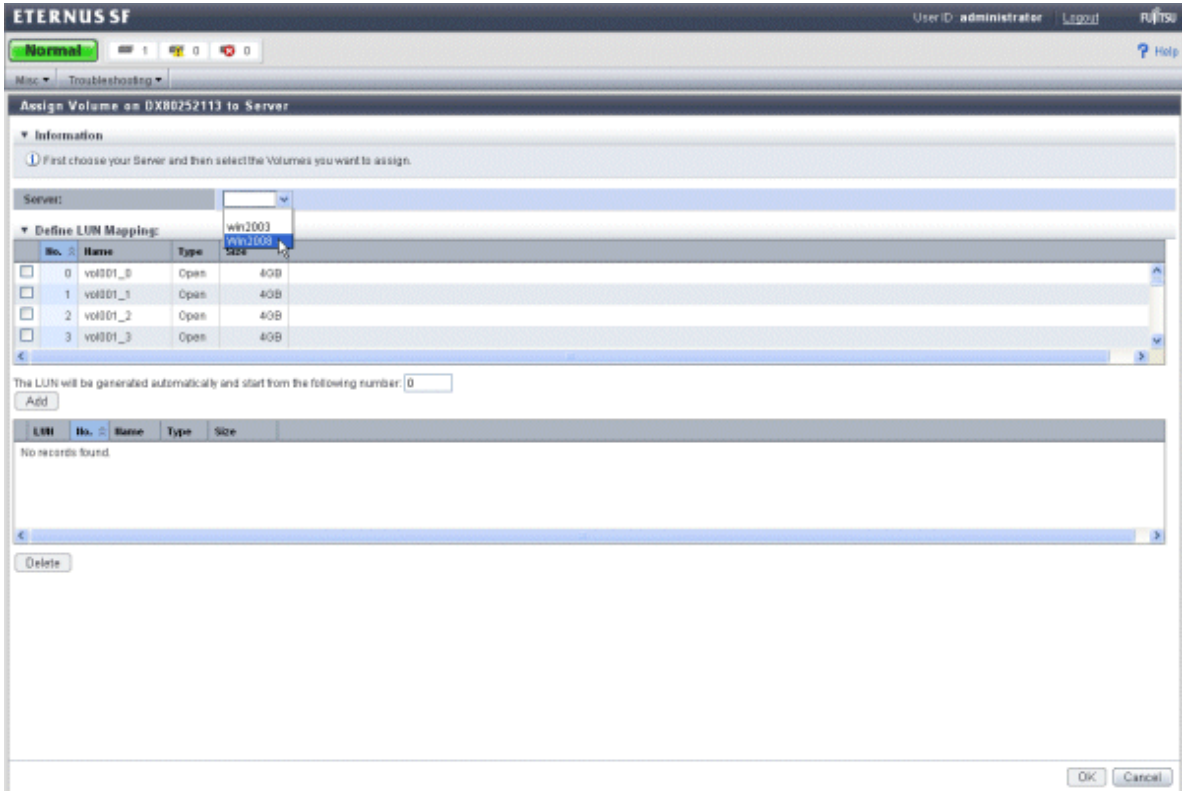
- Monitoring Pane:** The 'Storage' tab is selected, showing a tree view with a server named 'D080252113' highlighted.
- Disk Arrays Table:** A table with columns 'Name', 'Alias', 'Model', and 'IP Address'. One entry is visible: Name: D080252113, Model: ET09F21A.
- Action Pane:** A vertical menu on the right with sections for 'Disk Array' (Add, Delete, Change, Reset Password, Reload Conf) and 'Wizard' (Storage Conf).
- Events Pane:** A table at the bottom showing a list of events. The 'Events' tab is active, displaying a table with columns 'Date', 'Disk Array', and 'Message'. The messages indicate configuration mismatches for disk array D080252113.

Date	Disk Array	Message
2010/7/15 17:12:34	D080252113	esfnet32021 The configuration information of D080252113 is different from the device.
2010/7/15 18:45:55	D080252113	esfnet32021 The configuration information of D080252113 is different from the device.
2010/7/15 18:17:43	D080252113	esfnet32021 The configuration information of D080252113 is different from the device.
2010/7/15 18:0:45	D080252113	esfnet32021 The configuration information of D080252113 is different from the device.

2. Click [Volume] - [Assign] in [Action] pane.

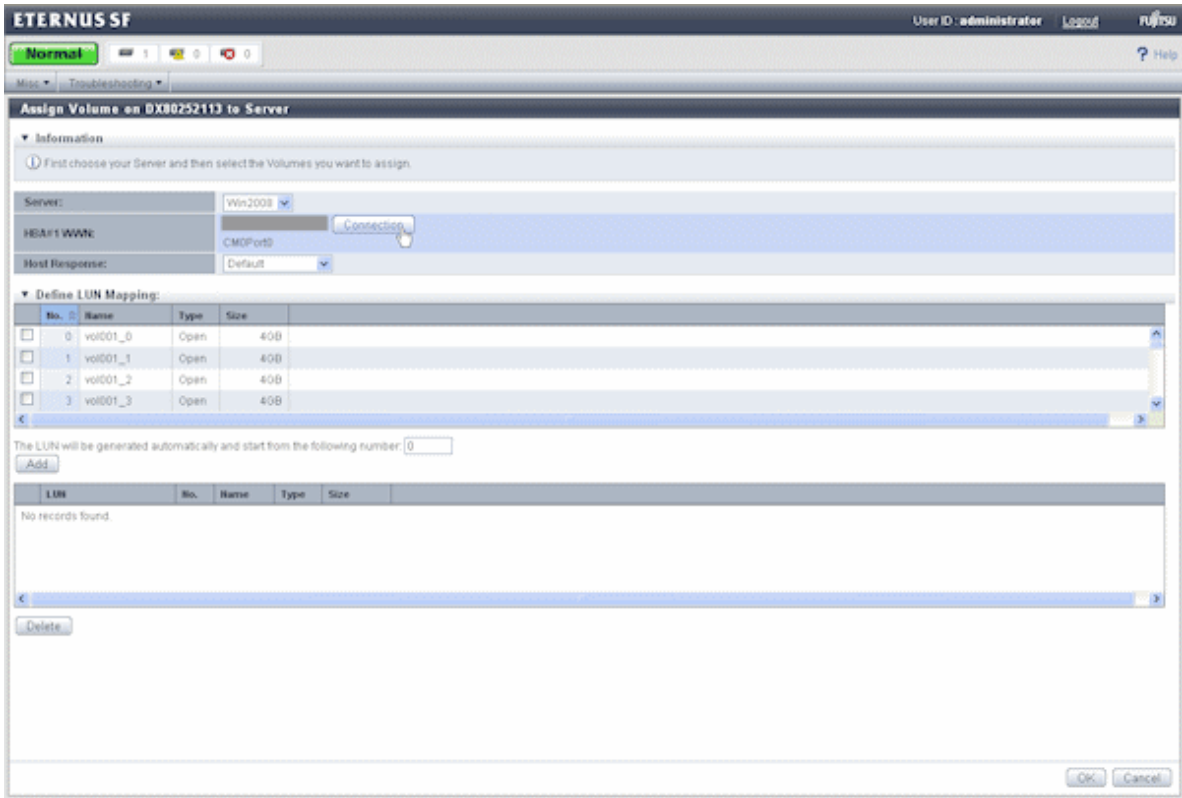


3. Select a server to which to add the volumes, from a list.

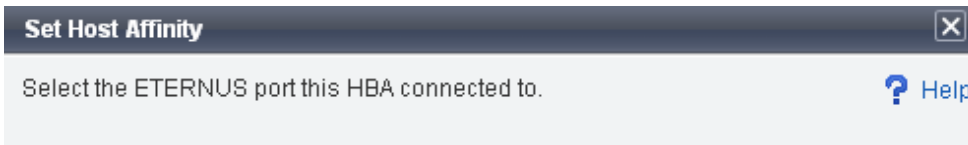


4. Set a host affinity.

Click the [Connection] button and the Host Affinity Settings dialog box is displayed.



Select a server used host affinity from a list in the dialog box, and click [OK] button.

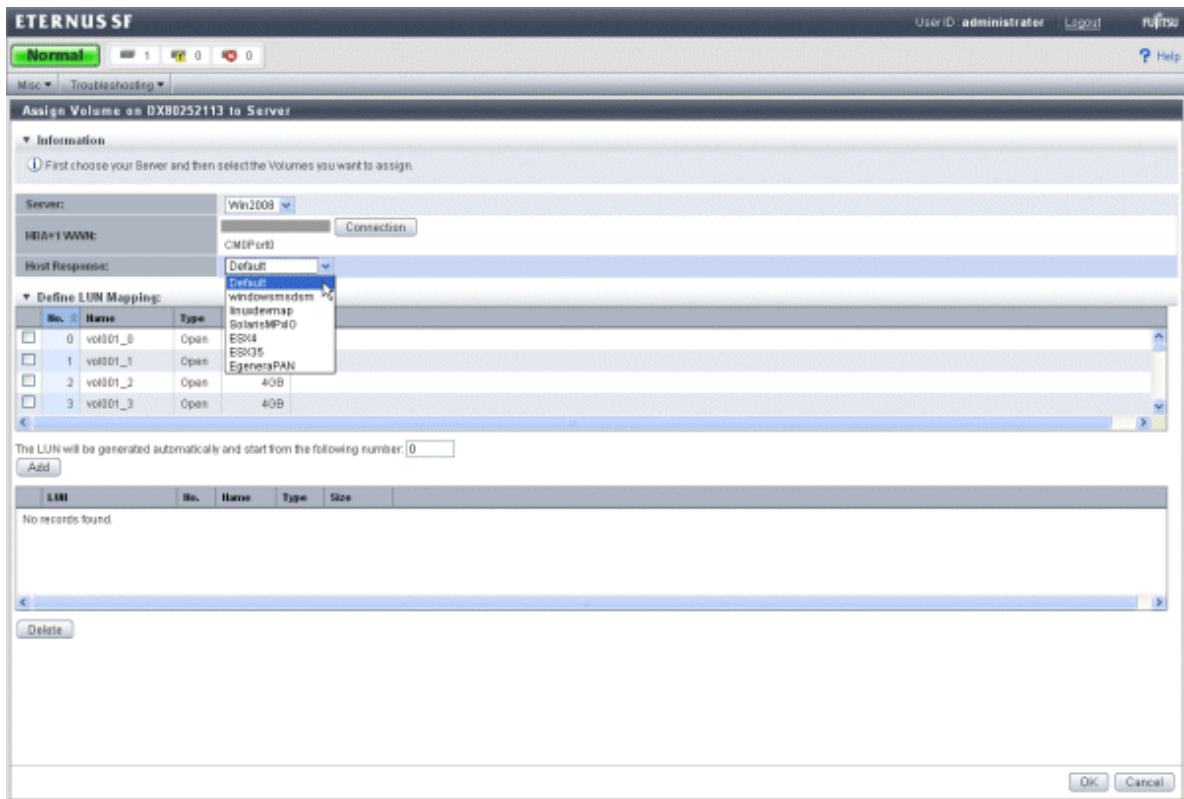


HBA WWN:2100001636168827

	ID ^	Name	Type	Affinity Mode	Status
<input checked="" type="checkbox"/>	00	CM0Port0	FC-CA	On	Online
<input type="checkbox"/>	01	CM0Port1	FC-CA	Off	Online
<input type="checkbox"/>	10	CM1Port0	FC-CA	On	Online
<input type="checkbox"/>	11	CM1Port1	FC-CA	Off	Online



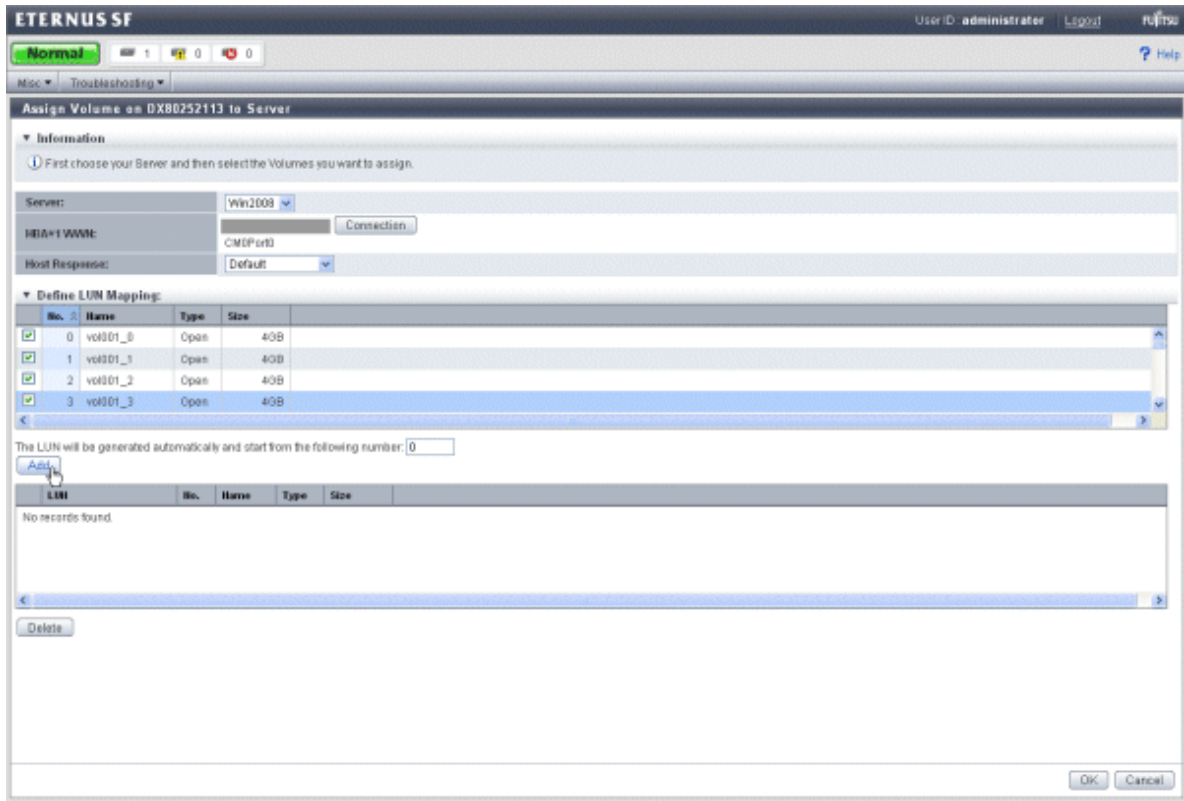
5. Select a host response from the list.



For more information about items to be specified, see "[A.7 Host Interface Information](#)".

6. Set up LUN mapping.

From the volume list, click the check boxes for volumes to be assigned to the server and click [Add] button. The LUN of volume is numbered from 0 automatically.



If you deselect the volumes already assigned to the server, select a volume you want to deselect from the list and click [Delete] button.

7. Click [Yes] button on the Confirmation dialog box, and the volumes are assigned to the server.

The volumes deselected from the list in step 6 are removed from LUN mapping.

Note

Please stop access to the port that is connected from the volume when changing or removing mapping of volume, or removing volume.

To stop access, it is necessary that the server connected from affected volumes are stopped or the volumes are unmounted.

To confirm affected volumes, follow the following procedures.

1. Select [LUN Mapping] in [Storage] tab of [Monitoring].
2. Select a entry in [List of Affinity Groups] screen. [Affinity Group Details] window will show up.
3. When the volume that to be changed or to be deleted exists in the volume list displayed on [Affinity Group Details] window, it is necessary to unmount from all the volumes in the same affinity group.
4. Repeat step2 to step3, and unmount all volume in the affinity group exists where volume that changing or removing.

Point

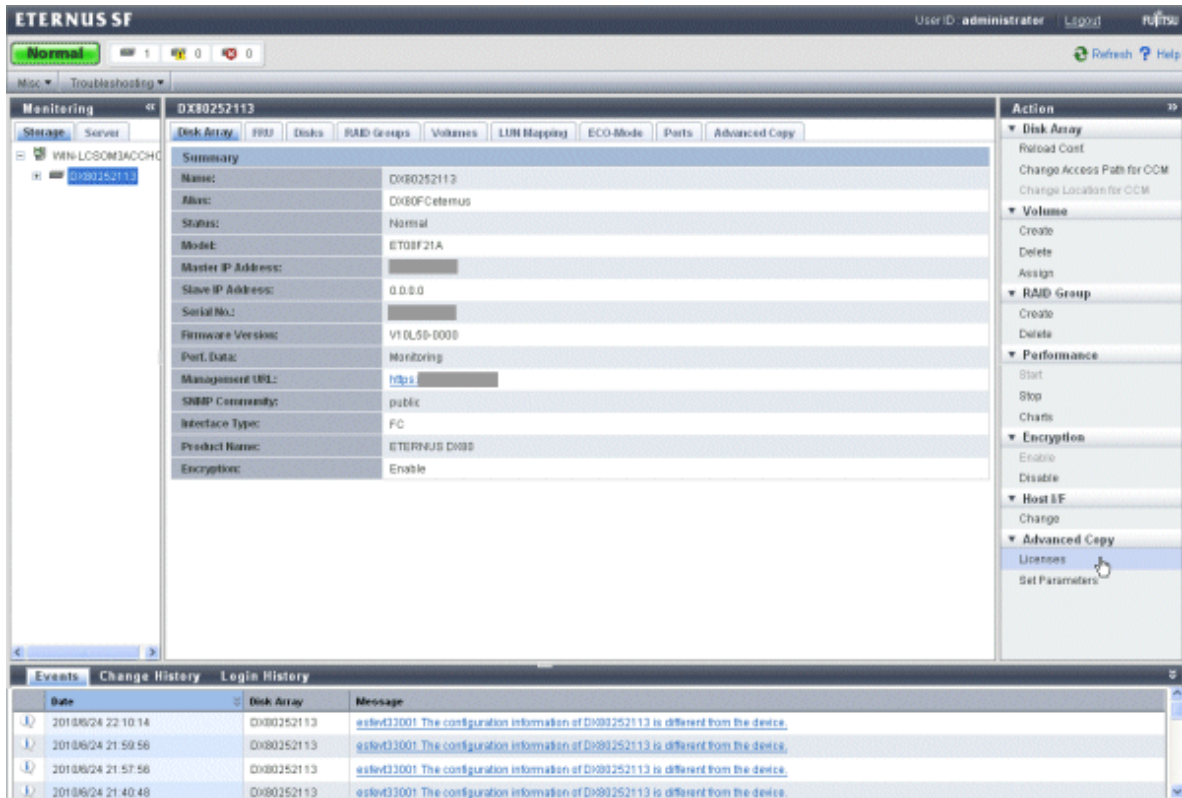
Mount is standard function of OS. Refer to manual of OS for details.

5.10 Registering Advanced Copy license

Register Advanced Copy license or Remote Advanced Copy license before using a disk storage system.

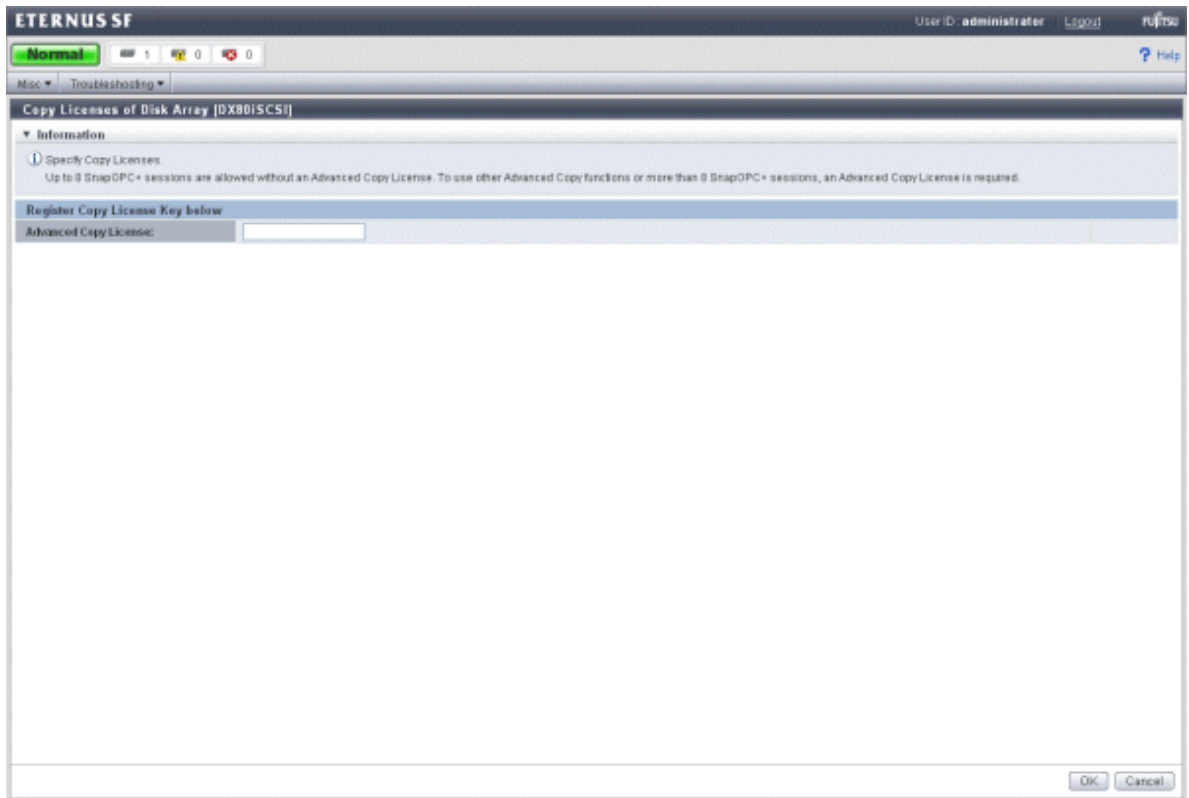
This function is for ETERNUS Disk storage system only.

1. Select a disk storage system to which to register Advanced Copy license or Remote Advanced Copy license, from [Storage] tab in [Monitoring] pane.
Click [Advanced Copy] - [License] in [Action] pane.

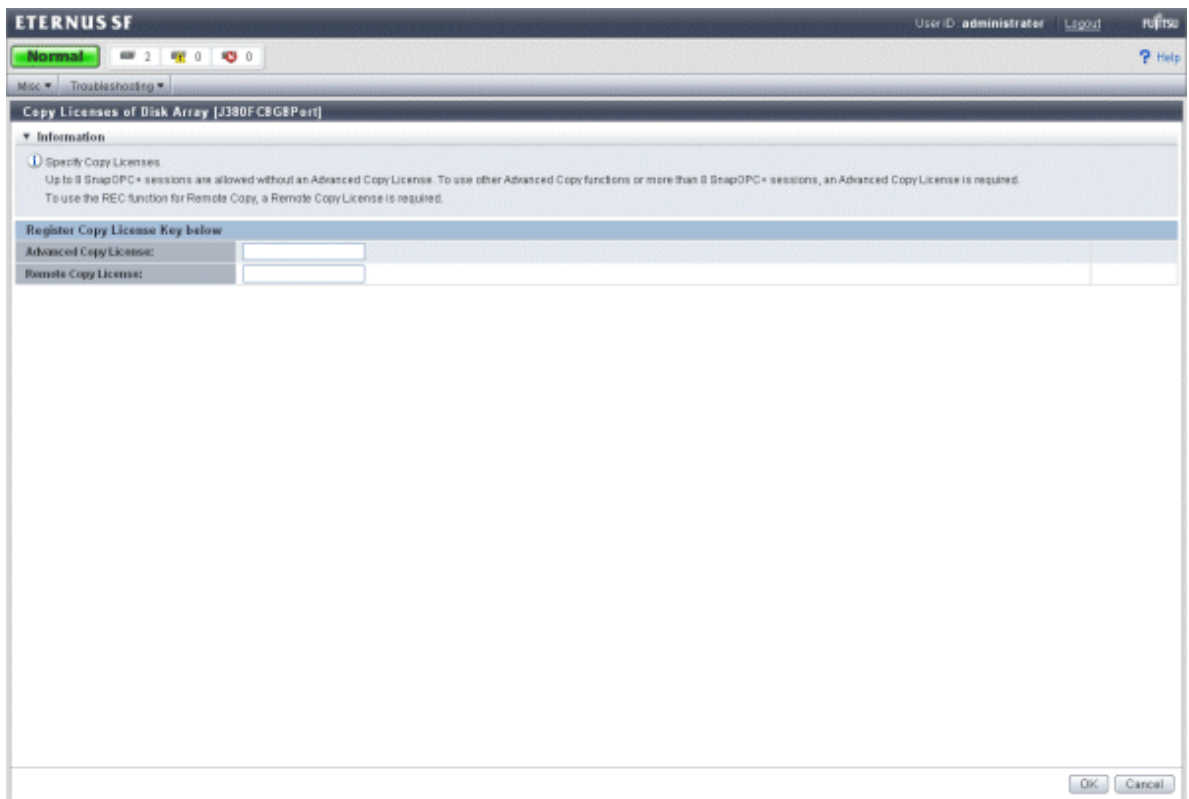


2. Specify Copy License key, and click [OK] button.

- In case of ETERNUS DX60/DX80:



- In case of ETERNUS DX90:

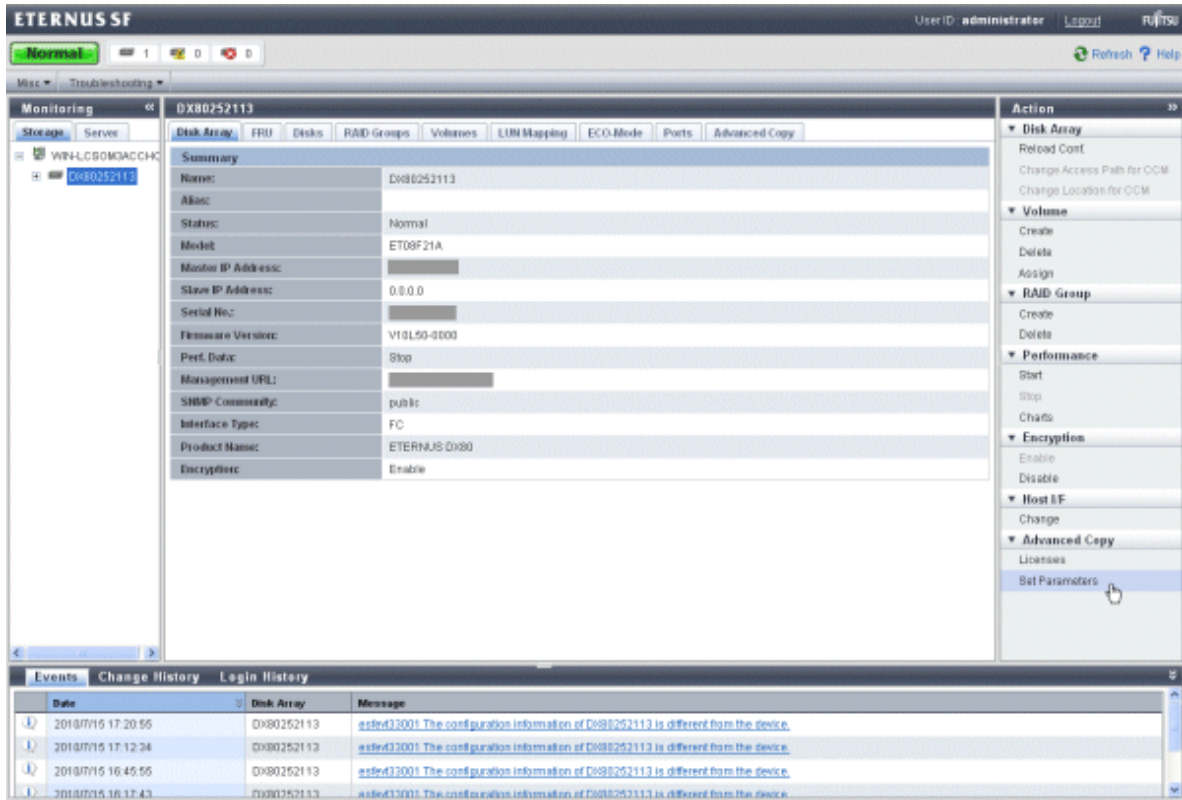


5.11 Advanced Copy Configuration Wizard

A system administrator will follow the steps below to set up Advanced Copy using the Advanced Copy Configuration Wizard.

This function is for ETERNUS Disk storage system only.

1. Select [Advanced Copy] - [Set Parameters] in [Action] pane in the Express Web GUI to start the Advanced Copy Configuration Wizard.



2. Set Advanced Copy parameters.

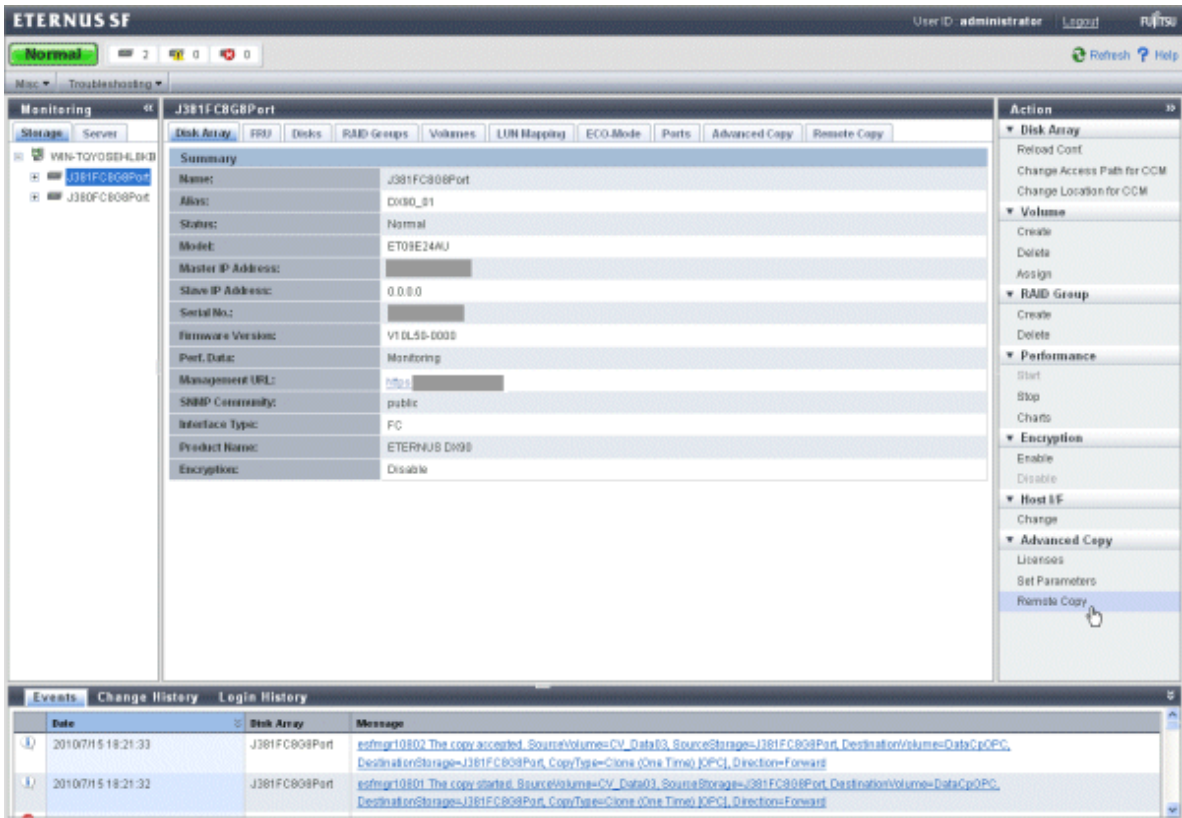
5.12 Remote Advanced Copy Configuration Wizard

A system administrator will follow the steps below to set up Remote Advanced Copy using the Remote Advanced Copy Configuration Wizard.

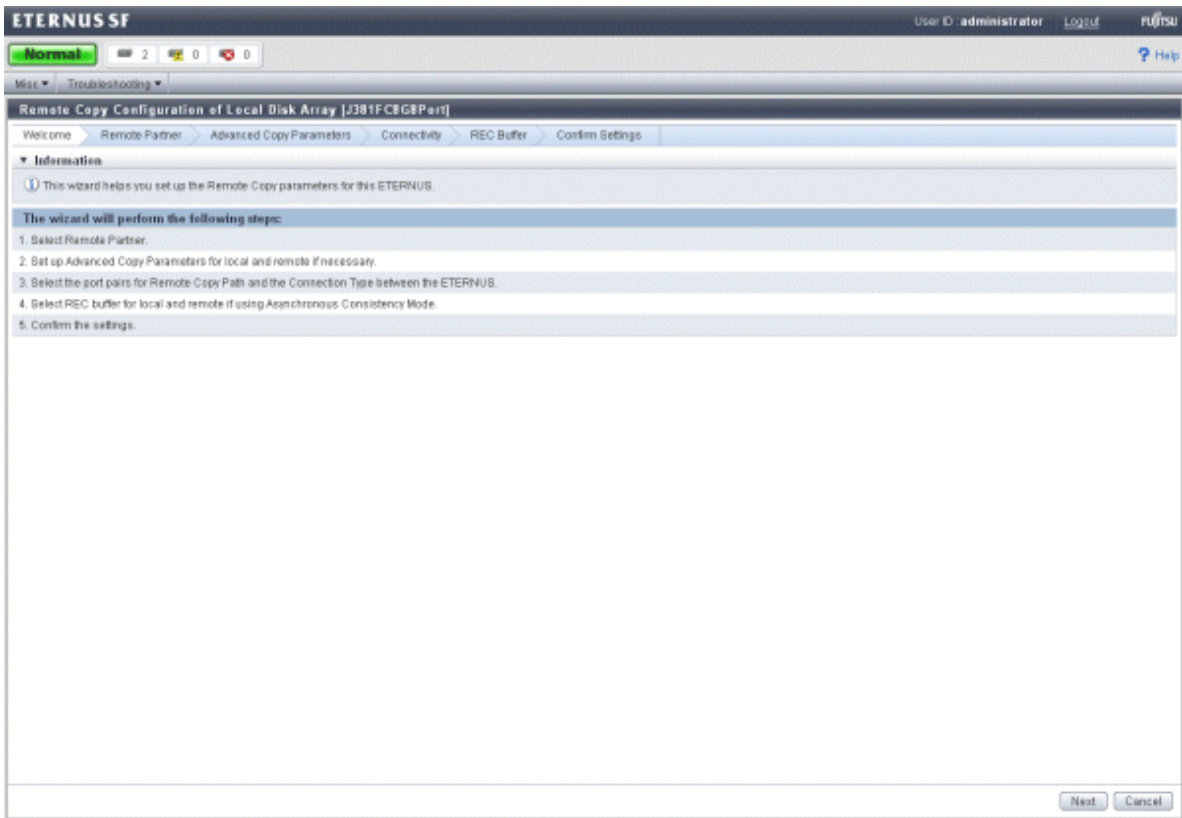
This function is for ETERNUS Disk storage system only.

1. Connect.
Ask a hardware administrator to connect between remote adapter ports.

2. Select [Advanced Copy] - [Remote Copy] from [Action] pane in the Express Web GUI to start the Remote Advanced Copy Configuration Wizard.

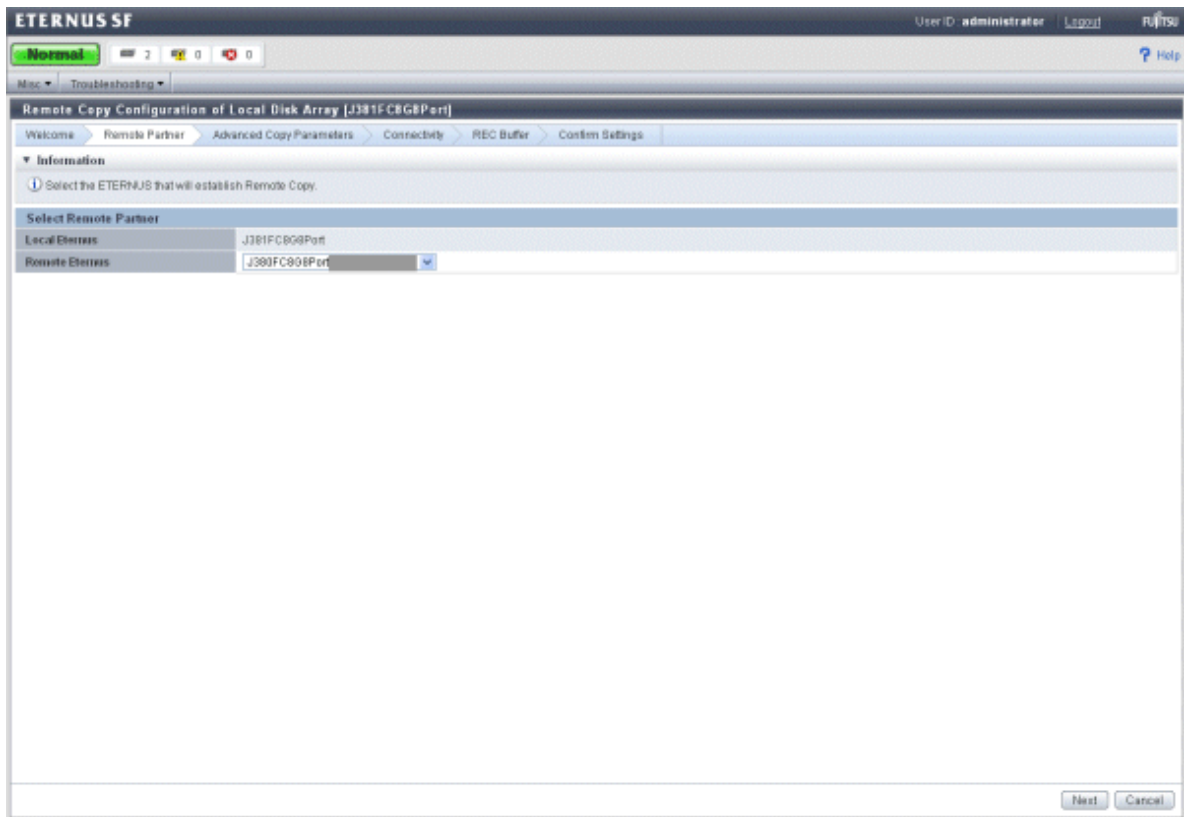


3. Confirm the procedures to set Remote Advanced Copy.



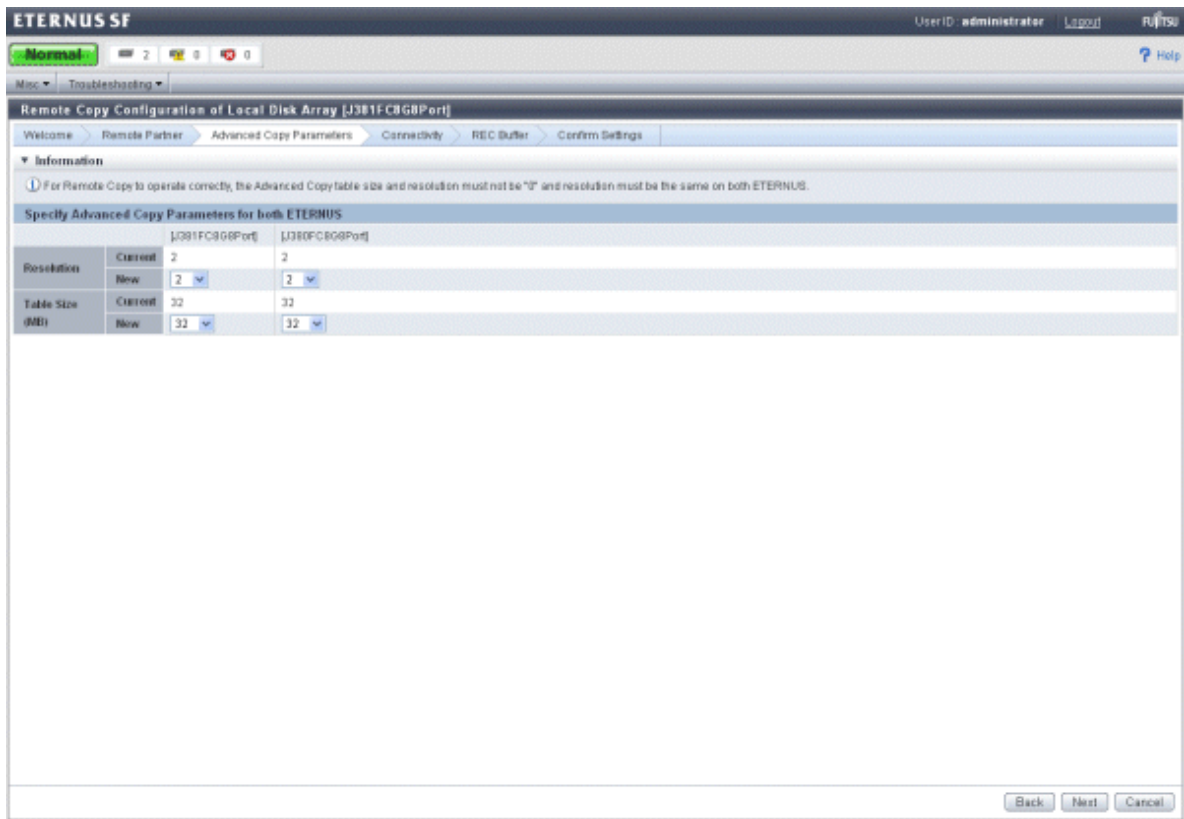
4. Select a copy destination disk storage system.

Select a copy destination disk storage system excluding the copy source disk storage system.



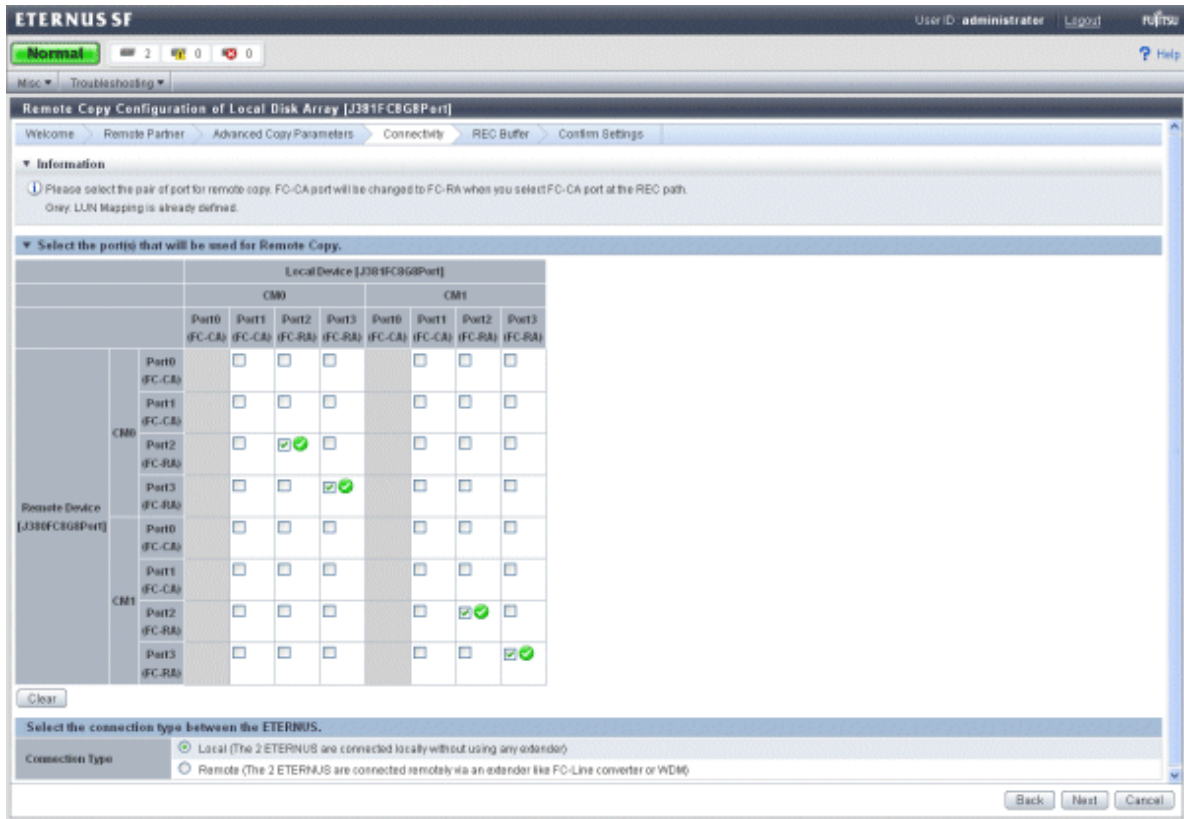
5. Set up parameters of Remote Advanced Copy.

Customize the parameters of a copy source and destination disk storage systems to proper values.



6. Set up a Remote Advanced Copy path.

Select a port used for Remote Advanced Copy in the disk storage system.
Change connection type between ETERNUS Disk storage systems as needed.



 Note

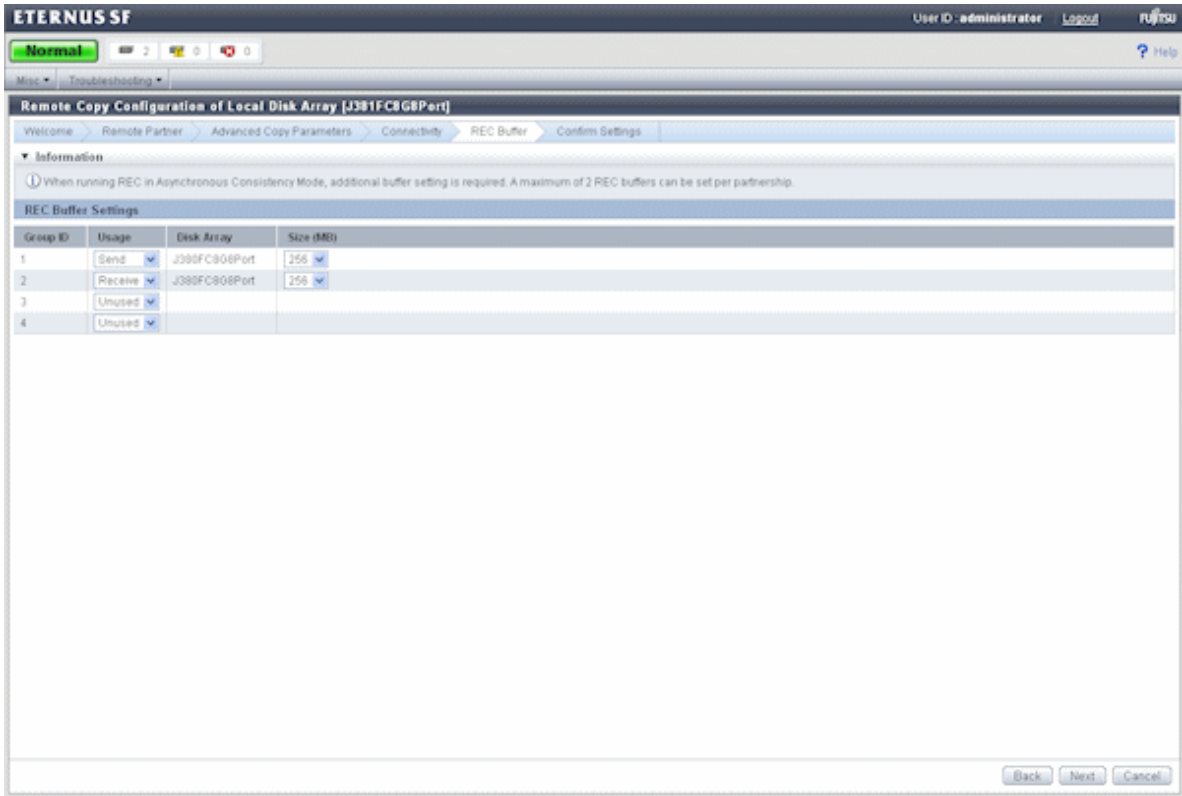
When remote is selected, the line speed and the compression ratio between ETERNUS Disk storage systems are specified for the connection type. Please specify "0" for the compression ratio when either or both of the ETERNUS Disk storage systems for remote advanced copy are DX90 S2.

7. Set up REC buffer.

When using REC Consistency mode, set up REC buffer.

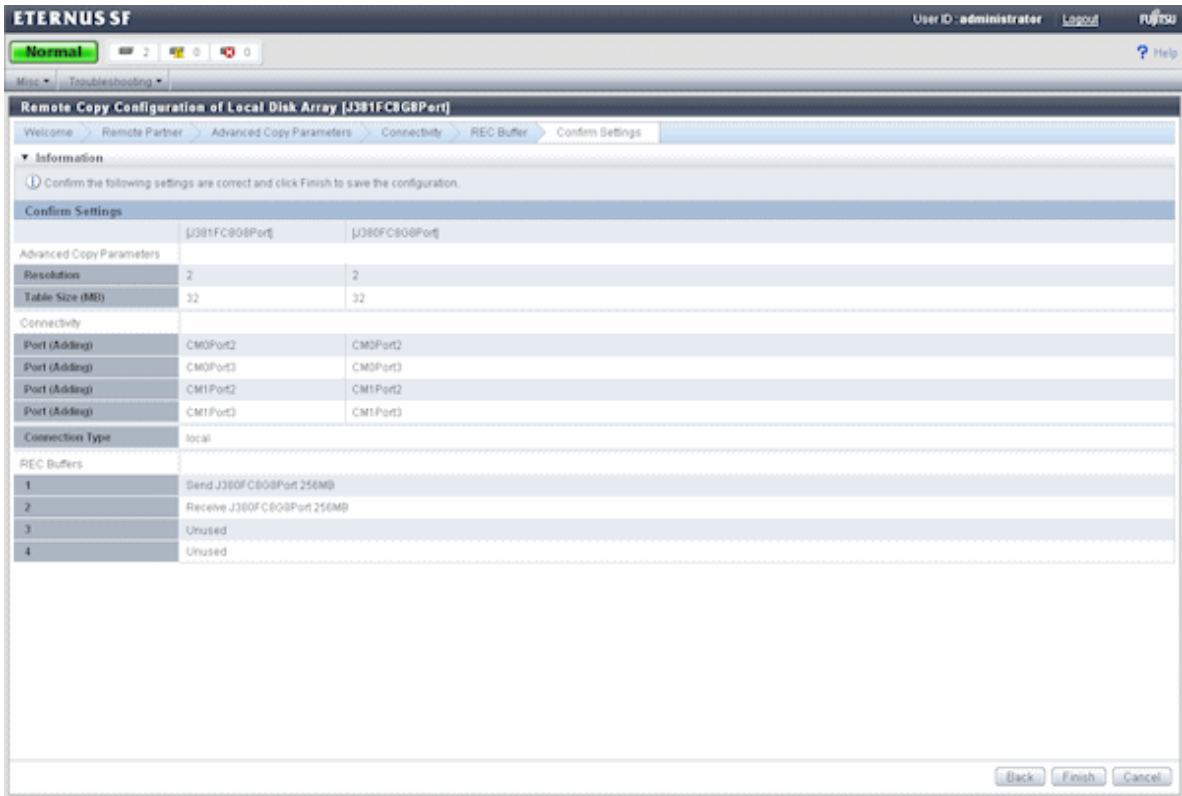
If the Consistency mode is not used, REC buffer is not needed to be set up.

REC buffer is set up for both ETERNUS Disk storage systems of a REC pair.



8. Check the specified content on the Confirmation screen.

If the specified content is proper, click the [Finish] button and terminate Remote Advanced Copy settings. If not, return to each settings screen to perform settings again.

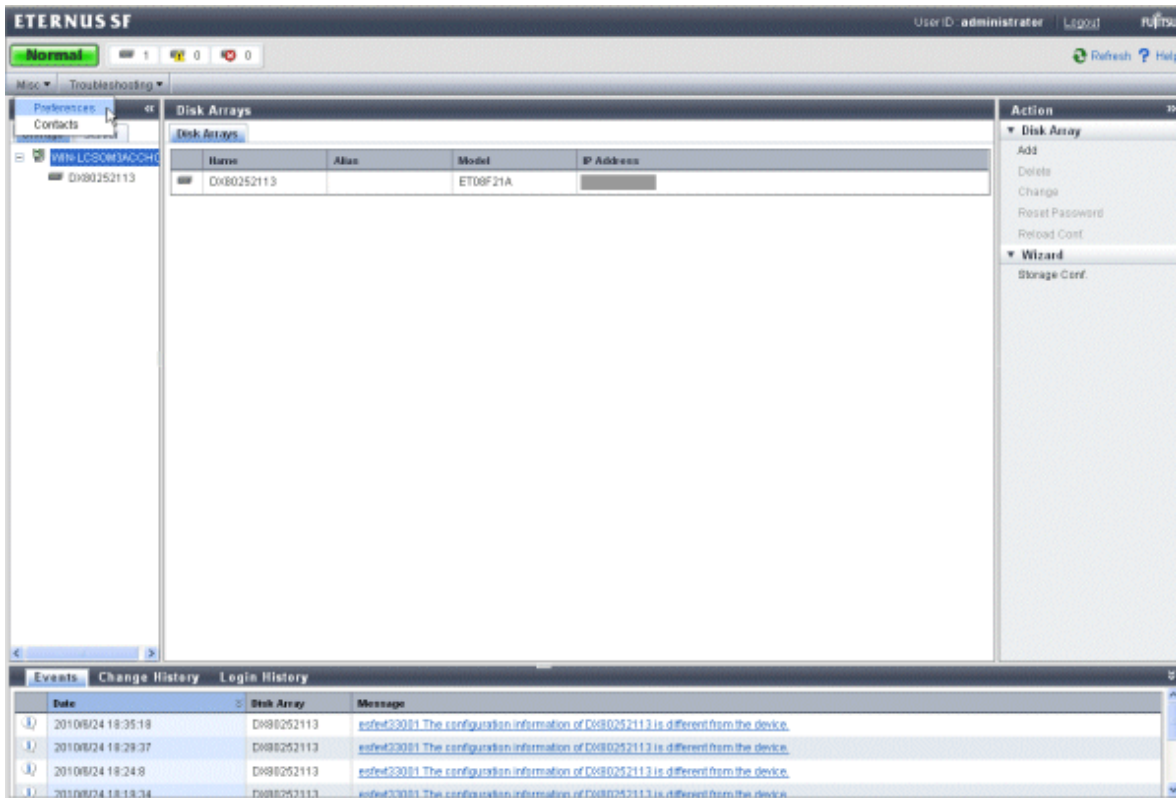


5.13 Settings of Information Managed with Express

This section describes how to specify the information managed with Express.

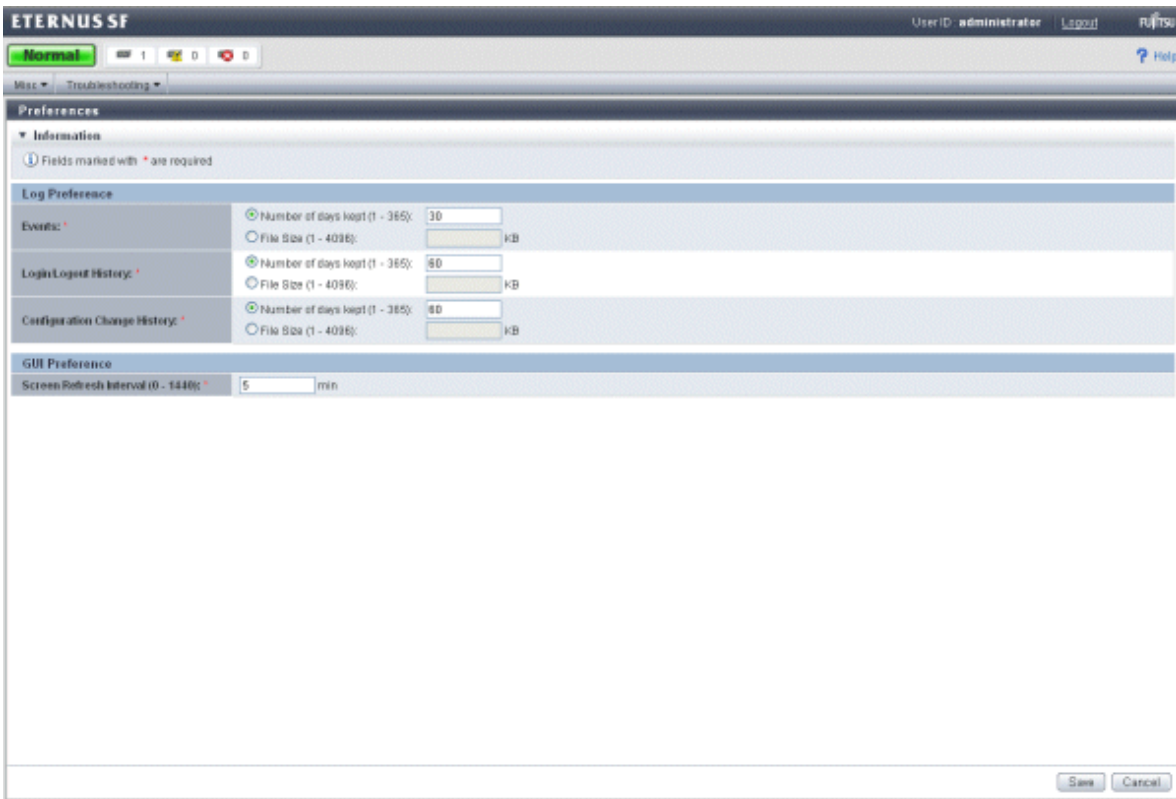
5.13.1 Settings of various information

Click [Misc] - [Preferences] in toolbar.



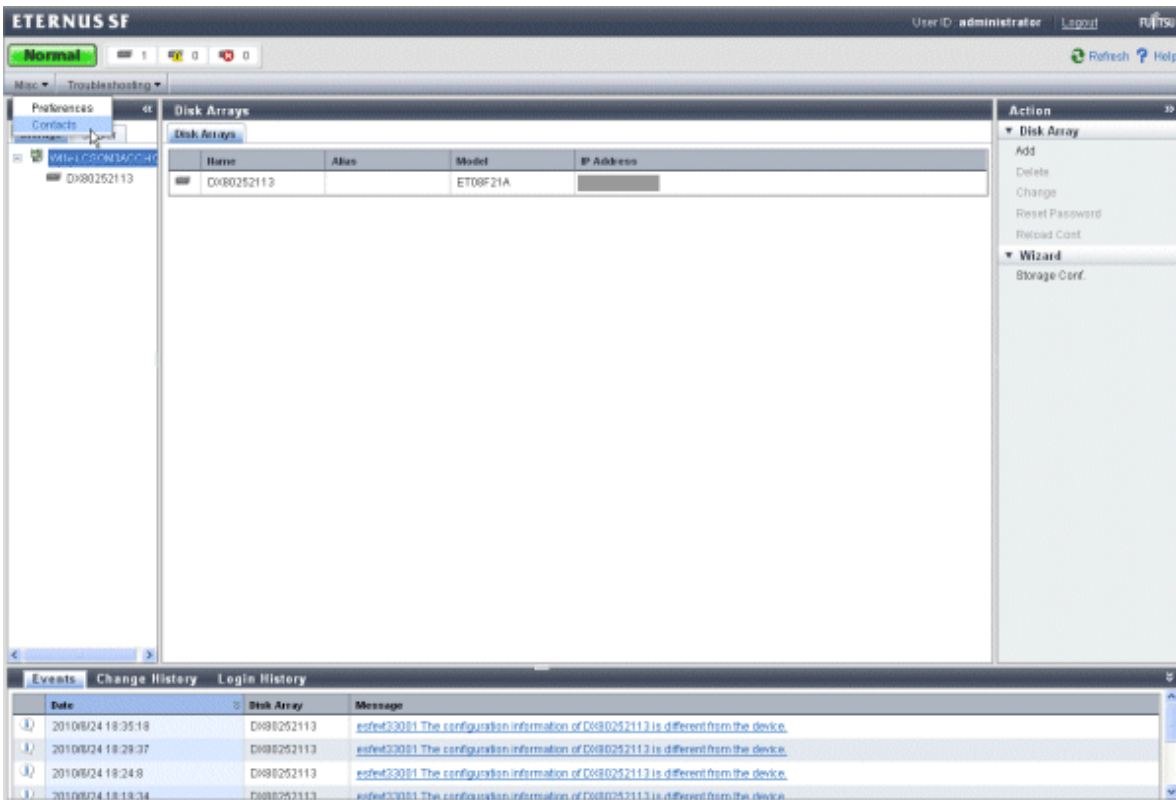
Set the following information. For more information about items to be specified, see "[A.8 Various Information](#)".

- Events
- Login/Logout History
- Configuration Change History
- Screen Refresh interval



5.13.2 Specifying contact information for trouble occurrence

Click [Misc] - [Contacts] in toolbar.



Specify the information for, Email, business administrator, system administrator, and hardware administrator.

The screenshot shows the 'Contacts' configuration page in the ETERNUS SF web interface. The page is titled 'Contacts' and includes a 'Send Test Email' button. Below this, there are four sections for configuring different administrators:

- Mail Settings:** Includes fields for SMTP Server, Mail Sender, and SMTP Port (1 - 65535). The SMTP Port field is currently set to 25.
- Business Administrator:** Includes fields for Person in Charge, Phone, Email, and Send Event Notification Email (with a dropdown menu).
- System Administrator:** Includes fields for Person in Charge, Phone, Email, and Send Event Notification Email (with a dropdown menu).
- Hardware Administrator:** Includes fields for Person in Charge, Phone, and Email.

At the bottom of the page, there are 'OK', 'Apply', and 'Cancel' buttons.

5.14 Event notification test

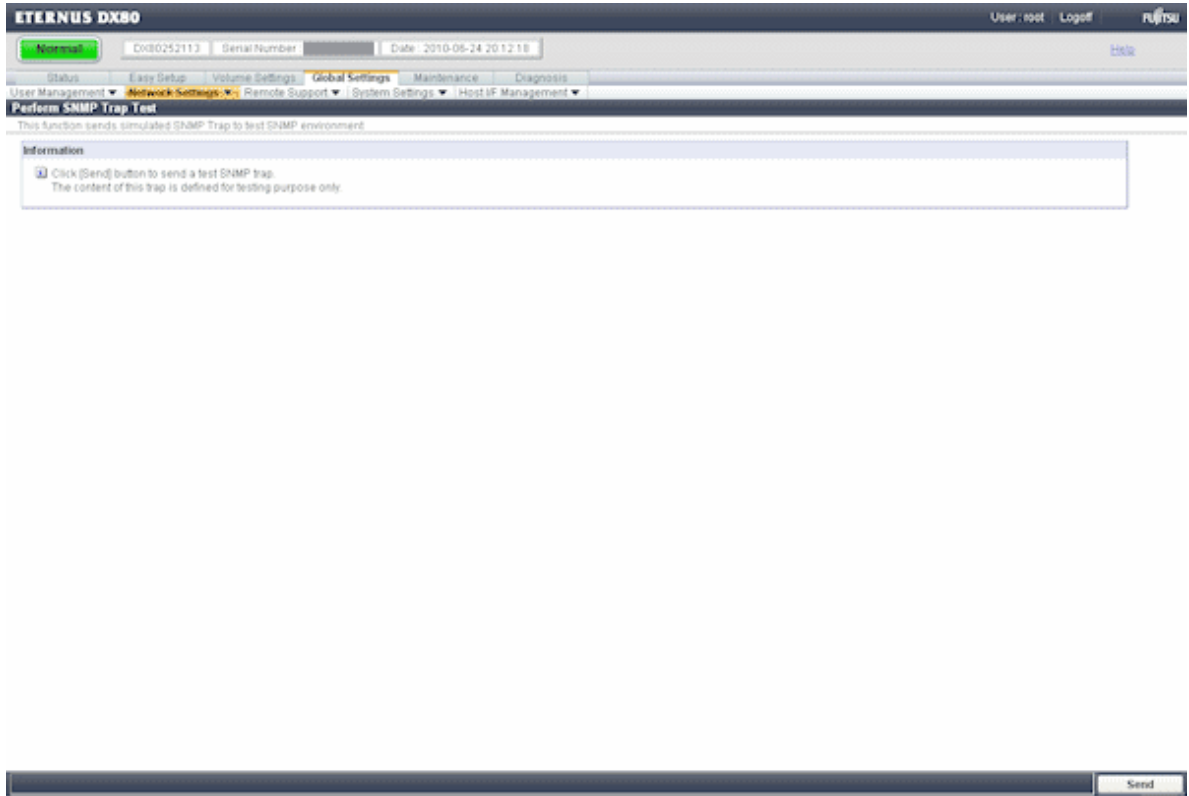
This section describes the procedure for SNMP Trap reception test and Email send test.

5.14.1 Procedure for SNMP Trap reception test

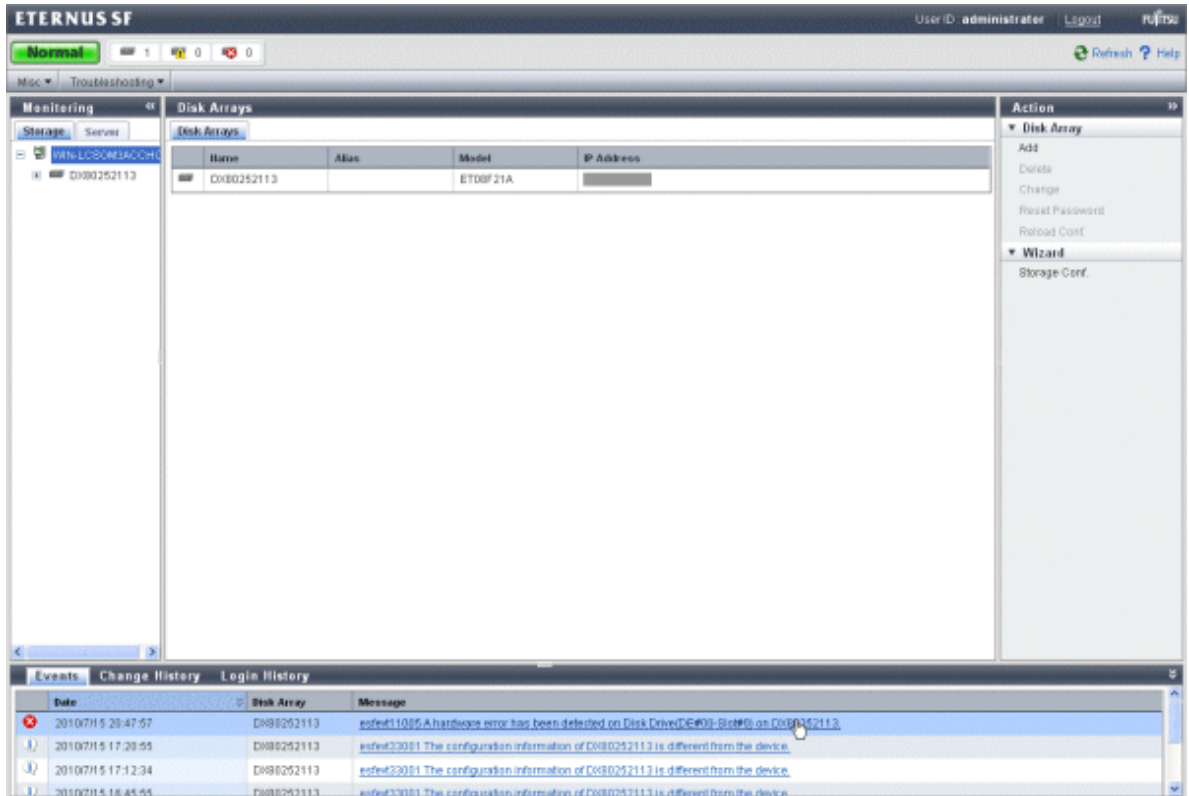
Take the following procedure to perform a SNMP Trap reception test.

- For ETERNUS Disk storage system
 1. Check SNMP Trap from the disk storage systems displayed on the Express Web GUI. SNMP Trap destination is automatically specified.

- Click the [Send] button on the "Perform SNMP Trap Test" screen of the ETERNUS Web GUI.
For more information, see the ETERNUS Web GUI manual.



- Check "Message" in the [Events] pane of the Express Web GUI.
SNMP Trap Test has been completed successfully if the message including the character string of "SNMP Trap Test" is displayed in the body of the message. In this case, no action is necessary even if "Contact the hardware administrator." is displayed.



The screenshot shows a window titled "Event Details" with a close button (X) in the top right corner. Below the title bar, there is a "Event Details." label and a "Help" button with a question mark icon. The main content area is divided into several sections:

Event Type:	Error
Date:	2010/7/15 20:47:57
Disk Array:	DX80252113

Message:

esfevt11005 A hardware error has been detected on Disk Drive(DE#00-Slot#0) on DX80252113.
SNMP Trap Test

Action:

Contact the hardware administrator.

At the bottom right of the window, there is a "Close" button with a hand cursor pointing to it.

- For FibreCAT SX Disk storage system

Refer to the manual of disk storage system to send SNMP trap.

5.14.2 Procedure for Email send test

Check whether email can be received at the specified email address or SMTP server IP address.

Take the following procedure to send a test email.

1. Select [Misc] - [Contacts] in toolbar to check the destination email address.

The screenshot shows the ETERNUS SF web interface. At the top, the user is logged in as 'administrator' on '1/22/2011'. The main menu includes 'Normal', 'Misc', and 'Troubleshooting'. The 'Contacts' section is active, displaying configuration options for various administrators. The 'Mail Settings' section includes fields for SMTP Server (smtp), Mail Sender (eternus@localhost), and SMTP Port (25). The 'Business Administrator' section includes fields for Person in Charge (admin), Phone, Email (admin@localhost), and a dropdown for Send Event Notification Email (Yes). The 'System Administrator' and 'Hardware Administrator' sections have similar fields for Person in Charge, Phone, and Email. A 'Send Test Email' button is located in the top right of the configuration area. At the bottom right, there are 'OK', 'Apply', and 'Cancel' buttons.

2. Check that the test email can be received at the destination address.

Note

.....
If an event notification email destination address has been set in the "[A.6 E-mail Information](#)", a test email is sent to the email destination address whether or not an event notification email has been set to send.
.....

Chapter 6 Operation

This chapter describes the procedure to operate the disk storage system using Express.

6.1 Starting the Express Web GUI

This section describes the procedure to start the Express Web GUI.



Since the ETERNUS Web GUI and the ETERNUS CLI have a higher authority over ETERNUS configuration change functions than the Express Web GUI. Therefore, if you use the former two with the Express Web GUI at the same time, the Express Web GUI may terminate abnormally.

For example, while a configuration is being changed with the ETERNUS Web GUI, you cannot execute "6.5 Changing configuration" with the Express Web GUI.

Therefore, when you use the Express Web GUI, do not use the ETERNUS Web GUI and the ETERNUS CLI.

1. Make sure whether the Computer Browser service is started. (Only when the computer is joined to a Windows domain)

If the computer is joined to the Windows domain, the Computer Browser service should be started on the management server in order to use the Express Web GUI.

For this reason, make sure that the [Status] of the Computer Browser service is [Started] by clicking on [Control Panel] > [Administrative Tools] > [Services].



The Computer Browser service on Windows Server 2008 is stopped by default.

2. Start the Express Web GUI.
 1. Start the Web browser.
 2. Use HTTPS communication and a port number, connect to Express Manager.
At this time, specify 9855 for the port number.



`https://aaa.bbb.fujitsu.com:9855/express/`

3. Login.

Enter your username and password to log into the Express Web GUI.

In each environment, the following usernames are specified.

- Local server: Local user
- Domain member server: Local user and Domain user
- Domain controller server (PDC/BDC): Domain user



When specifying a domain user, specify it in "Domain-name\user-name" format.

Note

When a large number of volumes or copy pairs are created at one time, a timeout error may occur. If a timeout error should occur, take some time before updating the screen. If the volumes or copy pairs have been properly created after screen update, no action is required. If not, reduce the number of volumes or copy pairs to be created at one time and re-execute the operation.

6.2 Performance Monitoring

Express supports function of performance management for Disk storage systems. This function enables users to get details about the operation and load status of disk storage systems. However, Express does not support function of performance management about SDV and SDPV of ETERNUS Disk storage system.

When a user gives an instruction for performance management of a disk storage system from the Express Web GUI, the performance management device issues SNMP Trap periodically through a LAN to the disk storage system to obtain performance information, and it saves the information as performance data on the Express Manager server. On the Express Web GUI, 24-hour performance information can be output and with "[D.3 storageadm perfdata \(Command for managing performance information\)](#)", one-hour or 24-hour performance information can be output. Using them can manage disk storage systems.

To conduct performance monitoring, sufficient disk space is required on the management server for performance data storage. Make sure that sufficient disk space is ensured referring to "[2.1 Hardware conditions](#)".

This function is for ETERNUS Disk storage system only.

Note

- Do not execute performance monitoring for a single server from more than one management server(*) at the same time.
 - * Any of Express Manager server, ETERNUS SF Storage Cruiser administrative server, or Systemwalker Resource Coordinator server.
- The performance management functionality always starts up when the Express Manager server starts up. For disk storage systems, in which performance management settings have been configured, performance information collection starts in the background. Accordingly, performance information is collected regardless of whether the Express Web GUI is displayed. To stop performance information collection, stop performance management processing.

6.2.1 Starting collection of Performance information

When you click [Performance] - [Start] in [Action] pane in Express Web GUI, an instruction to collect performance information is issued to the performance management device, and the performance management device collects performance information of a disk storage system through the LAN and saves it as performance data. Since the performance management device is started as a daemon of the Express Manager server, it continues collecting performance information while the Express Manager server is active, even if no Express Web GUI window is displayed.

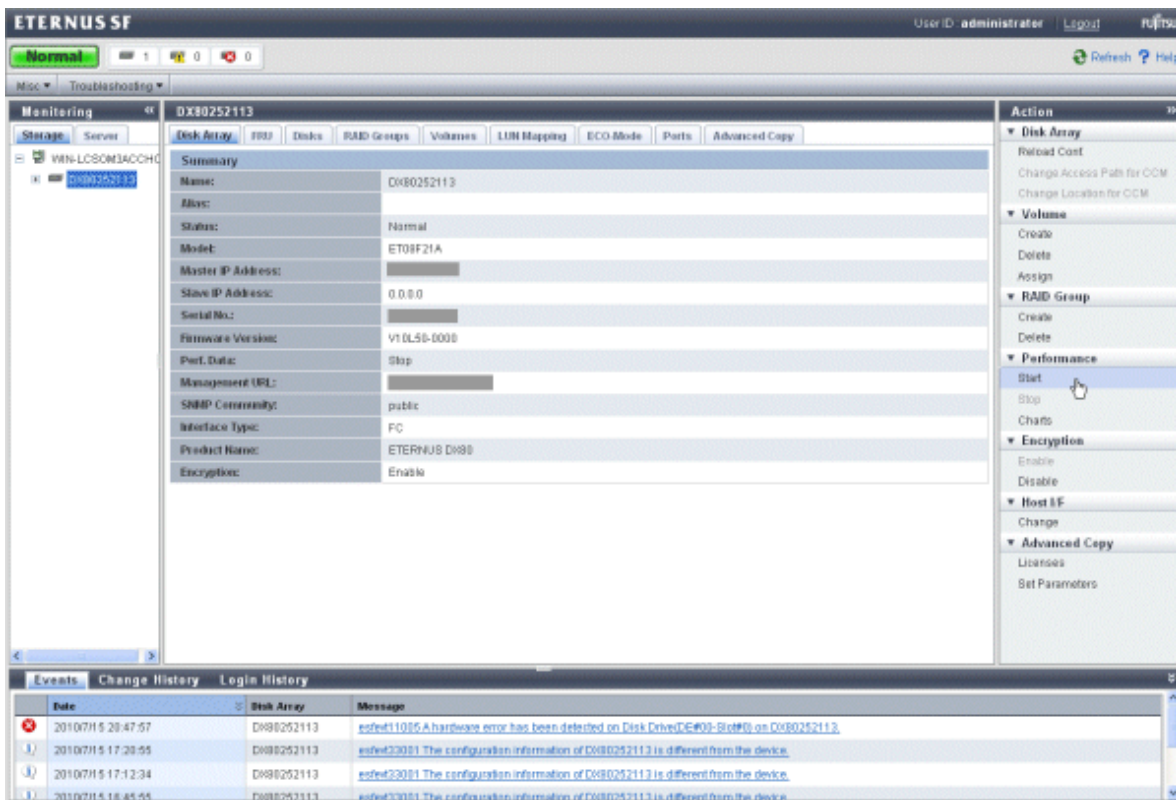
The logical configuration of the disk storage device is recognized, and the collecting of performance information starts. At the start of collecting performance information of the selected storage system, an amount of time (tens of seconds to several minutes) is spent to collect the logical configuration before any performance information is actually obtained.

When performance monitoring starts, "Monitoring" is displayed in "Perf. Data" as a status of the performance monitoring.

The table below lists values of "Perf. Data" row and their corresponding statuses and actions to be taken. The values may differ from that of the current status. Select [Disk Array] - [Reload Conf] in [Action] pane in Express Web GUI to check the latest status.

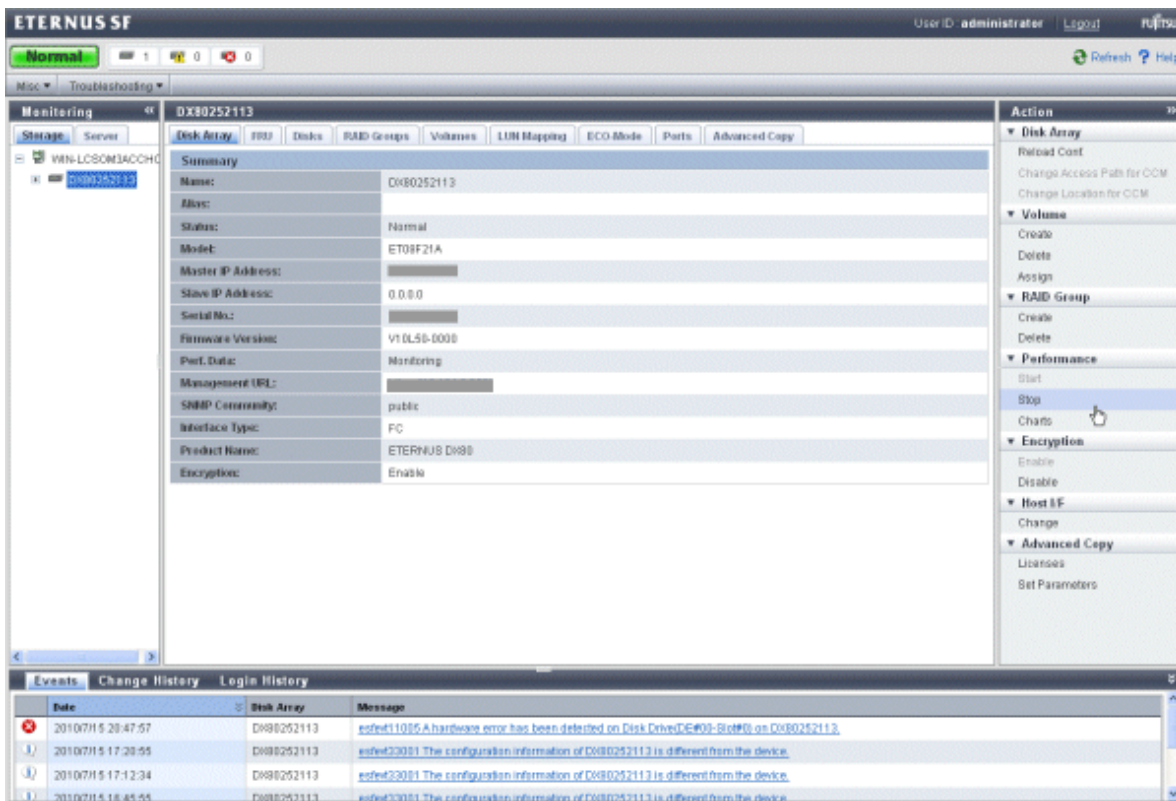
Value of "Perf. Data" row	Status	Appropriate action
Monitoring	Performance is being monitored. (Normal)	Performance is being monitored.

Value of "Perf. Data" row	Status	Appropriate action
Recovering	Performance monitoring is being recovered (e.g. device time-out).	The Express manager server cannot communicate with a disk storage system. Check the network status and the disk storage status. Log off, when ETERNUS Web GUI is in a login state.
Error	Performance monitoring error (e.g. device time-out, writing to the performance information file failed.)	The Express manager server cannot communicate with a disk storage system. Check the network status and the disk storage system status. Log off, when ETERNUS Web GUI is in a login state. Check the write permission to the file and the capacity of the file system. Then, select [Performance] - [Stop] in [Action] pane in Express Web GUI.
Stop	Performance monitoring has stopped. (Normal)	Performance monitoring has stopped.



6.2.2 Stopping collection of Performance information

Select [Performance] - [Stop] in [Action] pane to stop collection of Performance information.



6.2.3 Showing the Performance information

The performance information can be output to the CSV format file by using "[D.3 storageadm perfdata \(Command for managing performance information\)](#)".

The following information can be managed.

	Performance information (Unit)
LUN	Read/Write count (IOPS)
Logical Volume	Read/Write data transfer rate (MB/S)
RAID Group	Read/Write response time (msec)
	Read/Pre-fetch/Write cache hit rate (%)
	Disk busy rate (%)
Disk drive	Load (CPU usage) rate (%)
CM	Copy remaining amount (GB)
	Read/Write count (IOPS)
CM Port	Read/Write data transfer rate (MB/S)

	Performance information (Unit)
Device	Number of active disks (Disk)
	Power consumption (W)
	Temperature (C)

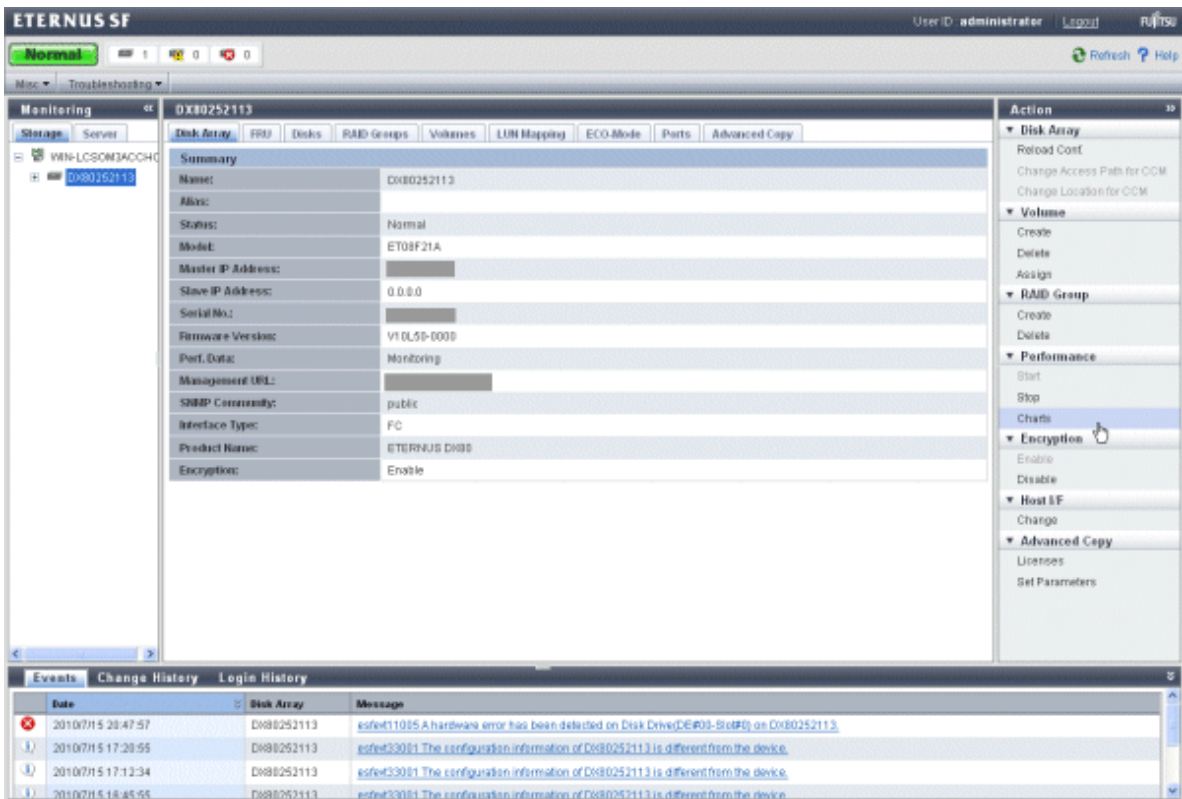
Note

- Performance information about SDV and SDPV of ETERNUS Disk storage system is not supported, and performance information values for RAID Group cannot be collected.
- Performance information about SAS port and FCoE port are not supported.
- In the case of ETERNUS DX60/DX80, performance information of FC-CA port or iSCSI-CA port is displayed.
- In the case of ETERNUS DX90, performance information of FC-CA port or FC-RA port is displayed.
- In the case of ETERNUS DX80 S2/DX90 S2, performance information of FC-CA port, FC-RA port, iSCSI-CA port and iSCSI-RA port are displayed.
- Performance information of the port that is executing REC is displayed as shown below:
 - If the FC-RA port is set as sender (Initiator), performance information is displayed as Read performance information.
 - If the FC-RA port is set as receiver (Target), performance information is displayed as Write performance information.

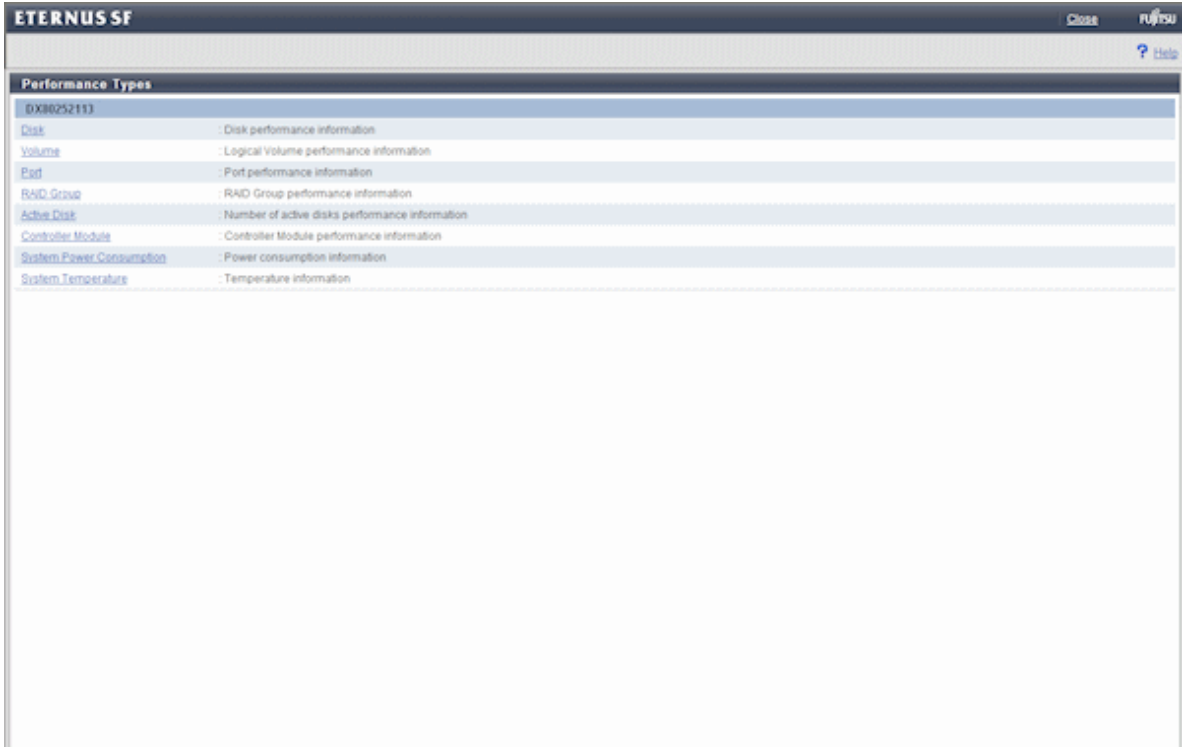
6.2.4 Displaying Performance information in a graph

Using the Express Web GUI can display performance information in a graph.

1. Select [Performance] - [Charts] in [Action] pane to open the Performance Type screen.



2. Click an item you want to display, and the graph is displayed.



6.3 Detecting trouble

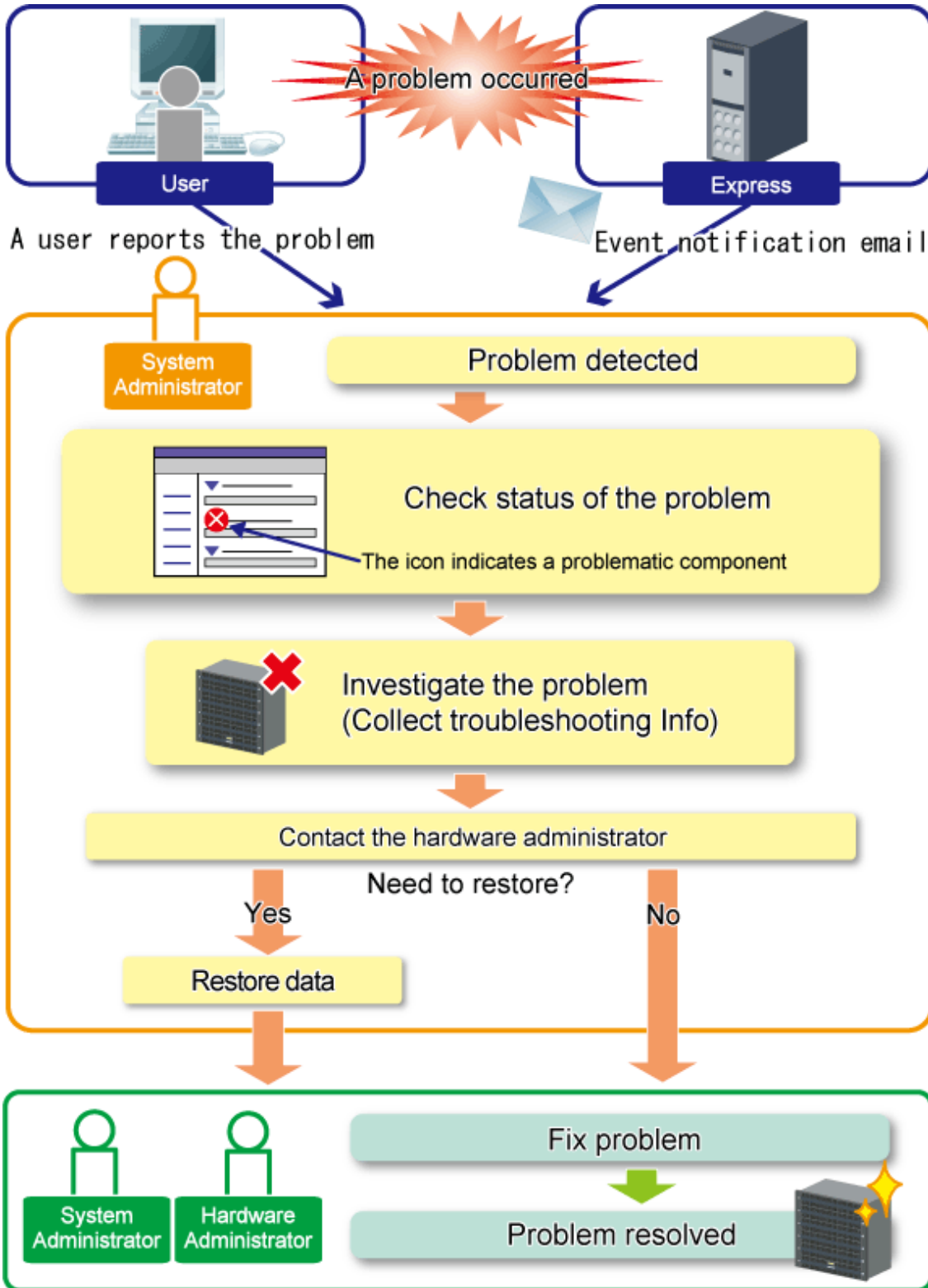
The following is a description of the procedure to be taken if trouble should occur during Disk storage system operations.

Trouble occurrence is detected in the following way.

- An email of error or warning level trouble occurrence is sent from Express.
- Trouble occurrence is notified by a user.

The following is a flow from trouble detection to its response.

Figure 6.1 Flow from trouble detection to its response



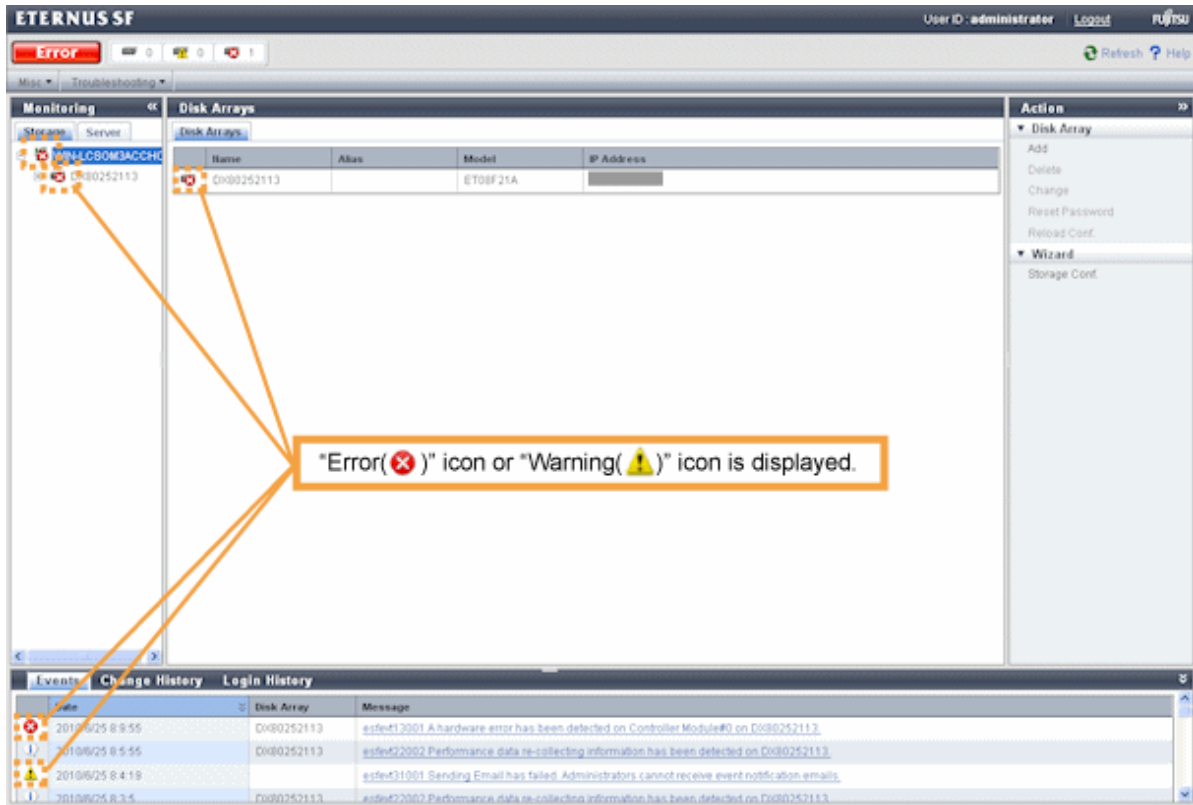
6.3.1 Identifying the trouble condition

If trouble should occur, start the Express Web GUI.

Since the Express Web GUI displays the status of each device with icons or messages, it is easy to identify the trouble condition.

In addition, since the storage status can be checked from the viewpoint of a disk storage system, you can identify which server is impacted by a failure that occurred on the disk storage system.

Figure 6.2 Express Web GUI in trouble occurrences



If trouble is occurring, check the following points.

- Icon

"Error (X)" or "Warning (Warning icon)" icon is displayed at the trouble-occurring area.

If these icons are displayed, it is highly possible that business operations are affected. Therefore, identify the contents of the trouble to take responses.

- Message

A message of trouble occurrence is displayed at "Event" along with an icon.

Point

In the following cases, the status icon of the storage system displayed in the [Monitoring] pane is renewed.

- When there is an event notification more than the warning level from the storage system.
- When you execute "6.5 Changing configuration" with Express Web GUI.

6.3.2 Trouble analysis

There are other methods to analyze the effects of the trouble besides "6.3.1 Identifying the trouble condition". Use those methods as required.

In addition, for hardware troubles, contact the hardware administrator when needed.

- Trouble information collection

This is used when collecting detailed information about the trouble, which can be collected via the Express Web GUI or a command.

For trouble information collection, refer to "[How to collect trouble information](#)".

- Display of configuration information details

You can check every server operation and disk configuration information managed in storage in a list.

Selecting the Express Web GUI will display configuration information details.

- Diagnosis of Express Manager environment Express

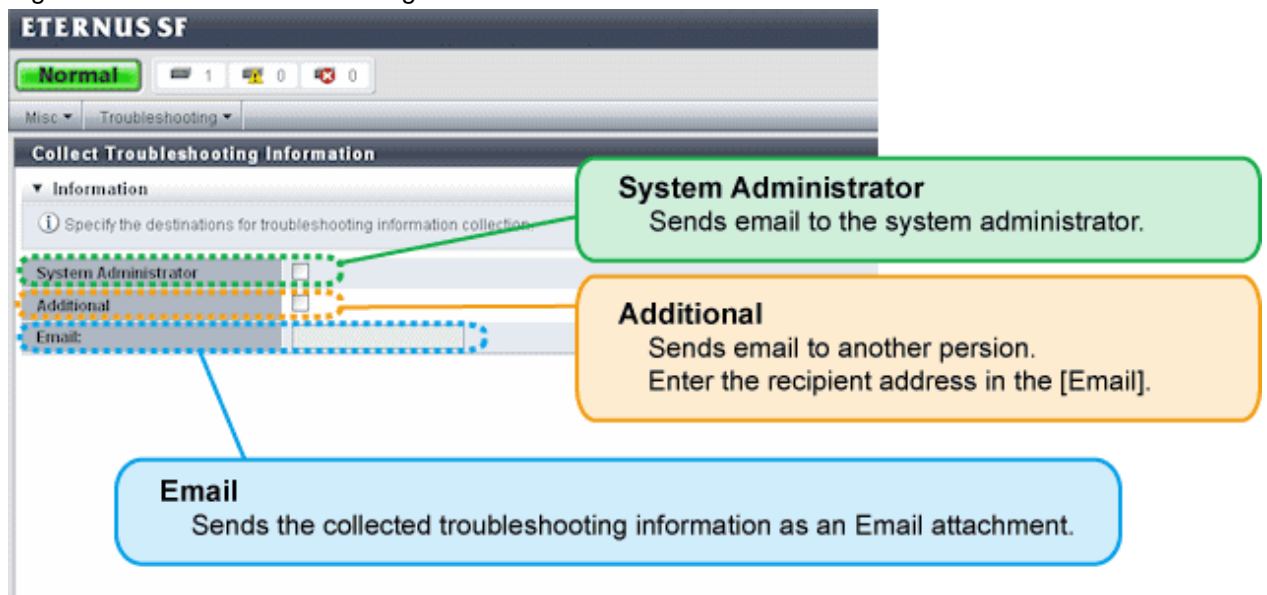
Use diagnostic tools when some trouble occurrence is suspected, for example, that the Express Web GUI does not work normally.

For diagnostic tools, refer to "[6.10 Diagnostic Tool](#)".

How to collect trouble information

1. Select [Troubleshooting] - [Collect Troubleshooting Information] in toolbar in the Express Web GUI.
2. Select the required item to click the [OK] button.

Figure 6.3 Collect Troubleshooting Information



Checking / changing the email address set up for the system administrator

When you check and/or change the contact address set up for the system administrator, refer to the "[6.6 Changing the contact addresses for trouble occurrence](#)".

When using a command, see the "[D.4 express_managersnap \(Collecting Express Manager troubleshooting information\)](#)".

6.3.3 Trouble response

After identifying the trouble condition as shown in the "[6.3.1 Identifying the trouble condition](#)" or by "[6.3.2 Trouble analysis](#)", contact a system administrator or a hardware administrator, referring to the message and trouble information.

After resolving the trouble, reload the configuration as shown in "[6.5 Changing configuration](#)" to acquire information again up to date.

[Refresh] button on the Express Web GUI only acquires information on the Express manager server, and doesn't update information on the manager.

Latest information is displayed by select [Refresh] button about [Events] pane information in [Disk Array Information].

Reload the configuration as shown in the above-mentioned when you want to display latest information about other information.



Contact to the hardware administrator

If a message output in a trouble occurrence says "Contact the hardware administrator", the system administrator contact to the hardware administrator.

6.4 Executing Advanced Copy

This section explains the procedures for executing Advanced Copy.

This function is for ETERNUS Disk storage system only.

Express can execute the following advanced copies.

- Clone copy (OPC)
- Clone copy (QuickOPC)
- Clone copy (EC)
- Snapshot copy (SnapOPC+)
- Remote copy (REC)



Refer to "[Appendix B Advanced Copy Function](#)" for details of Advanced Copy.

When you use Advanced Copy function, to assure data consistency, please confirm that there isn't any access to a business volume.

However, for more secure consistency, it is recommended to stop the server connected to the business volume.

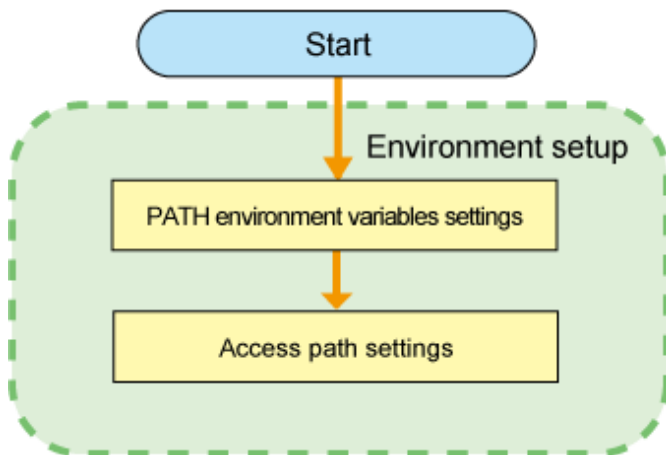
When you can't stop the business server, unmount the business volume by the server's OS command and reflect the data from the file cache and stop the access to file cache.

For the unmount command, refer to each OS's manual.

6.4.1 Setting Advanced Copy

This section explains how to set up Advanced Copy function.

The setup procedure is shown below.



6.4.1.1 Access Path Settings

To issue Advanced Copy instruction from a management server to ETERNUS Disk storage system, a path to connect the management server with ETERNUS Disk storage system on Express manager. This path is called an "access path".

The settings procedures for the access path are explained below.

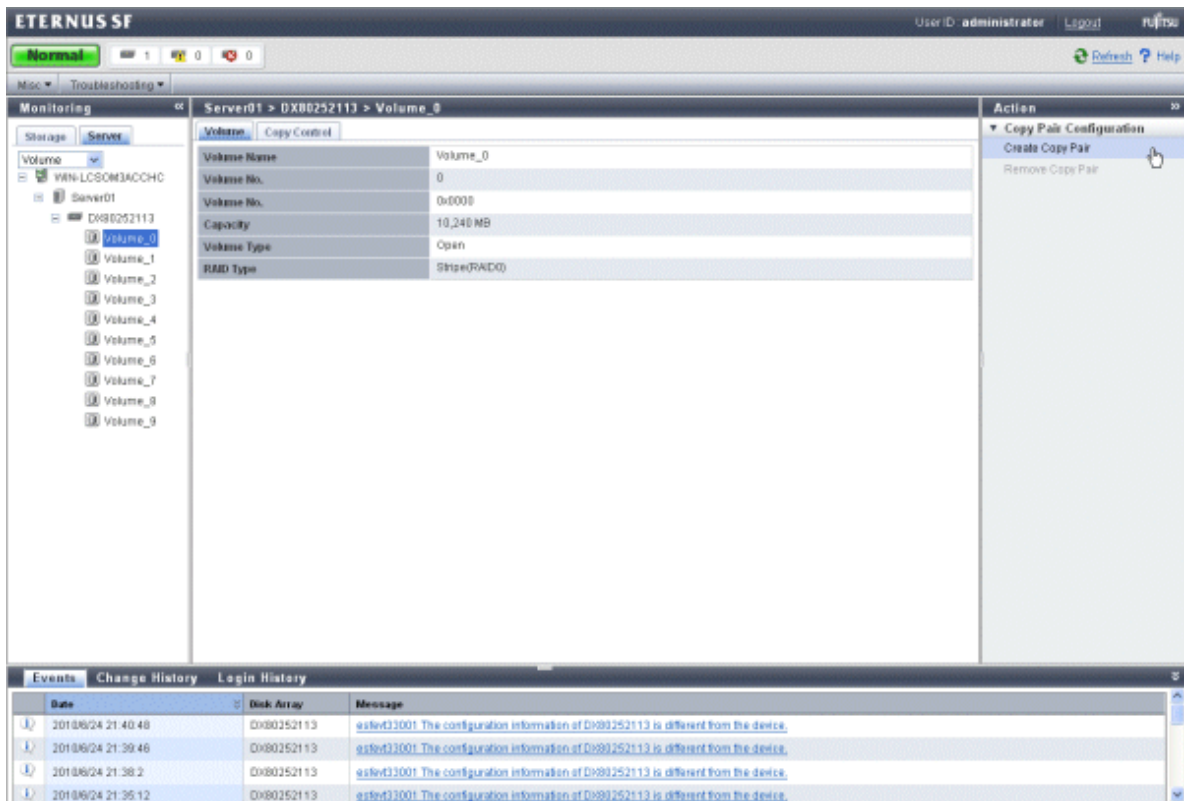
1. Allocate to the server a volume in the ETERNUS disk storage system to be set up as the access path.
The allocated volume is recognized as a disk.
2. Initialize the disk in MBR (DOS format) or GPT disk format.
3. Create a partition, and allocate a drive letter.

6.4.1.2 Creating copy pairs

Before executing Advanced Copy, create a copy source volume and a copy destination volume.

The following is the procedure to create a copy pair.

1. Select volumes to make a pair from [Monitoring] pane.



Select [Copy Pair Configuration] - [Create Copy Pair] in [Action] pane.

2. The Create Copy Pair wizard is displayed. Enter copy type and copy destination volume according to the wizard.

- In the case of ETERNUS DX60, DX80/DX80 S2:

Create Copy Pair

Select a copy type > Select destination volumes > Specify copy group name > Confirmation

Select a copy type for selected source volume. Fields marked with * are required. [? Help](#)

Source Volume Information		
Volume No.	Volume Name	Server Name
54	Volume_0	Server1

Destination Volume Information	
Copy Type *	<input checked="" type="radio"/> Clone(One Time)[OPC] A function that creates a copy of the business data volume at any point in time(Background Copy). <input type="radio"/> Clone(Recurring)[QuickOPC] A function that creates a copy of all the business data volume and subsequently only copies updated data(Background Copy). <input type="radio"/> Clone(Split Mirror)[EC] A function that always creates a synchronized copy of a business data volume on a copy volume(Mirroring method). <input type="radio"/> Snapshot[SnapOPC*] A function that creates a copy of the data prior to it being updated(Copy-on-Write).
Volume *	<input checked="" type="radio"/> New <input type="radio"/> Exist

Next Cancel

- In the case of ETERNUS DX90/DX90 S2:

Create Copy Pair

Select a copy type > Select destination volumes > Specify copy group name > Confirmation

Select a copy type for selected source volume. Fields marked with * are required.

Help

Source Volume Information

Volume No.	Volume Name	Server Name
54	Volume_0	Server1

Destination Volume Information

Copy Type *

- Clone(One Time)[OPC] A function that creates a copy of the business data volume at any point in time(Background Copy).
- Clone(Recurring)[QuickOPC] A function that creates a copy of all the business data volume and subsequently only copies updated data(Background Copy).
- Clone(Split Mirror)[EC] A function that always creates a synchronized copy of a business data volume on a copy volume(Mirroring method).
- Snapshot[SnapOPC+] A function that creates a copy of the data prior to it being updated(Copy-on-Write).
- Remote[REC] A function that creates a copy of the business data volume on another disk arrays.

Volume * New Exist

Remote Storage Name DX906LF

Next Cancel

If you want to create a new copy destination volume, select [New]. If you want to select from existing volumes, select [Exist]. For remote copy, specify the ETERNUS Disk storage system at a remote site.

3. Specify a copy destination volume.

- When creating a new copy destination volume by clone copy:

Specify the copy destination volume and a RAID group to which to create the volume.

The screenshot shows the 'Create Copy Pair' wizard in the 'Specify copy group name' step. The wizard has four steps: 'Select a copy type', 'Select destination volumes', 'Specify copy group name', and 'Confirmation'. The current step is 'Specify copy group name'. Below the progress bar, there is a note: 'Create destination volume. Fields marked with * are required.' and a 'Help' icon.

Destination volume information

Name:

Encryption:

RAID Level *:

RAID Group information

	Name	RAID Level	Total (MB)	Free (MB)
<input checked="" type="radio"/>	srRaidL0N1	RAID0	838,144	735,744
<input type="radio"/>	stRaidL0N2	RAID0	838,144	838,144
<input type="radio"/>	stRaidL0N3	RAID0	936,448	936,448
<input type="radio"/>	stRaidL0N4	RAID0	936,448	936,448
<input type="radio"/>	stRaidL0No	RAID0	558,080	558,080

New

Back Next Cancel

- When creating a new copy destination volume by Snapshot copy:

Specify the volume name of a copy destination SDV (Snap Data Volume), RAID group to which to create the volume, capacity assigned to the volume and number of generation.

Create Copy Pair [X]

Select a copy type > Select destination volumes > Specify copy group name > Confirmation

Create destination volume. Fields marked with * are required. ? Help

Destination Volume Information (Snap Data Volume)

Name *

Capacity * GB

Number of Volumes *

Encryption

RAID Level *

RAID Group Information

Name	RAID Level	Allocation	Total	Free
Group#1	RAID5	<input type="button" value="v"/>	531 GB	42.72 GB
Group#2	RAID5	<input type="button" value="v"/>	2.68 TB	110.53 GB
RAIDwork	RAID0	<input type="button" value="v"/>	1.34 TB	1.29 TB

 **Note**

ETERNUS DX80 S2 and DX90 S2 ignore the value of capacity.

As required, create SDPV(Snap Data Pool Volume).

Create Copy Pair

Select a copy type > Select destination volumes > Specify copy group name > Confirmation

Create destination volume. ? Help

Destination Volume Information (Snap Data Pool Volume)

Name:

Capacity: GB

Encryption:

RAID Level: All

RAID Group Information

	Name	RAID Level	Total	Free
<input checked="" type="radio"/>	Group#1	RAID5	531 GB	42.72 GB
<input type="radio"/>	Group#2	RAID5	2.68 TB	110.53 GB
<input type="radio"/>	RAIDwork	RAID0	1.34 TB	1.29 TB

New

Back Next Cancel

Point

.....

If you do not create SDPV(Snap Data Pool Volume), enter nothing. Click the [Next] button to go to the next step.

.....

Note

.....

ETERNUS DX80 S2 and DX90 S2 need one or more SDPV.

.....

- When creating a new copy destination volume by Remote copy:

Specify the copy destination volume name and the RAID group to which to create the volume.

Create Copy Pair

Select a copy type > Select destination volumes > **Specify copy group name** > Confirmation

Create destination volume. ? Help

Destination volume information

Name:

Encryption:

RAID Level: RAID0

RAID Group information

	Name	RAID Level	Total (MB)	Free (MB)
<input checked="" type="radio"/>	R0	RAID0	271,872	271,872

Point

When creating a new RAID group, click the [New] button on each screen.

A table is displayed to enter or select the following information required to create a RAID group.

- RAID group name
- RAID Level
- Physical disk information making up a RAID group.

See

For RAID group creation, see the "[5.7 Creating RAID Groups](#)".

- When selecting a copy destination volume from existing volumes:

Select a copy destination volume from a displayed volume list.

Create Copy Pair

Select a copy type | **Select destination volumes** | Specify copy group name | Confirmation

Select a copy type for selected source volume. [? Help](#)

By default only same-sized volumes can form a pair.
 to allow to be paired when the volume size of destinations is larger than the source's volume size.

Destination volume list				
	Volume No.	Volume No.	Volume Name	Server Name
<input type="checkbox"/>	1	0x0001	Volume_1	Server01
<input type="checkbox"/>	2	0x0002	Volume_2	Server01
<input type="checkbox"/>	3	0x0003	Volume_3	Server01
<input type="checkbox"/>	4	0x0004	Volume_4	Server01
<input type="checkbox"/>	5	0x0005	Volume_5	Server01
<input type="checkbox"/>	6	0x0006	Volume_6	Server01
<input type="checkbox"/>	7	0x0007	Volume_7	Server01
<input type="checkbox"/>	8	0x0008	Volume_8	Server01
<input type="checkbox"/>	9	0x0009	Volume_9	Server01

Back Next Cancel

Point

- The number of concurrent copy sessions of 1 source volume is up to 8. Its destination volumes should be respectively different ones.
- Multiple source volumes cannot be concurrently copied to 1 destination volume.

4. Specify a copy group to which to register a copy pair.

Select a copy group. Copy pair is used when operating multiple copy pairs simultaneously, for example, for the reason that one data base space is configured with multiple volumes.

- Default copy group

Register a copy pair to default copy group managed by Express.

The relationship between copy type and default copy group name is as follows.

Copy type	Copy group name
Clone copy (OPC)	EXP_Unique number to identify EXP serve_ETERNUS disk storage system serial number_O.
Clone copy (QuickOPC)	EXP_Unique number to identify EXP server_ETERNUS disk storage system serial number_Q.
Clone copy (EC)	EXP_Unique number to identify EXP server._ETERNUS disk storage system serial number_E.
Snapshot copy (SnapOPC+)	EXP_Unique number to identify EXP server_ETERNUS disk storage system serial number_S.
Remote copy (REC)	EXP_Unique number to identify EXP server_ETERNUS disk storage serial number that copy source volume exists_ETERNUS disk storage system serial number that copy destination volume exists_R.

 Point

- When operating only via Express Web GUI, you do not need to be conscious of default copy group name.

- You can create copy groups by using Express Manager. For copy group creation using Express Manager, see "6.4.2 Creating copy groups".

- Existing copy group

Register a copy pair to the existing copy group. Select a copy group from a pulldown list.

- New copy group

Create a new copy group and register a copy pair to the created copy group.

Point

Specify for copy group name, 64 or less alphanumeric characters including hyphen (-), underscore (_), pound (#) and period (.). The first character is an alphabet.

5. The Confirmation screen is displayed. After confirmation, click the [Confirm] button and a copy pair is created.

6.4.2 Creating copy groups

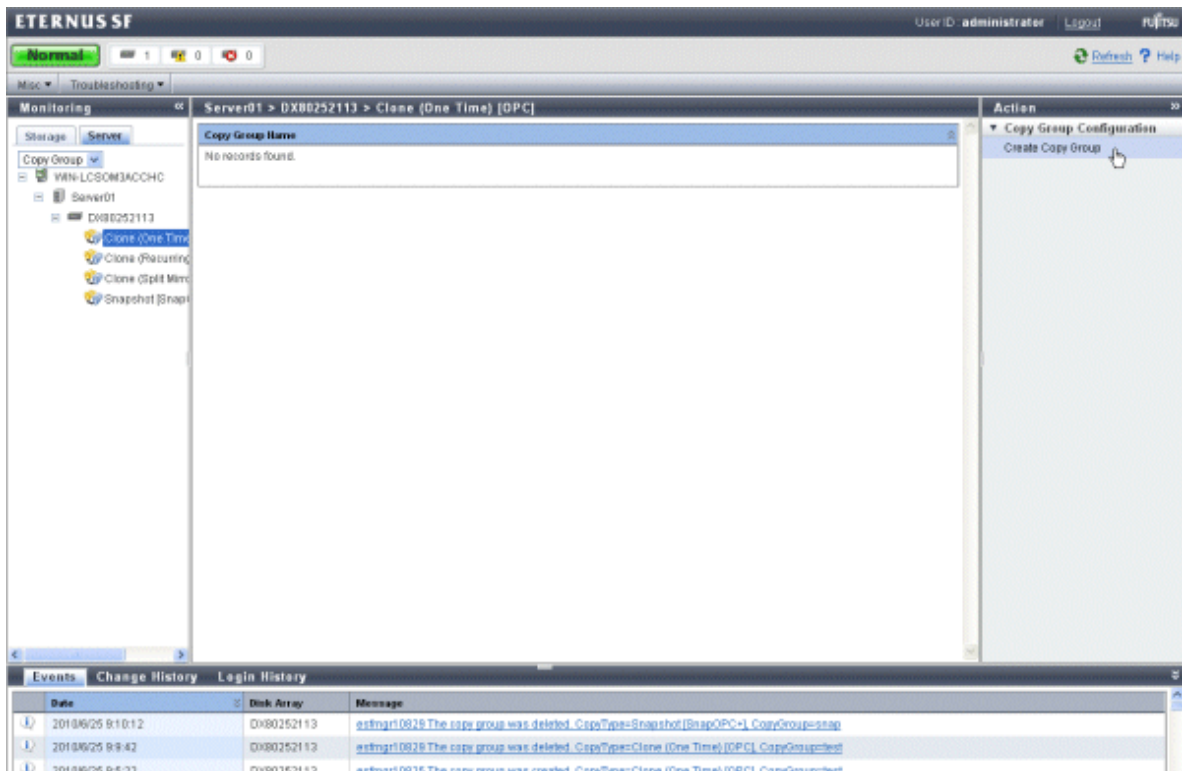
When operating multiple copy pairs, create a copy group.

The advantages of copy group are as follows.

- Data base space configured with multiple volumes can be copied with consistency secure.
- Multiple volumes associated with business operation can be copied with consistency secured.

The following is the procedure to create a copy group.

1. Select a copy group type to be created from [Server] tab in [Monitoring] pane.



Select [Copy Group Configuration] - [Create Copy Group] in [Action] pane.

2. The Create Copy Group wizard is displayed. Select a copy pair according to the wizard.

- In the case of ETERNUS DX60, DX80/DX80 S2:

Create Copy Group [X]

Select Copy Pair > Define Copy Group Name > Confirmation

Select copy pairs to add into the new copy group. ? Help

Please select copy pairs from the table.

	Source Volume					Destination Volume				
	Volume No.	Volume No.	Volume Name	Server Name	Capacity	Volume No.	Volume No.	Volume Name	Server Name	Capacity
<input type="checkbox"/>	0	0x0000	Volume_0	Server01	10,240 MB	1	0x0001	Volume_1	Server01	10,240 MB
<input checked="" type="checkbox"/>	0	0x0000	Volume_0	Server01	10,240 MB	2	0x0002	Volume_2	Server01	10,240 MB
<input checked="" type="checkbox"/>	0	0x0000	Volume_0	Server01	10,240 MB	3	0x0003	Volume_3	Server01	10,240 MB
<input type="checkbox"/>	0	0x0000	Volume_0	Server01	10,240 MB	4	0x0004	Volume_4	Server01	10,240 MB
<input type="checkbox"/>	0	0x0000	Volume_0	Server01	10,240 MB	5	0x0005	Volume_5	Server01	10,240 MB

Next Cancel

- In the case of ETERNUS DX90/DX90 S2:

Create Copy Group [X]

Select Copy Pair > Define Copy Group Name > Confirmation

Select copy pairs to add into the new copy group. ? Help

Remote Storage Name: DX903NO

Please select copy pairs from the table.

	Source Volume					Destination Volume				
	Volume No.	Volume No.	Volume Name	Server Name	Capacity	Volume No.	Volume No.	Volume Name	Server Name	Capacity
<input type="checkbox"/>	58	0x003A	Volume_0	Server1	5 GB	102	0x0066	Volume_0	Server1	5 GB
<input type="checkbox"/>	58	0x003A	Volume_0	Server1	5 GB	103	0x0067	Volume_1	Server1	5 GB
<input type="checkbox"/>	66	0x0042	Volume_2	Server1	5 GB	104	0x0068	Volume_2	Server1	5 GB

Next Cancel

3. Enter the copy group name.

Define the name for the copy group that you want to create. Fields marked with * are required.

Please input copy group name.

Group Name *

Back Next Cancel

Point

Specify for copy group name 64 or less alphanumeric characters including hyphen (-), underscore (_), hash (#) and period. The first character must be an alphabetical letter.

4. The Confirmation screen is displayed. After confirmation, click the [Confirm] button and a copy pair is created.

6.4.3 Executing Clone Copy

Advanced Copy has the following three types of clone copies.

- Clone copy (OPC)]

This is a copy method to execute OPC (One Point Copy) of the ETERNUS disk storage system.

OPC copies one volume. If copy source volume is accessed, it can copy the volume.

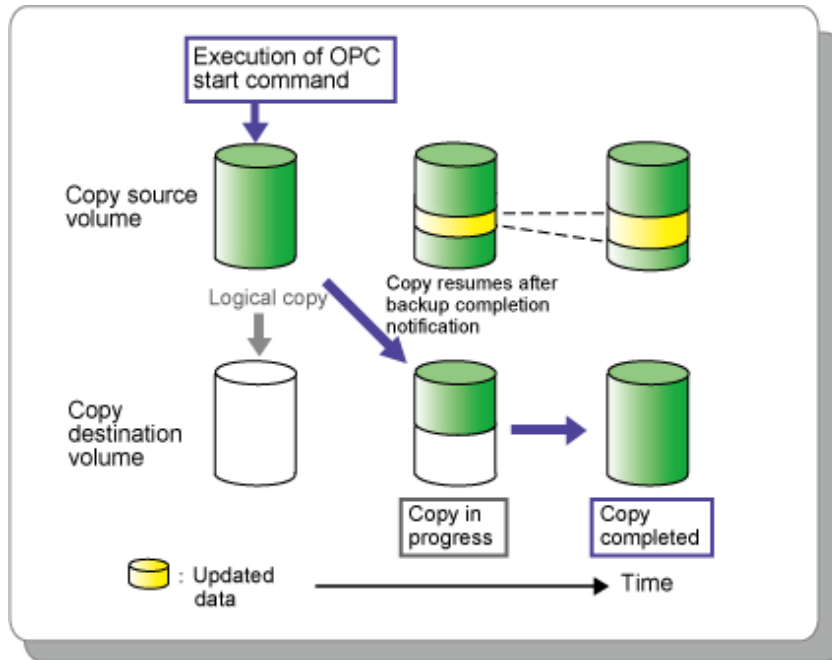
When the OPC command is invoked, ETERNUS creates a point in time snapshot of the source volume and then immediately returns a notification to the operator that the backup is complete, before any physical copying has even occurred. This allows for access to be returned to the transaction or source volume with little or no interruption while the copy is performed as a background process at the hardware level in the ETERNUS.

Clone copy (OPC) is highly effective for the following applications:

- Generation backups where continuous uptime is critical such as internet business applications
- Restore from backups where OPC can be used regardless of the backup copy method and minimizing downtime.
- Case where minimizing server I/O load is critical to overall business application performance.

The following diagram represents the process of clone copy (OPC).

Figure 6.4 Clone copy (OPC)



- Clone copy (Quick OPC)

This is a copy method to execute QuickOPC (Quick One Point Copy) of the ETERNUS Disk storage system.

When the QuickOPC command is invoked, it will determine if an initial copy exists, then will copy only updated blocks of data that have been tracked since the initial copy was created to the backup volume for that specific QuickOPC session.

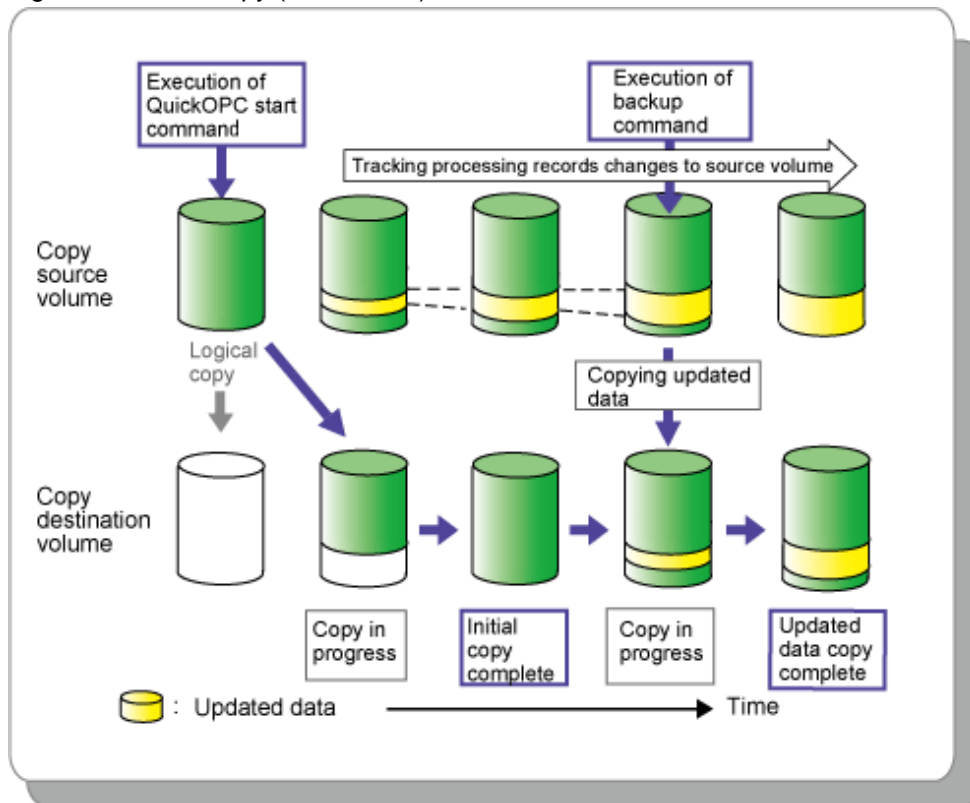
If QuickOPC detects that an initial copy does not exist, it will create the initial copy using OPC. The differential copy method used in QuickOPC significantly reduces the time required for physical data copying in order to create a Point in Time snapshot while minimizing the I/O load on the storage system host server.

Clone copy (QuickOPC) is highly effective for the following applications :

- Backup to disk where uptime is critical
- Frequent restore point creation and frequent backups

The following diagram represents the differential copy process used in QuickOPC copy after an initial copy has been created.

Figure 6.5 Clone copy (Quick OPC)



- Clone copy (EC)

This is a copy method to execute EC (Equivalent Copy) of the ETERNUS disk storage system.

The Equivalent Copy feature invokes a process of synchronization between source and destination volumes to create a synchronized copy of the source volume. The purpose of the synchronization is to reach and maintain a state of equivalence with the source volume in order to create a temporary copy or archival backup.

The source volume remains available and accessible as there is no need to stop or suspend access to the source volume while the copy is built using the synchronization process.

When a state of equivalence with the source volume has been attained, the destination volume continues to be maintained as an image of the source volume.

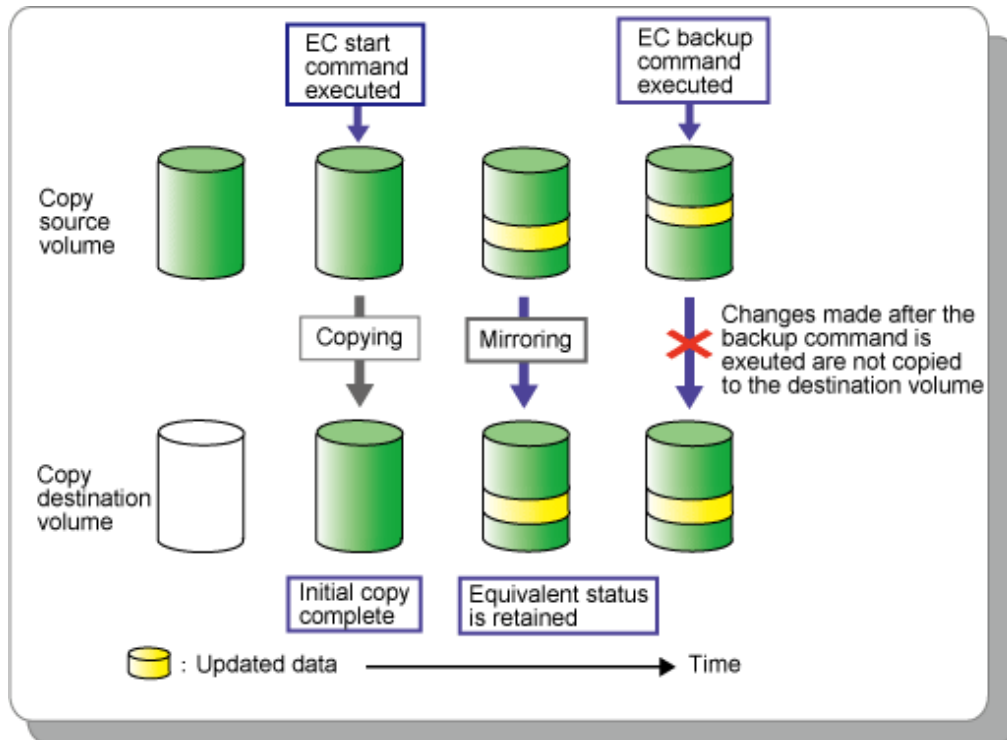
At any subsequent point while the source volume and the destination copy are in this state of equivalence, the destination copy can be split from the source, thus creating a backup with history or a replica copy as at that point in time.

Clone copy (EC) is highly effective for the following applications:

- Making backups much more quickly than with conventional backup processes, because backup data can be collected in parallel with ordinary transactions.

- Reducing processing time and costs by means of distributed processing using copy data.

Figure 6.6 Clone copy (EC)



6.4.3.1 Executing Advanced Copy

6.4.3.1.1 Executing clone copy (OPC)

Execute clone copy (OPC).

Open the Clone(One Time) [OPC] tab.

Select [Advanced Copy] - [Start Forward] in [Action] pane and execute clone copy (OPC).

Start Forward Clone(One Time)[OPC] ✕

Start a Forward Clone(One Time)[OPC] session on copy group.

You should unmount the source volumes and the destination volumes. ? Help

Copy Group Name OPC

Source			Destination		
Volume Name	Storage Name	Server Name	Volume Name	Storage Name	Server Name
Volume_0	DX80252113	Server01	Volume_1	DX80252113	Server01

Start
Cancel

When executing backward copy, select [Advanced Copy] - [Start Backward].

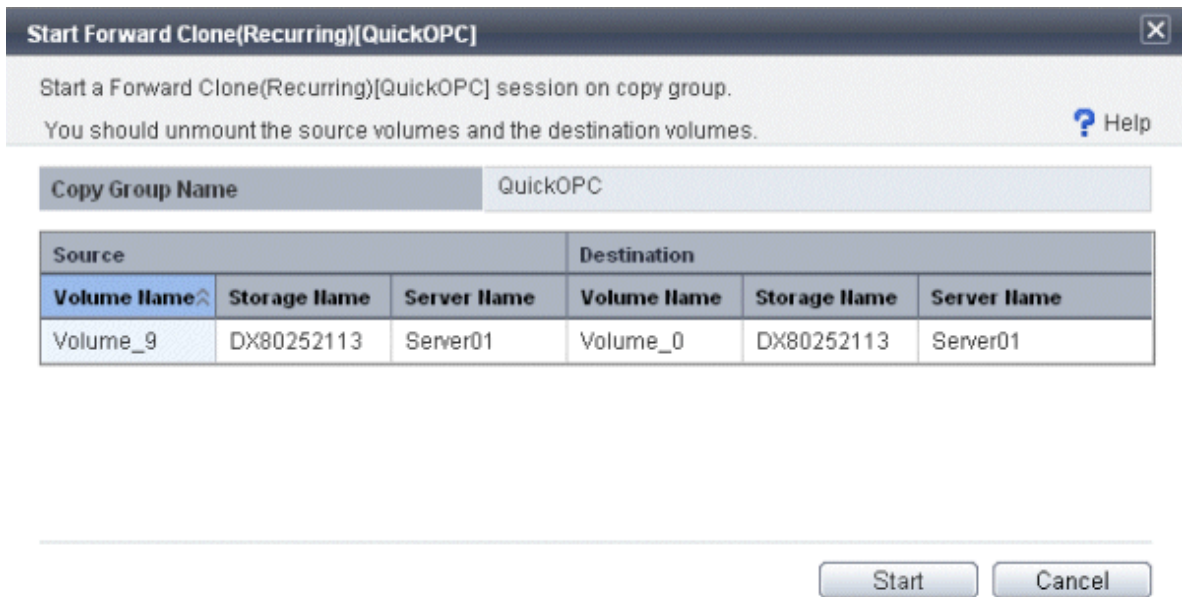
6.4.3.1.2 Executing clone copy (QuickOPC)

Execute copy (QuickOPC).

1. Execute a first copy

Open (Recurring) [QuickOPC] tab.

Select [Advanced Copy] - [Start Forward] in [Action] pane to execute clone copy (QuickOPC).

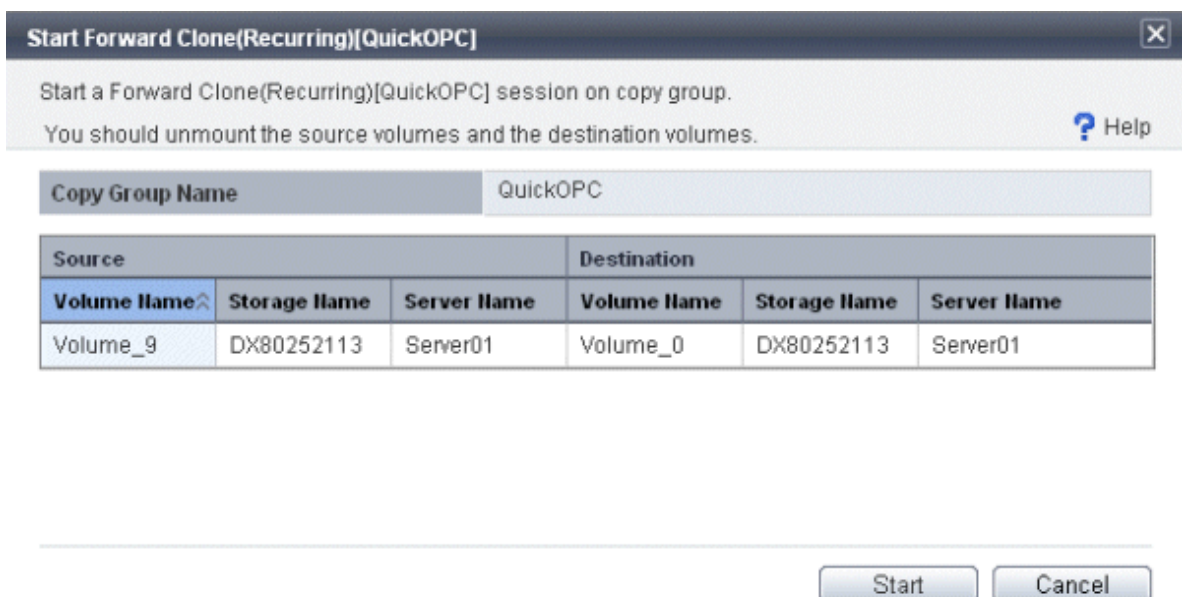


If you execute backward copy, select [Advanced Copy] - [Start Backward].

2. Execute a second and later copies.

Open the Clone(Recurring) [QuickOPC] tab.

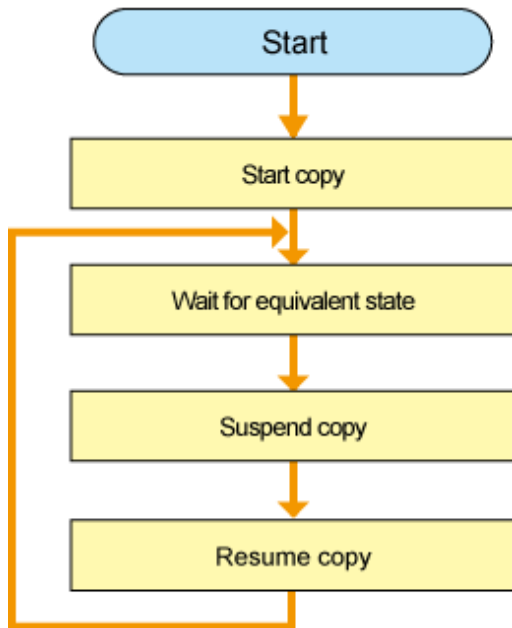
Select [Advanced Copy] - [Start Forward] in [Action] pane to execute clone copy (QuickOPC).



6.4.3.1.3 Executing clone copy (EC)

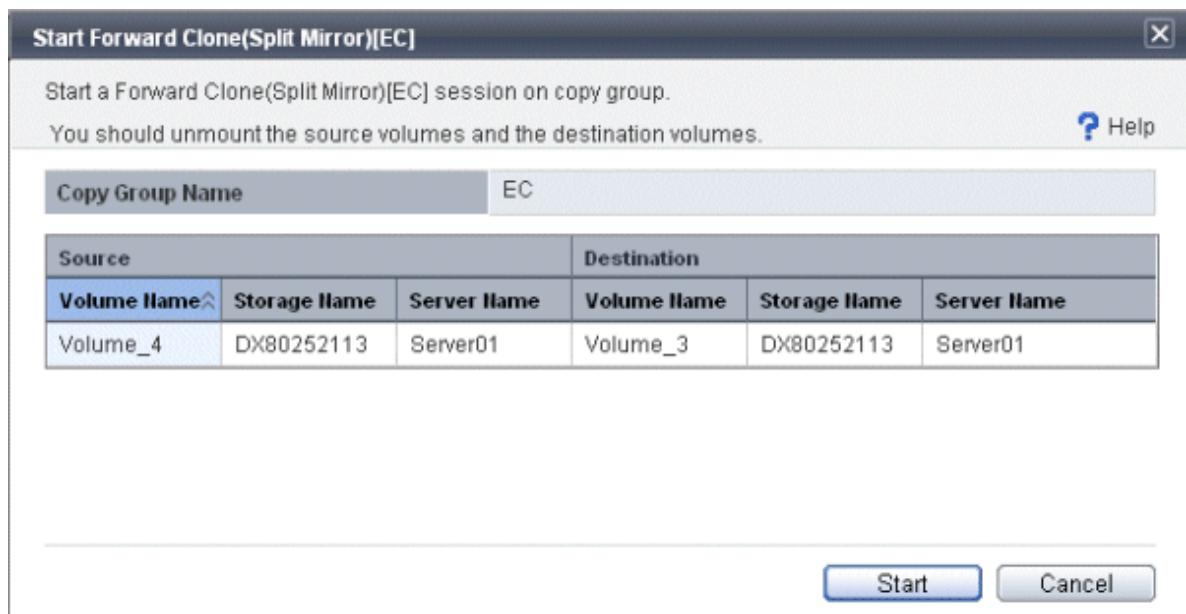
Execute clone copy (EC).

The following is the procedure to execute clone copy (EC).



1. Start copy.

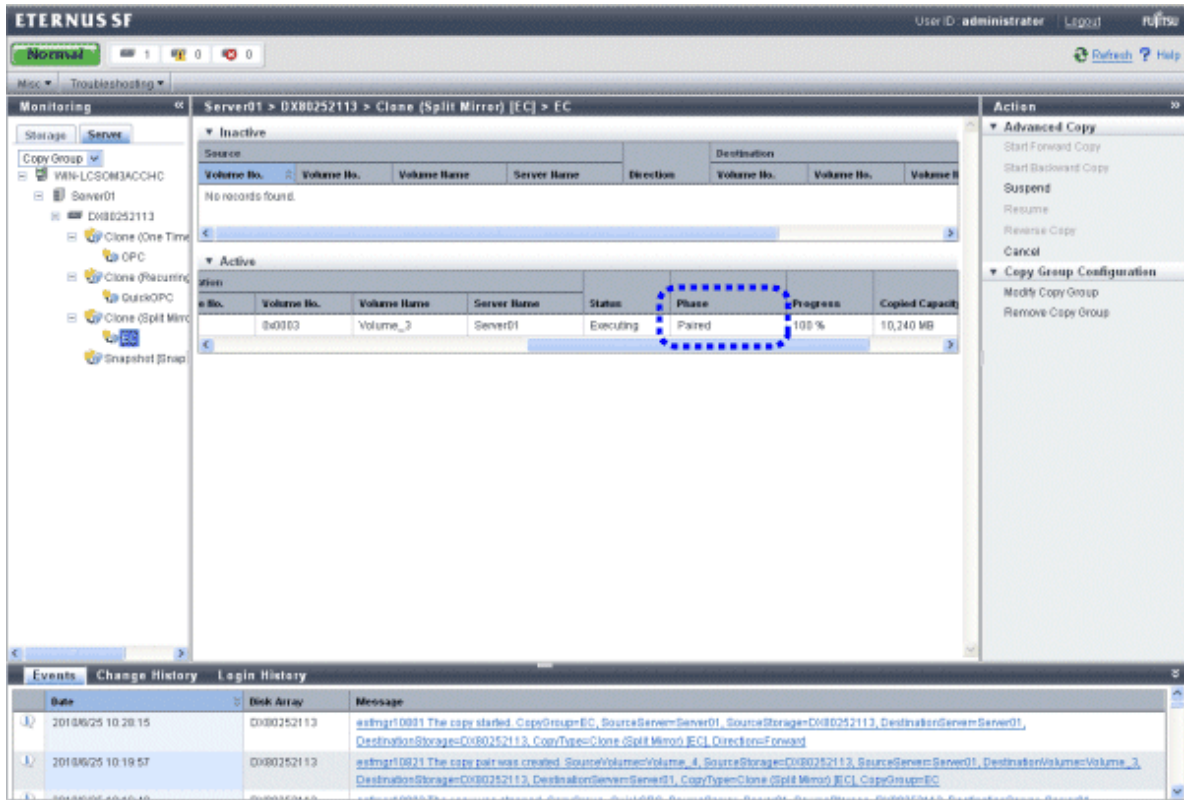
Select [Advanced Copy] - [Start Forward] in [Action] pane of the Clone(Split mirror) [EC] tab to execute clone copy (EC).



If you execute backward copy, select [Advanced Copy] - [Start Backward].

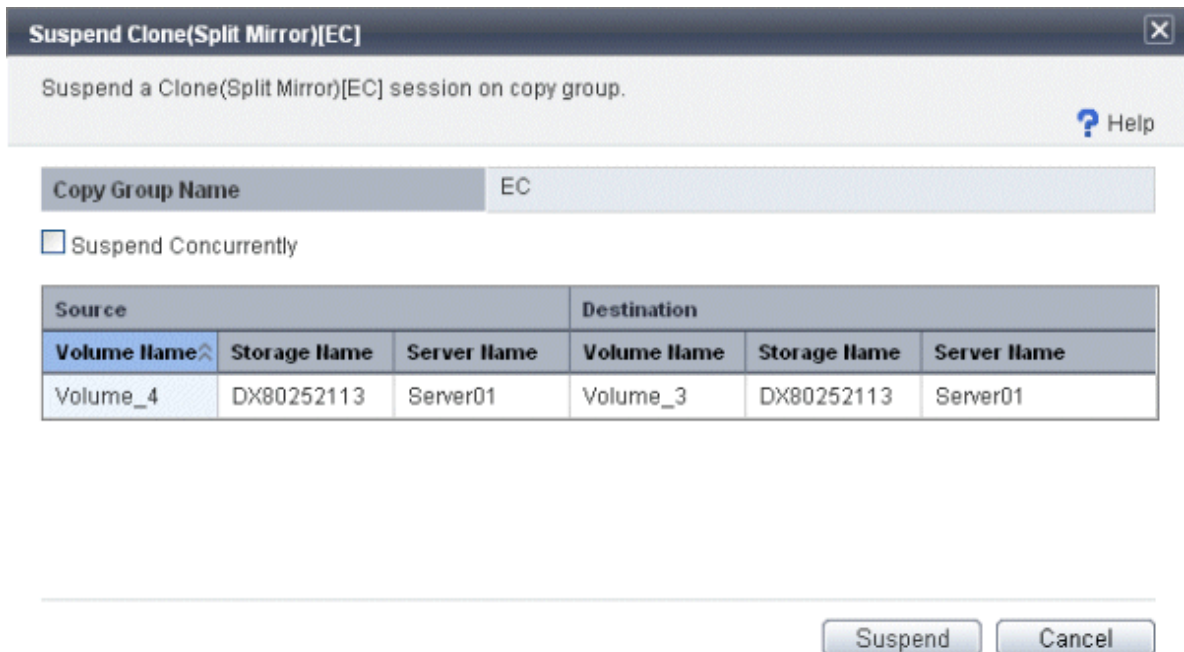
2. Wait for the status to be equivalent.

Make sure that [Phase] is changed to "Paired" from "Copying".



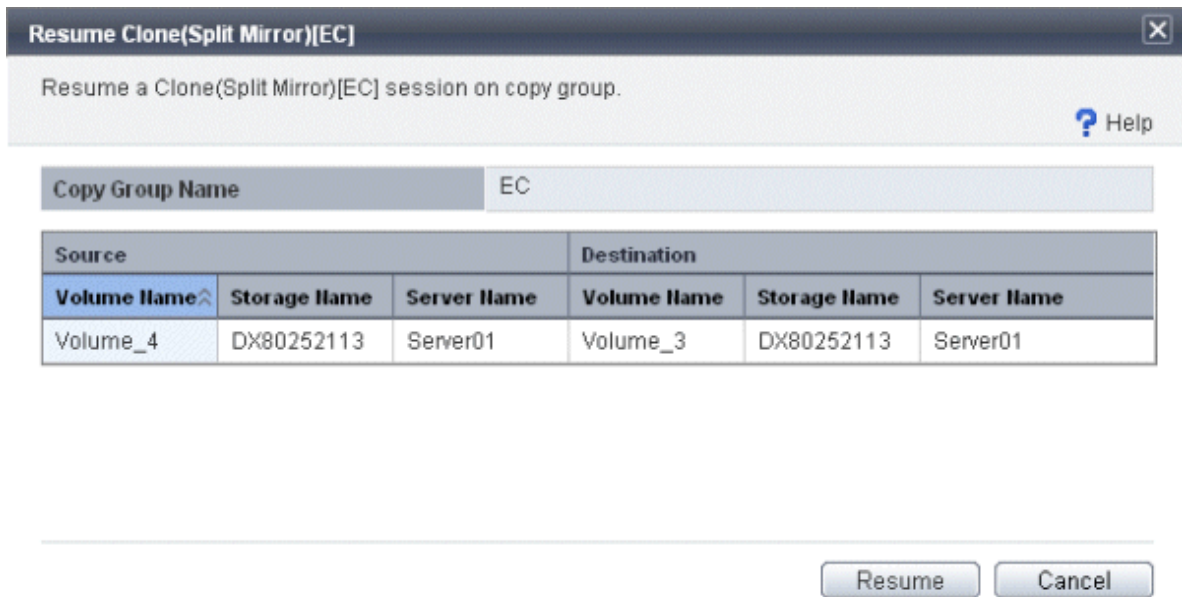
3. Suspend the copy.

Select [Advanced Copy] - [Suspend] in [Action] pane of the Clone(Split mirror) [EC] tab to suspend clone copy (EC).



4. Resume the copy.

Select [Advanced Copy] - [Resume] in [Action] pane of the Clone(Split mirror) [EC] tab to resume clone copy (EC).



Repeat steps 2 to 4.

6.4.4 Executing Snapshot copy

This is a copy method to execute SnapOPC+ of the ETERNUS Disk storage system.

SnapOPC+ uses the Copy-On-Write method to create a pre-update copy source volume.

SnapOPC+ can save pre-update data on the copy source volume on a per snap generation (unit of volume replication) basis.

SnapOPC+ is designed in view of its mechanism and features to be used as backups for recovery from software failures such as operation mistake and software error.

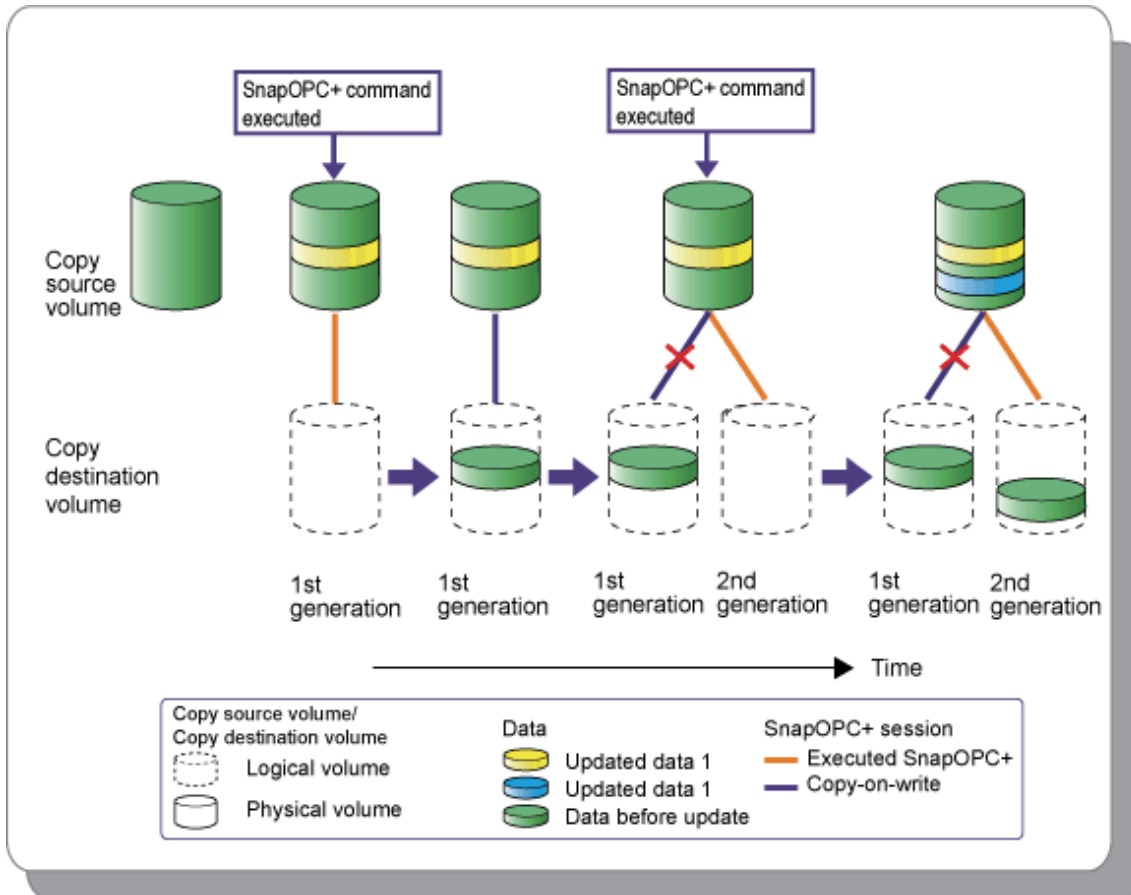
if a copy source volume becomes inaccessible due to any hardware failure, the relevant session will become an error, thus making it impossible to properly read the data on the copy destination volume.

To provide for such critical hardware failures, it is recommended to make a complete copy of data using clone copy (OPC/QuickOPC/EC) or remote copy (REC) as well as SnapOPC+.

Snapshot copy (SnapOPC+) is effectively available for:

- Backups of temporary files used for cascade copy to alternate media such as tape.
- Backups of file servers and other data less frequently updated.

Figure 6.7 Snapshot copy (SnapOPC+)



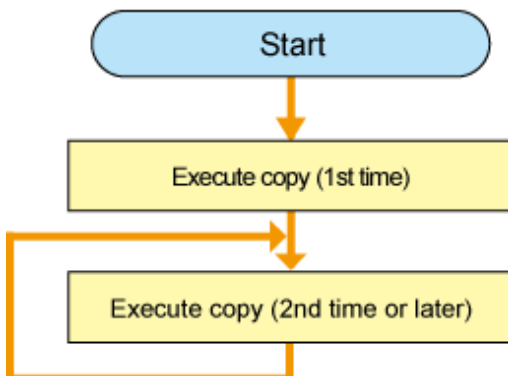
Note

ETERNUS DX80 S2 and DX90 S2 need one or more SDPV.

6.4.4.1 Executing Advanced Copy

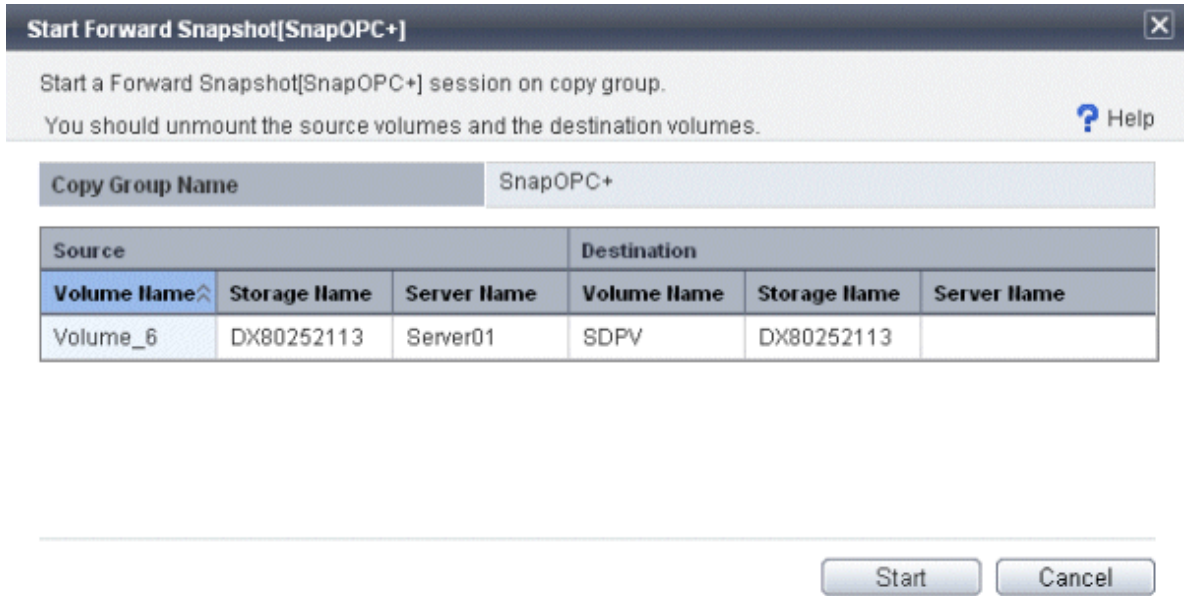
Execute snapshot copy (SnapOPC+).

The following is the procedure to execute snapshot copy (SnapOPC+).



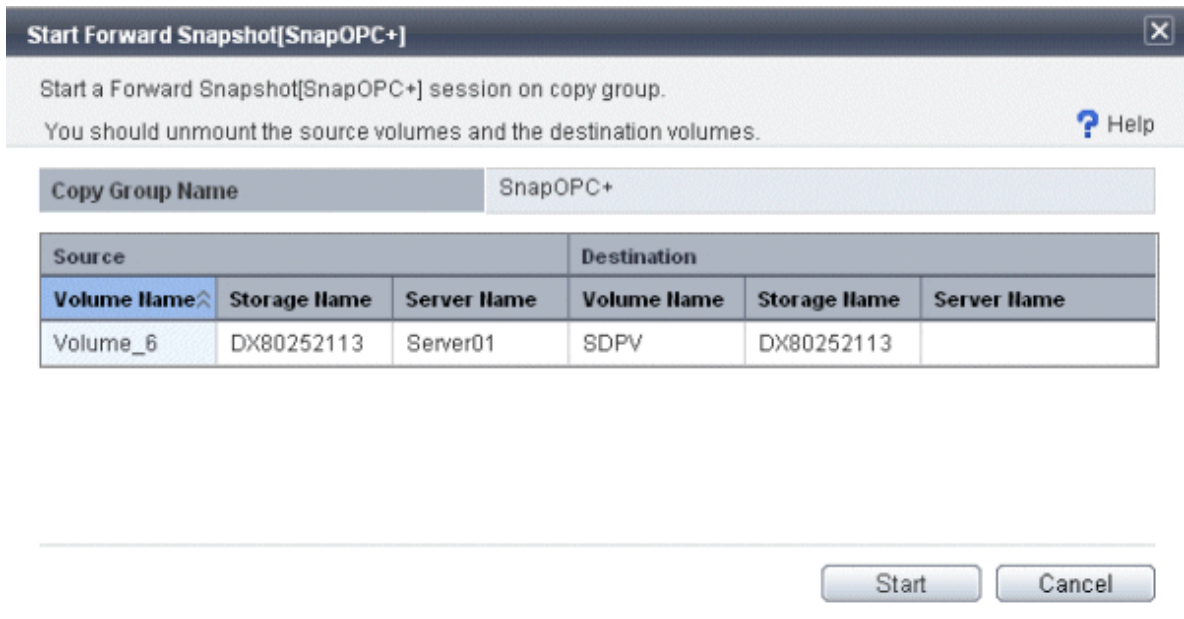
1. Execute a first copy.

Select [Advanced Copy] - [Start Forward] in [Action] pane for "Copy Group" to execute snapshot copy (SnapOPC+).



2. Execute a second copy.

Select again [Advanced Copy] - [Start Forward] in [Action] pane for "Copy Group" to execute snapshot copy (SnapOPC+).



When the second copy is executed, [Status] of the previously created copy is changed to "Copy On Write(Inactive)" from "Copy On Write(Active)".

6.4.5 Executing remote copy (HA configuration)

This section describes Remote copy in a HA (High Availability) configuration.

Remote copy in a HA configuration executes copy between the following ETERNUS Disk storage systems within LAN.

- Between two ETERNUS DX90

- Between two ETERNUS DX90 S2
- Between ETERNUS DX90 and ETERNUS DX90 S2

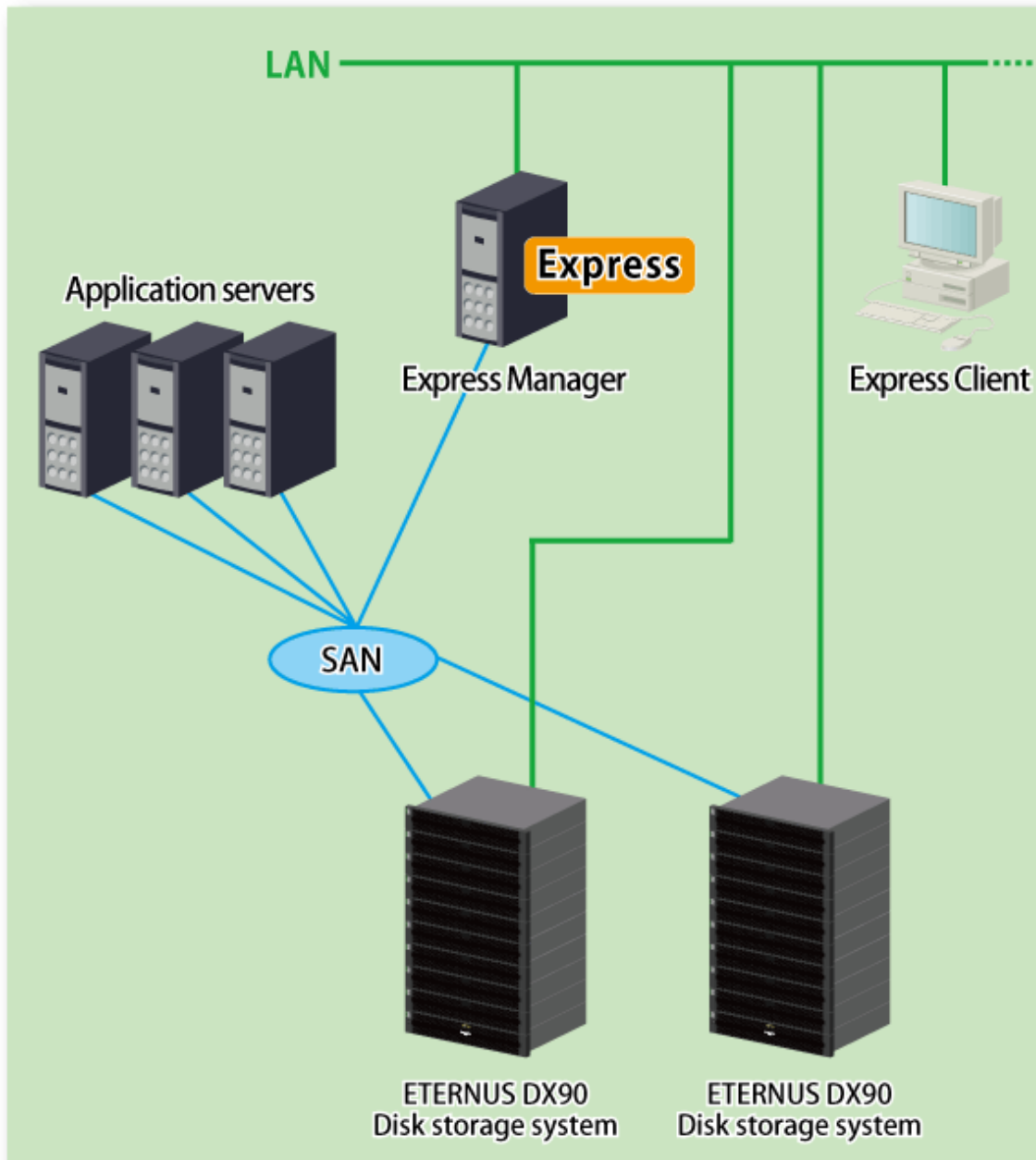
Even if any failure should occur in one ETERNUS Disk storage system, the other ETERNUS Disk storage system continues the operation.

Remote Copy has three types of operation modes. Select an operation mode according to the operation form. For more specific information about operation mode, see "[B.7 Remote Advanced Copy \(REC\)](#)".

It is required to consider Recovery Point Objective (RPO) and Recovery Time Objective (RTO).

For HA configuration, synchronous transfer mode remote copy is recommended to reduce the Recovery Point Objective.

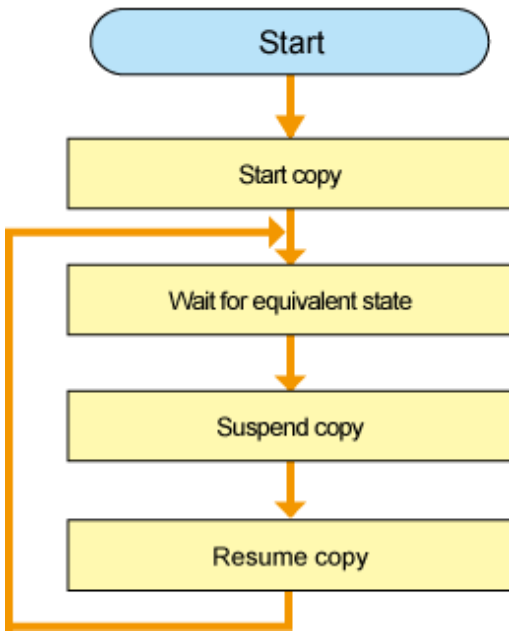
Figure 6.8 HA configuration diagram



6.4.5.1 Executing Advanced Copy

Execute remote copy (REC).

The following is the procedure to execute synchronous transfer mode remote copy (REC).



1. Start copy.

Open the "Remote[REC]" tab.

Select [Advanced Copy] - [Start Forward] in [Action] pane to execute remote copy (REC).

Specify the operation mode of remote copy from below.

- Transfer mode
- Split mode

- Recovery mode

Start Forward Remote Copy [REC] ✕

Start a Forward Remote Equivalent Copy session on copy group.
You should unmount the source volumes and the destination volumes. ? Help

Copy Group Name REC

Transfer: (specifies the transfer mode)
 Sync Consist Stack

Split: (specifies the split mode)
 Auto Manual

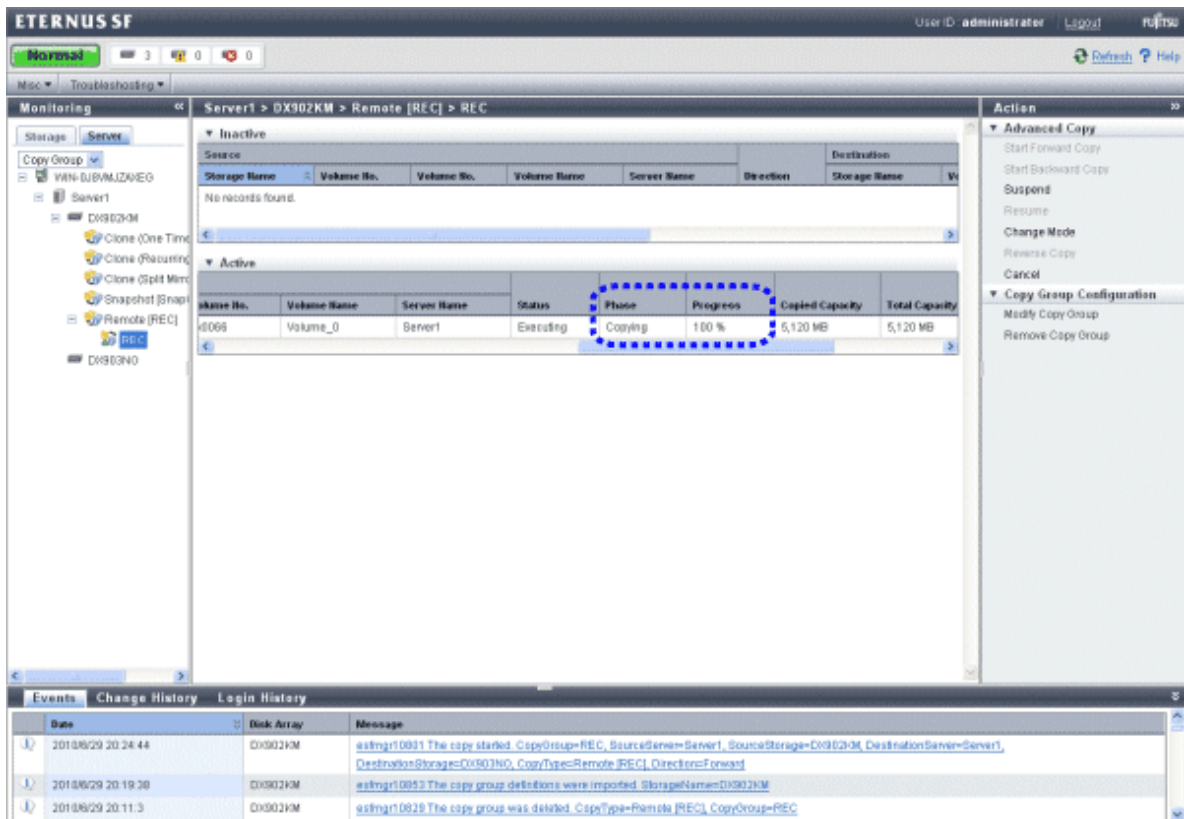
Recovery: (specifies the recovery mode)
 Auto Manual

Source			Destination		
Volume Name	Storage Name	Server Name	Volume Name	Storage Name	Server Name
Volume_0	DX902KM	Server1	Volume_0	DX903NO	Server1

If you execute backward copy, select [Advanced Copy] - [Start Backward].

2. Wait for [Status] to become equivalent.

Make sure that [Phase] becomes "Paired" and [Progress] becomes "100%".



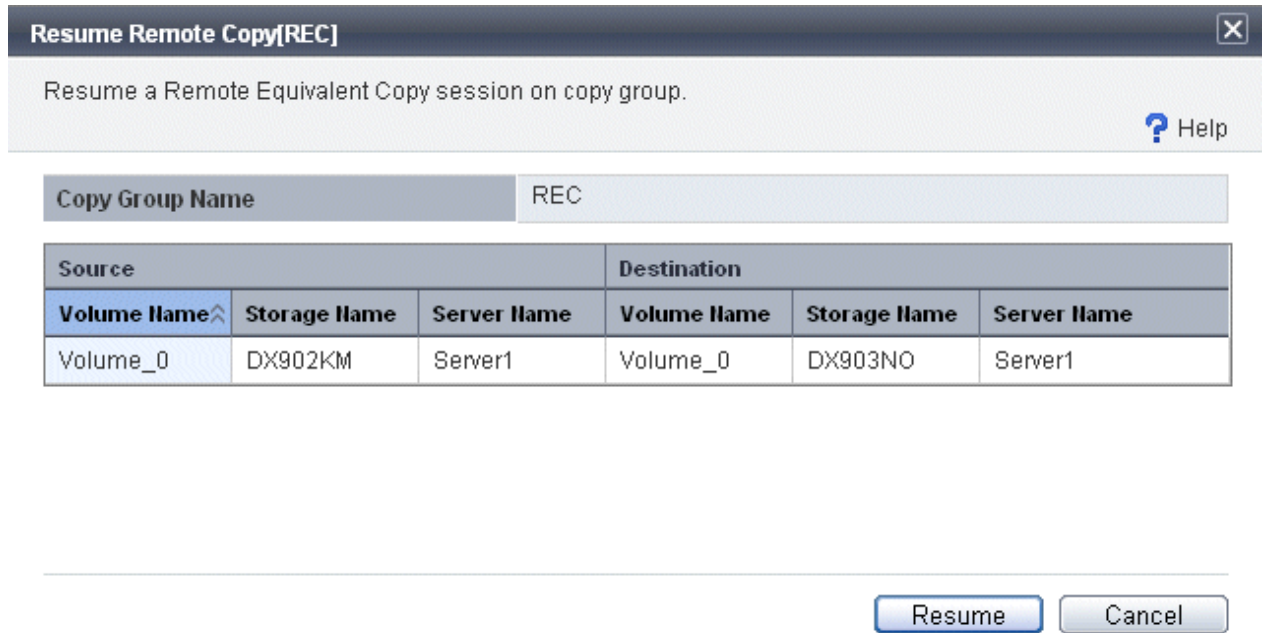
3. Suspend the copy.

Select [Advanced Copy] - [Suspend] in [Action] pane for "Copy Group" to suspend the copy.



4. Resume the copy.

Select [Advanced Copy] - [Resume] in [Action] pane for "Copy Group" to resume the copy.
Repeat steps 2 to 4.



6.4.5.2 Operational procedure for fault occurrence on the ETERNUS Disk storage system

If Advanced Copy cannot be continued due to some hardware fault, the ETERNUS Disk storage system automatically suspends Advanced Copy.

In addition, remote copy sessions automatically turn to "Error Suspend" or "Hardware Suspend".

- In the event that "Hardware Suspend" occurs:

1. If the following statuses are met, execute "Suspend" operation to suspend remote copy sessions.
 - Transfer mode is "Synchronous".
 - Copy status is equivalent.
 - Split mode is "Manual Split".
2. Remove the error.
3. If Recovery mode is "Manual Recovery", execute "Suspend" operation to suspend the operation. After that, execute "Resume" operation to recover the remote copy sessions.

Point

.....
If Recovery mode is "Automatic Recovery", remote copy sessions are automatically recovered, so that no operation is required.
.....

- If an ETERNUS Disk storage system in which an copy source volume exists causes "Error Suspend".
1. Execute "Suspend" operation to suspend the remote copy sessions.
Or, execute "Cancel" operation to cancel the remote copy sessions.
 2. Change the volume accessed by the business server to copy destination volume.

3. Make sure that the ETERNUS Disk storage system in which the copy source volume exists has been recovered and then restore the copy destination volume to the source volume.

In the event that the ETERNUS Disk storage system has been recovered:

1. When the copy sessions have been suspended by "Suspend" operation, execute "Reverse" and "Resume" operation to restore data from the copy destination volume to the source volume.
When the copy sessions have been stopped by "Cancel" operation, execute "Start Backward Copy" operation to restore data from the copy destination volume to the source volume.
2. On completion of restore, stop business server access to the copy destination volume.
3. Execute "Suspend" operation to suspend the remote copy sessions.
4. Execute "Reverse" operation to change the copy direction to the copy destination volume from the source volume.
5. Execute "Resume" operation to resume the remote copy sessions.
6. Return the volume accessed by the business server to the source volume.

In the event that the ETERNUS Disk storage system has been replaced:

1. Execute "Cancel" operation to cancel all remote copy sessions.
2. Delete the pre-replacement ETERNUS Disk storage system from Express.
3. Register the post-replacement ETERNUS Disk storage system to Express.
4. Create a copy pair and a copy group.
5. Execute "Start Backward" operation to start remote copy session.
6. Execute steps 2 to 6 described in the above-mentioned "In the event that the ETERNUS Disk storage system has been recovered".

- In the event that the ETERNUS Disk storage system in which the copy destination volume exists causes "Error Suspend":

1. Recover the ETERNUS Disk storage system in which the copy destination exists.
2. Execute "Resume" operation to recover the remote copy sessions.

6.4.6 Executing Remote copy (DR configuration)

This section describes Remote copy (or Extended Remote Advanced Copy) in a DR (Disaster Recovery) system configuration.

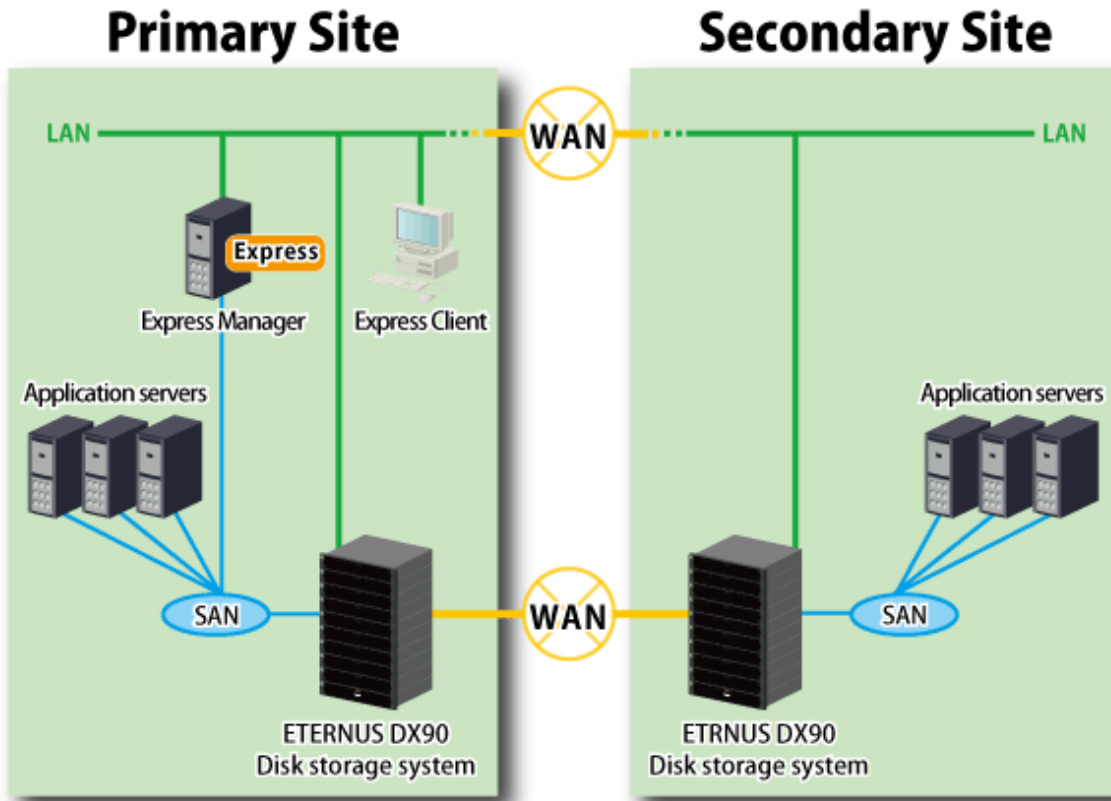
Against disasters, Remote copy in a DR configuration executes copy between DX90 or DX90 S2 at the active site and DX90 or DX90 S2 at the standby site. In the event that a disaster occurs, the active site DX90 or DX90 S2 is switched to the standby site DX90 or DX90 S2 to continue the system operation.

Remote Copy has three types of operation modes. Select an operation mode according to the operation form. For more specific information about operation mode, see "[B.7 Remote Advanced Copy \(REC\)](#)".

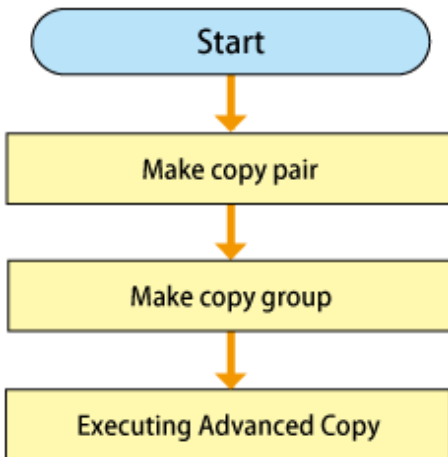
In a configuration that data transfer length is long or a configuration that transfer path includes WAN, data transfer time could be long. In synchronous transfer mode, response to input/output request from the business server could not be returned within response time. Using the asynchronous transfer mode can reduce the effect of delaying response to input/output request from the business server.

For DR configuration, asynchronous transfer mode is recommended.

Figure 6.9 DR system configuration diagram DR



The following is the procedure to execute Remote copy.

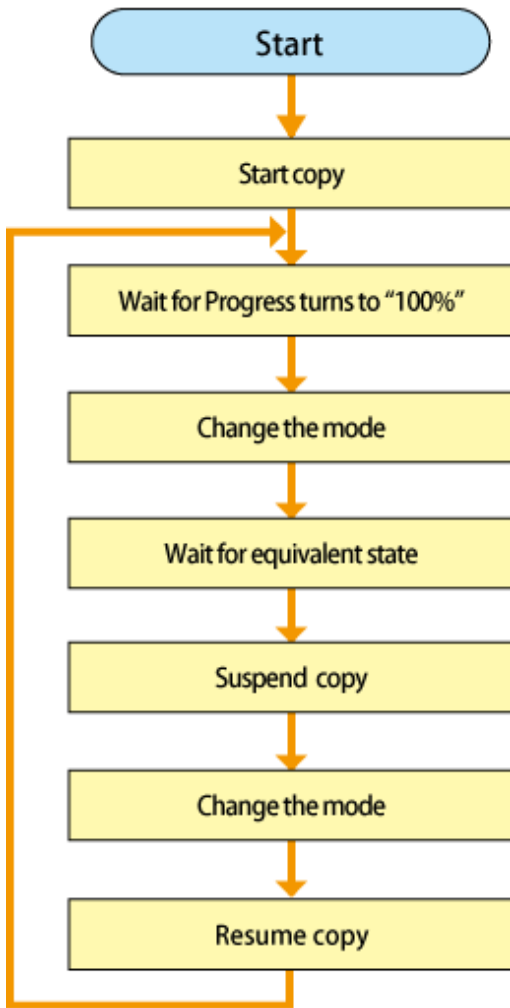


6.4.6.1 Executing Advanced Copy

Execute Remote copy (REC).

For DR configuration, asynchronous transfer method is recommended.

The following is the procedure to execute asynchronous transfer mode (stack) remote copy (REC).



1. Start copy.

Open the "Remote[REC]" tab.

Select [Advanced Copy] - [Start Forward] in [Action] pane to execute Remote copy (REC).

Specify the operation mode for Remote copy from below.

- Transfer mode
- Split mode

- Recovery mode

Start Forward Remote Copy [REC]

Start a Forward Remote Equivalent Copy session on copy group.
You should unmount the source volumes and the destination volumes. [? Help](#)

Copy Group Name REC

Transfer: (specifies the transfer mode)
 Sync Consist Stack

Split: (specifies the split mode)
 Auto Manual

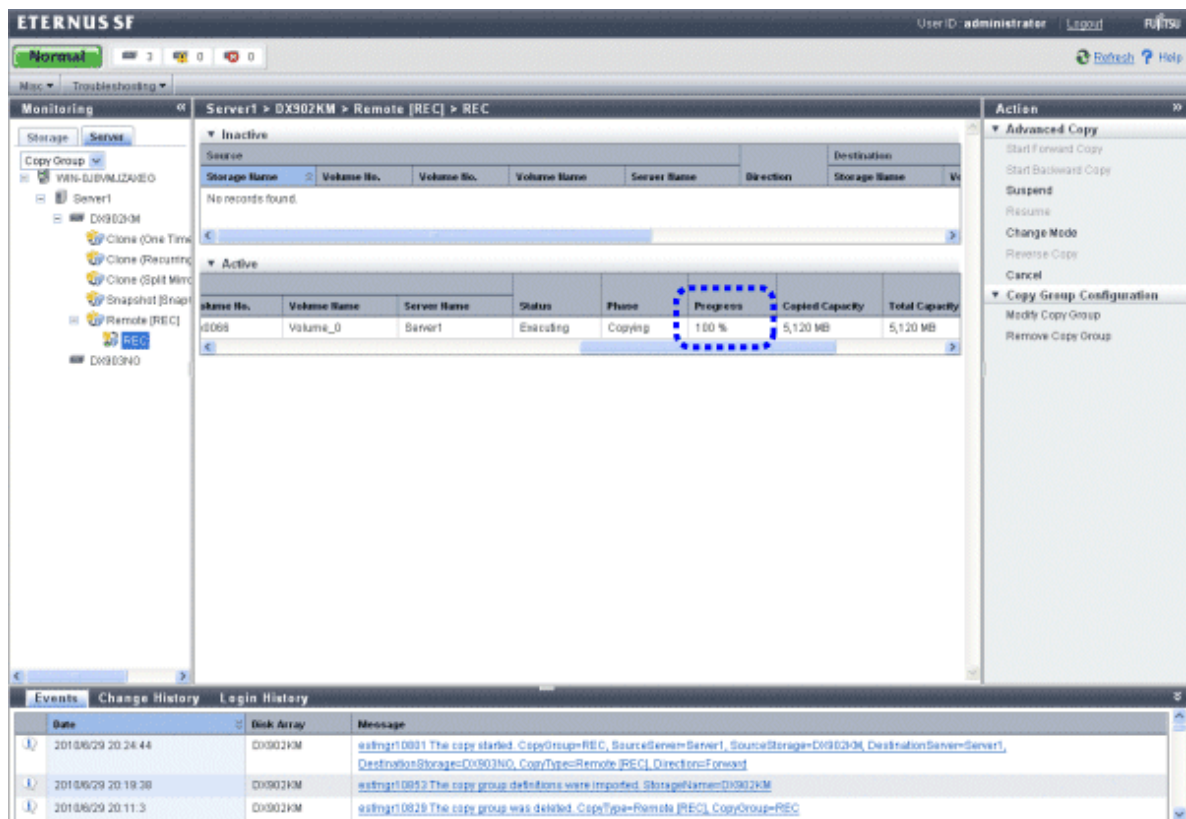
Recovery: (specifies the recovery mode)
 Auto Manual

Source			Destination		
Volume Name	Storage Name	Server Name	Volume Name	Storage Name	Server Name
Volume_0	DX902KM	Server1	Volume_0	DX903NO	Server1

Start Cancel

For transfer mode, Stack (Stack mode) or Consistent (Consistency mode), which are asynchronous transfer mode, is recommended.
If you start backward copy, select [Advanced Copy] - [Start Backward].

2. Wait until [Progress] turns to "100%".
Make sure that [Progress] has become "100%".



3. Change the mode.

Select [Advanced Copy] - [Change Mode] in [Action] pane to change the transfer mode to Through (Through mode).

Change Remote Copy[REC] ✕

Change a Remote Equivalent Copy session mode on copy group. ? Help

Copy Group Name REC

Transfer: (specifies the transfer mode)
 Sync Through Consist Stack

Split: (specifies the split mode)
 Auto Manual

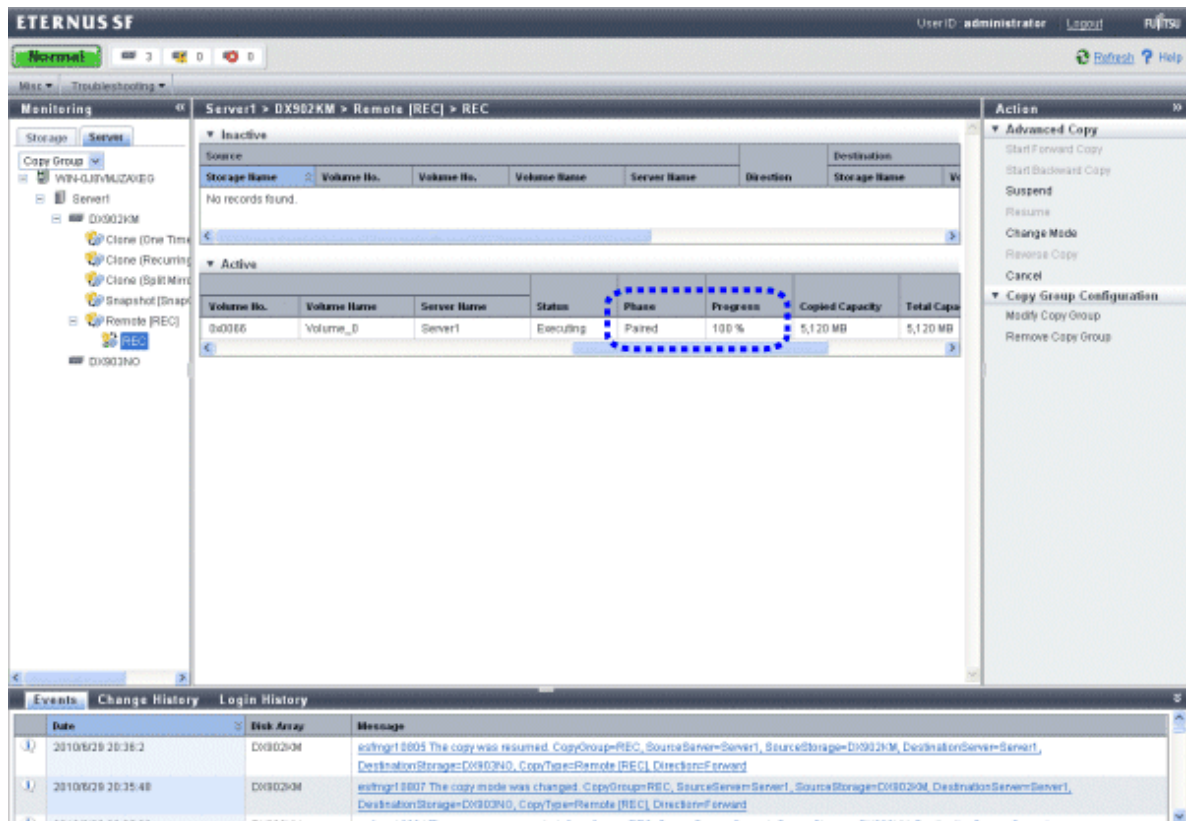
Recovery: (specifies the recovery mode)
 Auto Manual

Source			Destination		
Volume Name	Storage Name	Server Name	Volume Name	Storage Name	Server Name
Volume_0	DX902KM	Server1	Volume_0	DX903NO	Server1

Change Cancel

4. Wait for [Status] becomes equivalent.

Make sure that [Phase] has turned to "Paired" and [Progress] to "100%".



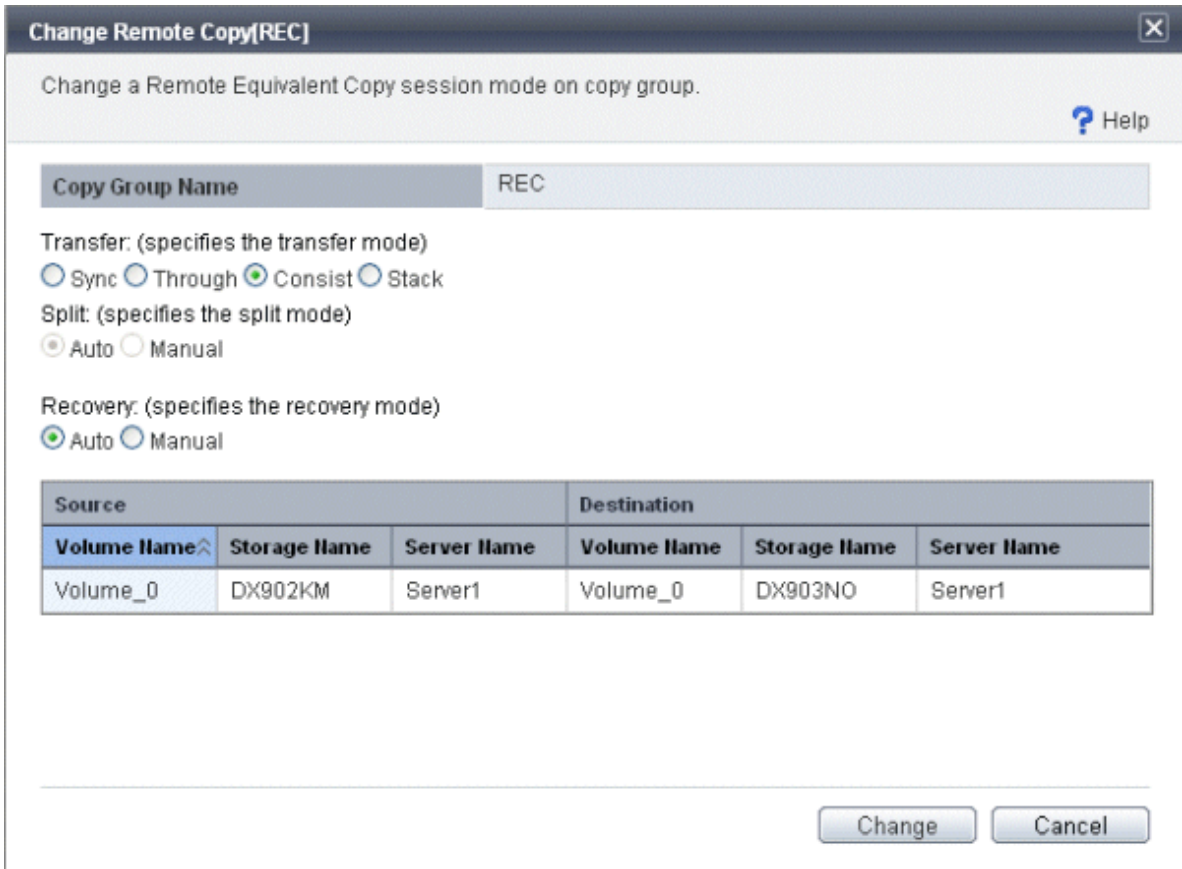
5. Suspend the copy.

Select [Advanced Copy] - [Suspend] in [Action] pane to suspend the copy.



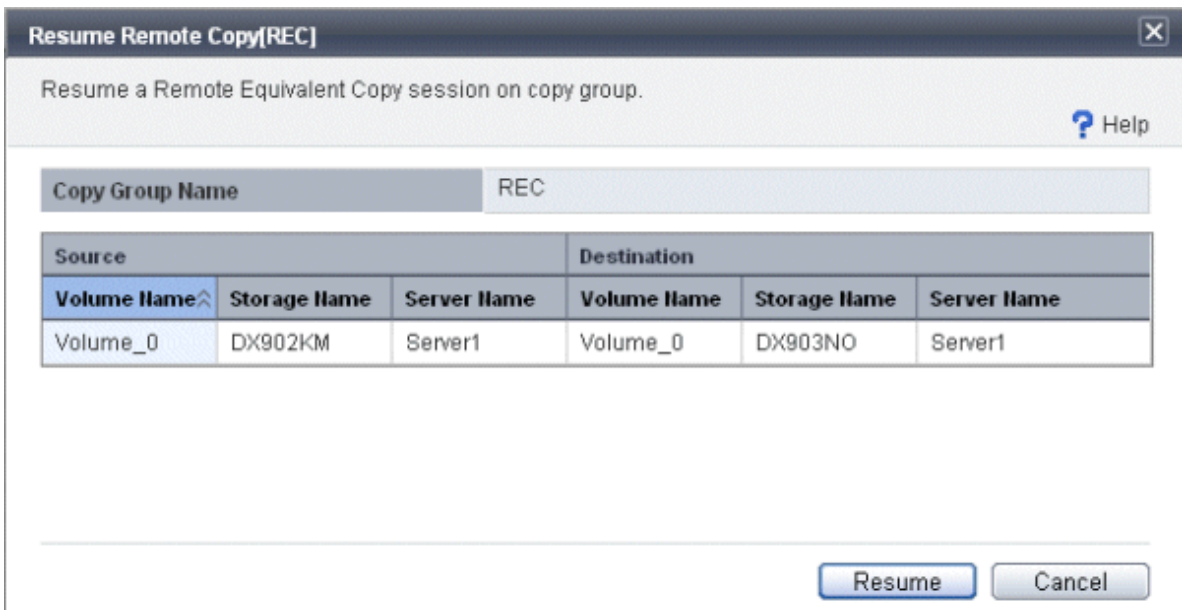
6. Change the mode.

Select [Advanced Copy] - [Change Mode] in [Action] pane to return the transfer mode to Stack (Stack mode) or Consist (Consistency mode).



7. Resume the copy.

Select [Advanced Copy] - [Resume] in [Action] pane to resume the copy.



As required, repeat step 2 to 7.

6.4.6.2 Exporting/Importing copy group definition

If a local site disk storage system is harmed, a remote site disk storage system continues the operation. You can export the definition of local site copy groups beforehand and import it into the Express Manager server placed at a remote site.

6.4.6.2.1 Exporting copy group definition

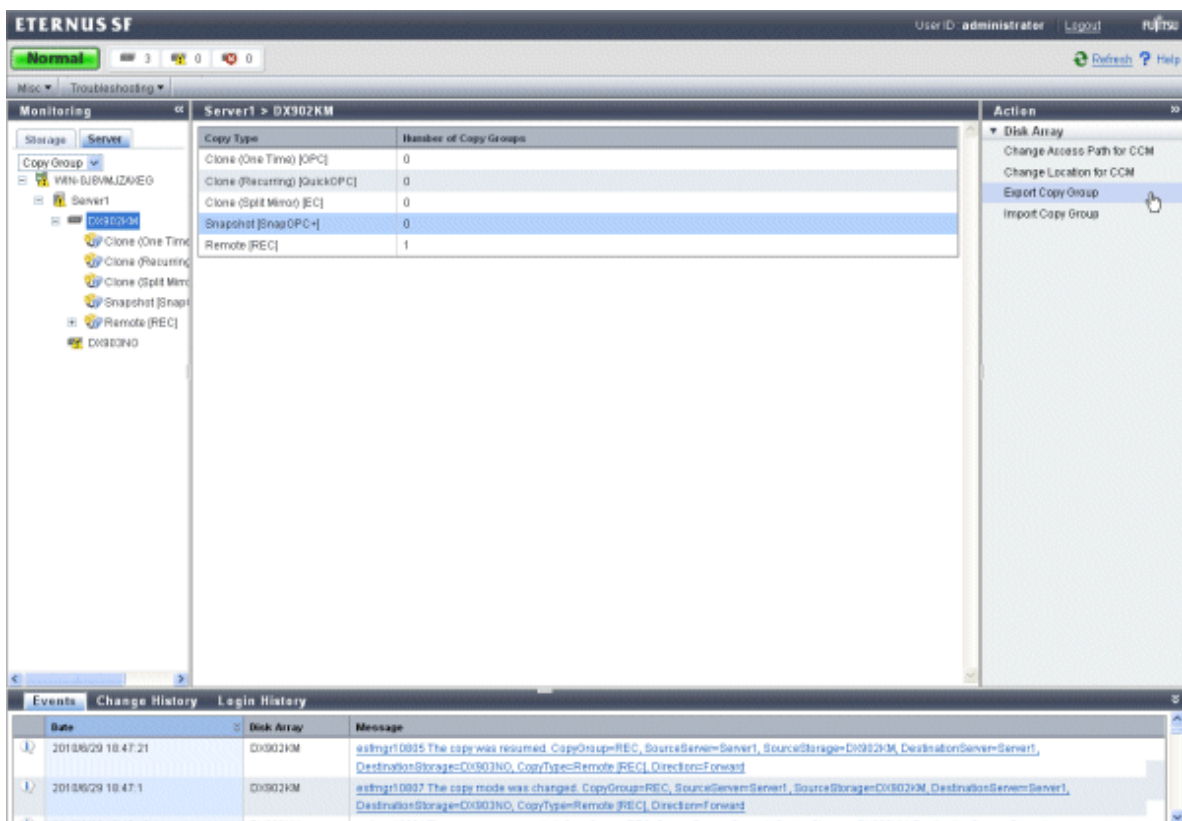
Take the following procedure to export copy group definition. This operation is performed at a local site.

Note

The copy group you can export is as follows:

- ETERNUS Disk storage system is DX90 or DX90 S2, and also the copy group type is Remote[REC].

1. Select the Express Web GUI to display the copy group, from [Server] tab in [Monitoring] pane.
2. Select the ETRNUS Disk storage system from which to export a copy group.
Select [Disk Array] - [Export Copy Group] in [Action] pane.

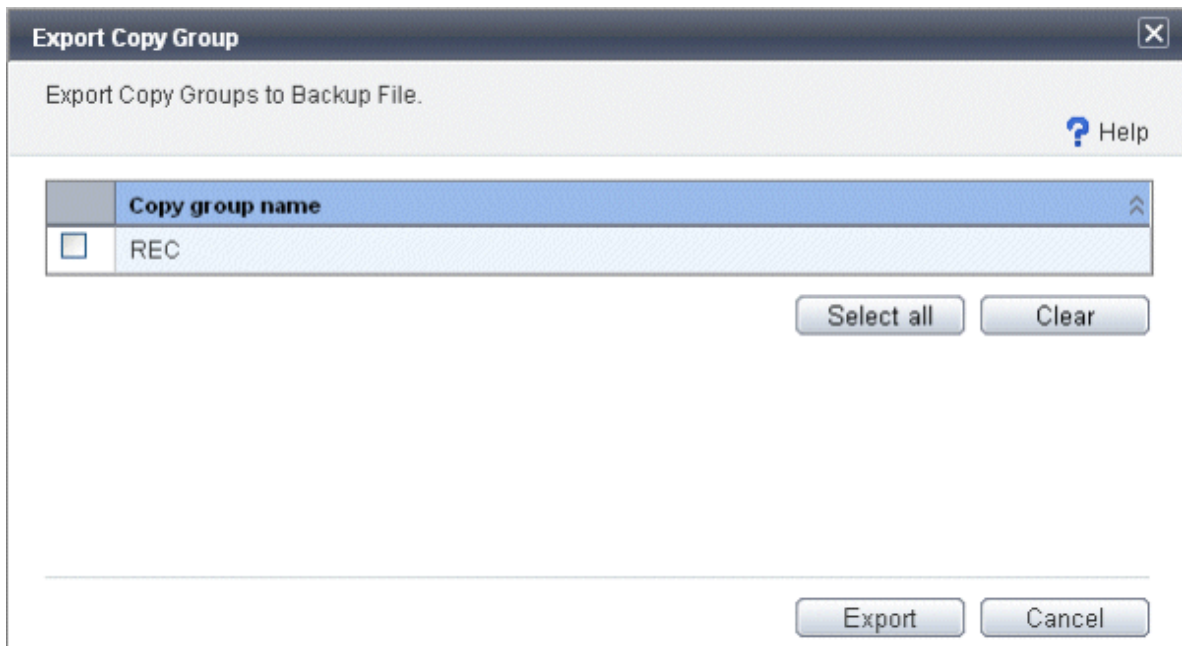


The screenshot displays the ETERNUS SF web interface. The 'Monitoring' pane shows a tree view of storage systems, with 'Server1' selected. A table lists copy groups for 'Server1 > DX902KM':

Copy Type	Number of Copy Groups
Clone (One Time) [OPC]	0
Clone (Recurring) [QuickOPC]	0
Clone (Split Mirror) [EC]	0
Snapshot [Snap OPC+]	0
Remote [REC]	1

The 'Action' pane on the right shows the 'Export Copy Group' option highlighted. The 'Events' pane at the bottom shows a log of copy operations.

3. Select the copy group whose destination is exported from a list of copy groups.



Click the [Export] button and the Select File dialog box is displayed. Specify the download destination.

Note

If the "Select File" dialog box does not appear when using Internet Explorer, take the following procedure to appear the "Select File" dialog box.

1. Select the [Internet Options] and open the "Internet Options" screen.
2. Select the [Security] tab.
3. Choose [Custom level] of the zone to which the manager server belongs, and open the "Security Settings" screen.
4. Make sure the [Automatic prompting for file downloads] and [File download] are enabled.

6.4.6.2.2 Importing copy group definition

Take the following procedure to import the definition of copy group that has been exported.

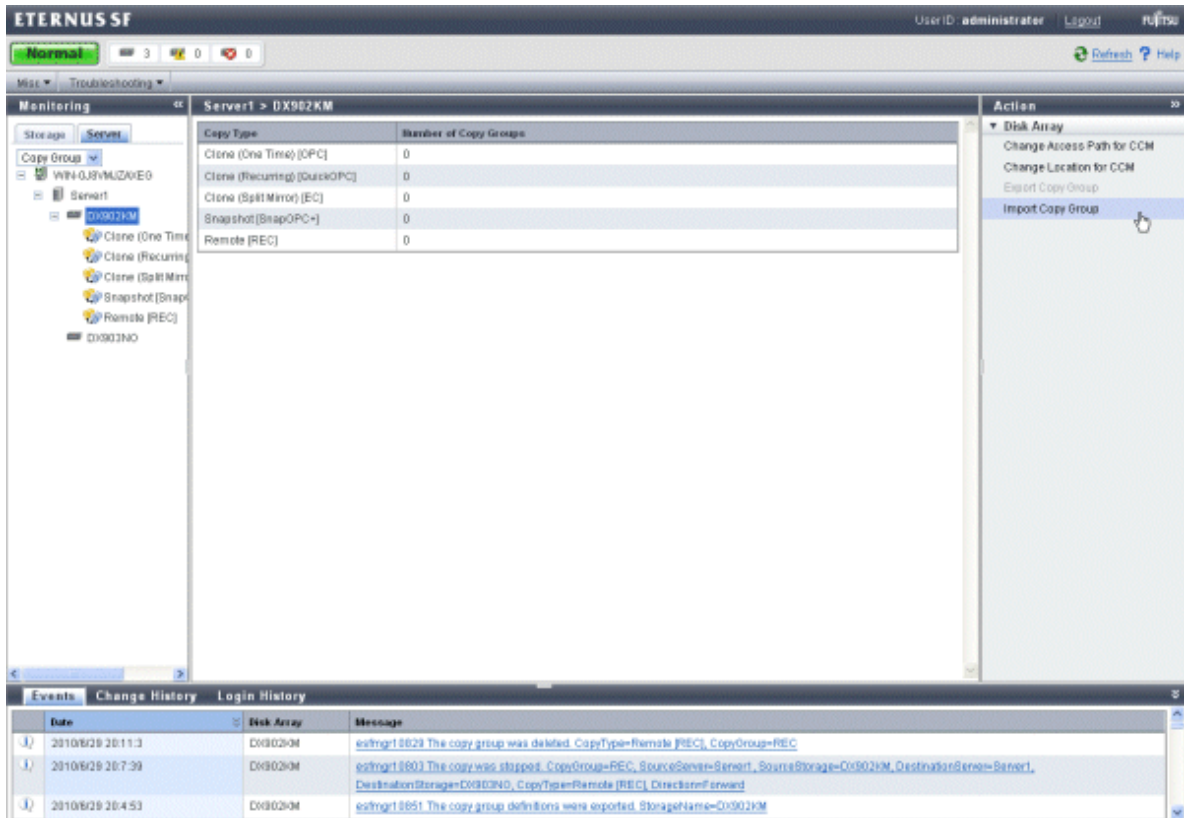
This operation is performed at a remote site.

Note

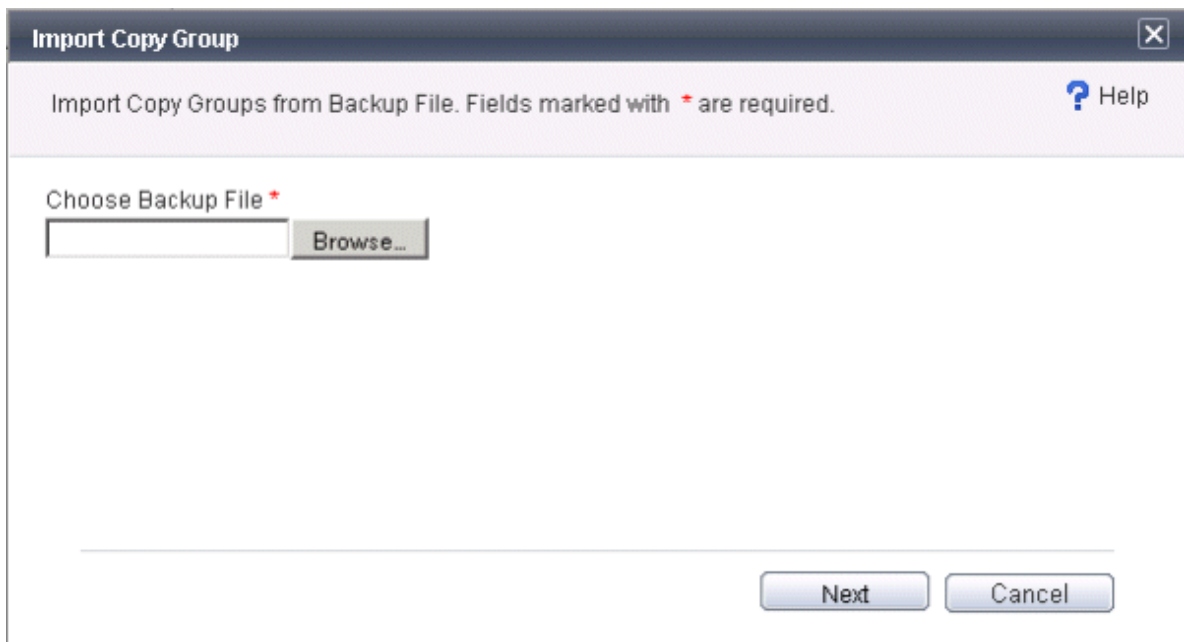
- Importing copy group definition is performed with respect to DX90 or DX90 S2 registered to a remote site. A disk storage system into which to the copy group definition can be imported is the disk storage system from which a copy group was exported.
- If any copy group with the same name exists in the Express Manager server at a remote site, it is not displayed in the list of copy groups.

1. Select the Express Web GUI to display the copy group, from [Server] tab in [Monitoring] pane.

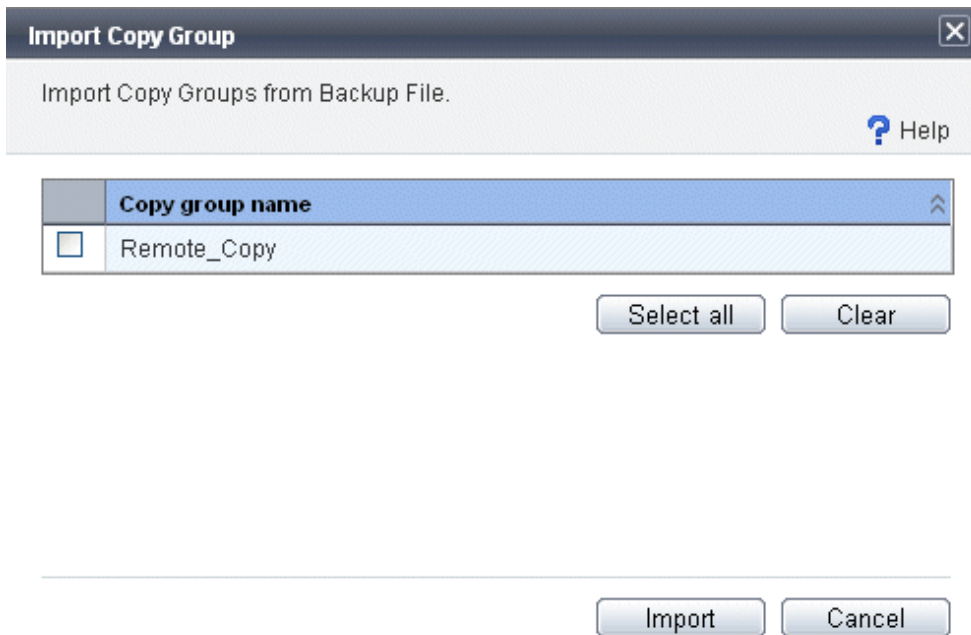
2. Select the exported ETERNUS Disk storage system.
Select [Advanced Copy] - [Import Copy Group] in [Action] pane.



3. Specify the file name downloaded in "6.4.6.2.1 Exporting copy group definition".



4. Select the copy group into which to import the copy group definition, from a list of copy groups.



Click the [Import] button.

6.4.6.3 Operational procedure for fault occurrence on the ETERNUS Disk storage system

If Advanced Copy cannot be continued due to hardware fault, the ETERNUS Disk storage system automatically suspends Advanced Copy. In addition, remote copy sessions are automatically turned to "Error Suspend" or "Hardware Suspend".

- In the event that "Hardware Suspend" occurs:

1. If all the following statuses are met, execute "Suspend" operation to suspend the remote copy session.
 - Transfer mode is "Synchronous".
 - Copy status is equivalent.
 - Split mode is "Manual Split".
2. Remove the error.
3. If Recovery mode is "Manual Recovery", execute "Suspend" operation to suspend the copy session. After that, execute "Resume" operation to recover the remote copy session.

Point

.....
If Recovery mode is "Automatic Recovery", remote copy sessions are automatically recovered, so that no operation is required.
.....

- In the event that an ETERNUS Disk storage system at a local site causes "Error Suspend":

1. Specify the access path to DX90 or DX90 S2 which is in the remote site from the Express Manager server.
2. Click [Server] tab in [Monitoring] pane in the Express Web GUI to display a list of volumes.

3. Take the following procedure to change the site information contained in Copy Control Module.

1. Select the local-site DX90 or DX90 S2.
Select [Disk Array] - [Change Location for CCM] in [Action] pane to change the site information from local site to remote site.
2. Select the remote-site DX90 or DX90 S2.
Select [Disk Array] - [Change Location for CCM] in [Action] pane to change the site information from remote site to local site.

Note

If the message "esfmgr10836 The location of the storage was not switched. StorageName=<storage name>" is displayed, an access path to DX90 or DX90 S2 from the Express Manager server is not set up. Using "[D.1.1 acarray add \(Command for registering ETERNUS Disk storage system\)](#)", set up an access path.

4. Execute "Suspend" operation to suspend the remote copy session or execute "Cancel" operation to cancel the remote copy session.
As a result business servers can access volumes.
5. Change the volume accessed by the business server to the copy destination volume.
6. Make sure that the ETERNUS Disk storage system in which the copy source volume exists has been recovered, restore the copy destination volume to the copy source volume.

In the event that the ETERNUS Disk storage system has been recovered:

1. When the copy sessions have been suspended by "Suspend" operation, execute "Reverse" and "Resume" operation to restore data from the copy destination volume to the source volume.
When the copy sessions have been stopped by "Cancel" operation, execute "Start Backward Copy" operation to restore data from the copy destination volume to the source volume.
2. On completion of restore, stop the business server access to the copy destination volume.
3. Execute "Suspend" operation to suspend the remote copy session.
4. Execute "Reverse" operation to change the copy direction from the source volume to the destination volume.
5. Execute "Resume" operation to resume the remote copy session.
6. Return the volume accessed by the business server to the source volume.

In the event that the ETERNUS Disk storage system has been replaced:

1. Execute "Cancel" operation to cancel all remote copy sessions.
2. Delete the pre-replacement ETERNUS Disk storage system from Express.
3. Register the post-replacement ETERNUS Disk storage system to Express.
4. Create a copy pair and a copy group.
5. Execute "Start Backward" operation to start the remote copy session.
6. Execute steps 2 to 6 described in the above-mentioned "In the event that the ETERNUS Disk storage system has been recovered".

- In the event that the remote-site ETERNUS Disk storage system causes "Error Suspend":

1. Recover the ETERNUS Disk storage system in which the copy destination volume exists.
2. Execute "Resume" operation to recover the remote copy session.

6.4.7 Checking copy status

You can check the status of Advanced Copy in "Copy Control", the "Status" field of each copy type or the "Phase" field.

The screenshot shows the ETERNUS SF web interface. The main window displays the 'Copy Summary' table for 'Volume_1' on 'Server01 > DX80252113 > Volume_1'. The table has columns for Volume Name, Direction, Volume Name, Storage Name, Copy Type, Generation, and Status. Two rows are visible, both with a status of 'action not of'. Below the table is an 'Events' log showing two entries with error messages related to copy operations.

Volume Name	Direction	Volume Name	Storage Name	Copy Type	Generation	Status
Volume_1	NA	Volume_8	Dx80252113	Clone (One Time) [DPC]		action not of
Volume_1	NA	Volume_4	Dx80252113	Clone (Recurring) [QuickOPC]		action not of

Date	Disk Array	Message
2018/05/25 11:54:42	Dx80252113	@\$mgr10811 The copy was not started. SourceVolume=Volume_1, SourceServer=Server01, SourceStorage=Dx80252113, DestinationVolume=Volume_8, DestinationServer=Server01, DestinationStorage=Dx80252113, CopyType=Clone (One Time) [DPC], Direction=Forward
2018/05/25 11:33:30	Dx80252113	@\$mgr10813 The copy pair was removed. SourceVolume=Volume_1, SourceStorage=Dx80252113, SourceServer=Server01, DestinationVolume=Volume_4, DestinationStorage=Dx80252113, DestinationServer=Server01, CopyType=Clone (One Time) [OPC], CopyGroup=Exp_0_000000111_0

Note

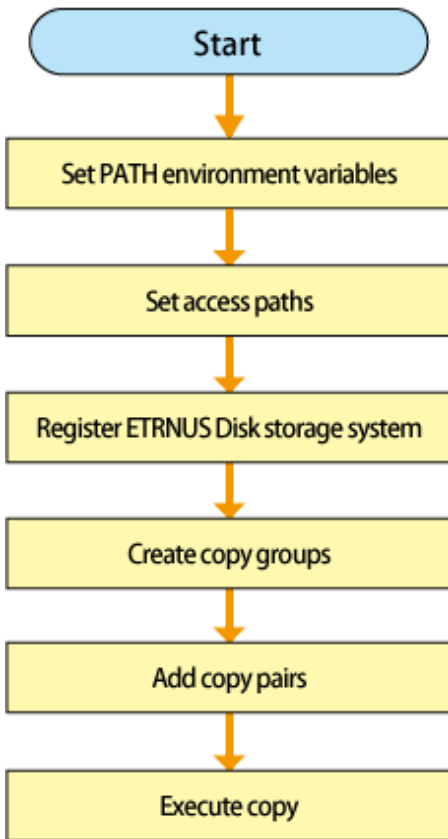
If "???" or "Unknown" is displayed in the "Status" or "Phase" field, it is possible that an access path is wrong. Check the access path with "D.1.4 array detail (Command for displaying detailed information about ETERNUS Disk storage systems)".

If the access path is wrong, see the "6.4.1.1 Access Path Settings" to set a proper access path.

6.4.8 Command line operation

When using Advanced Copy functions with commands, the procedure is different from that on the ETERNUS Web GUI.

For command description, see the "D.1 Commands for Advanced Copy function".



6.4.8.1 Setting PATH environment variables

When using the Copy Control Module command, add the bin directory of Express Copy Control Module to Path environment variables. The following is the procedure in the case of Windows Server 2008 R2.

1. Click [Start] and right-click [My Computer] to select [Property].
2. Select [Advanced system settings].
3. Select the [Advanced] tab from system "Property" and click the [Environment variable] button.
4. Add the following value to PATH variable.

```

<Express Manager installed destination directory>\AdvancedCopy Manager Copy Control Module
\bin
  
```

Information

Default of the Express Manager installed destination directory is "C:\Program Files\ETERNUS SF" or "C:\Program Files (x86)\ETERNUS SF".

Point

- When listing multiple directories, separate them with semicolons (;).
- When using Advance Copy functions alone on the Express Web GUI, this operation is not required.

6.4.8.2 Setting access paths

Create a volume to the ETERNUS Disk storage system and assign it to the Express Manager server.

Refer to the "[6.4.1.1 Access Path Settings](#)" to assign the volume.

6.4.8.3 Registering ETERNUS Disk storage system

Using "[D.1.1 acarray add \(Command for registering ETERNUS Disk storage system\)](#)", register an ETERNUS Disk storage system.



For ETERNUS Disk storage system name specified with -a option of "[D.1.1 acarray add \(Command for registering ETERNUS Disk storage system\)](#)", specify an ETERNUS Disk storage system name registered to Express.

If a different name is registered, Advance Copy using the Express Web GUI is not available.

6.4.8.4 Creating copy groups

Using "[D.1.15 acgroup create \(Command for creating copy groups\)](#)", create a copy group.



The following format copy group names may be used on the Express Web GUI as default copy groups. Avoid using them.

- EXP_number_number_O (English capital letter O)
- EXP_number_number_Q
- EXP_number_number_E
- EXP_number_number_S
- EXP_number_number_number_R

6.4.8.5 Adding copy pairs

Using "[D.1.19 acpair add \(Command for adding copy pairs\)](#)", add a copy pair to a copy group.

6.4.8.6 Executing copy

Using various commands shown in "[Table D.6 List of commands for Advanced Copy](#)" to execute copy.



- "???" is displayed in "Copy" or "SID", it is possible that an access path is wrong. Using "[D.1.4 acarray detail \(Command for displaying detailed information about ETERNUS Disk storage systems\)](#)", check access paths.
If any access path is wrong, see "[6.4.1.1 Access Path Settings](#)" to set a proper access path.
- When changing the copy mode of Remote copy (REC), suspend the copy with "[D.1.29 acec suspend \(Command for suspending synchronous high speed copy\)](#)" and then execute "[D.1.32 acec change \(Command for changing the mode of synchronous high speed copy\)](#)".

6.5 Changing configuration

This section explains the procedure to change the configuration of storage systems.

When changing the configuration of storage systems, use the Express Web GUI, ETERNUS Web GUI or FibreCAT SX WBI (web-browser interface).

Note

Only a system administrator is allowed to change the configuration.

Take the following procedure to change the configuration.

1. Select [Disk Array] - [Reload Conf] in [Action] pane in the Express Web GUI.
Apply the configuration created on the Express Web GUI or the ETERNUS Web GUI.
2. Click [Refresh] button on the Express Web GUI. Updated information is obtained by Express Manager.
Express Manager does not update information automatically.

The latest information is displayed by click the [Refresh] button.

If you want to display the latest information about other information, update the information in the above-mentioned method.

6.6 Changing the contact addresses for trouble occurrence

Change the contact addresses of administrators and email addresses at which to receive a notification email of [Misc] - [Contacts] in toolbar in the Express Web GUI.

In addition, after having changed the email addresses at which to receive a notification email of trouble occurrence, refer to the "[5.14.2 Procedure for Email send test](#)" to check whether the test email can be received at the specified email addresses.

6.7 Changing Advanced Copy function

This section explains the procedure to change the settings of Advanced Copy functions an Advanced Copy function.

Advanced Copy function is for ETERNUS Disk storage system only.

6.7.1 Changing the settings of Advanced Copy

Take the following procedure to change the settings of Advanced Copy.

1. Select [Advanced Copy] - [Set Parameters] in [Action] pane and the Advanced Copy Configuration Wizard will be displayed.
2. Set again Advanced Copy according to the Advanced Copy Configuration Wizard.

Note

To operate Remote Advanced Copy correctly, set values for [Table Size] and [Resolution] of the Advanced Copy parameters in both ETERNUS Disk storage systems remotely connected as follows:

- The same values other than 0.



Refer to "[5.11 Advanced Copy Configuration Wizard](#)" on the details of Advanced Copy.

6.7.2 Changing the settings of Remote Advanced Copy

Follow the procedure below to reload configuration.

1. Select [Advanced Copy] - [Remote Copy] in [Action] pane and the Remote Advanced Copy Configuration Wizard will be displayed.
2. Set again the Remote Advanced Copy along the wizard.



To operate Remote Advanced Copy correctly, set values for [Table Size] and [Resolution] of the Advanced Copy parameters in both ETERNUS Disk storage systems remotely connected as follows:

- The same values other than 0.



Refer to "[5.12 Remote Advanced Copy Configuration Wizard](#)" on the details of a Remote Advanced Copy function.

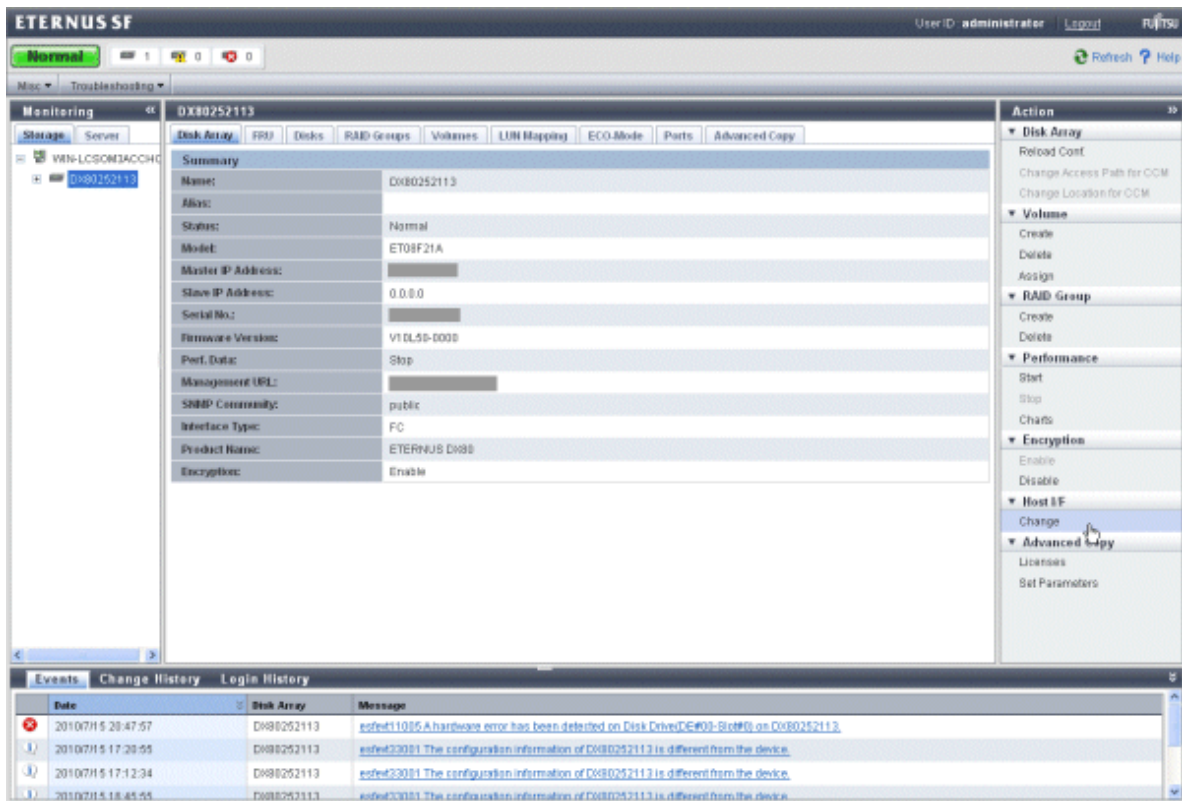
6.8 Changing the Host Interface Information

This section explains the procedure change the host interface information specified to ETERNUS Disk storage system.

Follow the procedure below to change the host interface information.

1. Start the Express Web GUI.
2. Select a disk storage system whose host interface is changed, from [Monitoring] pane - [Storage] tab.

3. Select [Host I/F] - [Change] in [Action] pane.



See

Refer to "A.7 Host Interface Information" for details of Host Interface Information.

6.9 Changing various information

This section explains the procedure for how to change various information specified to Express.

Select [Misc] - [Contacts] in toolbar.

Reloads the Express various information changed by Express Web GUI.



Point

When changing the IP address of the SMTP server

After having changed the SMTP server IP address, refer to the "5.14.2 Procedure for Email send test" to make sure whether the test email can be received using the specified SMTP server IP address.



See

For details of various information, refer to "A.8 Various Information".

6.10 Diagnostic Tool

This section describes a diagnostic tool used when any trouble is suspected in an Express Manager environment, for example, that the Express Web GUI does not work properly.

The following is the procedure to use the diagnostic tool.

1. Login to Express Manager with administrator privileges.
2. Execute the "[D.5 express_diag\(Diagnosis of Express Manager environment\)](#)" command from the command prompt.

6.11 Operation Notices

In case that the following failure occurs during settings on the Express Web GUI, the management server may not be accessible again from the Express Web GUI.

- Network failure

The network is disconnected between a client PC and the management server, or between the management server and disk storage systems.

If any failure occurs, terminate the Express Web GUI and restart the Express Web GUI after recovery.

Chapter 7 Maintenance

This chapter describes the maintenance of Express Manager.

7.1 Backing up Express Manager Environment

It is required to back up Express Manager environment against failures in a server on which Express Manager is installed. Take the following procedure to back up Express Manager environment. All operations are performed on the Management server.



Information

About description in the procedure

- \$BAK_DIR means a backup destination directory.
- \$INS_DIR means a directory in which Express Manager is installed.

1. Stop services.

Open Service Control Manager to stop the following four services.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

2. Back up various settings information.

Using Explorer, create the following backup directories:

- \$BAK_DIR\Express\Manager\etc
- \$BAK_DIR\Express\Manager\etc\db

Copy the subdirectories and files in the following source directory to the backup destination directory.

Source directory	Destination directory
\$INS_DIR\Express\Manager\etc\db	\$BAK_DIR\Express\Manager\etc\db

Copy the following backup source file to the backup destination directory.

Source file	Destination directory
\$INS_DIR\Express\Manager\etc\express_manager.ini	\$BAK_DIR\Express\Manager\etc

3. Back up the management information for disk storage system.

Using Explorer, create the following backup directory:

- \$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr

Copy the subdirectories and files in the following source directory to the backup destination directory.

Source directory	Destination directory
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr

Copy the following backup source file to the backup destination directory.

Source file	Destination directory
\$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current\sanma.conf	\$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current

4. Back up essential files.

Using Explorer, create the following backup directories.

- \$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current
- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vsccompose

Copy the subdirectories and files in the following source directories to the backup destination directories
If any subdirectory or file does not exist, backup is not needed.

Source directory	Destination directory
\$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0	\$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vsccompose	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vsccompose

Copy the following backup source file to the backup destination directory.

Source file	Destination directory
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\systemevent.csv	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current

5. Back up files that are related to the performance management function.

If you are using the performance management function, this step is unnecessary.

Using Explorer, create the following backup directory.

- \$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf

Copy the subdirectories and files in the following source directory to the backup destination directory.

Source directory	Destination directory
\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf	\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf

6. If Advanced Copy function is used, back up the files associated with definition of copy group and copy pair.

Using Explorer, create the following backup directories.

- \$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc
- \$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db

- \$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg
- \$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\prop
- \$BAK_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database

Copy the following backup source files to the backup destination directory.

Source file	Destination directory
\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db\eternus.xml	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db
\$INS_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database\DeviceRegList.xml	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database

If it exists, copy the following backup source files to the backup destination directory.

Source file	Destination directory
\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\prop\user.properties	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\prop
\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\stxc.alias	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc
\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\stxcvolinf	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc

Copy the subdirectories and files in the following backup source directory to the backup destination directory.

Source directory	Destination directory
\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg	\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg

7. If the license information was being registered, save files about the definition of the license information.

Using Explorer, create the following backup directory:

- \$BAK_DIR\License Manager\var

Copy the Source the subdirectories and files in the following backup source directory to the backup destination directory.

Source directory	Destination directory
\$INS_DIR\License Manager\var	\$BAK_DIR\License Manager\var

8. Restart the services

Open Service Control Manager to start the following four services.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

7.2 Restoring Express Manager Environment

If any failure occurs in the Management server, take the following procedure to restore Management server environment. All operations are performed on the Management server.

Information

About description in the procedure

- \$BAK_DIR means a backup destination directory.
- \$INS_DIR means a directory in which ETERNUS Express Manager is installed.

1. Install Express Manager.

Refer to the "C.1 Installing" to reinstall Express Manager.

2. Stop the services.

Open Service Control Manager to stop the following four services.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

3. Restore various settings information.

Using Explorer, create the following directories, if they do not exist.

- \$INS_DIR\Express\Manager\etc
- \$INS_DIR\Express\Manager\etc\db

Copy the subdirectories and files in the following backup source directory to the backup destination directory.

Source directory	Destination directory
\$BAK_DIR\Express\Manager\etc\db	\$INS_DIR\Express\Manager\etc\db

Copy the following file from the backup source to the restore destination directory.

Source file	Destination directory
\$BAK_DIR\Express\Manager\etc\express_manager.ini	\$INS_DIR\Express\Manager\etc

4. Restore the management information for disk storage system.

By using Explorer, delete the subdirectories and files in the restore destination directory shown below.

Do not delete the restore destination directory itself. If that directory does not exist, create it.

- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr

By using Explorer, delete the file in the restore destination directory shown below.

- \$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current\sanma.conf

Copy the subdirectories and files in the following backup source directory to the restore destination directory.

Source directory	Destination directory
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\opencimom\logr

Copy the following file from the backup source to the restore destination directory.

Source file	Destination directory
\$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current\sanma.conf	\$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVssmgr\current

5. Restore essential files.

By using Explorer, delete the subdirectories and files in the restore destination directories shown below.

Do not delete the restore destination directories themselves. If these directories do not exist, create them.

- \$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0
- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac
- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db
- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr
- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vscompose

Delete the following file.

- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\systemevent.csv

Copy the subdirectories and files in the following backup source directories to the restore destination directories.

If no subdirectory or file exists, restore is unneeded.

Source directory	Destination directory
\$BAK_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0	\$INS_DIR\Storage Cruiser\Manager\etc\opt\FJSVtrccb\2.0
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\ac
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\db
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVtrccb\2.0\sr
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vscompose	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\vscompose

Copy the following file from the backup source to the restore destination directory.

Source file	Destination directory
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\systemevent.csv	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current

6. Restore files that are related to the performance management function.

If you are not using the performance management function, this step is unnecessary.

By using Explorer, delete the subdirectories and files in the restore destination directory shown below.

Do not delete the restore destination directory itself. If that restore destination directory does not exist, create it.

- \$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf

Copy the subdirectories and files in the following directory from the backup source to the restore destination directory.

Source directory	Destination directory
\$BAK_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf	\$INS_DIR\Storage Cruiser\Manager\var\opt\FJSVssmgr\current\perf

7. If Advanced Copy function is used, restore the files associated with definition of copy group and copy pair.

By using Explorer, delete the subdirectories and files in the restore destination directories shown below.

Do not delete the restore destination directories themselves. If these directories do not exist, create them.

- Subdirectories and files other than "cg" directory under \$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db
- \$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg

- \$INS_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database

Delete following files only if it exists. Do not delete directories.

- \$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\prop\user.properties
- \$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\stxc.alias
- \$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\stxcvolinf

Copy the following files from the backup source to the restore destination directories.

Source file	Destination directory
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db\eternus.xml	\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database\DeviceRegList.xml	\$INS_DIR\AdvancedCopy Manager Copy Control Module\var\micc\database

If it exists, copy the following files from the backup source to the restore destination directories.

Source file	Destination directory
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\prop\user.properties	\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\prop
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\stxc.alias	\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\stxcvolinf	\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc

Copy the subdirectories and files in the following backup source directory to the restore destination directory.

Source directory	Destination directory
\$BAK_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg	\$INS_DIR\AdvancedCopy Manager Copy Control Module\etc\db\cg

8. If the license information was being registered, restore the files about the definition of the license information.

Copy the subdirectories and files in the following backup source directory to the restore destination directory.

Source directory	Destination directory
\$BAK_DIR\License Manager\var	\$INS_DIR\License Manager\var

9. Restart the service.

Open Service Control Manager to start the following four services.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

7.3 Changing Express Manager Environment

7.3.1 Changing port numbers

Express uses the following four port numbers.

port number	service name	protocol	Note
9853	esfexpressmgr	tcp	Express Manager service
9855	esfexpressweb	tcp	Express Web GUI service
4917	sscruisera	tcp	Port number used inside Express
23456	nfport	tcp	Port number used inside Express

Those port numbers are defined in the services file of the system.

Take the following procedure to change the port numbers used by Express.

1. Open the file "%SystemRoot%\system32\drivers\etc\services" with a notepad.
2. Pick out the entry of a service name to be changed to change its entry port number.
A port number can be entered between 1024 and 65535. However, if you want to change a port number, a number from 5001 or more to 32768 or less is recommended.

```
# <service name> <port number>/<protocol> [aliases...] [#<comment>]
#
esfexpressmgr 9853/tcp
esfexpressweb 9855/tcp
nfport       23456/tcp
sscruisera   4917/tcp
```

3. Save the "%SystemRoot%\system32\drivers\etc\services" file to close.
4. Edit httpd.conf file.
 1. Open the "\$INS_DIR\Express\Manager\sys\apache\conf\httpd.conf" file with text editor.
 2. Change the port number listed immediately after the Listen directive.
 3. Save the "\$INS_DIR\Express\Manager\sys\apache\conf\httpd.conf" file and close it.
5. Restart the Management server.

The Express Web GUI uses the following ports internally.

port number	protocol	Note
8005	tcp	Port number used inside Express
8009	tcp	Port number used inside Express
8080	tcp	Port number used inside Express
8443	tcp	Port number used inside Express

If the above port numbers are used by other applications, the Express Web GUI can not start. In this case, change the port numbers according to the following steps.

1. Open Service Control Manager in the Manager Server to stop the following services in the order given below.
 1. ETERNUS SF Express Tomcat Service
 2. ETERNUS SF Express Apache Service
2. Open the following files with Text Editor.
 - \$INS_DIR\ETERNUS SF\Express\Manager\sys\tomcat\conf\server.xml
 - \$INS_DIR\ETERNUS SF\Express\Manager\sys\apache\conf\httpd.conf

3. Change the port numbers (8005, 8009, 8080, 8443) in the following parts of server.xml and httpd.conf to other numbers.

- server.xml

Line 18

```
<Server port="8005" shutdown="SHUTDOWN">
```

Line 30 - 37

```
<Connector port="8080" maxHttpHeaderSize="8192"  
    maxThreads="150" minSpareThreads="25" maxSpareThreads=  
    enableLookups="false" redirectPort="8443" acceptCount="100"  
    connectionTimeout="20000" disableUploadTimeout="true" />
```

```
<!-- This is here for compatibility only, not required -->
```

```
<Connector port="8009" address="127.0.0.1"  
    enableLookups="false" redirectPort="8443" protocol="AJP/1.3" />
```

- httpd.conf

Line 516 - 517

```
ProxyPass /express ajp://localhost:8009/express timeout=900  
ProxyPassReverse /express ajp://localhost:8009/express
```

4. Save and close these files.

5. Start the following services in the order given below by Service Control Manager.

1. ETERNUS SF Express Apache Service
2. ETERNUS SF Express Tomcat Service

7.3.2 Changing the IP address

The following is the procedure to change the IP address for a Management server.

1. Stop the service

Open Service Control Manager to stop the following four services.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

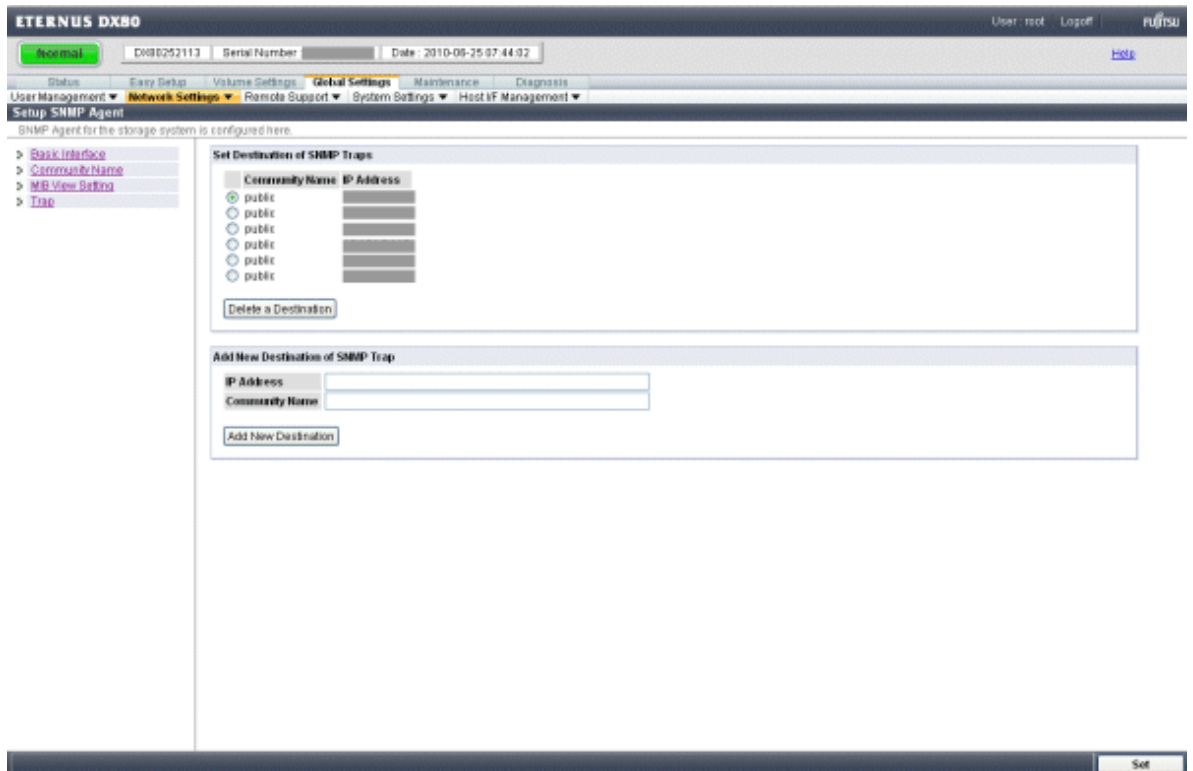
2. Change the IP address of a Management server.

3. Stop the Management server.

4. If the IP address of the Management server is specified for SNMP Trap destination, change the specified IP address using the ETERNUS Web GUI.

Take the following procedure to change the IP address of the Express Manager server.

1. Change the specified SNMP Trap destination using the ETERNUS Web GUI.
The SNMP Trap destination is displayed in the "Trap" screen in "Setup SNMP Agent".



2. Delete the pre-change IP address and specify the post-change IP address and community name.
3. Click the [Add New Destination] button to add the new destination.
5. Restart the Management server.
6. Restart the Express Web GUI and connect to Management server running on the server whose IP address has been changed.

7.4 Changing Server Information

Add/change/delete the server information managed with Express.
Then, follow the procedure for "[6.5 Changing configuration](#)".

7.4.1 Additionally registering servers

Additionally register a server to Express.
Follow the procedure for "[5.6 Registering Servers](#)".

7.4.2 Displaying server information

Display the server information registered to Express.
You can check the following information with the information registered in "[A.1 Server Information](#)".

- Disk storage system name that identifies Host ID1.
- Disk storage system name that identifies Host ID2.
- Volume name connected to a server.

Take the following procedure to check server information.

1. Start the Express Web GUI.
2. Select a target server from [Storage] tab in [Monitoring] pane.

7.4.3 Changing server information

Change the server information registered to Express.

Take the following procedure to change the server information.

1. Select a server whose information is changed from [Storage] tab in [Monitoring] pane.
2. Click [Change Server] in [Action] pane.
3. Update the server information on the displayed screen.

7.4.4 Changing HBA information

Change the HBA information of business server registered to Express.

When HBA of the server is replaced, it is necessary to update HBA information by this operation.

Take the following procedure to change the server information.

1. Select a server whose information is changed from [Storage] tab in [Monitoring] pane.
2. Click [Change Server] in [Action] pane.
3. Update the HBA information on the displayed screen.

For more information about items to be specified, see "[A.1 Server Information](#)".

7.4.5 Deleting servers

Delete the servers registered to Express.

Take the following procedure to delete the servers.

1. Select a server to be deleted from [Storage] tab in [Monitoring] pane.
2. Click [Server] - [Delete] in [Action] pane.
3. Check the content of the displayed screen and click the [OK] button to delete the server.

7.5 Changing Disk Storage System Information

Add/change/delete the information for disk storage systems managed with Express.

Take the procedure described in "[6.5 Changing configuration](#)".

7.5.1 Additionally registering disk storage system

Additionally add a disk storage system to Express.

Refer to the "[5.4 Registering Disk Storage Systems](#)" to additionally add a disk storage system.

7.5.2 Changing disk storage system name

Take the following procedure to change disk storage system names.

1. Use the ETERNUS Web GUI or FibreCAT SX WBI (web-browser interface) whose name is changed to change the disk storage system name.
2. Start the Express Web GUI.
3. Select a management server from [Storage] tab in [Monitoring] pane.
4. Select a disk storage system whose name is changed from [Disk Array] menu.
5. Select [Disk Array] - [Change] in [Action] pane.
6. Change the name field to what has been specified in the disk storage system side to edit it, and click [Save] button.
7. Click the [Refresh] button to reload the device information, and make sure that change has been properly done.

7.5.3 Changing the IP address

The following is the procedure to change the IP address for disk storage system.

1. Use the ETERNUS Web GUI or FibreCAT SX WBI (web-browser interface) whose IP address is changed to change the IP address.
2. Start the Express Web GUI.
3. Select a management server from [Storage] tab in [Monitoring] pane.
4. Select a disk storage system whose IP address is changed from [Disk Array] menu.
5. Select [Disk Array] - [Change] in [Action] pane.
6. Change the IP address field to a new IP address that has been specified for the disk storage system side or re-enter the FQDN that was registered on the DNS server and edit it, and click [Save] button.



Even if the IP address of the disk storage system is registered by the FQDN, Express is managed by the IP address. If the IP address of the disk storage system registered on the DNS server has been changed, enter the FQDN registered again to change the registered information.

7. Click the [Refresh] button to reload the device information, and make sure that change has been properly done.

7.5.4 Changing the SNMP community name

Take the following procedure to change the SNMP community name of a disk storage system.

1. Use the ETERNUS Web GUI or FibreCAT SX WBI (web-browser interface) whose SNMP community name is changed to change the SNMP community name.
2. Start the Express Web GUI.
3. Select a management server from [Storage] tab in [Monitoring] pane.
4. Select a disk storage system whose SNMP community name is changed from [Disk Array] menu.
5. Select [Disk Array] - [Change] in [Action] pane.
6. Change the SNMP community name field to what has been specified in the disk storage system side to edit it, and click [Save] button.
7. Click the [Refresh] button to reload the device information, and make sure that change has been properly done.

7.5.5 Changing the User Name or Password

The following is the procedure to change the User Name or Password to access a disk storage system.

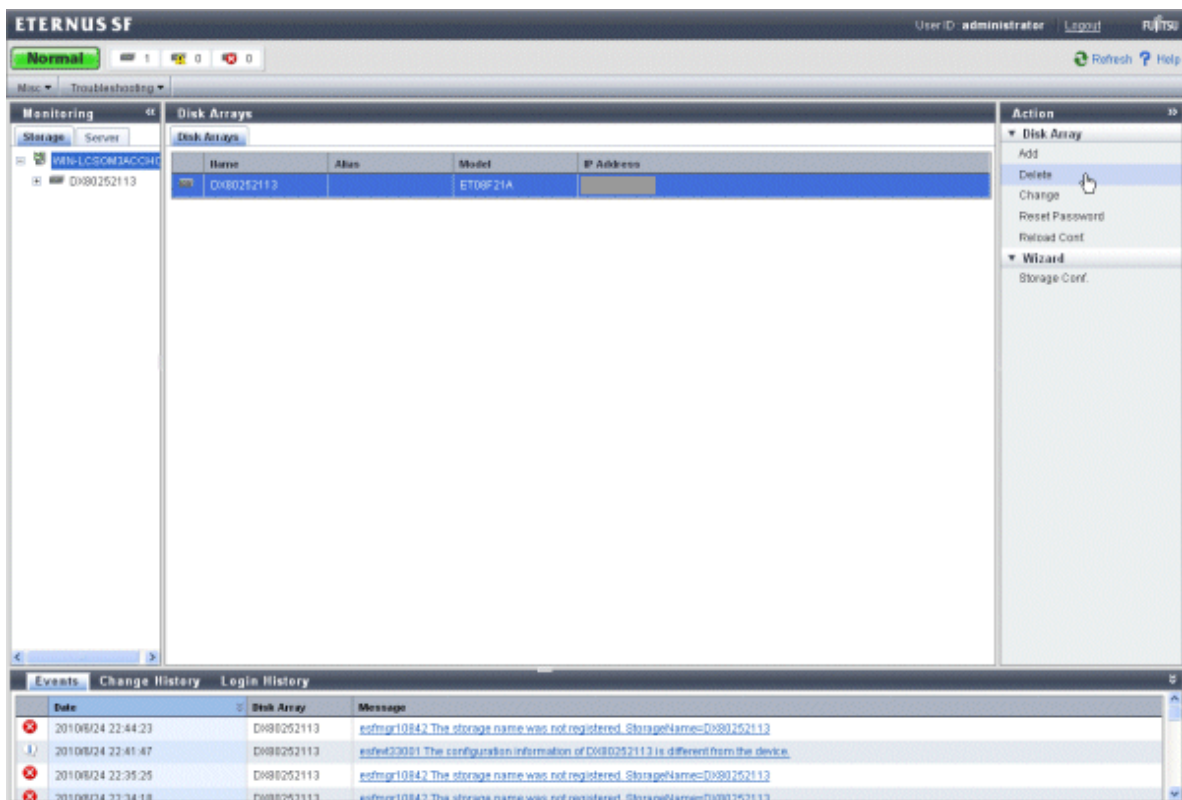
1. Start the Express Web GUI.
2. Select a management server from [Storage] tab in [Monitoring] pane.
3. Select a disk storage system whose user name or password is changed from [Disk Array] menu.
4. Select [Disk Array] - [Reset password] in [Action] pane.
5. Change the user name or password, and click [OK] button.
6. Click the [Refresh] button to reload the device information, and make sure that change has been properly done.

7.5.6 Deleting disk storage systems

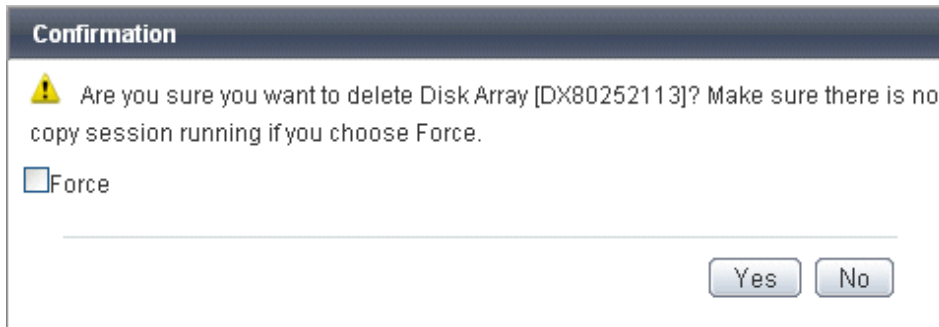
Take the following procedure to delete disk storage systems.

1. Start the Express Web GUI.
2. Select a management server from [Storage] tab in [Monitoring] pane.
3. Select a disk storage system to be deleted from [Disk Array] menu.
4. Click [Disk Array] - [Delete] in [Action] pane.

A dialog box to confirm a disk storage system is deleted, is displayed.



5. To delete the selected disk storage system, click the [Yes] button, and to cancel deletion, click the [No] button. To delete a disk storage system on which copying is in progress, click the [Force] checkbox.



Point

If the [Force] checkbox is clicked while copying is in progress, the process varies with the status of the checkbox of [Force].

- If [Force] checkbox is checked:
Copy is canceled and the disk storage system is deleted.
- If [Force] checkbox is not checked:
The disk storage system is deleted with copying in progress.

7.6 Changing Volume Information

Add/change/delete the volume information managed with Express.

Then, follow the procedure described in the "[6.5 Changing configuration](#)".

This function is for ETERNUS Disk storage system only.

7.6.1 Additionally registering volumes

Additionally register a volume to a server or a disk storage system.

Refer to the "[5.8 Creating Volumes](#)" to additionally register a volume.

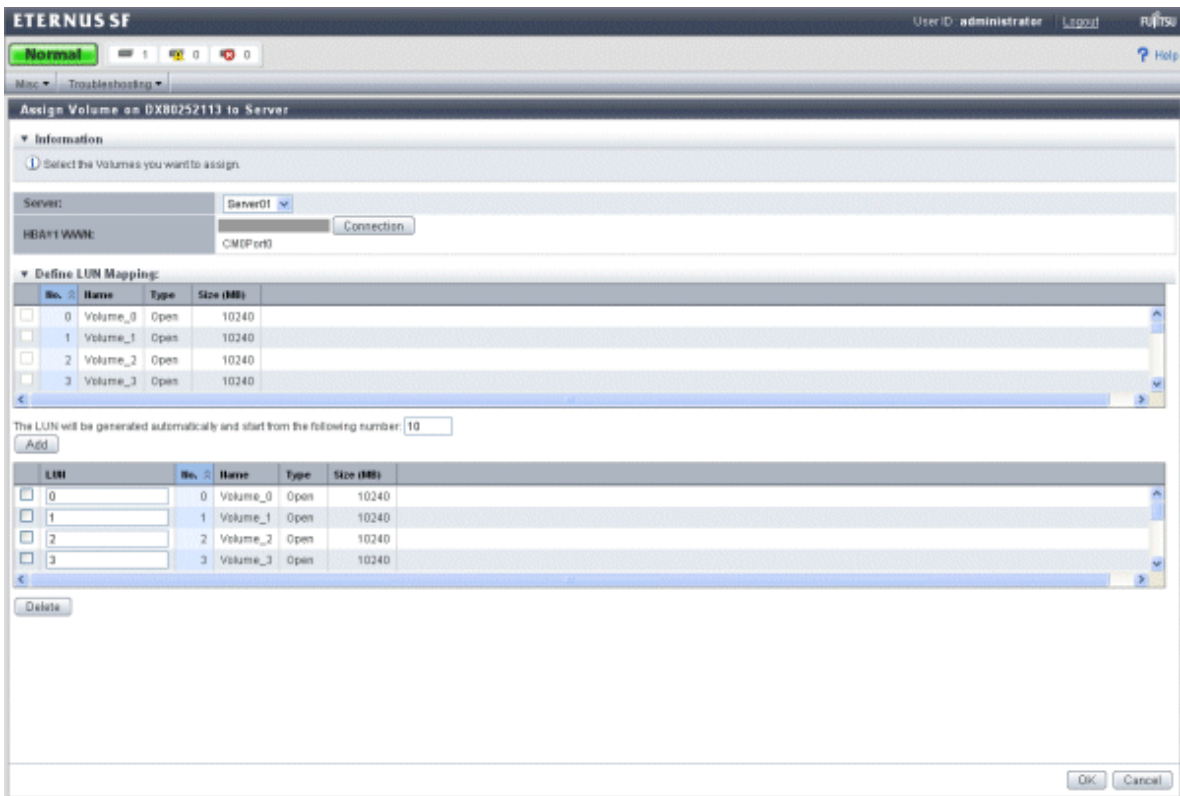
7.6.2 Assign volumes

Assign the information on a volume used on a server.

Take the following procedure to assign volume.

1. Select one disk storage system from [Storage] tab in [Monitoring] pane to display detail information.

2. Select [Volume] - [Assign] in [Action] pane, and the "Assign volume" screen is displayed.



3. Select a server.
4. Add a new volume assigned to the server from disk storage system or delete it from a list of volumes to cancel assignment.
5. Click the [OK] button to assign volume.

Note

Please stop access to the port that is connected from the volume when changing or removing mapping of volume, or removing volume. To stop access, it is necessary that the server connected from affected volumes are stopped or the volumes are unmounted. To confirm affected volumes, follow the following procedures.

1. Select [LUN Mapping] in [Storage] tab in [Monitoring] pane.
2. Select a entry in "List of Affinity Groups" screen. "Affinity Group Details" screen will show up.
3. When the volume that to be changed or to be deleted exists in the volume list displayed on "Affinity Group Details" screen, it is necessary to unmount from all the volumes in the same affinity group.
4. Repeat step2 to step3, and unmount all volume in the affinity group exists where volume that changing or removing.

Point

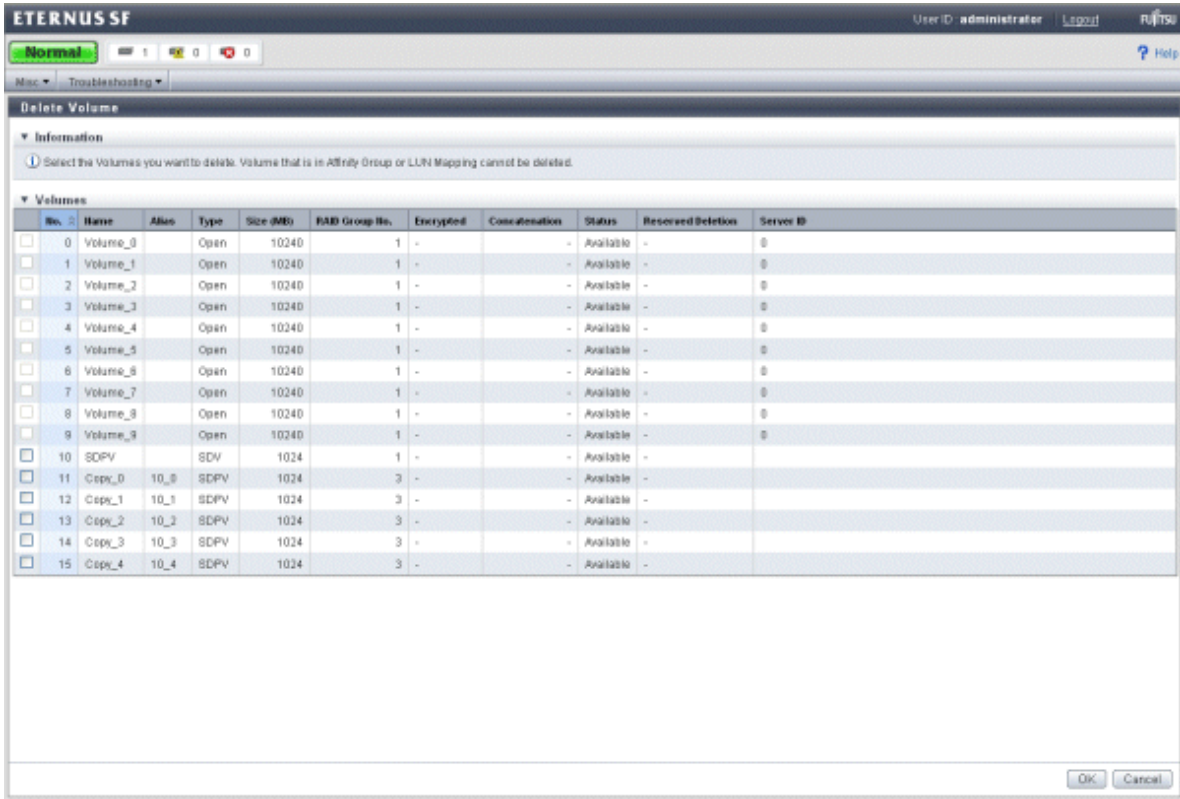
Mount is standard function of OS. Refer to manual of OS for details.

7.6.3 Deleting volumes

Delete a volume used on a disk storage system.

Take the following procedure to delete a volume.

1. Cancel assignment of a volume to be deleted from server.
Refer to the "7.6.2 Assign volumes" to cancel assignment.
2. Select one disk storage system form the storage tree to display detail information.
3. Select [Volume] - [Delete] in [Action] pane, and the "Delete volume" screen is displayed.



4. Select a volume to be deleted from a list of volumes to check the checkbox.
5. Click the [OK] button to delete the volume.

Note

Please stop access to the port that is connected from the volume when changing or removing mapping of volume, or removing volume.

To stop access, it is necessary that the server connected from affected volumes are stopped or the volumes are unmounted.

To confirm affected volumes, follow the following procedures.

1. Select [LUN Mapping] in [Storage] tab in [Monitoring] pane.
2. Select a entry in "List of Affinity Groups" screen. "Affinity Group Details" screen will show up.
3. When the volume that to be changed or to be deleted exists in the volume list displayed on "Affinity Group Details" screen, it is necessary to unmount from all the volumes in the same affinity group.
4. Repeat step2 to step3, and unmount all volume in the affinity group exists where volume that changing or removing.

Point

Mount is standard function of OS. Refer to manual of OS for details.

7.7 Changing RAID Group Information

Add/delete RAID group information managed with Express.

This function is for ETERNUS Disk storage system only.

7.7.1 Additionally registering RAID groups

Additionally register a disk storage system to a RAID.

Refer to the "[5.7 Creating RAID Groups](#)" to additionally register a RAID group.

7.7.2 Deleting RAID groups

Delete a RAID group used on a disk storage system.

Take the following procedure to delete a RAID group.

1. Select a disk storage system from which to delete a RAID group, from [Storage] tab in [Monitoring] pane.
2. Execute [RAID Group] - [Delete] in [Action] pane.



Any RAID group to which volumes are created cannot be deleted.

Appendix A Configuration Information for Express

This appendix explains the information to be specified to Express.

Note

When the host response of the same name has already been registered in ETERNUS, Express does not re-register it.

See

For the required items for Express installation or operation, refer to "[Chapter 4 List of Setting Items for Express](#)".

A.1 Server Information

The following is specified for Express as server information.

This information is for ETERNUS Disk storage system only.

Table A.1 Server configuration information

Item	Description
Name	This is a server name. You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable. Server host name and computer name should be unique within a storage system.
Alias	Apart from server name, this is a name easy to understand "what operation is in progress on this server". You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable.
HBA Type	This is a HBA type of server and disk storage system. Select any of the following. <ul style="list-style-type: none">- FC- iSCSI- SAS However, use the same HBA type within 1 server.
Host ID1	This is a host identifier of HBA, which is any of the following. <ul style="list-style-type: none">- host WWN(World Wide Name)- iSCSI name and IP address- SAS address Select the Host ID from a list displayed by Express when the [Discover] button is pressed, or enter it manually. To find the Host ID, refer to HBA manuals. <ul style="list-style-type: none">- For FC connection: Select host WWN(World Wide Name) name.- For iSCSI connection:
Host ID2	

Item	Description
	Select iSCSI name and IP address. IP address can be omitted. - For SAS connection: Select SAS address. Host ID 2 is not a required item. Enter it only when you use 2 HBAs.

Note

When Host ID of iSCSI is selected from the pull-down list, iSNS server setting is required in advance.
 To set iSNS server, please refer to manual of the disk storage system.

When registering HBA information for a server iSCSI connection in Express, IP address must be entered manually in the case of an ETERNUS DX60/DX80 with a firmware version prior to V10L40. When the server's HBA IP address is changed, please update the HBA information in Express.

For an ETERNUS DX60/DX80 with a firmware version V10L40 or later or for an ETERNUS DX80 S2/DX90 S2, input of the IP address can be omitted. When IP address is omitted, though it will not be necessary to set again even if IP address of the server HBA is changed, only 1 group of volumes (Affinity Group) can be connected for the iSCSI Name of the HBA.

Moreover, please do not input the IP address of the server's HBA information when all of the following conditions are met:

1. The Disk storage system to be managed with Express is an ETERNUS DX60/DX80 with a firmware version V10L40 or later.
2. Express manages the system that with the ETERNUS Disk storage system of iSCSI model has already been composed.
3. IP address of the host information that is registered on the ETERNUS Disk storage system of 2) is omitted (It is displayed as "*").
4. The host information of 3) is equivalent to HBA information of the server that is registered on Express.

If it is corresponding to all the above-mentioned conditions, and if IP address is entered, volume information that is connected with the server will not be correctly displayed.

Please check the host setting of ETERNUS Disk storage system using ETERNUS Web GUI in advance.

A.2 Disk Storage System Information

The following information is specified for Express as disk storage system information.

Table A.2 Configuration information for disk storage system

Item	Description
Name	This is a name of disk storage system. You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable. Default is "ETERNUS*****" (***** is a serial number).
Alias	Apart from disk storage system name, this is a name easy to understand "what operation is in progress on this disk storage system". You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable. It can be omitted.
IP Address or FQDN	This is an IP address or FQDN(Full Qualified Domain Name) of disk storage system. When using an IP address, enter IPv4 address. When assigning IP address to a master CM and a slave CM respectively, enter an IP address (or FQDN) of the master CM.

Item	Description
SNMP Community Name	This is a SNMP community name required to receive SNMP Trap. You can enter a maximum of 50 one-byte alphanumeric characters, space and symbols below. #, '\$', '%'(except that it is the head character), '&', '_+', '-', '*', '/' Default is "public".
Username	User name for the ETERNUS storage system manager <ul style="list-style-type: none"> - For ETERNUS DX60/DX80/DX90 User name with ETERNUS storage system administrator privileges. - For ETERNUS DX80 S2/DX90 S2 User name with ETERNUS storage system Software Role assigned.
Password	Password for the ETERNUS storage system manager <ul style="list-style-type: none"> - For ETERNUS DX60/DX80/DX90 User password with ETERNUS storage system administrator privileges. - For ETERNUS DX80 S2/DX90 S2 User password with ETERNUS storage system Software Role assigned.
Encryption Mode	"Disable" or "Enable" Encryption Mode of ETERNUS Disk storage system.

Note

If the encryption mode is changed to "Disable", there are the following conditions.

- ETERNUS Disk storage system must reboot after the change.
- All the Encryption volume must be removed.

See

Refer to "[A.5 Information on Advanced Copy Function](#)" for Advanced Copy License and Advanced Copy Parameter.

A.3 Volume Information

The following is specified for Express as volume information.

This information is for ETERNUS Disk storage system only.

Table A.3 Volume configuration information

Item	Description
Name	This is a volume name. Volume name should be unique for each server. You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of backslash (\), question (?) and comma (,) are unusable. And the symbol of percent (%) at the head of a name is unusable. The maximum number of characters for specifiable volume names changes depending on the number of volumes made at the same time.
Alias	Apart from volume name, this is a name easy to understand "what operation is in progress on this volume". You can enter a maximum of 16 one-byte alphanumeric characters and symbols.

Item	Description
	The maximum number of characters for specifiable volume aliases changes depending on the number of volumes made at the same time.
Size	<p>This is an available size on volume. This can be specified in MB, GB, or TB as follows.</p> <ul style="list-style-type: none"> - OPEN or SDV <ul style="list-style-type: none"> - ETERNUS DX60/DX80/DX90 <ul style="list-style-type: none"> - MB Specifiable up to 24MB to 8388607MB per MB. - GB Specifiable up to 1GB to 8191GB per GB. - TB Specifiable up to 1MB to 7TB per TB. - ETERNUS DX80 S2/DX90 S2 <ul style="list-style-type: none"> - MB Specifiable up to 24MB to 134217728MB per MB. - GB Specifiable up to 1GB to 131072GB per GB. - TB Specifiable up to 1MB to 128TB per TB. - SDPV <ul style="list-style-type: none"> - GB Specifiable up to 1GB to 2048GB per GB. - TB Specifiable up to 1TB to 2TB per TB.
Type	<p>This is a volume type. Any of the following is selectable.</p> <ul style="list-style-type: none"> - OPEN - SDV - SDPV
Source Volume Size	<p>This is a source volume size of SDV, which can be specified only when a volume type is SDV. This can be specified in MB, GB, or TB as follows.</p> <ul style="list-style-type: none"> - ETERNUS DX60/DX80/DX90 <ul style="list-style-type: none"> - MB Specifiable up to 64MB to 8388607MB per MB. - GB Specifiable up to 1GB to 8191GB per GB. - TB Specifiable up to 1MB to 7TB per TB. - ETERNUS DX80 S2/DX90 S2 <ul style="list-style-type: none"> - MB Specifiable up to 64MB to 134217728MB per MB. - GB Specifiable up to 1GB to 131072GB per GB.

Item	Description
	- TB Specifiable up to 1MB to 128TB per TB.
Number of Volumes	This is the number of volumes to be created. The number of volumes that can be created at one time is as follows: - OPEN or SDV 100 or less - SDPV 10 or less
Encrypt	Whether or not to encrypt a volume. Either of the following is selectable. - Enable - Disable Default is "Disable".
RAID Level	This is a parameter to specify a RAID group in the list of "RAID group" of the screen. Select "Allocation", which is the number of volumes to be allocated in a "RAID group". Select "All" when you want to make all RAID groups displayed. Default is "All".

Note

- In the case of creating two or more volumes at the same time, "_ x"(x is a digit) is given behind the specified volume name and the volume alias.

The larger the number of volumes to be created at the same time is, the smaller the maximum number of characters specifiable for the volume name and the volume alias are.

- For 1 volume:

VOLUME-NAME (The maximum number of specifiable characters 16.)

- For 2-10 volumes:

VOLUME-NAME_x (The maximum number of specifiable characters 14.)

- For 11 or more volumes:

VOLUME-NAME_xx (The maximum number of specifiable characters 13.)

- Specified Size value is ignored, when the SDV on ETERNUS DX80 S2 and DX90 S2 is specified.

- When using snapshot copy (SnapOPC+) on ETERNUS DX60, DX80 and DX90, it is recommended to specify at least one SDPV to each CM of an ETERNUS Disk storage system. Also, when using snapshot copy (SnapOPC+) on ETERNUS DX80 S2 and DX90 S2, each CM of the ETERNUS Disk storage needs at least one SDPV.

In addition, if any encrypted OPEN volume exists, an encrypted SDPV is required apart from a normal SDPV.

It is needed to encrypt copy destination volume, if copy source volume is encrypted when Advanced Copy is used.

- If multiple volumes are created in RAID groups, it may not be able to create them up to maximum user capacity. To create volumes efficiently without waste of user capacity, set the volume size to multiples of base size (stripe size).

Base size for each RAID Level is as follows.

RAID Level (*1)		Base size(*2)(MB integer conversion)
RAID1	1D+1M	1 (MB)
RAID1+0	2D+2M	1 (MB)
	3D+3M	3 (MB)

RAID Level (*1)		Base size(*2)(MB integer conversion)
	4D+4M	1 (MB)
	5D+5M	5 (MB)
	6D+6M	3 (MB)
	7D+7M	7 (MB)
	8D+8M	1 (MB)
	9D+9M	9 (MB)
	10D+10M	5 (MB)
	11D+11M	11 (MB)
	12D+12M	3 (MB)
	13D+13M	13(MB)
	14D+14M	7 (MB)
	15D+15M	15 (MB)
	16D+16M	1 (MB)
	RAID5	2D+1P
3D+1P		3 (MB)
4D+1P		1 (MB)
5D+1P		5 (MB)
6D+1P		3 (MB)
7D+1P		7 (MB)
8D+1P		1 (MB)
9D+1P		9 (MB)
10D+1P		5 (MB)
11D+1P		11 (MB)
12D+1P		3 (MB)
13D+1P		13 (MB)
14D+1P		7 (MB)
15D+1P		15 (MB)
RAID5+0	(2D+1P)*2	1 (MB)
	(3D+1P)*2	3 (MB)
	(4D+1P)*2	1 (MB)
	(5D+1P)*2	5 (MB)
	(6D+1P)*2	3 (MB)
	(7D+1P)*2	7 (MB)
	(8D+1P)*2	1 (MB)
	(9D+1P)*2	9 (MB)
	(10D+1P)*2	5 (MB)
	(11D+1P)*2	11 (MB)
	(12D+1P)*2	3 (MB)
	(13D+1P)*2	13 (MB)

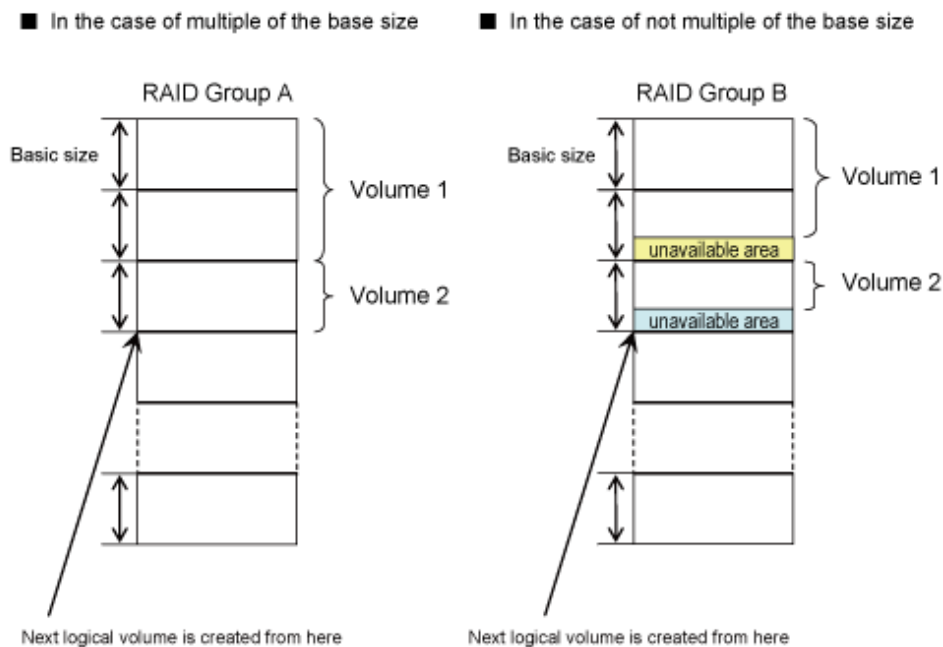
RAID Level (*1)		Base size(*2)(MB integer conversion)
	(14D+1P)*2	7 (MB)
	(15D+1P)*2	15 (MB)
RAID6	3D+2P	3 (MB)
	4D+2P	1 (MB)
	5D+2P	5 (MB)
	6D+2P	3 (MB)
	7D+2P	7 (MB)
	8D+2P	1 (MB)
	9D+2P	9 (MB)
	10D+2P	5 (MB)
	11D+2P	11 (MB)
	12D+2P	3 (MB)
	13D+2P	13 (MB)
14D+2P	7 (MB)	

*1 : D is Data,M is Mirror,P is Parity

*2 : Base size at volume creation

ETERNUS DX60, DX80/DX80 S2, DX90/DX90 S2 manage the size of volume as base size unit. Therefore, it may be remained unused area in RAID group if the size of volume is not multiple of the base size. Base size is not depending on disk drive capacity.

Following are the image of volume size in multiple of base size and not multiple of base size.



A.4 RAID Group Information

The following is specified for Express as RAID group information.

This information is for ETERNUS Disk storage system only.

Table A.4 RAID group configuration information

Item	Description
Name	<p>This is a RAID group name. You can enter a maximum of 16 one-byte alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable.</p>
RAID Level	<p>This is a RAID level. Select any of the following according to purposes.</p> <ul style="list-style-type: none"> - RAID0 - RAID1 - RAID1+0 - RAID5 - RAID5+0 - RAID6
Assigned CM	<p>This is a disk storage system CM number used for disk. Check the CM number of a disk storage system to be connected and select any of the following.</p> <ul style="list-style-type: none"> - Auto - CM#0 - CM#1 <p>Default is "Auto".</p>
Disk Selection	<p>Select either of the following to specify disks that make up a RAID group.</p> <ul style="list-style-type: none"> - Automatic - Manual <p>When "Manual" is selected, a list of disks is displayed. Select disks to be used from it. Default is "Automatic".</p>
Number of Disks	<p>This is the number of disks that make up a RAID group. Only when you select "Automatic" in "Disk Selection", select the number of disks here.</p>



When the above items are specified, the capacity of a RAID group to be created is displayed in the "Raw Capacity" column.

A.5 Information on Advanced Copy Function

For Express is specified the following information for disk storage system (ETERNUS Disk storage system) that uses Advanced Copy functions.

This function is for ETERNUS Disk storage system only.

Table A.5 Information on Advanced Copy functions

Item	Description
Advanced Copy configuration	Advanced Copy configuration information is as follows. <ul style="list-style-type: none"> - Registration status of Advanced Copy License - Table Size - Resolution
Remote Advanced Copy configuration	Remote Advanced Copy configuration information is as follows. <ul style="list-style-type: none"> - Connection Type - Line speed - Compression ratio - REC Buffer

 **Note**

For the information that is not described above, specify it using the ETERNUS Web GUI.

 **See**

For Advanced Copy functions, see "[Appendix B Advanced Copy Function](#)".

A.6 E-mail Information

For Express, the following information is specified as an administrator and its contact address to inform to when any trouble occurs in a storage system.

 **Point**

Be sure to specify contact information for system administrator when installing or using Express.

You can enter the contact information for business administrator and hardware administrator as you choose when installing or using Express.

When receiving a notification email about trouble occurrence or when sending by email the information collected in "[How to collect trouble information](#)", specify the contact information for each administrator.

Table A.6 E-mail Information (mail configuration information)

Item	Description
SMTP Server	SMTP server address (IP address or FQDN) for receiving notification mail at event occurrence. It is not necessary to set if not receiving the notification mails or not sending collected information at " How to collect trouble information ".
Mail Sender	Mail address for sending notification mail at event occurrence. This mail address is the sender of the notification mail.
SMTP Port	Port number used by SMTP server at receiving notification mails at event occurrence. (Default is 25)

With Express, the following contact information is managed on a per administrator basis. For roles of administrators, see "[Chapter 3 Flow from Installation to Operation](#)".

Table A.7 E-mail Information (mail destination information)

Item	Description
Person in Charge	Administrator name. When managing a storage system with multiple administrator names, specify the representative name. You can enter alphanumeric characters and symbols. However, the symbols of percent (%) at the head of a name, backslash (\), question (?) and comma (,) are unusable.
Phone	Administrator's phone number.
Email	Email address at which to receive a notification email about trouble occurrence.
Send Event Notification Email	A trouble in a storage system that was notified to Express Manager is notified via SNMP Trap. Select whether or not to send a notification email about trouble occurrence if any trouble occurs when a storage system is in use. Selectable as to system administrator and business administrator. When a notification email about trouble occurrence is received at multiple names, specify mailing list in "Mail address".

 Note

When notifying any trouble occurrence to a hardware administrator, contact from a system administrator or a business administrator.

A.7 Host Interface Information

Express specifies the following information as host interface information.

 Note

When the host response of the same name has already been registered in ETERNUS disk storage system, Express does not re-register it.

 Point

For the information that is not described following, specify it using the ETERNUS Web GUI.

Table A.8 Host interface configuration information (For FC connection)

Item	Description
Connection	Select the topology of a target port from "Fabric" or "FC-AL". It is necessary to allocate loop ID to the target port for "FC-AL".
Set Loop ID	When "FC-AL" is selected, set this item. Select either from "Manual" or "Auto".
Loop ID	When "FC-AL" is selected, set this item. If "Auto" is selected in "Set Loop ID", "Ascending" is automatically specified. If "Manual" is selected in "Set Loop ID", enter loop ID in hexadecimal. The input range is between 0x00 and 0x7D in hexadecimal.
Transfer Rate (Gbit/s)	Specify the transfer rate of the target port as follows.

Item	Description
	<ul style="list-style-type: none"> - 4Gbit/s Model <ul style="list-style-type: none"> - Automatically - 1 - 2 - 4 - 8Gbit/s Model <ul style="list-style-type: none"> - Automatically - 2 - 4 - 8
Host Affinity	For host affinity of the target port, select "enable" or "disable".
Host Response	<p>When "disable" is selected for Host Affinity, select a host response specified for the target port.</p> <ul style="list-style-type: none"> - 0:Default (ETERNUS DX60/DX80/DX90) - 0:Others (ETERNUS DX80 S2/DX90 S2) <p>Initial value.</p> <ul style="list-style-type: none"> - windowsmsdsm Recommended value to connect to the Windows host in which Microsoft Device Specific Module (DSM) is installed. - linuxdevmap Recommended value to connect the Linux host in which device-mapper-multipath is installed. - SolarisMPxIO Recommended value to connect to the Solaris host in which MPxIO is installed. - ESX4 Recommended value to connect to the VMware host in which VMware vSphere 4 (ESX 4.0) is installed. - ESX35 Recommended value to connect to the VMware host in which VMware Infrastructure 3 (ESX 3.5 or ESXi 3.5) is installed. - EgeneraPAN Recommended value to connect to the Egenera host in which PAN manager is installed.

Table A.9 Host interface configuration information (For iSCSI connection)

Item	Description
IP Address	IP address of a target port. The specifiable value is 0.0.0.0 to 255.255.255.255.
Subnet Mask	Subnet mask of a target port. The specifiable value is 0.0.0.0 to 255.255.255.255.
Default Gateway	IP address of a default gateway. The specifiable value is 0.0.0.0 to 255.255.255.255.

Item	Description
iSCSI Name	Input the iSCSI name of a target port in 1 to 233 one-byte alphanumeric characters and symbols (hyphen (-), colon (:), period (.)).
Alias Name	Input the alias name of a target port in 1 to 31 one-byte alphanumeric characters, symbols and spaces. An iSCSI name is an official name to specify a target iSCSI port while an alias name is used as a nickname.
Host Affinity	For host affinity of the target port, select "enable" or "disable".
Host Response	When "disable" is selected for Host Affinity, select a host response specified for the target port. <ul style="list-style-type: none"> - 0:Default (ETERNUS DX60/DX80/DX90) - 0:Others (ETERNUS DX80 S2/DX90 S2) <p>Initial value.</p> <ul style="list-style-type: none"> - windowsmsdsm Recommended value to connect to the Windows host in which Microsoft Device Specific Module (DSM) is installed. - linuxdevmap Recommended value to connect the Linux host in which device-mapper-multipath is installed. - SolarisMPxIO Recommended value to connect to the Solaris host in which MPxIO is installed. - ESX4 Recommended value to connect to the VMware host in which VMware vSphere 4 (ESX 4.0) is installed. - ESX35 Recommended value to connect to the VMware host in which VMware Infrastructure 3 (ESX 3.5 or ESXi 3.5) is installed. - EgeneraPAN Recommended value to connect to the Egenera host in which PAN manager is installed.

Table A.10 Host interface configuration information (For SAS connection)

Item	Description
Host Affinity	For host affinity of the target port, select "enable" or "disable".
Host Response	When "disable" is selected for Host Affinity, host response specified for the target port. <ul style="list-style-type: none"> - 0:Default (ETERNUS DX60/DX80/DX90) - 0:Others (ETERNUS DX80 S2/DX90 S2)

A.8 Various Information

For Express, the following information is specified besides the information described in "A.1 Server Information" through "A.6 E-mail Information".

Table A.11 Various information

Item		Description	
History information (Note 1)	Events	Number of days kept	Number of days to retain event history. The specifiable number is 1 to 365. (default is 30)
		File Size	Capacity to retain event history. A unit is KB. The specifiable value is 1 to 4096. (default is 512)
	Login/Logout History	Number of days kept	Number of days to retain login and logout history. The specifiable number is 1 to 365. (default is 60)
		File Size	Capacity to retain login and logout history. A unit is KB. The specifiable number is 1 to 4096. (default is 512)
	Configuration Change History	Number of days kept	Number of days to retain history of configuration change. The specifiable number is 1 to 365. (default is 60)
		File Size	Capacity to retain the history of configuration change. A unit is KB. The specifiable number is 1 to 4096. (default is 512)
Screen Refresh Interval		<p>Update interval of the display screen on Express Web GUI on a per minute basis. The specifiable number is 0 to 1440. (default is 5) This value is recommended by greater than the default number. If you set it to 0, Auto Screen Refresh is disabled.</p> <p>When updating Express GUI manually, click the [Refresh] button on the Express Web GUI title bar, and the information from Express Manager is obtained and displayed on Express Web GUI. Configuration information or status of disk storage system cannot be updated. For updating configuration information and status, execute what is described in "6.5 Changing configuration" to obtain them.</p>	

Note 1: As for each history, either of "Number of days kept" or "File Size" can be specified as an upper limit of history.

Appendix B Advanced Copy Function

This appendix explains the Advanced Copy function.

Advanced Copy function is for ETERNUS Disk storage system only.

B.1 Overview of Advanced Copy Function

B.1.1 What is Advanced Copy Function?

The Advanced Copy functions allow the Disk storage system to carry out high-speed copying operations itself, with no need to draw on server CPU resources. With Advanced Copy functions, at any point in time a business data volume can be copied to a separate copy volume, quickly and within the Disk storage system. Once the copy is complete, the copy volume can be separated from the business volume ensuring no further updates to the business volume are applied to the copy volume. This allows the copy volume data to be backed up to a tape device, as a point in time copy of the business data, while normal operations continue.

Advanced Copy methods

Advanced Copy functions provide three clone functions (EC, OPC, QuickOPC) and one snapshot function (SnapOPC+).

- Clone is a full (real) copy of the original data.
- Snapshot is a virtual copy of the original data.

EC (Equivalent Copy)

A function that always creates a synchronized copy of a business data volume on a copy volume (Mirroring method).

The business volume and copy volume are synchronized but can be separated at any required time (mirror suspend). The copy volume can then be backed up to a tape device while business operations continue on the business volume.

Suspend/Resume functions can be used to re-establish the mirror by copying only updated data since the mirror was suspended.

OPC (One Point Copy)

A function that creates a copy of the business data volume at any point in time (Background Copy).

Data on the business volume is copied logically to a copy volume, quickly, as and when required.

The copy volume can be used for backup operation, to a tape device, without waiting for physical copy completion, while business operations can continue on the business volume.

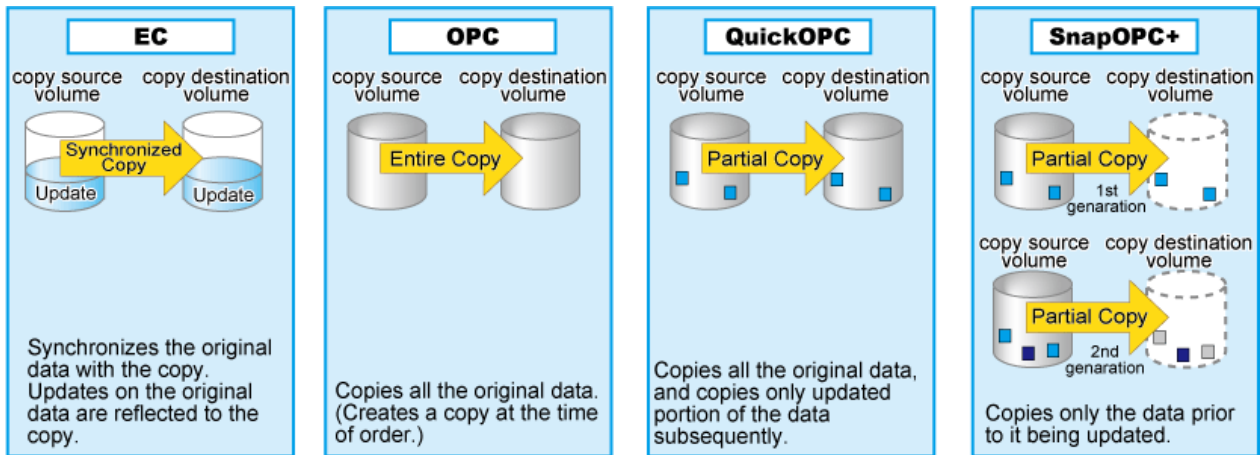
QuickOPC

A function that creates a copy of all the business data volume and subsequently only copies updated data (Background Copy). This suits large database operation where backup times must be reduced.

SnapOPC+

A function that creates a copy of the data prior to it being updated (Copy-on-Write).

As requires less copy volume capacity compared with clone, SnapOPC+ is ideal for copy operations for systems with relatively few updates such as file servers.



These copy methods all copy the data as it exists at a specific point in time, but there are different features, advantages and disadvantages to each method as detailed below:

Copy type	Clone copy			Snapshot copy
Function name	EC	OPC	QuickOPC	SnapOPC+
Copy method	Mirror breaking method	Background copy method	Background copy method	Copy-on-write method
Timing of actual copy load	Before "mirror breaking"	After the copy command is issued	After the copy command is issued	-
Effect on access to the copy source while copy is running	N/A	Minor	Minor	Yes
Effect on access to the copy source after copy has "finished"	N/A	Slight during background copy	Slight during background copy	Yes
Lifetime of copy session	Until the Equivalent state is stopped	Until background copy is completed	Until session is stopped and copy is completed	Until session is stopped
Size of copy destination area	Same as the copy source (Clone)	Same as the copy source (Clone)	Same as the copy source (Clone)	Sufficient for changed areas (Snapshot)
Copy action during restore	- Copy back all the data by OPC - EC Reverse (Suspend Reverse Resume) only copies updated areas	If OPC is active, copy back only the already copied data	Copy back only the already copied data	Restore operation is not available (use OS tools to copy whole files instead)
Best used for...	- Backup to disk - Creation of testing data	- Backup to disk - Creation of testing data - Restoring from backup disk	- Backup to disk - Creation of testing data - Recovery from physical disk failure when data	- Temporary backup area for backup to tape - Backup to disk for file server and other low modification rate data

Copy type	Clone copy			Snapshot copy
Function name	EC	OPC	QuickOPC	SnapOPC+
			modification rate is low	(generational management is available)

 **Note**

These are generic observations based on the mechanisms involved. Actual effect on servers will depend on the specifics of the usage environment.

B.1.2 What is Remote Advanced Copy?

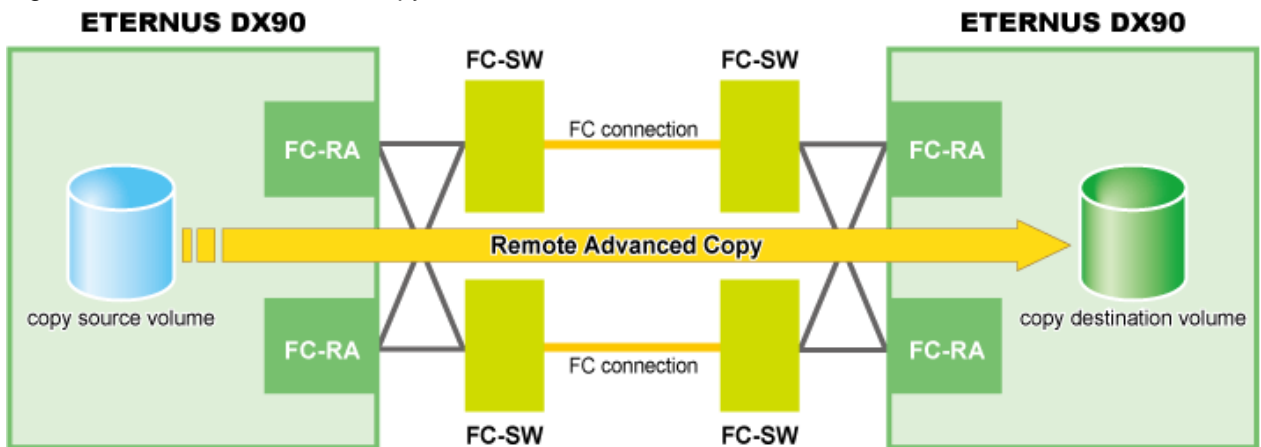
Remote Advanced Copy provides a server-less remote mirroring function which ensures fast recovery when the primary site Disk storage system becomes unusable because of a disaster, such as fire, earthquake or malicious damage.

Remote Advanced Copy method

Remote Advanced Copy

By using Fibre Channel interfaces, Remote Advanced Copy can provide lower cost remote site support up to a maximum distance of 10km between a primary storage device and a secondary device.

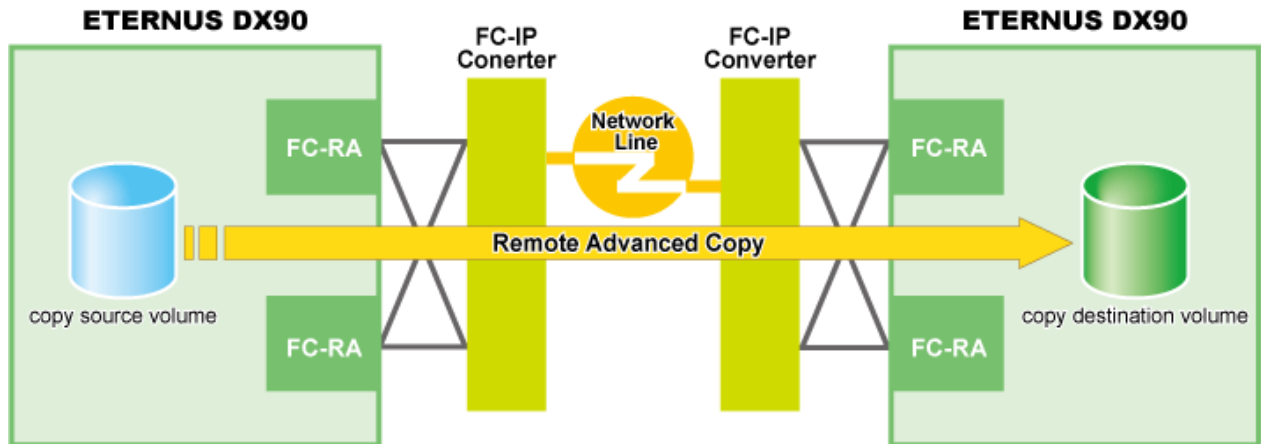
Figure B.1 Remote Advanced Copy connection



Extended Remote Advanced Copy

Extended Remote Advanced Copy uses a combination of a Fibre Channel switch and WAN converter to support very long distances over WAN. Replicated data can be located at a remote site hundreds of kilometers away from the primary site. This provides high security for the protection of critical data from both man-made and natural disasters.

Figure B.2 Extended Remote Advanced Copy connection (via FC-RA)



B.1.3 Technical terms

Sessions

For Advanced Copy, each copying action is called a "session". Different copy source areas, copy destination areas and copy types can be specified for each session.

B.1.4 Advanced Copy license

To utilize Advanced Copy functions or Remote Advanced Copy functions, Advanced Copy License should be registered to an ETERNUS disk storage system. Using the ETERNUS Web GUI, confirm that Advanced Copy License has been registered to an appropriate ETERNUS disk storage system.

In addition, even if Advanced Copy License is not registered to the ETERNUS disk storage system, snapshot copy (SnapOPC+) can be executed up to 8 sessions.

B.2 Configuration of Advanced Copy Function

B.2.1 Configuration common in all copy methods

Parameter settings

Specify the parameters required to use (Remote) Advanced Copy. These parameters can be set by ETERNUS Web GUI/ETERNUS CLI or Express.

- Resolution is the value that determines the amount of data each bit in the copy bitmap represents. The allowed resolution settings of "1 (standard)", "2", "4", "8", and "16" respectively give 8KB, 16KB, 32KB, 64KB, and 128KB regions of data per bitmap bit. The same value is used in the ETERNUS Disk storage system. The smallest possible resolution value should be set, to reduce the internal process overhead.
- Table size is the dedicated memory area required for Advanced Copy management. The table size and resolution settings are determined by the copy capacity and the number of sessions (volumes) that will be run simultaneously.

B.2.2 Configuration of clone copy

Creating copy destination volumes

When creating copy destination volumes for clone, note the following:

- The type of a copy destination volume must be OPEN. SDV (Snap Data Volume) or SDPV (Snap Data Pool Volume) can not be used as a copy destination volume for clone.
- The size of a copy destination volume must be the same as that of copy source volume (the original volume).
- To create OPEN volume, use ETERNUS Web GUI/ETERNUS CLI because Express does not offer the feature to create OPEN volumes.

B.2.3 Configuration of snapshot copy

Creating copy destination volumes

When creating copy destination volumes for snapshot, note the following:

- The type of a copy destination volume must be SDV. OPEN or SDPV can not be used as a copy destination for snapshot.
- The size of a copy destination volume must be the same as that of copy source volume (the original volume).
- When creating an SDV, set the appropriate capacity.

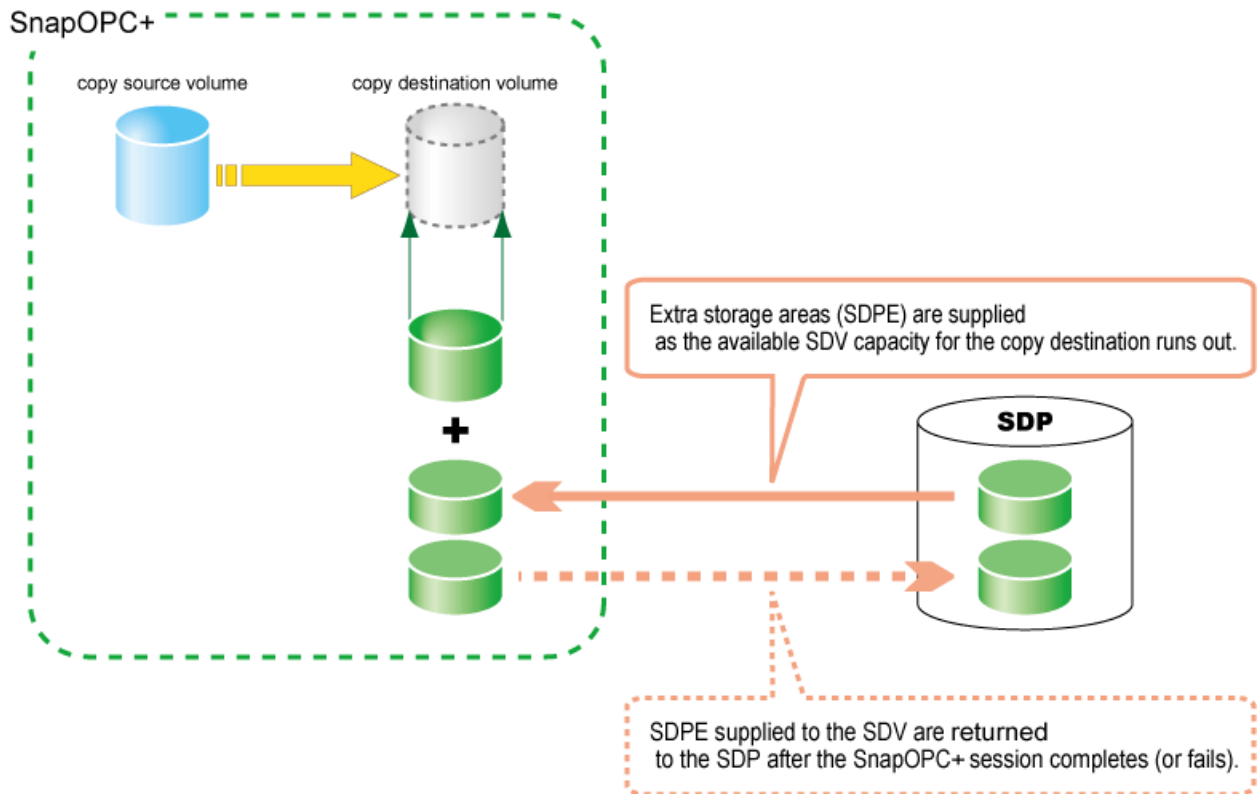
Creating Snap Data Pool (SDP)

Snap Data Pool (SDP) is used for SnapOPC+.

By registering standby storage areas in the SDP, it is possible to supply extra storage areas (SDPE: Snap Data Pool Elements) from the SDP whenever the amount of updates exceeds the capacity of the copy destination SDV, allowing the copy session to continue without failing. ETERNUS DX80 S2 and DX90 S2 needs SDPV.

- If storage area capacity runs short in an SDV, extra storage area (SDPE) is automatically supplied from the SDP.
- Once the copy session is completed, all extra storage area (SDPE) supplied to the SDV is returned to the SDP. (The SDPE is also returned to the SDP if the copy session fails.)

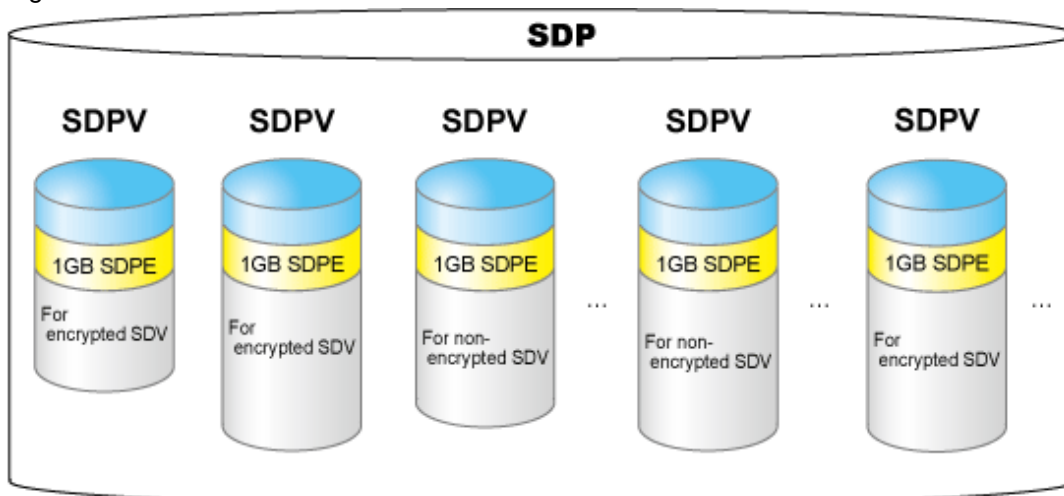
Figure B.3 SDP concept



When creating copy destination volumes for snapshot, note the following:

- One SDP can be created per ETERNUS Disk storage system.
- SDP becomes available upon creating a dedicated SDPV. After creation, the SDPV is automatically allocated to the SDP.
- If the SDV is encrypted, make sure the SDPV is also encrypted.
- If the ETERNUS Disk storage system contains both encrypted and non-encrypted SDVs, then both encrypted and non-encrypted SDPVs will be needed.
- Estimate the update amounts expected for each copy source volume, then decide the SDV and SDP capacities. If estimation is difficult, try setting up the SDV and SDP with a total capacity of 50% of that of the copy source (note that this is just a rule-of-thumb value and that different operating configurations will require different SDP capacities).

Figure B.4 Construction of SDP



B.2.4 Configuration for remote copy

Creating copy destination volumes

When creating copy destination volumes for remote copy, note the following:

- The type of a copy destination volume must be OPEN. SDV or SDPV can not be used as a copy destination volume for remote copy.
- The size of a copy destination volume must be the same as that of copy source volume (the original volume).
- To create OPEN volume, use ETERNUS Web GUI/ETERNUS CLI because Express does not offer the feature to create OPEN volumes.

Setting of FC-RA ports

FC-RA (Fibre Channel Remote Adapter) ports are required for REC. Change any FC-CA port to an FC-RA port.

Setting of FC-RA paths

Create a data transmission path by combination of FC-RA ports. This setting is required for all storage systems that perform REC.

Setting of REC buffers

When using the Consistency mode, REC buffers are used. Up to four REC buffers can be set in the ETERNUS DX90. Set the REC buffer size for both data transmission and reception units. You can use a single buffer for unidirectional data transfer only. Therefore, if you use the bidirectional data transfer, you must also set the buffer for reverse directional data transfer.

B.3 Clone (EC)

B.3.1 How to work

Figure B.5 State transition diagram

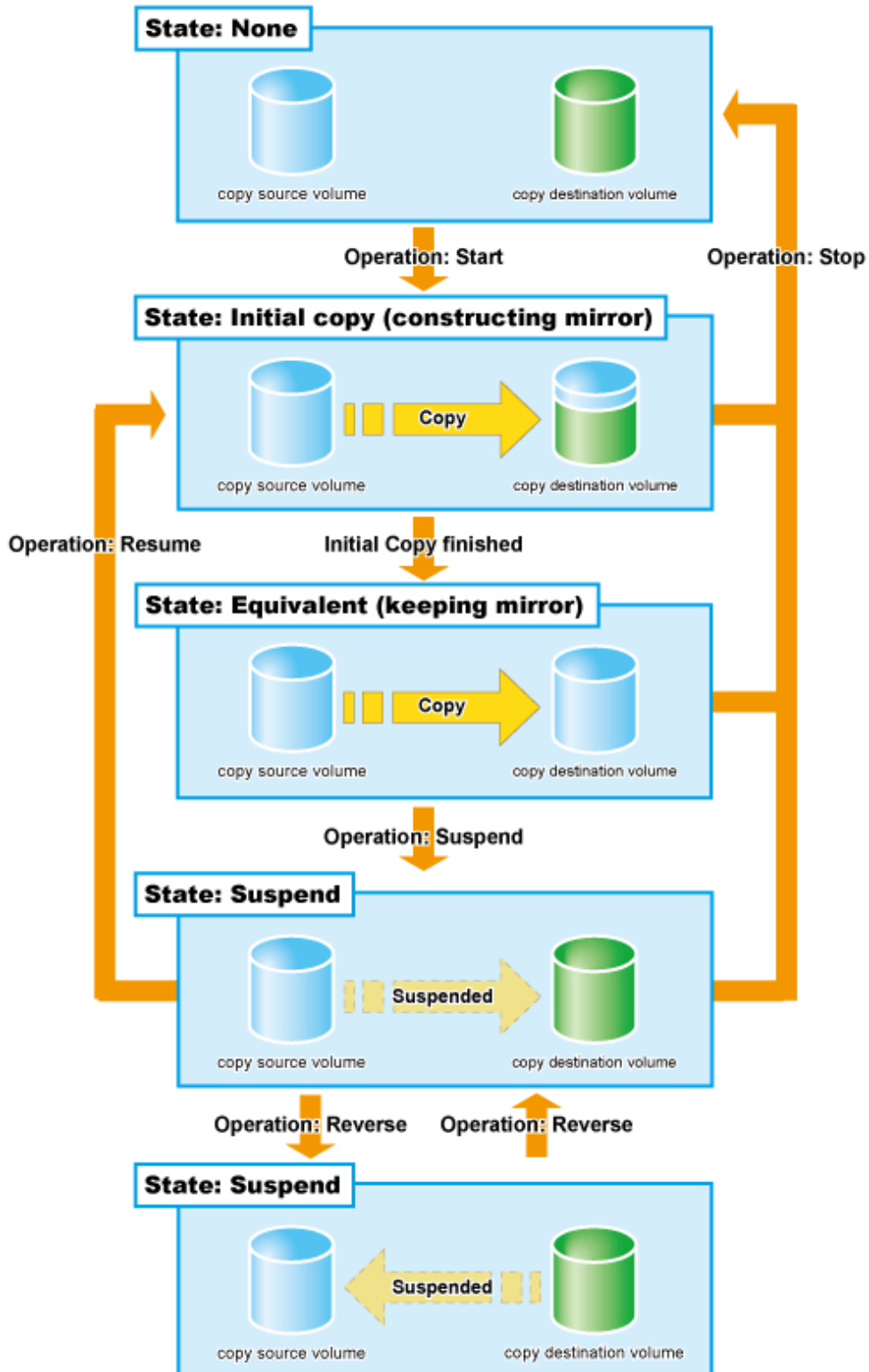


Table B.1 Relationship between session operation and Express function

Session operation	Express function
Start	acec start
Suspend	acec suspend
Resume	acec resume
Reverse	acec reverse
Stop	acec cancel

Start

When the EC session is started, the whole area of data specified by the source parameters is copied.

- If data copying has been completed for a given area and a write operation is applied to that area, the write data is also transferred to the destination area.
- After all data in the specified area has been copied over, the data in source and destination areas will be kept in almost the same state by the EC function. This is called the Equivalent state. In the Equivalent state, if source data is changed, the same data is transferred to the destination area to maintain the Equivalent state.
- Until the EC session reaches to the Equivalent state, copy destination volume are neither readable nor writable. If EC session is in the Equivalent state, copy destination volume are not writable but readable.

Suspend

When the EC session is suspended, both the copy source volume and the copy destination volume are accessible as independent volumes (copy destination volume becomes readable and writable). The Suspend operation can only be executed when the EC session is in the Equivalent state.

Unlike the Stop operation, changes to the source and destination volumes continue to be recorded while the Suspend state applies.

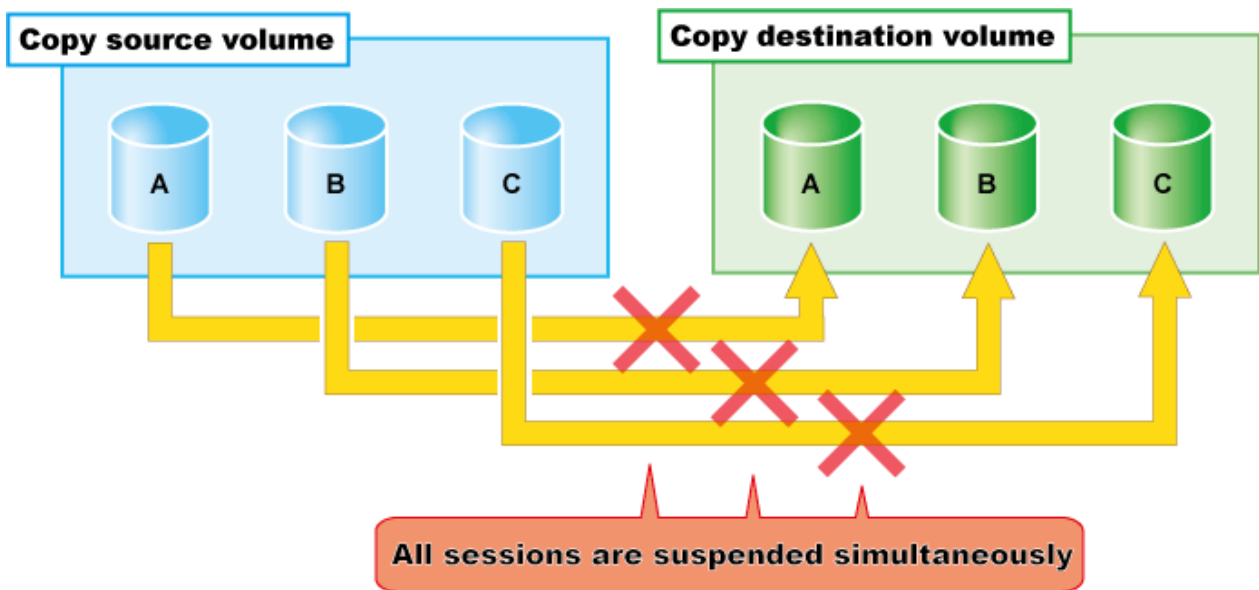
Resume

When the EC session is resumed, data is copied over from the source to the destination so as to catch up on all the changes that were made after the Suspend operation was performed and recover the Equivalent state. As the amount of data that thus needs to be transferred is much less than would be required if the whole source area were to be recopied, the time required to recover the Equivalent state is also greatly reduced.

If the source is changed under the Suspend state (when copying is temporarily interrupted by the Suspend operation), the changes are sent to the destination after the Resume operation is performed (when the copy is restarted). However, any changes made at the destination while under the Suspend state will be rolled-back (overwritten from the source data). Consequently, any and all changes made to the destination during the Suspend state are discarded and lost following the Resume operation.

Concurrent Suspend

Multiple EC sessions can be suspended using the Concurrent Suspend operation. This allows consistent copies of multi-volume data-objects, such as databases, to be easily acquired.



Reverse

When the EC session is reversed, the copy direction is reversed. The Reverse operation can only be executed when the EC session data is in the Suspend state.

Stop

When the EC session is stopped, it terminates. If the EC session in one of the following statuses is stopped, the copy destination volume should not be used because the mirroring is incomplete.

- Initial copy state
- Error suspend state

If the EC session in one of the following statuses is stopped, the copy destination volume can be used because the mirroring has been complete.

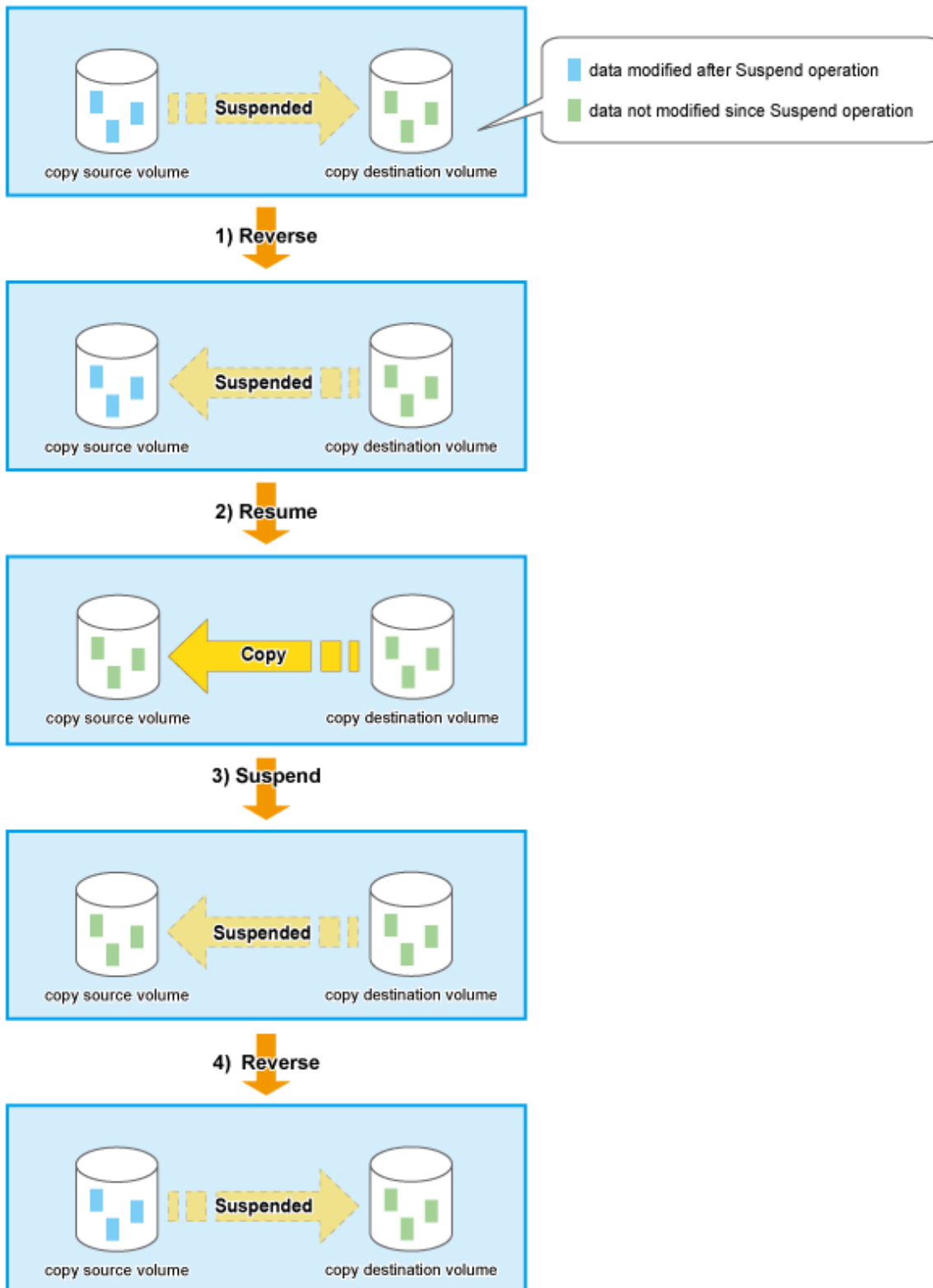
- Equivalent state
- Suspend state

B.3.2 Restore

Restoration can be performed by the Reverse function of EC or by OPC.

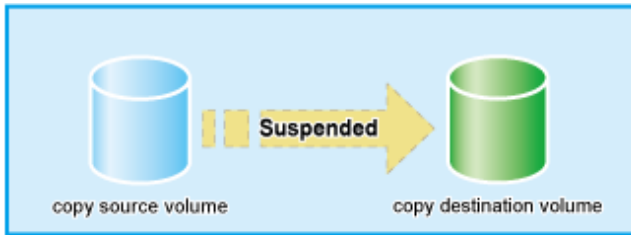
Restore by reversing EC

The Reverse operation of EC allows high-speed restoration of the pre-update data saved in the secondary destination back to the updated areas of the primary volume. (The Suspended copy session is reversed and then resumed.)

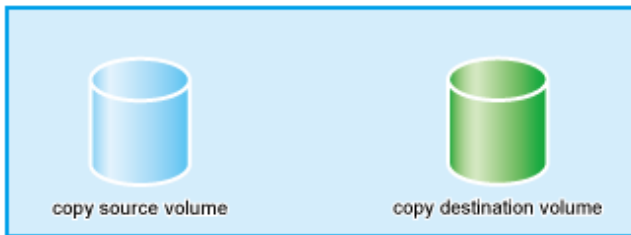


Restore by OPC

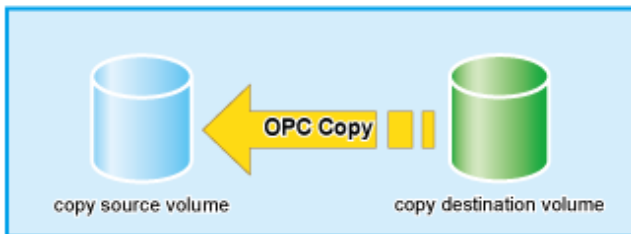
To perform restoration by OPC, start the OPC session in the reverse direction after stopping the EC session. The method using OPC has no advantage over the method using the EC reverse function in that a full copy is required. However, it has the benefit that the original volume can be used immediately after the logical copy has completed.



1) Stop



2) Start OPC in reverse direction



B.4 Clone (OPC)

B.4.1 How to work

Figure B.6 State transition diagram

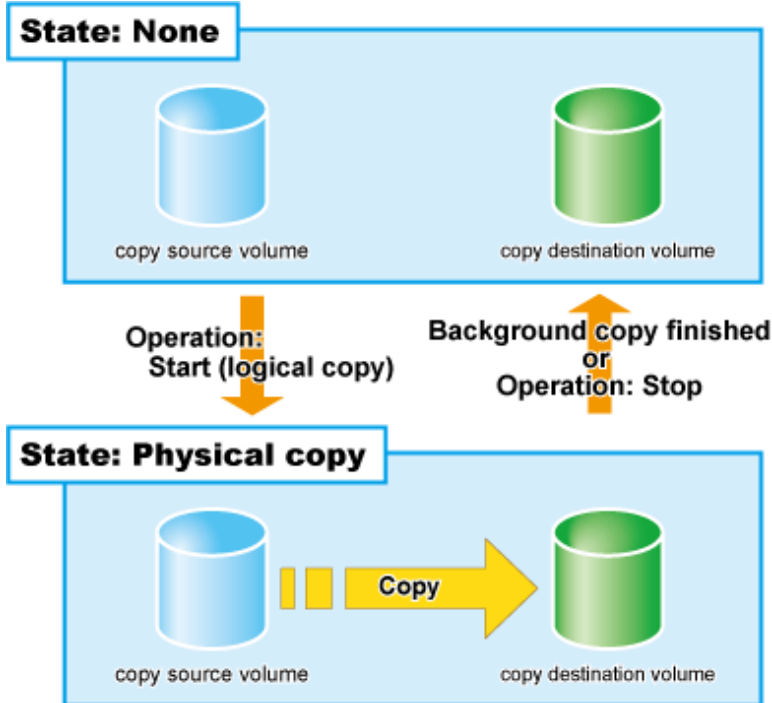


Table B.2 Relationship between OPC operation and Express function

Session operation	Express function
Start	acopc start
Stop	acopc cancel

Start

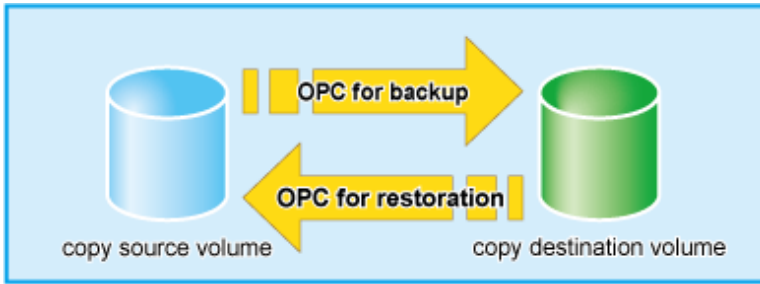
When the OPC session is started, the logical copy completes immediately and returns a "copied" response before any actual (physical) copying occurs. The actual physical copy process starts after the logical copy has finished. This is an internal ETERNUS Disk storage system background process that is not visible to the server. After the logical copy has completed, the copy destination area becomes accessible. When the physical copy has completed, the session automatically terminates.

Stop

When the OPC session is stopped, it terminates. The copy destination volume can not be used because the physical copy is incomplete.

B.4.2 Restore

Restore can be done by executing OPC in the reverse direction. Especially, restoration with a background physical copy is possible.



B.5 Clone copy (QuickOPC)

B.5.1 How to work

Figure B.7 State transition diagram

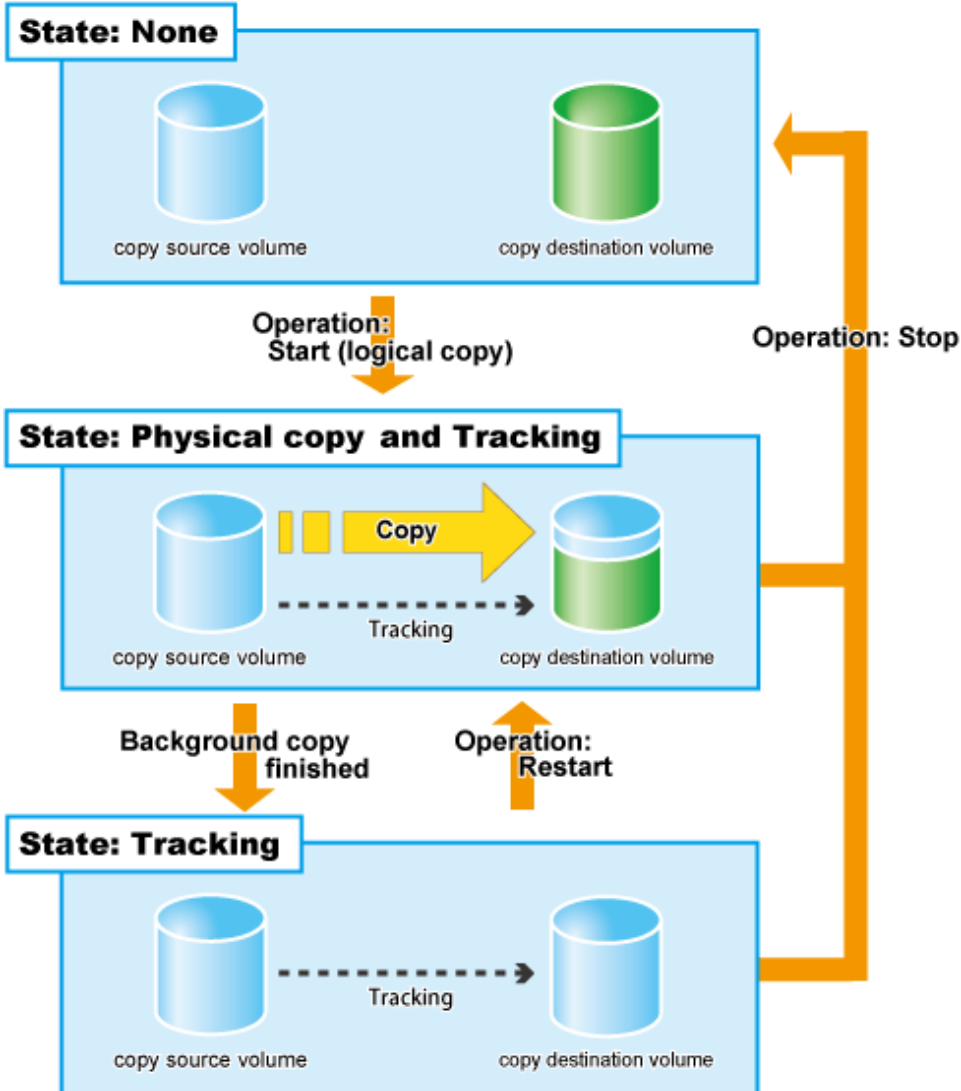


Table B.3 Relationship between QuickOPC operation and Express function

Session operation	Express function
Start	acopc start

Session operation	Express function
Differential copy start	acopc start -diff
Stop	acopc cancel

Start

When the QuickOPC session is started, the logical copy completes immediately and returns a "copied" response before any actual (physical) copying occurs. The actual physical copy process and tracking process start after the logical copy has finished (the tracking process keeps track of data which is modified for copy source and copy destination volumes after the logical copy). These two processes are internal ETERNUS Disk storage system background processes that are not visible to the server. After the logical copy has completed, the copy destination area becomes accessible. Even if the physical copy has finished, the session remains because the tracking process is still active.

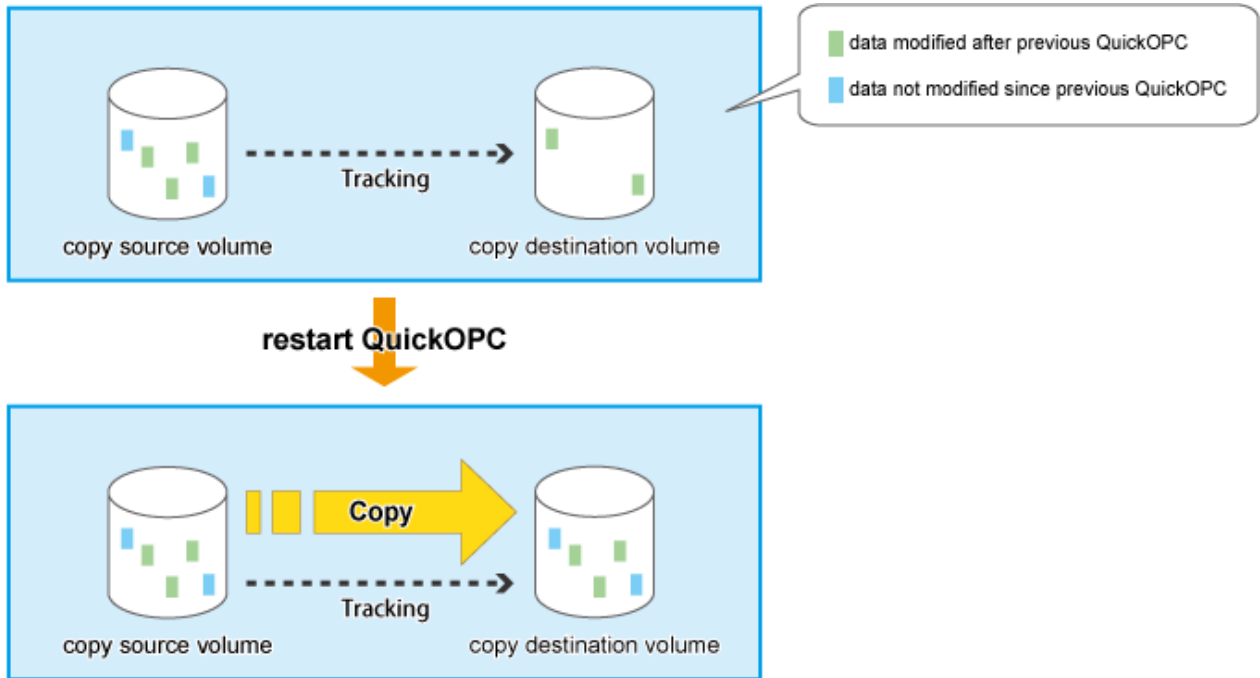
Point

The QuickOPC function allows hardware to record updates that occur on copy source/destination after logical copy has been finished. The state that hardware is recording the updated point is referred to as "Tracking state".

Differential copy start

When the QuickOPC session is restarted, then instead of the initial full copy, only the data areas recorded by the tracking process are copied over from the source to the destination.

While less data needs to be copied, this copy is similar to the initial copy in that a logical copy step precedes the actual physical copy, and the copy destination becomes read/write accessible as soon as the logical copy has completed. The tracking process also starts recording subsequent updates again at this stage.



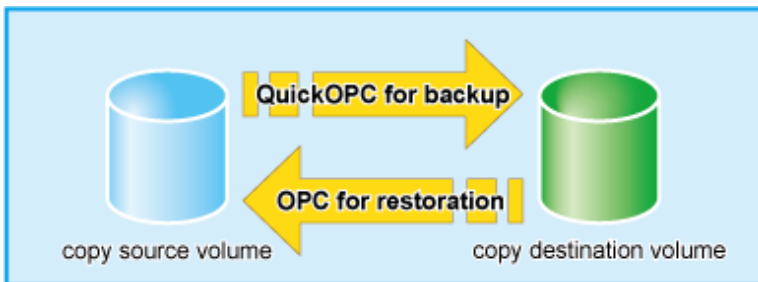
If the source is changed after the previous logical copy, the changes are sent to the destination after the Restart operation is performed (when the copy is restarted). However, any changes made at the destination after the previous logical copy will be rolled-back (overwritten from the source data). Consequently, any and all changes made to the destination after the previous logical copy are discarded and lost following the Restart operation.

Stop

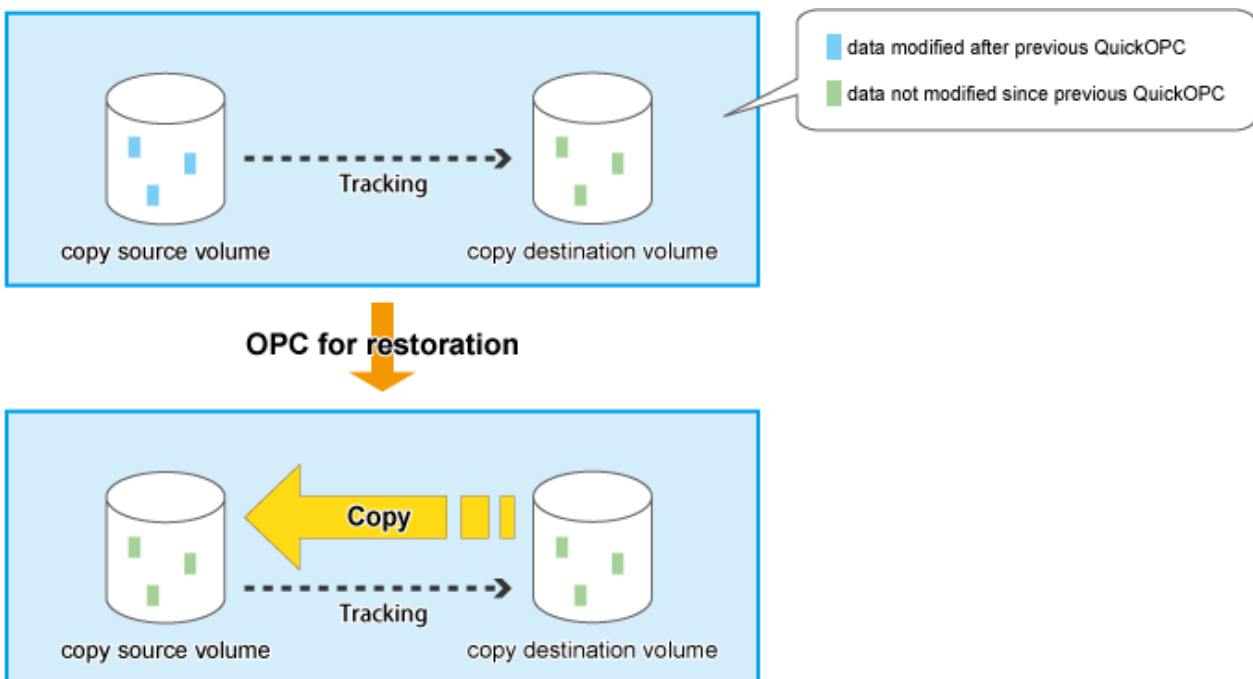
When the QuickOPC session is stopped, it terminates. If the QuickOPC session which is in the Physical copy and Tracking state is stopped, the copy destination volume can not be used because the physical copy is incomplete. If the QuickOPC session in the Tracking state is stopped, the copy destination volume can be used because the physical copy has completed.

B.5.2 Restore

Restore can be done by reversing the copy direction of QuickOPC and executing OPC.



Although a restore is executed with OPC, only the data that has been updated since the previous QuickOPC is copied. Therefore, in copy using QuickOPC, not only a physical backup but also restore is completed in a short period of time.



By performing OPC for restore, any changes made at the primary volume after the previous logical copy will be rolled-back (overwritten from the secondary volume data). Consequently, any and all changes made to the primary volume after the previous logical copy are discarded and lost following OPC for restoration.

B.6 Snapshot copy (SnapOPC+)

B.6.1 How to work

Figure B.8 State transition for (normal) SnapOPC+

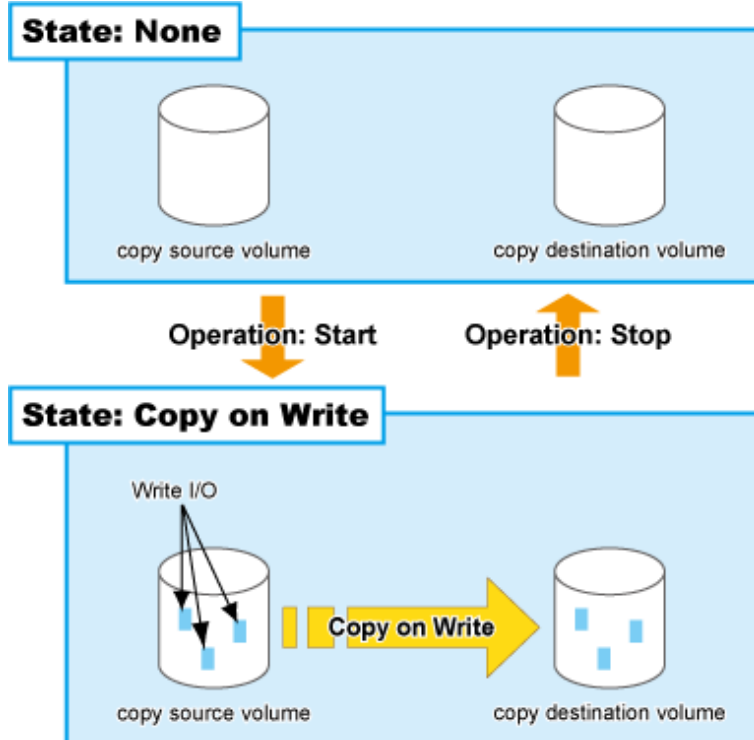


Figure B.9 State transition diagram for dummy SnapOPC+

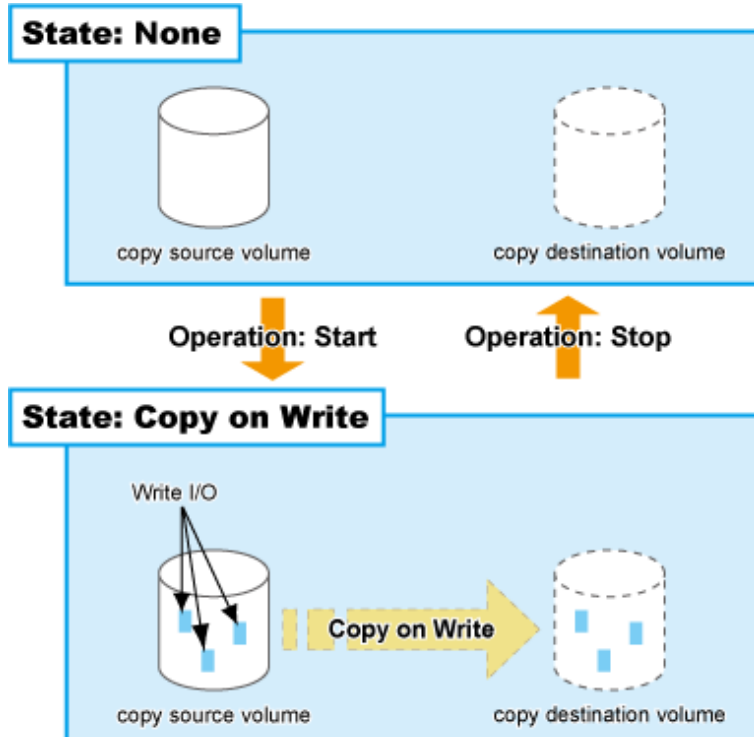


Table B.4 Relationship between session operation and Express function

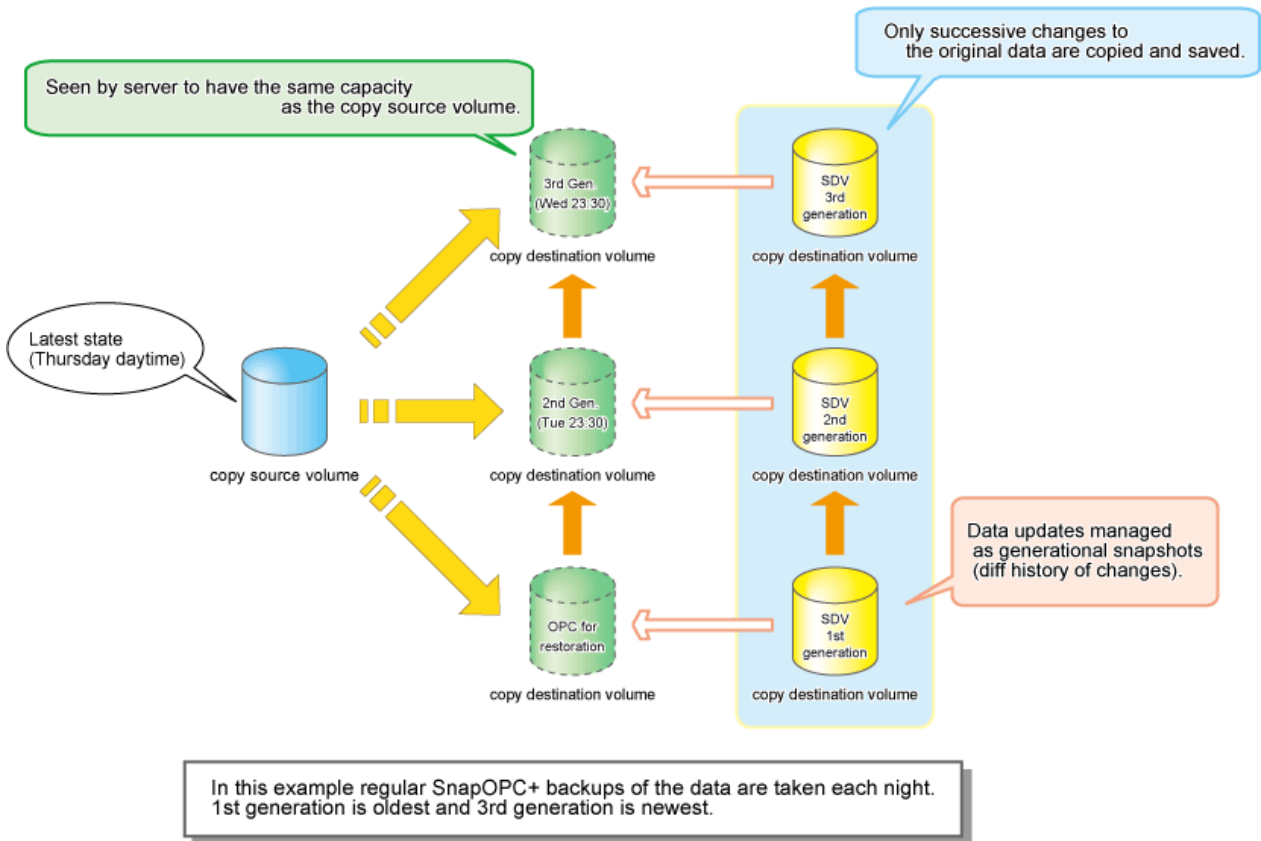
Session operation	Express function
Start normal SnapOPC+	acsnap start
Start dummy SnapOPC+	acsnap start -estimate
Stop	acsnap cancel

Start

When the SnapOPC+ session is started, the copy-on-write process starts. When a write I/O is requested from the server, the copy-on-write process copies the old data to the copy destination before writing the new data to the copy source. This process is an internal ETERNUS Disk storage system background process that are not visible to the server. After the SnapOPC+ session has been started, the copy destination area becomes accessible.

- Unlike Clone (OPC, QuickOPC, EC), as the physical copy destination only needs to be large enough to contain updated areas, size requirements are usually small.
- While the referencing of unmodified areas of the SnapOPC+ "copy" directly from the original data on the copy source volume reduces the copy load, this dependence on the copy source volume means that SnapOPC+ is not suited to persistent or long-term data backup/recovery use.
- Multiple SnapOPC+ sessions per one copy source can be set.
 - For ETERNUS DX60/DX80/DX90
Up to 8 SnapOPC+ sessions can be set.
 - For ETERNUS DX80 S2/DX90 S2
Up to 256 SnapOPC+ sessions can be set.

Since multiple SnapOPC+ sessions for one copy source are managed in generations, multiple copy operation can be performed with less disk capacity.



Stop

When the SnapOPC+ session is stopped, the copy-on-write process terminates and all the data saved in SDV are lost.

If there are older SnapOPC+ sessions than the SnapOPC+ session to stop, it cannot be stopped. Such a SnapOPC+ session can be stopped by using the force option. However, the Stop operation with the force option stops not only the specified SnapOPC+ session but also all the older SnapOPC+ sessions.

B.6.2 Restore

Restoration requires the SnapOPC+ copy destination be mounted by the OS and the target data restored using normal file copying.



Restoration by the reverse OPC cannot be performed for ETERNUS DX60, DX80/DX80 S2, DX90/DX90 S2.

B.6.3 SDV operations

Table B.5 Relationship between SDV operation and Express function

SDV operation	Express function
Monitoring SDV capacity	acsdv stat
Initialize SDV	acsdv init

Monitoring SDV capacity

If an SDP is not used, the SDV should be monitored on a periodic basis to ensure that adequate remaining capacity leeway is maintained.

Initializing SDV

- Even if no copy sessions are running, programs may write data to SDV. If SDV capacity becomes large, the "Initialize SDV" operation should be performed with ETERNUS Web GUI or ETERNUS CLI.
- When copy session is running, space for SDV or SDP used by the copy session is decreased. In this case, amount of maintaining data may be decreased.

Note that when a Snap Data Volume is initialized, any existing data on it will become inaccessible, so this data should be backed up beforehand, using OS commands.

B.6.4 SDP operation

Table B.6 Relationship between SDP operation and Express function

SDP operation	Express function
Monitoring SDP capacity	acsdv poolstat

Monitoring SDP capacity

If an SDP is used, the SDP should be monitored on a periodic basis to ensure that adequate remaining capacity leeway is maintained.

If the allocatable SDP capacity runs short, this is indicated by e-mail/SNMP Trap notification.

B.7 Remote Advanced Copy (REC)

Remote Equivalent Copy (REC) is used for both Remote Advanced Copy and Extended Remote Advanced Copy.

Whereas EC is an internal cabinet copy function, REC is the equivalent copy function for use between cabinets.

B.7.1 How to work

Figure B.10 Session state and state transition

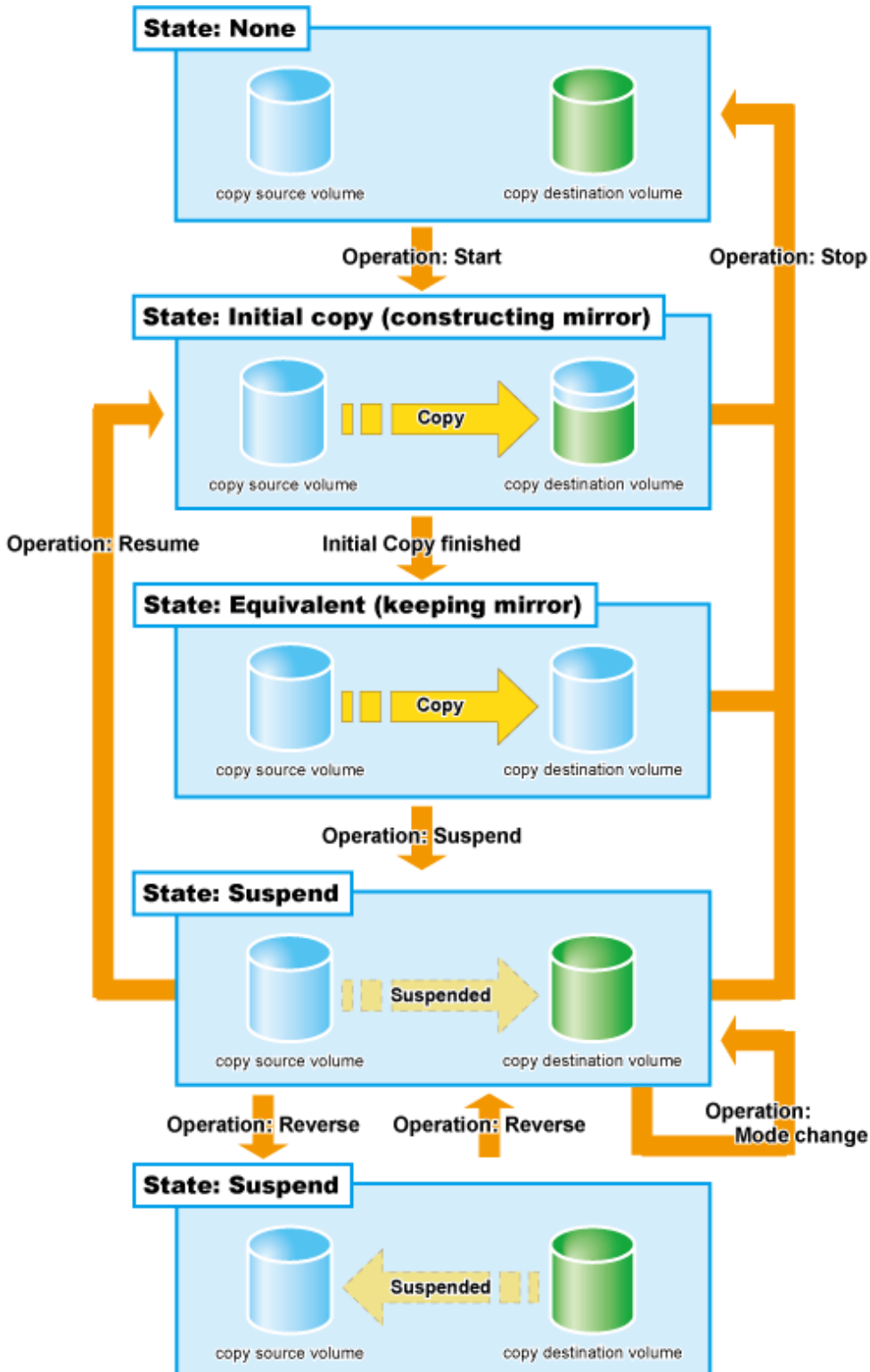


Table B.7 Relationship between session operation and Express function

Session operation	Express function
Start	acec start
Suspend	acec suspend

Session operation	Express function
Resume	acec resume
Reverse	acec reverse
Mode change	acec change
Stop	acec cancel

Start

When the REC session is started, the whole area of data specified by the source parameters is copied.

- If data copying has been completed for a given area and a write operation is applied to that area, the write data is also transferred to the destination area.
- After all data in the specified area has been copied over, the data in source and destination areas will be kept in almost the same state by the REC function. This is called the Equivalent state. In the Equivalent state, if source data is changed, the same data is transferred to the destination area to maintain the Equivalent state.
- Until the REC session reaches to the Equivalent state, copy destination volume are neither readable nor writable. If REC session is in the Equivalent state, copy destination volumes are not writable but readable.

Unlike EC, the following operation modes need to be specified at the start of REC sessions.

REC operation mode

REC function has the following three types of copy modes. You can specify the best copy mode fitted to the operation.

- Transfer mode
- Split mode
- Recovery mode

Transfer mode

This mode is concerned with data transfer of REC.

Transfer method	Mode	Explanation
Asynchronous transfer	Synchronous	On the Write request from the server, data is written onto a copy source volume and copy is done to the destination volume to return the completed one to the server. Writing to the source volume and copying to the destination volume are synchronized. Therefore, on completion of copy, both data on the copy source and destination volumes are guaranteed. Since an impact of Write access from the server is great, this is fitted for REC in a short-delay site.
	Stack	Since only updated block points are recorded and after that completion is returned to the server, response impacts to the server are reduced. Using independent transfer engine, transfer the recorded block data. Even if the band width of the line is small, copy can be executed. However, data that is not transferred may be accumulated in large amount.
	Consistency	To copy destination ETERNUS Disk storage system, transfer order between copy sessions is guaranteed. This is fitted for mirroring of copy made up of multiple areas, such as database. This mode uses part of cache memory as a REC buffer. Store all data to REC buffer for sending and copy to REC buffer for receiving and transfer to the destination.
	Through	This is a mode to transfer the data that is not transferred when suspending or stopping Stack mode and Consistency mode.

Split mode

This mode is concerned with how REC sessions behave when the line paths are disconnected by a disaster or line error.

Split Mode	Description
Automatic Split	If the communication has failed due to certain reasons during REC execution, the REC session is disconnected automatically so that data can be updated at the source location.
Manual Split	If the communication has failed due to certain reasons during REC execution, the operator is asked whether or not to disconnect the REC session or not in the Manual Split mode. Though the Manual Split mode does reduce availability somewhat, it also helps keep the copy source data and copy destination data better synchronized, resulting in much lower data losses in the event of a disaster. If data copying has failed due to the disconnection of all paths or other reasons, the server becomes unable to update the data in this mode. Therefore, applications that require the data be updated by the server cannot continue if all REC paths become disconnected, or the backup center or backup ETERNUS Disk storage system fails.

Recovery mode

This mode is concerned with how REC sessions are recovered after the line that was disconnected by the transmission error has recovered.

Recovery Mode	Description
Automatic Recovery	REC sessions are automatically resumed as soon as the line that was disconnected by the transmission error has recovered.
Manual Recovery	REC sessions must be manually resumed after the line that was disconnected by the transmission error has recovered.

Suspend

When the REC session is suspended, both the copy source volume and the copy destination volume are accessible as independent volumes (copy destination volume becomes readable and writable). The Suspend operation can only be executed when the REC session is in the Equivalent state.

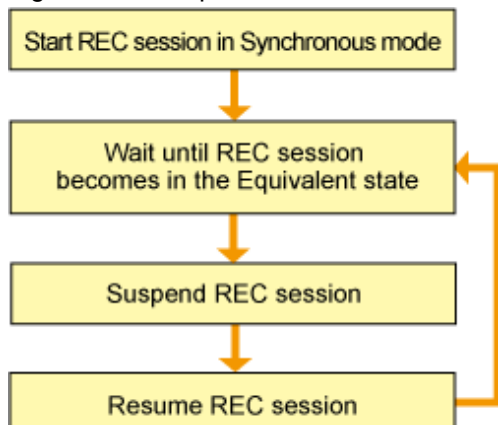
Unlike the Stop operation, changes to the source and destination volumes continue to be recorded while the Suspend state applies.

The procedure to suspend the REC session varies depending on REC Transmission mode.

Synchronous mode

In this case, the procedure is the same as that of EC.

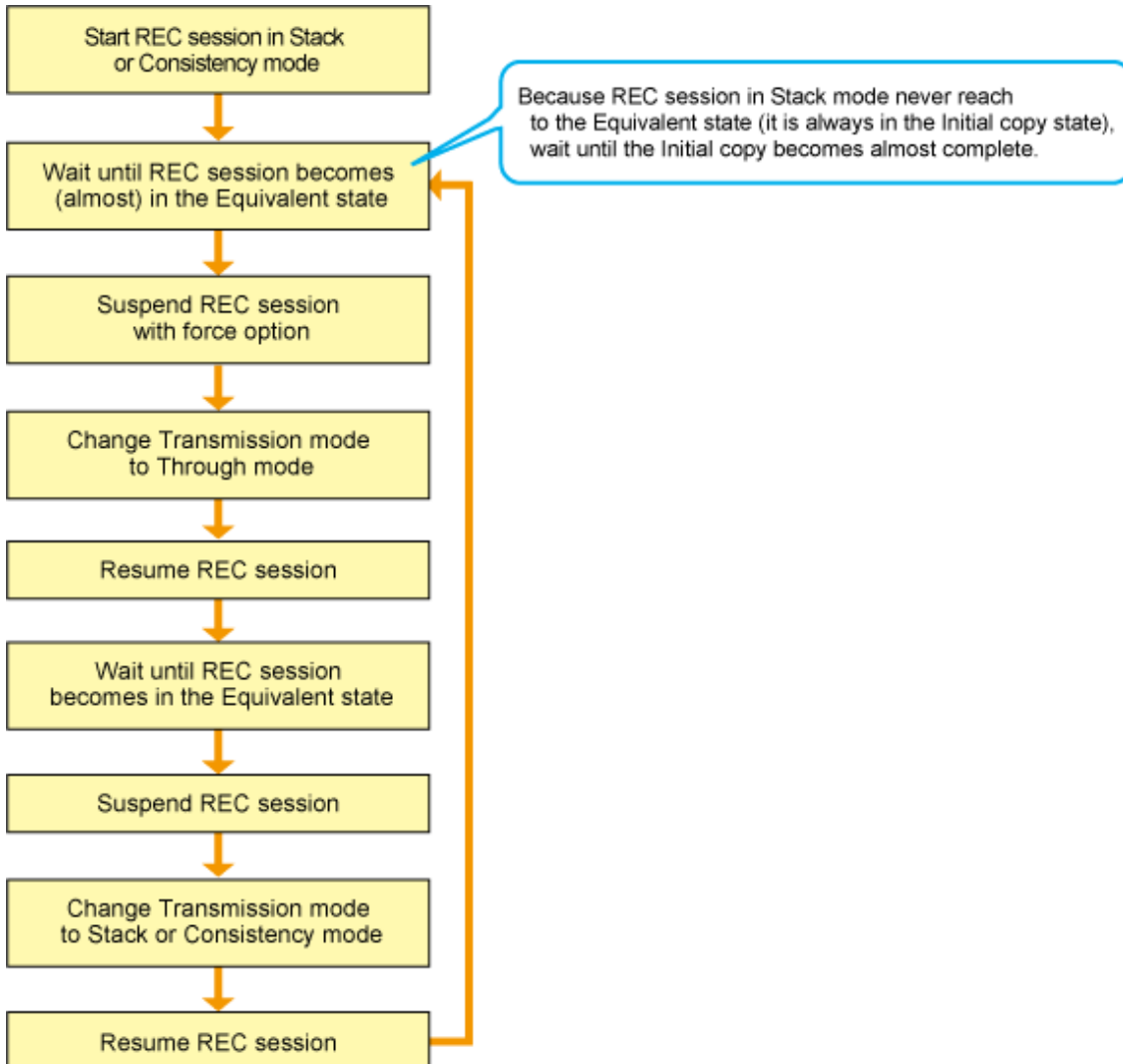
Figure B.11 Suspend and resume work flow in Synchronous mode



Stack mode or Consistency mode

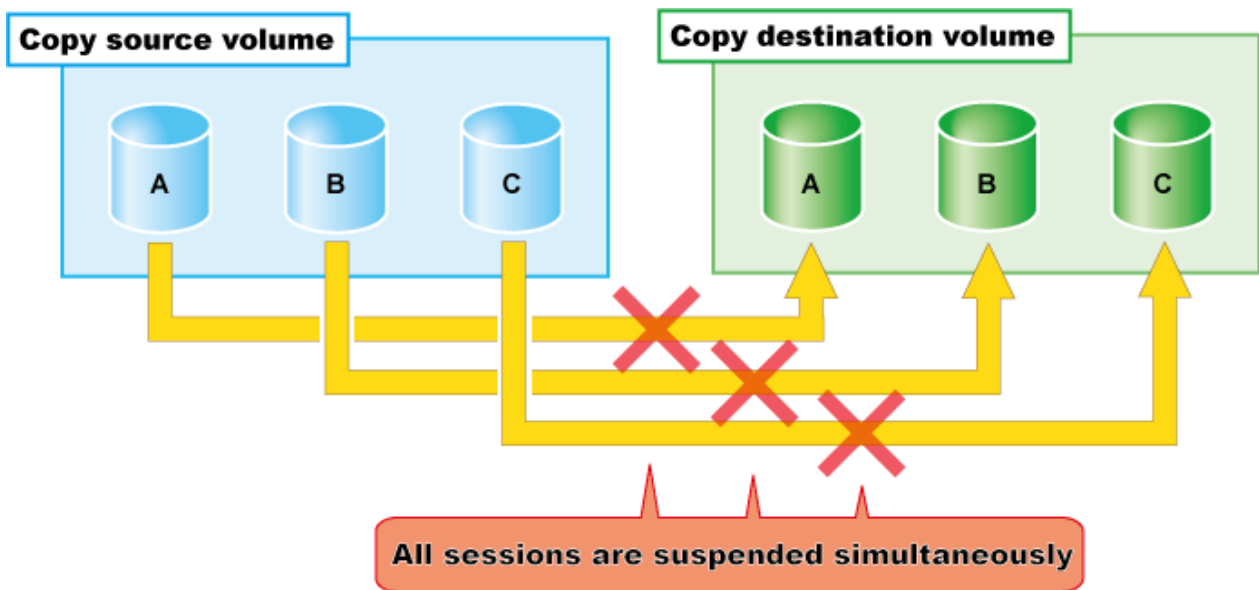
In order to suspend the REC session in these modes, the Transmission mode must be changed to through mode. However, the Transmission mode is not required to be changed if the REC session in Consistency mode is suspended by Concurrent Suspend.

Figure B.12 Suspend and resume work flow in Stack or Consistency mode



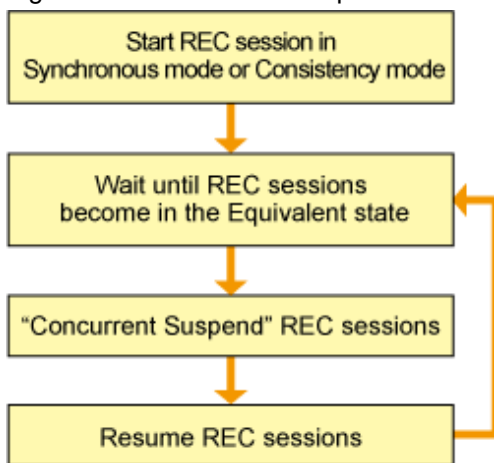
Concurrent Suspend

As EC, multiple REC sessions can be suspended using the Concurrent Suspend operation. This allows consistent copies of multi-volume data-objects, such as databases, to be easily acquired.



The Concurrent Suspend operation can be performed only if the transfer mode is Synchronous mode or Consistency mode.

Figure B.13 Concurrent Suspend and resume work flow in Synchronous or Consistency mode



Resume

When the REC session is resumed, data is copied over from the source to the destination so as to catch up on all the changes that were made after the Suspend operation was performed and recover the Equivalent state. As the amount of data that thus needs to be transferred is much less than would be required if the whole source area were to be recopied, the time required to recover the Equivalent state is also greatly reduced.

If the source is changed under the Suspend state (when copying is temporarily interrupted by the Suspend operation), the changes are sent to the destination after the Resume operation is performed (when the copy is restarted). However, any changes made at the destination while under the Suspend state will be rolled-back (overwritten from the source data). Consequently, any and all changes made to the destination during the Suspend state are discarded and lost following the Resume operation.

The operation modes of REC are not changed by the Resume operation.

Reverse

When the REC session is reversed, the copy direction is reversed. The Reverse operation can only be executed when the REC session data is in the Suspend state.

Mode change

When the REC session is in the Suspend state, the operation modes can be changed by the "Mode Change" operation.

Stop

When the REC session is stopped, it terminates. If the REC session in one of the following statuses is stopped, the copy destination volume should not be used because the mirroring is incomplete.

- Initial copy state
- Error suspend state
- Halt state which occurred when the REC session was in the Initial copy state

If the REC session in one of the following statuses is stopped, the copy destination volume can be used because the mirroring has been complete.

- Equivalent state
- Suspend state
- Halt state which occurred when the REC session was in the Equivalent state

B.7.2 Transfer buffer operations

Table B.8 Relationship between session operation and Express function

Session operation	Express function
Change buffer role	acrecbuff set
Monitor buffer usage	acrecbuff stat

Change buffer role

The Set operation can change the use of REC buffer from SEND to RECV and vice versa.

Monitor buffer usage

The transfer buffer usage can be checked using the "Monitoring buffer" operation. Monitor buffer usage regularly while REC sessions in Consistency mode are running. A "Rate" of 100% means the transfer buffer is in high-load state.

B.7.3 Restore

Restoration can be performed by the Reverse function of REC.

The procedure for restoration is the same as EC.

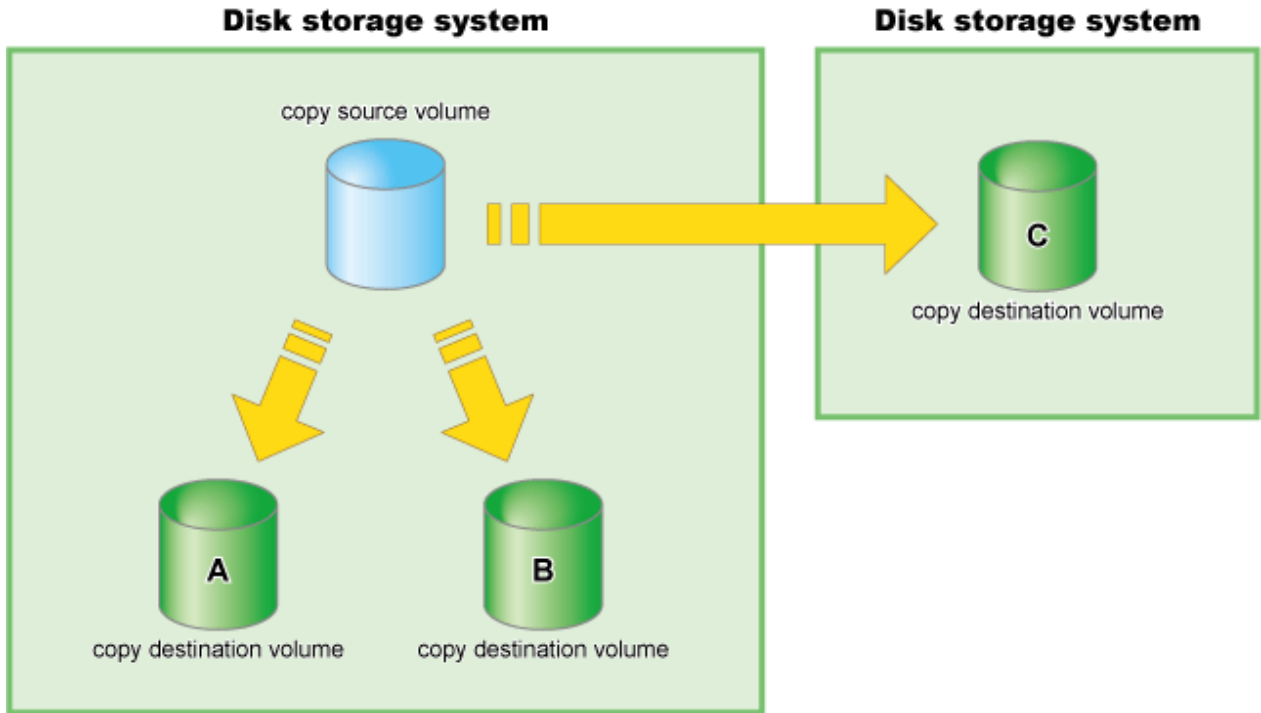
B.8 Combinations of Advanced Copy

B.8.1 Multiple copy

Multiple copy is a method that copies the same copy source area to multiple copy destinations.

Multiple copy destinations may be specified to obtain more than one copy of the original data at a time. This allows copies of the same data for different purposes, such as backup and testing.

Figure B.14 Multiple copy



 Note

Following copy type combination selection rules when using multiple copy.

- For multiple copy with EC only, REC only, or both EC and REC, the start and end points of all copy sessions must be the same.
- For remote copy, REC (Consistency mode) cannot be used for multiple copy destination volumes in the same copy destination device.

B.8.2 Cascade copy

Cascade copy is a method that adds copy sessions end-to-end, with an existing copy destination volume becoming the copy source for a new copy session, or vice versa.

Figure B.15 Cascade copy



B.9 ECO mode

The ETERNUS Disk storage system offers the eco-mode (power-saving) function based on the MAID (Massive Array of Idle Disks) technology. The spindle rotation of the disk drive can be turned on and off by using this function.

Express offers the eco support tools to control whether spindle rotation of the disk drive is on or off.

Used in combination with the copy operations of Express, the eco support tools allow the spindle rotation the disk drive to be turned off when it is not used for a long period, thus reducing the power consumption of the ETERNUS Disk storage system.

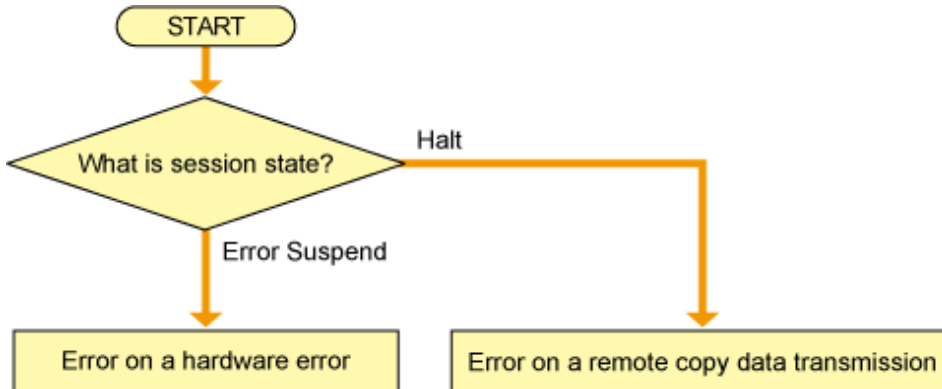
B.10 Note on Backup and Restore by Express

Express performs backup and restoration regardless of the state of the server to be backed up. Therefore, make sure that both copy source and destination volumes are inaccessible in order to ensure consistency of backup data. For absolute assurance of data consistency, we highly recommend to stop the target server before executing backups and restorations. If the server can not be suspended, dismount a target volume using the OS function to prevent data within a file cache from being reflected and inhibit access to the target volume.

B.11 Troubleshooting

The following figure shows the flow of troubleshooting tasks if a hardware or similar fault occurs.

Figure B.16 Troubleshooting flow



Hardware error

When a hardware error occurs in a source or destination volume, perform the repair work on the error according to the following procedures.

1. Use copy management software (e.g. Express) to stop the session in which the error occurred. If the session cannot be stopped by using copy management software, use ETERNUS Web GUI to stop it.
2. Iron out the hardware error.
3. If required, for copy management software, redefine copy source and destination volumes.
4. Re-start the session in which the error occurred.

Remote copy data transfer error

If the Recovery mode of the REC session is Manual Recover mode, the session need to be recovered manually after the transmission error has recovered. The procedure to do this is as follows.

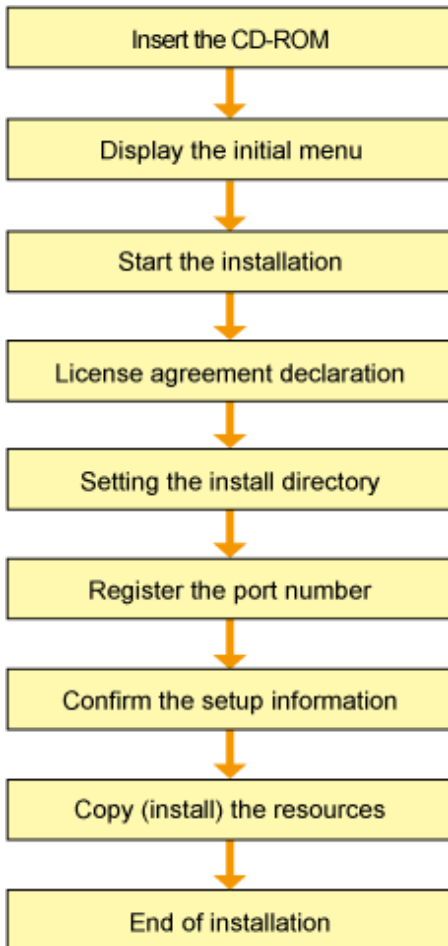
1. Suspend the REC session with force option to change the halt status to the Suspend state.
2. Resume the REC sessions.

Appendix C Installing and Uninstalling Express

This appendix explains the procedure for installing and uninstalling Express.

C.1 Installing

The following is a flow of installation.



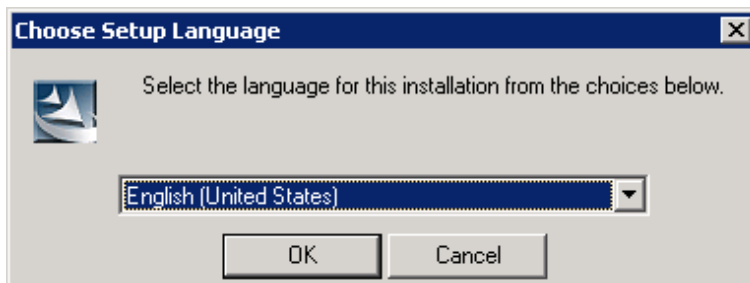
Take the following procedure to install Express.

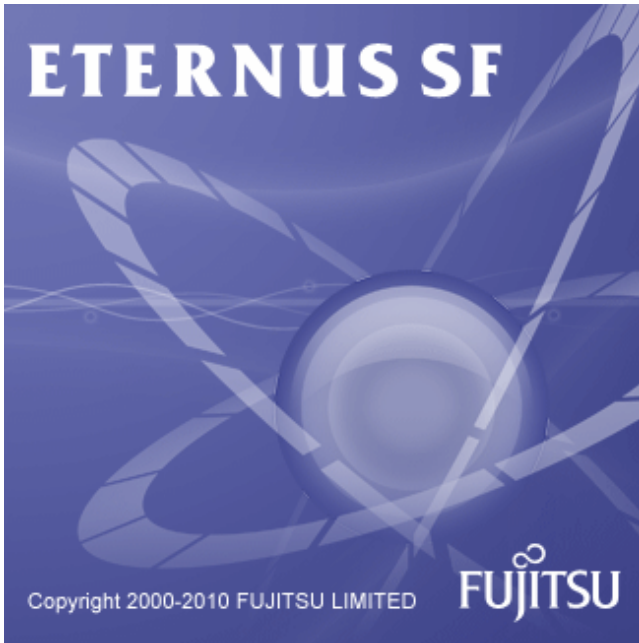
1. Login to the system.
Login to the Express Manager server with a user account having Administrator privileges.

2. Insert the Express CD-ROM into the CD-ROM drive and the following initial screen is displayed. Click [Install Express Manager V14.2].

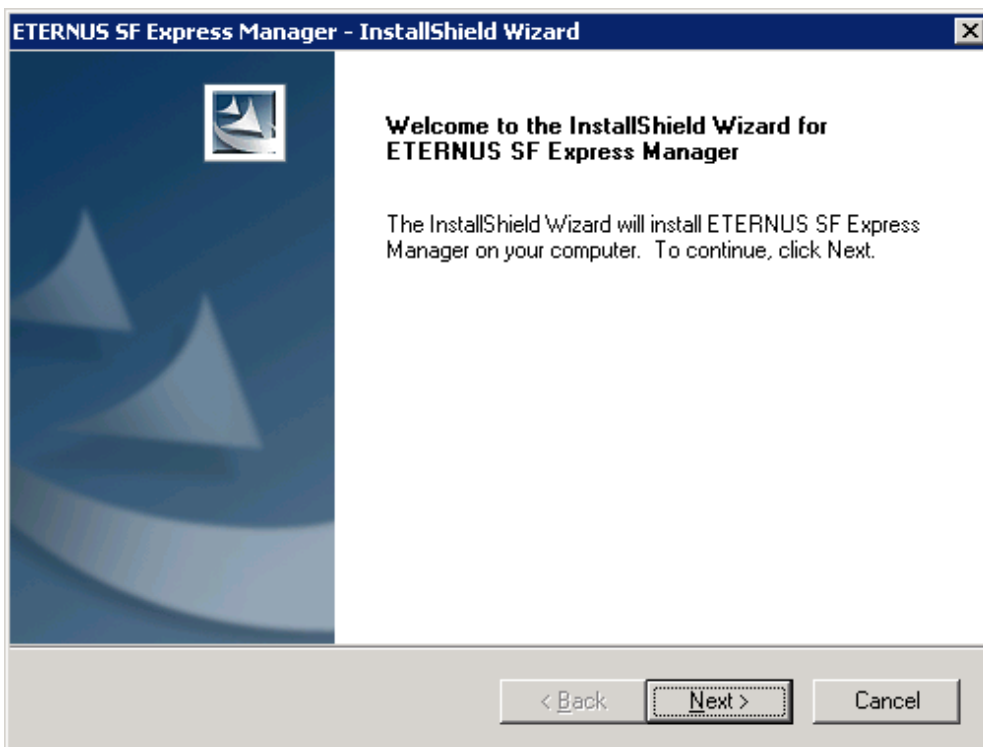


3. Select a language to be used during installation.
Select a language to be used during installation and click the [OK] button.
The selected language is available only during installation.





4. At the following window, check the displayed contents, and then click the [Next] button.



Note

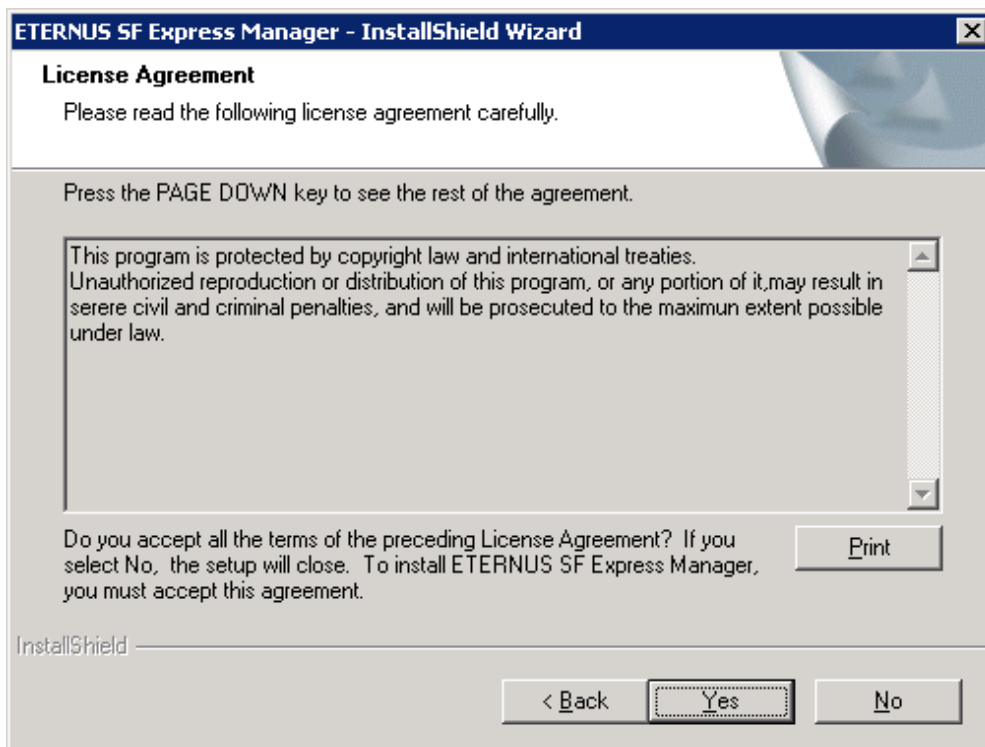
When the window of Install Shield is minimized, please maximize it by using the task manager. The procedure is as follows.

1. Push the [Ctrl] + [Alt] + [Del] key and start the task manager.
2. Select task manager's [Applications] tab.
3. Select this installer application from the list of the task, and click [Switch To] button.

5. Sign license agreement.

Confirm the contract detail displayed on the "License Agreement" screen and click the [Yes] button.

When printing the contract, click the [Print] button.



6. Specify an installation destination directory.

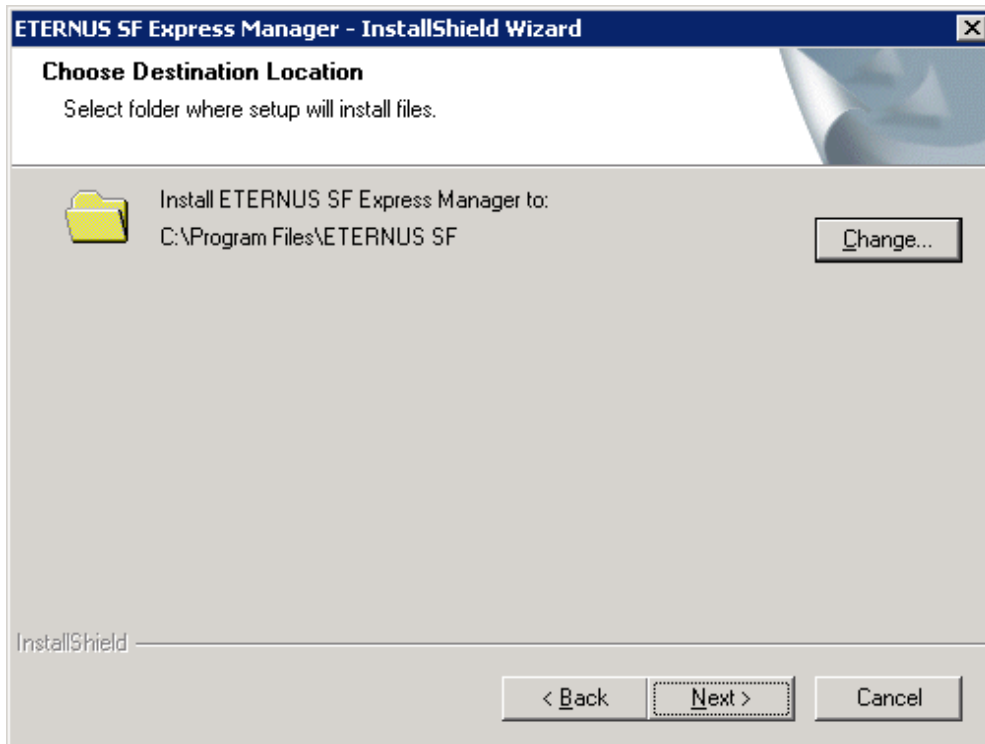
Confirm the displayed installation destination directory and click the [Next] button.

If necessary to install the products into other directory than the directory displayed by default, click the [Change] button to change the installation destination directory.

However, there are following limits to a specified installation destination directory.

- 2 byte characters, Japanese and 1 byte symbols [" | : * ? / . < > , % & ^ = ! ;] are not available.
- The length of installation path should be 4 to 81 characters.
- A drive that is not fixed cannot be specified.

- If the capacity of the installation destination is 500MB or less, it cannot be specified.



7. Set a port number assigned to service on the "The registration of the port number" screen.

Normally, default port numbers are set onto the "The registration of the port number" screen.

If any service other than Express is using the same port number, change it to a proper port number that does not overlap with other service.

A port number between 1024 and 65535 can be entered. In addition, when changing a port number, a number between 5001 and 32768 is recommended.

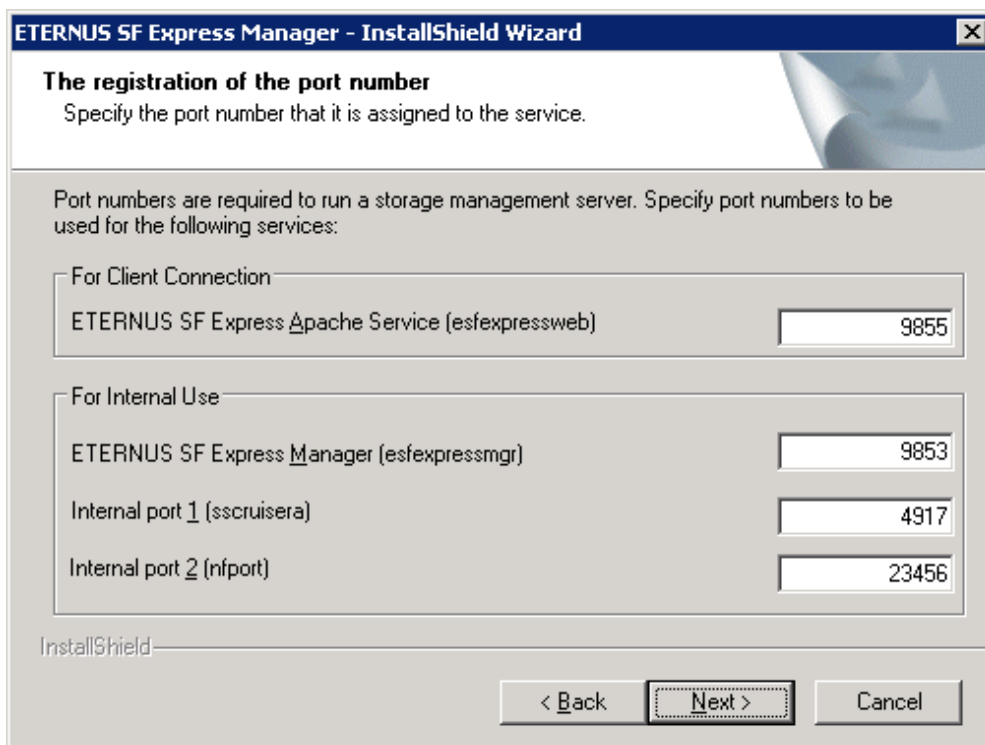


Table C.1 Port number list

Port number	Service name	Comment
9853	esfexpressmgr	Express Manager service Unnecessary to add this to the Windows Firewall exception list.
9855	esfexpressweb	Express Web GUI service
4917	sscruisera	Port number used inside Express Unnecessary to add this to the Windows Firewall exception list.
23456	nfport	Port number used inside Express Unnecessary to add this to the Windows Firewall exception list.

 **Information**

Make sure that the above-mentioned port numbers are not in use for currently used services.

Service files are in the "%SystemRoot%\system32\drivers\etc" directory.
"%SystemRoot%" is a directory in which Windows operating systems are installed.

OS	Absolute path name for service files (default)
Windows Server 2003 Windows Server 2008	C:\Windows\system32\drivers\etc\services

 **Note**

Express uses the following port numbers besides the above-mentioned.

- 8005/tcp
- 8009/tcp
- 8080/tcp
- 8443/tcp

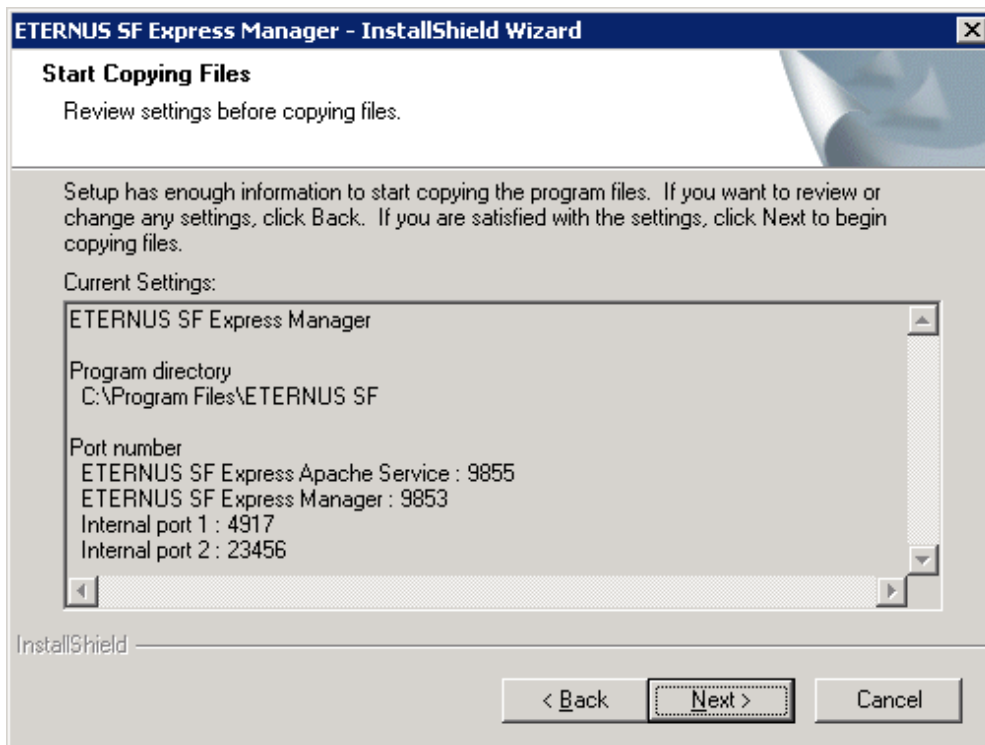
Make sure that the above-mentioned port numbers are not in use for other applications.

If they are used, change them to other ports according to "[7.3.1 Changing port numbers](#)" after installing Express.

8. Confirm the installed content on the "Start Copying Files" screen.

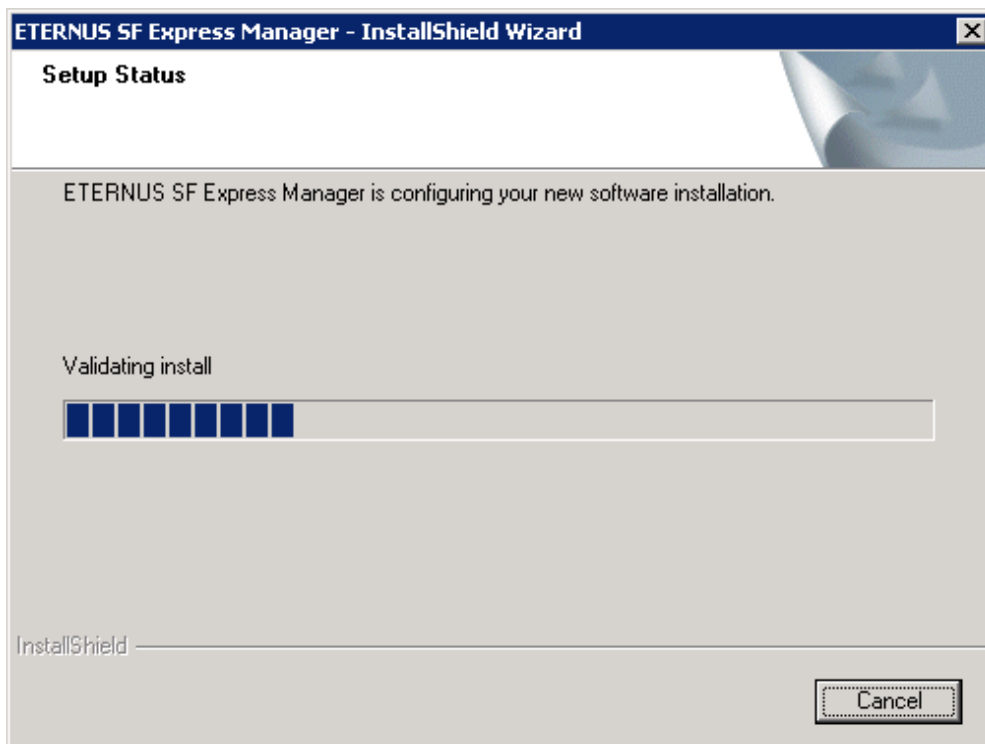
If the settings are correct, click the [Next] button to start installing.

When changing the setting, click the [Back] button to correct the settings.



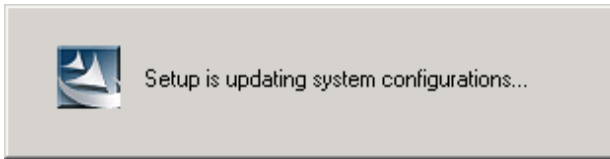
9. Copy is started.

When copy is in progress, the file transfer status is displayed on the "Setup status" screen.



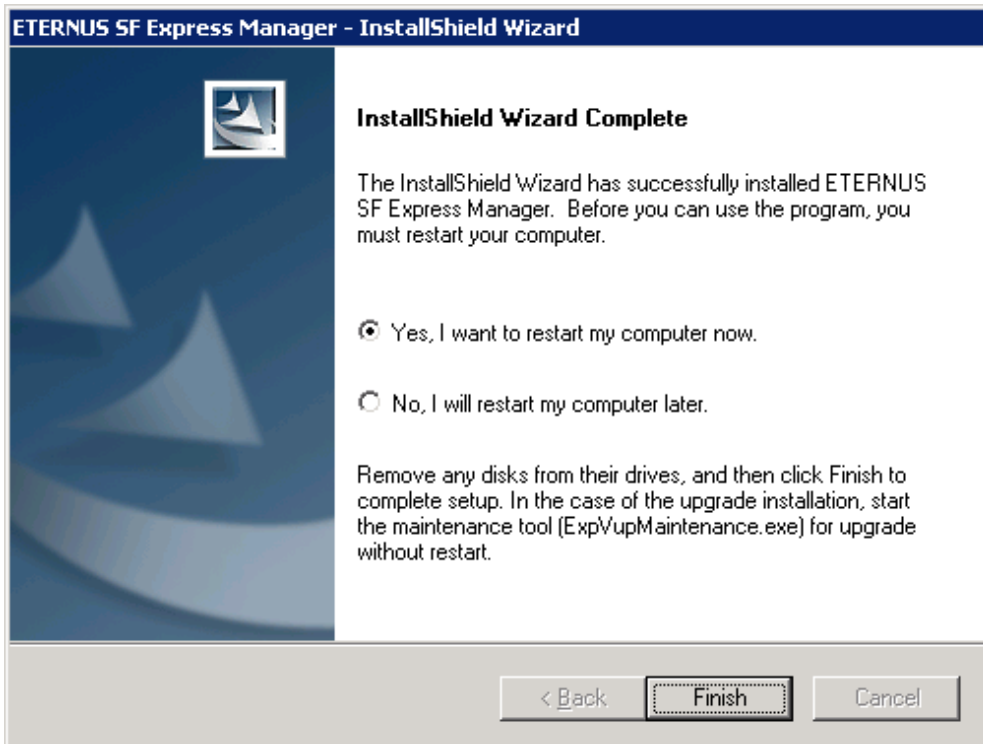
10. System configuration is updated.

Wait for system configuration to be finished.



11. Installation is finished.

Click the [Finish] button to finish the installation process. After installation, reboot the computer.



C.2 Uninstalling

This section explains the procedure for uninstalling Express Manager.

Note

After uninstalling Express Manager, all the contents of the "<Express Manager installed destination directory>\Express\Manager", which is a destination directory in which Express Manager is installed, are deleted. (The default directory name of Express Manager program is "C:\Program Files\ETERNUS SF" or "C:\Program Files (x86)\ETERNUS SF".)

Do not put your own files under the folder.

If necessary, backup Express Manager environment as shown in "[7.1 Backing up Express Manager Environment](#)" before uninstall.

1. Login to the system.

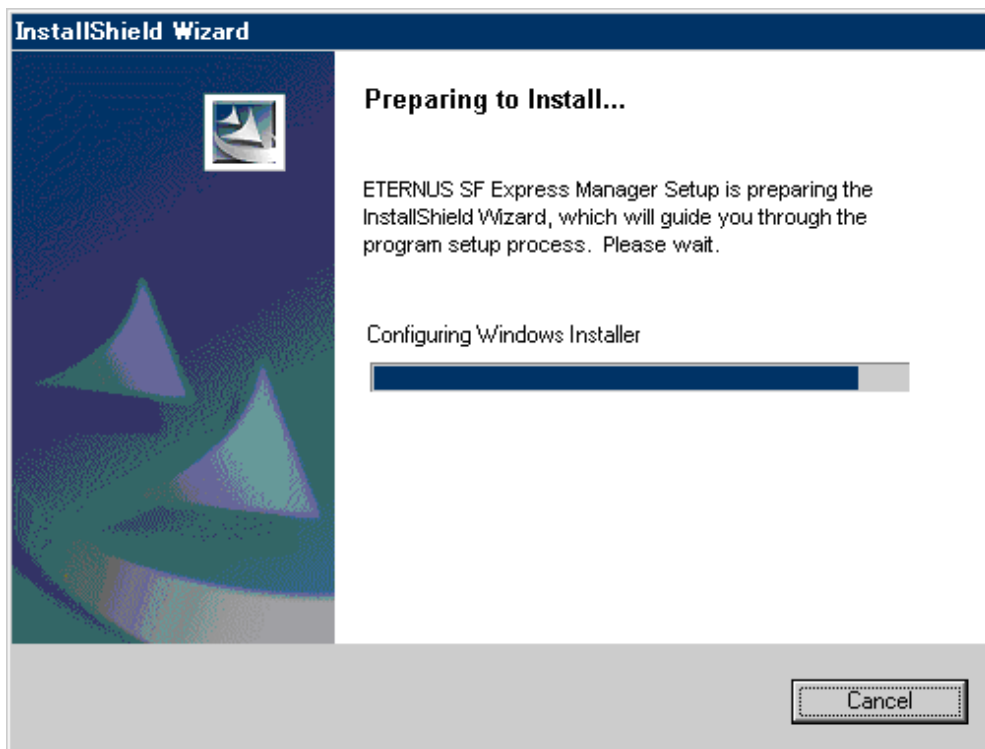
Login to a server from which to uninstall Express Manager with the user who has the Administrator's authority on the system where Express will be uninstalled.

2. Open the [Start] > [All programs] > [ETERNUS SF Express Manager] menu and then execute "Uninstall".

Or open the window that can add or remove programs, and delete the "ETERNUS SF Express Manager" program. The name of window that can add or remove programs and the method to open its window are as follows.

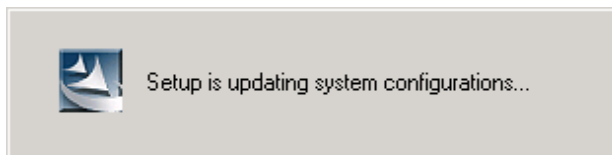
OS	Name of window	Method to open window
Windows Server 2003	Add or Remove Programs	<ul style="list-style-type: none"> - When "Start menu" is used: [Start] > [Control Panel] > [Add or Remove Programs] - When "Classic Start menu" is used: [Start] > [Settings] > [Control Panel] > [Add or Remove Programs]
Windows Server 2008	Programs and Features	<ul style="list-style-type: none"> - When "Start menu" is used: [Start] > [Control Panel] > [Programs and Features] - When "Classic Start menu" is used: [Start] > [Settings] > [Control Panel] > [Programs and Features]

3. Start the preparation of uninstallation. When you want to quit the Express uninstallation, click the [Cancel] button.



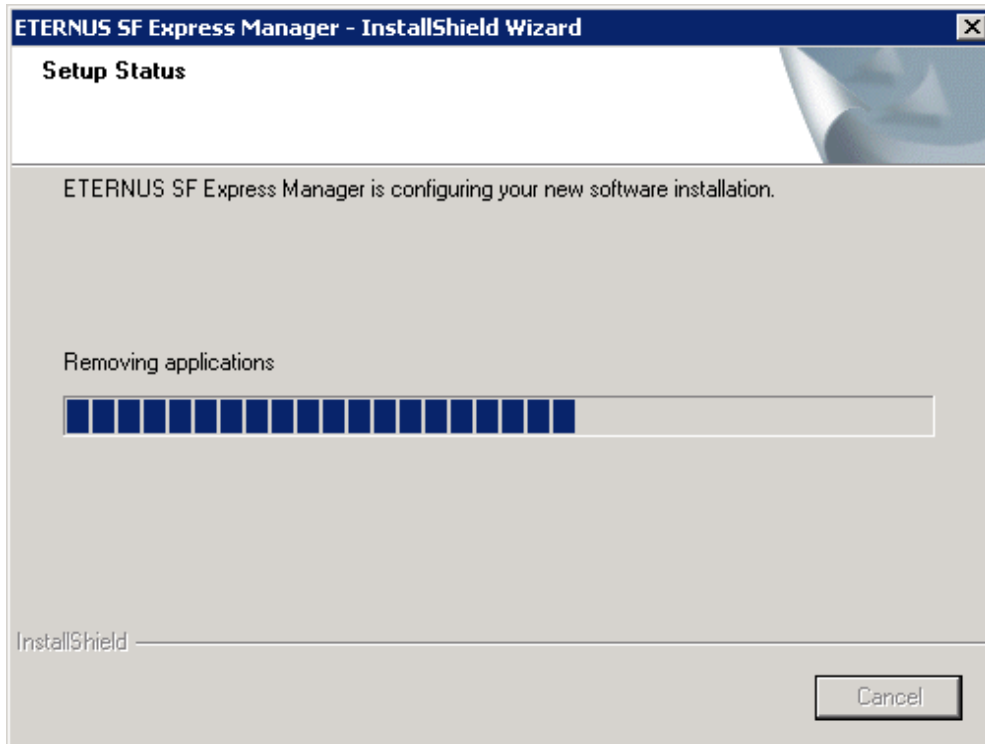
4. Delete of the system configuration.

Wait for the delete completion of the system configuration.

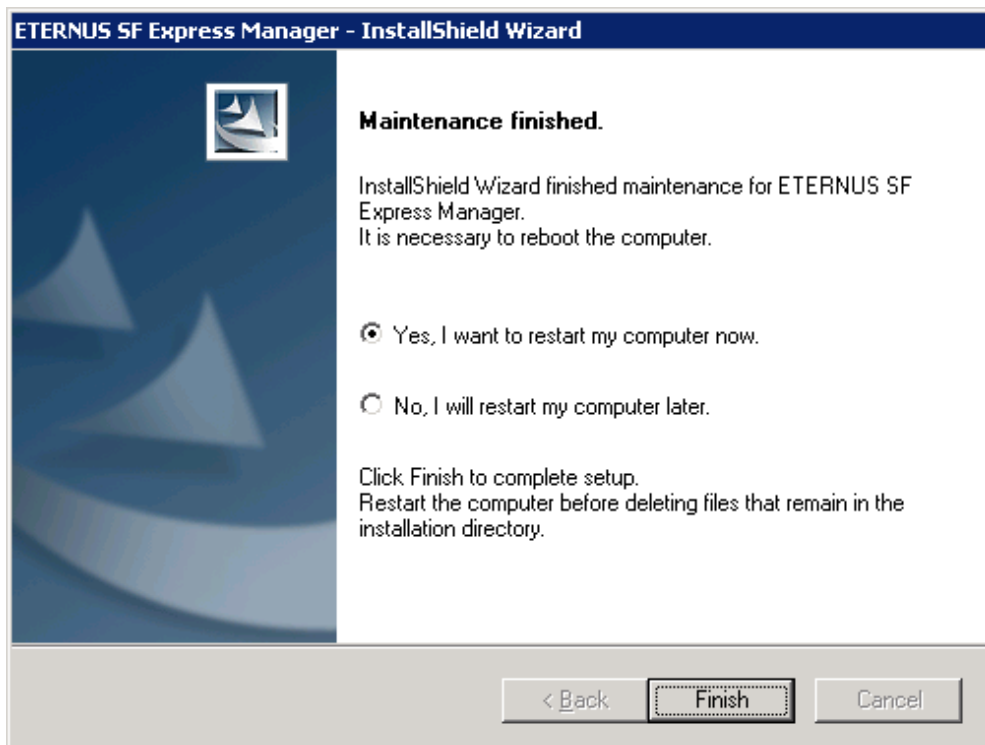


5. Start the uninstall.

The file transfer in progress can be viewed on the [Setup Status] window.



6. When the uninstallation is completed, the following confirmation window will be displayed. Click the [Finish] button, and reboot the computer.



Point

.....

If the licenses for ETERNUS SF products have been registered, these licenses will remain on the management server even after having uninstalled Express Manager.

If you do not use ETERNUS SF products (do not use their licenses) on the same server in the future, please uninstall "ETERNUS SF License Manager" from "[Add or Remove Programs]" or "Programs and Features".

.....

C.3 Upgrade installation procedure

Take the following procedure to execute Express Manager upgrade installation.

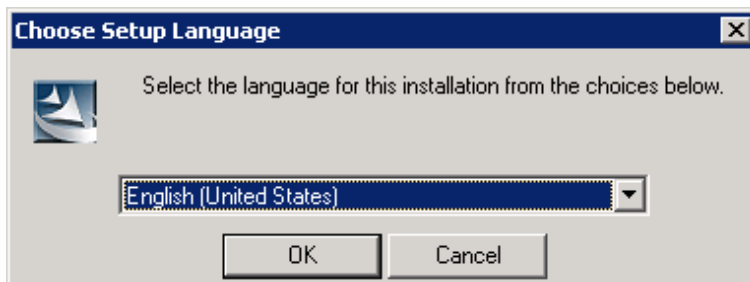
1. Login to the system.
Login as the user who has the Administrator's authority on the system where Express will be installed.
2. Insert the Express CD-ROM into the drive and an initial window will be displayed. Click [Install ETERNUS SF Express Manager V14.2].



3. Select a language to be used during installation.

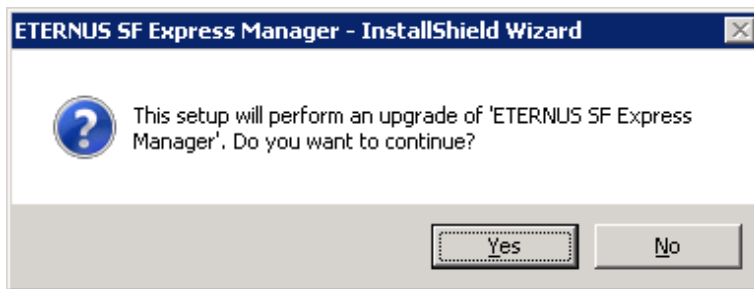
Select a language to be used during installation and click the [OK] button.

The selected language is available only during installation.



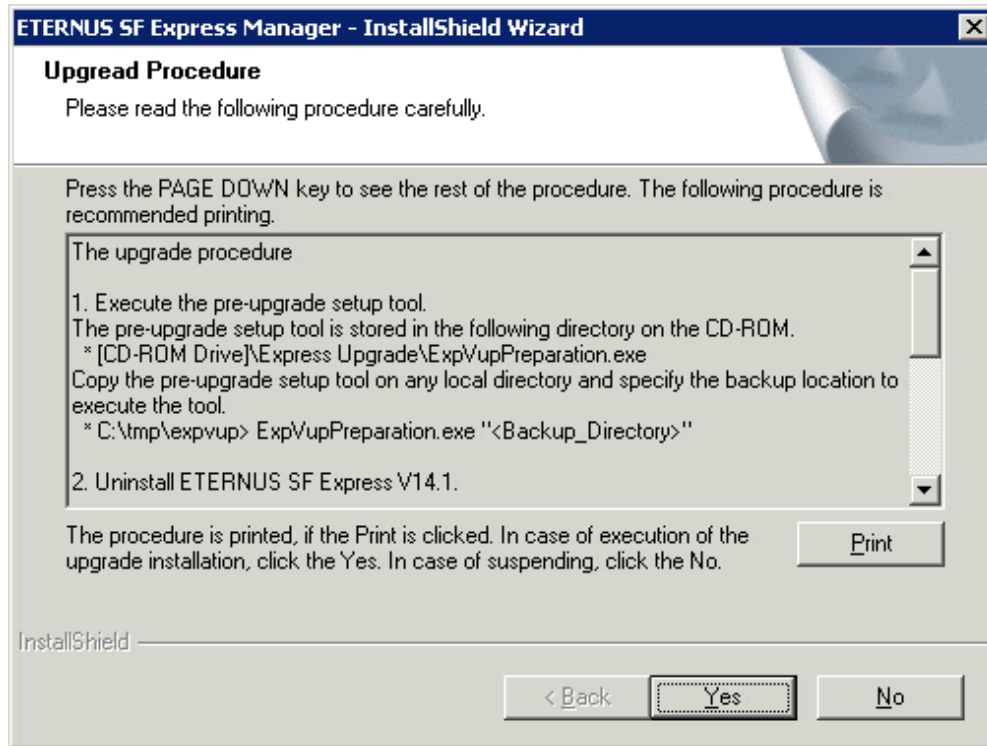
4. Upgrade installation confirmation screen.

If Express V14.1 is already installed, the following dialog box is displayed.
If you execute upgrade installation, click [Yes] button.



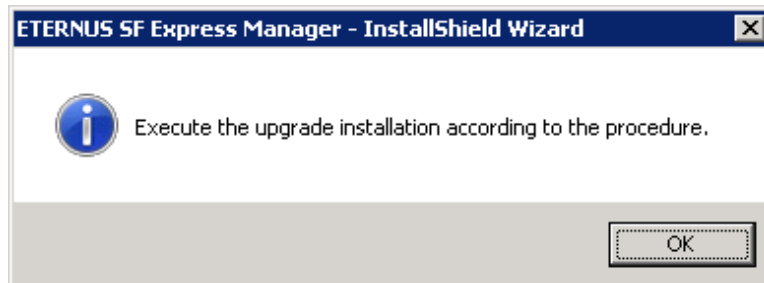
5. Display of upgrade installation procedure.

The following dialog box is displayed.



6. Upgrade installation startup screen.

Selecting [Yes] button in "Upgrade procedure" will display the following dialog box.



Click the [OK] button to exit the installer and then take the upgrade installation procedure to upgrade the version.

7. Execution of the pre-upgrade setup tool.

Execute the pre-upgrade setup tool to back up configuration information.

This tool is available only when Express V14.1 is installed.

Take the following procedure to execute the pre-upgrade setup tool.

- a. The pre-upgrade setup tool is stored in the following directory on the Express V14.2 CD-ROM.

<CD-ROM drive>\Express Upgrade\ExpVupPreparation.exe

- b. Create a working directory and copy ExpVupPreparation.exe.

In this material, the working directory is defined as follows.

C:\tmp\expvup

- c. Start the command prompt and specify the pre-upgrade setup tool with an absolute or relative path to execute. For parameters, specify a backup directory for Express V14.1 management information files with an absolute path. As an example, the backup directory is described as C:\tmp\expdir.

```
C:\tmp\expvup> ExpVupPreparation.exe "C:\tmp\expdir"
```

- d. When the tool is normally terminated, the following message is displayed at the end.

```
esfcmd77000 : The preparation for upgrade install has been completed.
```

If the tool execution has failed, error message is displayed and the tool is abnormally terminated. Remove the cause according to the message to re-execute the tool. For more detailed message, see "List of Setup Tool Messages".

8. Uninstallation of Express V14.1.

Uninstall Express Manager V14.1 according to "Uninstallation of Express Manager" in the "Express V14.1 User's Guide".

9. Installation of Express V14.2.

Install Express V14.2 according to "C.1 Installing".

10. Execution of the post-upgrade setup tool.

Restore the configuration information backed up with the pre-upgrade setup tool using the post-upgrade setup tool. This tool is available only when Express V14.2 is installed.

Take the following procedure to execute the post-upgrade setup tool.

- a. The post-upgrade setup tool is stored in the following directory on the Express V14.2 CD-ROM.

```
<CD-ROM drive>\Express Upgrade\ExpVupMaintenance.exe
```

- b. Create a working directory and copy ExpVupMaintenance.exe.

In the following procedure, the working directory is defined as C:\tmp\expvup as an example.

- c. Start the command prompt and specify the post-upgrade setup tool with an absolute or relative path to execute. For parameters, specify with an absolute path the backup directory specified in step 7. As an example, the backup directory is described as C:\tmp\expdir.

```
C:\tmp\expvup> ExpVupMaintenance.exe "C:\tmp\expdir"
```

- d. When the tool is normally terminated, the following message is displayed at the end.

```
esfcmd77001 : The maintenance for upgrade install has been completed.
```

If the tool execution has failed, error message is displayed and the tool is abnormally terminated. Remove the cause according to the message to re-execute the tool. For more detailed message, see "List of Setup Tool Messages".

Note

- If you uninstall ETERNUS SF Express Manager V14.1 from the environment in which the following products are installed, SystemWalker MpWkstr may be uninstalled (in the event that ETERNUS SF Express Manager has been installed before these products).

In this case, after uninstalling ETERNUS SF Express Manager, refer to the manuals for the following products to reinstall SystemWalker MpWkstr.

- Systemwalker Centric Manager
- Systemwalker Resource Coordinator Virtual server Edition

- ServerView Resource Coordinator VE 2.1.0 to 2.1.3
- After ETERNUS SF Express Manager has been upgraded to V14.2, ETERNUS SF Express Client V14.1 is not used. If you uninstall ETERNUS SF Express Client V14.1, refer to "Uninstallation of Express Client" in the "ETERNUS SF Express V14.1 User's Guide".
- When Express Web GUI is started for the first time after upgrade installation of Express, it requires a user name and password for the storage system that is registered with Express. According to a displayed message, enter the user name and password.
- When the SNMP community name was not specified as default ("public") before the execution of upgrade installation of ETERNUS SF Express, modify the configuration file according to the following procedures before starting Express Web GUI.
 1. Open Service Control Manager to stop the following four services.
 - ETERNUS SF Express Manager
 - ETERNUS SF Express Apache Service
 - ETERNUS SF Express Tomcat Service
 - ETERNUS SF Storage Cruiser Manager

2. Open the following files with Text Editor.

```
$INS_DIR\Storage Cruiser\Manager\etc\opt\FJsvsmgr\current\sanma.conf
```

\$INS_DIR means a directory in which Express Manager is installed.

3. Add the following line. Add plural lines when the Express Manager manage plural devices.

```
SNMP_COMMUNITY_NAME_FOR_IP="<DiskArray IP Address> <SNMP Community Name>" ;
```

<DiskArray IP Address> means a IP address of registered disk array

<SNMP Community Name> means a SNMP community name of disk array which was specified before upgrade installation.

Example:

```
SNMP_COMMUNITY_NAME_FOR_IP="11.22.33.44 snmp_name" ;
```

4. Save and close these files.
5. Open Service Control Manager to start the following four services.
 - ETERNUS SF Express Manager
 - ETERNUS SF Express Apache Service
 - ETERNUS SF Express Tomcat Service
 - ETERNUS SF Storage Cruiser Manager



Appendix D Commands

This appendix explains the various commands that are used with Express.

D.1 Commands for Advanced Copy function

This section explains the commands for Advanced Copy function.

Point

If using commands, refer to "6.4.8.1 Setting PATH environment variables".

The Advanced Copy commands can be classified as follows.

Environment definition commands

Table D.1 List of commands for controlling ETERNUS Disk storage systems

Function	Command	Explanation
D.1.1 acarray add (Command for registering ETERNUS Disk storage system)	acarray add	Registers ETERNUS Disk storage systems.
D.1.2 acarray change (Command for changing ETERNUS Disk storage system name and access path)	acarray change	Changes the access paths and ETERNUS names for ETERNUS Disk storage systems.
D.1.3 acarray list (Command for displaying information about ETERNUS Disk storage systems)	acarray list	Displays information about ETERNUS Disk storage systems.
D.1.4 acarray detail (Command for displaying detailed information about ETERNUS Disk storage systems)	acarray detail	Displays detailed information about ETERNUS Disk storage systems.
D.1.5 acarray pathscan (Command for automatically setting access paths)	acarray pathscan	Searches ETERNUS Disk storage systems to automatically set access paths.
D.1.6 acarray remove (Command for removing registration information for ETERNUS Disk storage systems)	acarray remove	Removes registration information about ETERNUS Disk storage systems.

Table D.2 List of commands for displaying information relating to ETERNUS Disk storage systems

Function	Command	Explanation
D.1.7 acinq lv (Command for displaying logical volume information)	acinq lv	Displays information about logical volumes.
D.1.8 acinq lunmap (Command for displaying LUN Mapping information)	acinq lunmap	Displays LUN mapping information.
D.1.9 acinq ag (Command for displaying a list of affinity groups)	acinq ag	Displays affinity groups for ETERNUS Disk storage systems.
D.1.10 acinq hostag (Command for displaying a list of host affinity)	acinq hostag	Displays host affinity for ETERNUS Disk storage systems.

Table D.3 List of commands for controlling logical volumes

Function	Command	Explanation
D.1.11 acinhibit set (Command for setting volume protection)	acinhibit set	Sets volume protection.
D.1.12 acinhibit unset (Command for unsetting volume protection)	acinhibit unset	Unsets volume protection.

Table D.4 List of commands for controlling REC buffer

Function	Command	Explanation
D.1.13 acrebuff set (Command for setting REC buffers)	acrebuff set	Setting REC buffers.
D.1.14 acrebuff stat (Command for displaying REC buffer status)	acrebuff stat	Displaying REC buffer status.

Table D.5 List of commands for setting up copy groups

Function	Command	Explanation
D.1.15 acgroup create (Command for creating copy groups)	acgroup create	Creates a copy group.
D.1.16 acgroup list (Command for displaying copy groups)	acgroup list	Displays the copy groups that have been set up.
D.1.17 acgroup detail (Command for displaying detailed information about copy groups)	acgroup detail	Displays the copy pairs that have been set up in copy groups.
D.1.18 acgroup remove (Command for removing copy groups)	acgroup remove	Removes copy groups.
D.1.19 acpair add (Command for adding copy pairs)	acpair add	Adds copy pairs to copy groups.
D.1.20 acpair remove (Command for removing copy pairs)	acpair remove	Removes copy pairs from copy groups.

Operation commands

Table D.6 List of commands for Advanced Copy

Function	Command	Explanation
D.1.21 acopc start (Command for starting OPC or QuickOPC copy)	acopc start	Starts OPC or QuickOPC copy.
D.1.22 acopc query (Command for displaying the status of OPC or QuickOPC copy)	acopc query	Displays the status of OPC or QuickOPC copy.
D.1.23 acopc cancel (Command for canceling OPC or QuickOPC copy)	acopc cancel	Cancels OPC or QuickOPC copy.
D.1.24 acsnap start (Command for starting SnapOPC+ copy)	acsnap start	Starts SnapOPC+ copy.
D.1.25 acsnap query (Command for displaying the status of SnapOPC+ copy)	acsnap query	Displays the status of SnapOPC+ copy.
D.1.26 acsnap cancel (Command for canceling SnapOPC+ copy)	acsnap cancel	Cancels SnapOPC+ copy.
D.1.27 acec start (Command for starting synchronous high speed copy)	acec start	Starts synchronous high speed copy.
D.1.28 acec query (Command for displaying the status of synchronous high speed copy)	acec query	Displays the status of Synchronous high speed copy
D.1.29 acec suspend (Command for suspending synchronous high speed copy)	acec suspend	Suspends synchronous high speed copy.
D.1.30 acec resume (Command for resuming synchronous high speed copy)	acec resume	Resumes suspended synchronous high speed copy.
D.1.31 acec reverse (Command for reversing synchronous high speed copy)	acec reverse	Reverses synchronous high speed copy.
D.1.32 acec change (Command for changing the mode of synchronous high speed copy)	acec change	Changes the mode of synchronous high speed copy. (only REC).

Function	Command	Explanation
D.1.33 acec cancel (Command for cancelling synchronous high speed copy)	acec cancel	Cancels Synchronous high speed copy.

Utility command

Table D.7 List of commands for Snap data volume and Snap data pool

Function	Command	Explanation
D.1.34 acsdv init (Command for initializing Snap Data Volume)	acsdv init	Initializes a snap data volume.
D.1.35 acsdv stat (Command for displaying the status of Snap Data Volume)	acsdv stat	Displays the status of a snap data volume.
D.1.36 acsdv poolstat (Command for displaying the status of Snap Data Pool)	acsdv poolstat	Displays the status of a snap data pool.

Table D.8 List of utility commands

Function	Command	Explanation
D.1.37 acutil devs (Command for displaying logical volume information)	acutil devs	Displays logical volume information.
D.1.38 acgetvolinfo (Command for displaying logical volume information)	acgetvolinfo	Displays logical volume information.
D.1.39 acutil refresh (Command for refreshing partition table)	acutil refresh	Refreshes disk partition table.

Command for collecting analysis material

Table D.9 List of commands for collecting analysis material

Function	Command	Explanation
D.1.40 acmcapture (Command for collecting analysis data)	acmcapture	Collects data for bug analysis.

D.1.1 **acarray add (Command for registering ETERNUS Disk storage system)**

NAME

acarray add - Registration of ETERNUS Disk storage systems.

SYNOPSIS

- For ETERNUS Disk storage system in the local site

```
acarray add -a DISKARRAY-NAME -ip DISKARRAY-IP -user USER -password PASSWORD -path ACCESSPATH [-xml]
```

- For ETERNUS Disk storage system in a remote site

```
acarray add -a DISKARRAY-NAME -boxid BOX-ID -remote [-xml]
```

DESCRIPTION

This command registers ETERNUS Disk storage systems.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name that is used by Express.

Specify it in 16 or less alphanumeric characters.

-ip *DISKARRAY-IP*

This option specifies the IP address of the ETERNUS Disk storage system.

An error will occur when an attempt is made to register an ETERNUS Disk storage system with the same IP address as an ETERNUS Disk storage system that has already been registered.

-user *USER*

This option specifies a following user name.

- When using ETERNUS DX60/DX80/DX90:

The user name with Administrator authorization for target storage device

- When using ETERNUS DX80 S2/DX90 S2:

The user name with Software role for target storage device

Specify the user name using a string that is between 4 and 16 characters long.

Refer to the ETERNUS Web GUI manual for more information about ETERNUS Web GUI.

-password *PASSWORD*

This option specifies the password for the user name specified with **-user** option.

-path *ACCESSPATH*

This option specifies an access path in the logical volume within the ETERNUS Disk storage system that was specified with the **"-a"** option. This is skippable.

Specify a drive letter.

Example: X:

-box-id *BOX-ID*

This option specifies the BOX-ID of the ETERNUS Disk storage system.

An error will occur when an attempt is made to register an ETERNUS Disk storage system with the same BOX-ID as an ETERNUS Disk storage system that has already been registered.

Refer to the ETERNUS Web GUI manual for more information.

-remote

This option specifies when registering the ETERNUS Disk storage system which is in a remote site.

-xml

This option displays execution results in XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acarray add -a DX80 -ip 10.12.13.14 -user root -password root -path X:  
Successful completion.
```

D.1.2 **acarray change (Command for changing ETERNUS Disk storage system name and access path)**

NAME

acarray change - Change of ETERNUS Disk storage system name and access path.

SYNOPSIS

- When changing ETERNUS Disk storage system name and access path at a local site:

```
acarray change -a DISKARRAY-NAME {-path ACCESSPATH | -new NEW-DISKARRAY-NAME} [-xml]
```

- When changing ETERNUS Disk storage system name and access path at a remote site:

```
acarray change -a DISKARRAY-NAME -new NEW-DISKARRAY-NAME -remote [-xml]
```

DESCRIPTION

This command changes ETERNUS Disk storage system name and access paths. .

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage whose name or access path is to be changed.

-path *ACCESSPATH*

This option specifies an access path for ETERNUS Disk storage system.

Specify a drive letter.

Example: Y:

-new *NEW-DISKARRAY-NAME*

This option specifies a new ETERNUS Disk storage system name to be set for the ETERNUS Disk storage system.

-remote

This option is specified when changing an ETERNUS Disk storage system at a remote site.

-xml

This option specifies execution results in XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acarray change -a DX80 path Y:  
Successful completion.
```

D.1.3 **acarray list (Command for displaying information about ETERNUS Disk storage systems)**

NAME

acarray list - Display of information on the ETERNUS Disk storage system.

SYNOPSIS

```
acarray list [-remote] [-xml]
```

DESCRIPTION

This command displays a list of ETERNUS Disk storage systems that have been registered.

OPTIONS

-remote

This option is specified when displaying the information about a device registered as remote-site ETERNUS Disk storage system.

-xml

This option displays execution results in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- Displaying ETERNUS Disk storage systems which are in a local site:

```
> acarray list
```

```
Name  BOX-ID                                     IP Address
-----
DX80  00ETERNUSDXL##ET08E21A####LN4310901078## 10.12.13.14
DX80B 00ETERNUSDXL##ET08F22A####JP0000000001## 10.12.13.15
```

The following table shows the meanings of displayed information.

Title	Explanation
Name	Displays ETERNUS Disk storage system name.
BOX-ID	Displays the BOX ID for the ETERNUS Disk storage system.
IP Address	Displays the IP address for the ETERNUS Disk storage system.

- Displaying ETERNUS Disk storage systems which are in a remote site:

```
> acarray list -remote
```

```
Name  BOX-ID
-----
DX80  00ETERNUSDXL##ET08E21A####LN4310901078##
DX80B 00ETERNUSDXL##ET08F22A####JP0000000001##
```

The following table shows the meanings of displayed information.

Title	Explanation
Name	Displays ETERNUS Disk storage system name.
BOX-ID	Displays the BOX ID for the ETERNUS Disk storage system.

D.1.4 acarray detail (Command for displaying detailed information about ETERNUS Disk storage systems)

NAME

acarray detail - Display of detailed information on the ETERNUS Disk storage system.

SYNOPSIS

```
acarray detail -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command displays a list of the ETERNUS Disk storage systems that have been registered.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-xml

This option displays execution results in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- Displaying an ETERNUS Disk storage system which is at a local site:

```
> acarray detail -a DX80
```

```
Disk Array Name : DX80
BOX-ID          : 00ETERNUSDXL##ET08E21A####LN4310901078##
IP Address      : 10.12.13.14
Admin User      : root
Access Path     : X:
```

The following table shows the meanings of displayed information.

Title	Explanation
Disk Array Name	Displays ETERNUS Disk storage system name.
BOX-ID	Displays the BOX ID for the ETERNUS Disk storage system.
IP Address	Displays the IP address for the ETERNUS Disk storage system. (NOTE)
Admin User	Displays the user name for ETERNUS Disk storage system. (NOTE) <ul style="list-style-type: none">- When using ETERNUS DX60/DX80/DX90: The user name with Administrator authorization for target storage device- When using ETERNUS DX80 S2/DX90 S2: The user name with Software role for target storage device
Access Path	Displays the access path set up for the ETERNUS Disk storage system. (NOTE)

NOTE: If the specified ETERNUS Disk storage system exists at a remote site, a hyphen (-) is displayed.

D.1.5 acarray pathscan (Command for automatically setting access paths)

NAME

acarray pathscan - Automatic settings of access paths.

SYNOPSIS

```
acarray pathscan -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command searches ETERNUS Disk storage systems to automatically set up access paths.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-xml

This option is specified when displaying the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acarray pathscan -a DX80  
Successful completion.
```

D.1.6 acarray remove (Command for removing registration information for ETERNUS Disk storage systems)

NAME

acarray remove - Removing registered information for ETERNUS Disk storage systems.

SYNOPSIS

```
acarray remove -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command removes ETERNUS Disk storage systems.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-xml

This option is specified when displaying the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acarray remove -a DX80
Successful completion.
```

D.1.7 acinq lv (Command for displaying logical volume information)

NAME

acinq lv - Display of logical volume information.

SYNOPSIS

```
acinq lv -a DISKARRAY-NAME [-free] [-l] [-xml]
```

DESCRIPTION

This command displays a list of logical volumes for ETERNUS Disk storage system.

This information can be displayed when the logical volume type is as follows.

- Open
- SDV
- Thin Provisioning Volume

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-free

This option displays a list of logical volumes that meet the following requirements.

- Not registered to an affinity group.
- Not used by LUN Mapping settings if the affinity function is disabled.

-l

This option specifies the display of extended format.

For items displayed when this option is specified, refer to the list of execution examples.

In addition, the items displayed when this option is specified could possibly be added to support new functions provided in future version.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- [When you specify the option -free]

```
> acinq lv -a DX80 -free
```

```
LV No  LV Name LV Size LV Type RG No Encrypt
```



```
-----
0x0023  vol135  1024M Open          5 -
```

- [When you do not specify the option -free]

```
> acinq lv -a DX80
```

```
LV No  LV Name LV Size LV Type RG No Encrypt
-----
0x0010 vol116   1024M Open      4 -
0x0011 vol117   1024M Open      4 -
0x0012 vol118   1024M Open      4 -
0x0013 vol119   1024M Open      2 -
0x0014 vol120   1024M Open      2 -
0x0023 vol135   1024M Open      5 -
```

- [When you specify the option -l]

```
> acinq lv -a DX80 -l
```

```
LV No  LV Name LV Size LV Type RG No Encrypt Virtual Size Copy Inhibit
-----
0x10      1024M Open      4 -          - Yes
0x11      1024M Open      4 -          - Yes
0x12      1024M Open      4 -          - Yes
0x13      1024M SDV       2 -          4096M -
0x14      1024M TPV       - -          - -
```

The following table shows the meanings of displayed information.

Title	Explanation
LV No	Displays logical volume number in hexadecimal.
LV Name	Displays logical volume alias (0 to 16 characters). (Only ETERNUS Disk storage system where an alias is put to a logical volume .)
LV Size	Displays logical volume size in Megabytes.
LV Type	Displays logical volume type. <ul style="list-style-type: none"> - Open: This refers to an "Open Volume", which means a normal volume that can be used for open systems. - SDV: This refers to a "Snap Data Volume", which means a volume that can be used as a copy destination for SnapOPC/SnapOPC+. The volume of this type cannot be used as a copy destination for OPC/QuickOPC/EC/REC. - TPV: This refers to a "Thin Provisioning Volume", which means a virtual volume that can be used for open systems.
RG No	Displays RAID group number. Hyphen (-) is displayed if "TPV" is displayed in the "LV Type" field.
Encrypt	Displays logical volume encrypted status. <ul style="list-style-type: none"> - -: Indicates an unencrypted volume. - Yes: Indicates an encrypted volume.
Virtual Size	Displays a virtual size of Snap data volume in MB. If a logical volume type is other than "SDV", hyphen (-) is displayed.
Copy Inhibit	Displays volume protection status, which is displayed only when the -l option is specified. <ul style="list-style-type: none"> - -: Volume is not protected. - Yes: Volume is protected.

Title	Explanation
	If the type of a logical volume is "SDV" or as for a device that does not support the volume protection function, hyphen (-) is displayed.

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote ETERNUS Disk storage systems.

D.1.8 acinq lunmap (Command for displaying LUN Mapping information)

NAME

acinq lunmap - Display of LUN Mapping information.

SYNOPSIS

```
acinq lunmap -a DISKARRAY-NAME -agno AFFINITY-GROUP-NO [-xml]
```

DESCRIPTION

This command displays LUN Mapping information for affinity groups.

This command cannot be used for connecting affinity groups.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system.

-agno *AFFINITY-GROUP-NO*

This option specifies an affinity group number.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acinq lunmap -a DX80 -agno 0x004
```

```
LUN    LV No  LV Name
-----
0x0000 0x0003  vol03
0x0001 0x0004  vol04
0x0002 0x0005  vol05
```

The following table shows the meanings of displayed information.

Title	Explanation
LUN	Displays logical unit number in hexadecimal.
LV No	Displays logical volume number in hexadecimal.
LV Name	Displays logical volume alias (0 to 16 characters).

Title	Explanation
	(Only ETERNUS Disk storage system where an alias is put to a logical volume)

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote ETERNUS Disk storage systems.

D.1.9 acinq ag (Command for displaying a list of affinity groups)

NAME

acinq ag - Display of a list of affinity groups.

SYNOPSIS

```
acinq ag -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command displays a list of affinity groups for ETERNUS Disk storage systems.

"Affinity groups" are management information on ETERNUS Disk storage systems that indicate the relationship between logical unit numbers (LUN), which can be recognized by the host, and logical volume numbers, which are managed within ETERNUS Disk storage systems.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acinq ag -a DX80
```

```
AG No AG Name
-----
0x000 win_78
0x001 x86_76
```

The following table shows the meanings of the information displayed.

Title	Explanation
AG No	Displays affinity group number in hexadecimal.
AG Name	Displays affinity group name.

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote ETERNUS Disk storage systems.

D.1.10 acinq hostag (Command for displaying a list of host affinity)

NAME

acinq hostag - Display of a list of host affinity.

SYNOPSIS

```
acinq hostag -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command displays host affinity for ETERNUS Disk storage systems.

"Host affinity" are management information on ETERNUS Disk storage systems that indicate the relationship between the world wide name (WWN) for the host and its affinity groups. Disks that connect to the host can be specified as host affinity.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS name.

-xml

This option is specified when displaying the result of execution command in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acinq hostag -a DX80
```

```
Host Name Port Type Address          AG No AG Name
-----
win_78_1  FC          1000006069107A5A 0x002 win_78
win_78_2  FC          100000AC340DA34F 0x003 win_78
x86_76    FC          10000045AA2C45GG 0x004 x86_76
```

The following table shows the meanings of the information displayed.

Title	Explanation
Host Name	Displays the host name or alias name. The host name is displayed for the FC-CA or the Serial Attached SCSI. The alias name is displayed for the iSCSI.
Port Type	Displays the data transfer method. FC: fibre channel connection iSCSI: iSCSI connection SAS: Serial Attached SCSI connection
Address	Displays the WWN for the connection destination. The WWN is displayed for the FC-CA. The iSCSI address is displayed for the iSCSI. The SAS address is displayed for the Serial Attached SCSI.
AG No	Displays affinity group number in hexadecimal.

Title	Explanation
AG Name	Displays affinity group name.

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote devices.

D.1.11 acinhibit set (Command for setting volume protection)

NAME

acinhibit set - Volume protection settings.

SYNOPSIS

```
acinhibit set -v Volume-Name [-xml]
```

DESCRIPTION

This command sets volume protection in order to prevent a business volume from being destroyed due to operation mistakes and others using Advanced Copy.

The following type of logical volume can be specified.

- Open(including thin provisioning)

OPTIONS

-v Volume-Name

This option specifies a logical volume.

The following is a format example to specify a logical volume.

```
DX80/0x1
┌───┬───┐
│   │   │
└───┴───┘
  (1)  (2)
```

- (1) ETERNUS Disk storage system name
- (2) Logical volume number

Extent start position and extent size cannot be specified.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminated abnormally

EXAMPLES

```
> acinhibit set -v DX80/0x1
Successful completion
```

NOTES

For the following cases, the copy volume protection function is not available.

- Logical volumes within remote ETERNUS Disk storage system
- Copy destination logical volume on which REC session exists.

D.1.12 acinhibit unset (Command for unsetting volume protection)

NAME

acinhibit unset - Volume protection unsetting.

SYNOPSIS

```
acinhibit unset -v Volume-Name [-xml]
```

DESCRIPTION

This command unsets volume protection.

The following type of logical volume can be specified.

- Open (including thin provisioning)

OPTIONS

-v Volume-Name

This option specifies a logical volume.

The following is a format example to specify a logical volume.

```
DX80/0x1
┌───┬───┐
│   │   │
└───┴───┘
  (1)  (2)
```

- (1) ETERNUS Disk storage system name
- (2) Logical volume number

Extent start position and extent size cannot be specified.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminated abnormally

EXAMPLES

```
> acinhibit unset -v DX80/0x1
Successful completion
```

NOTES

For the following case, the copy volume protection function is not available.

- Logical volume within remote ETERNUS Disk storage system

D.1.13 acrecbuf set (Command for setting REC buffers)

NAME

acrecbuf set - REC buffer settings.

SYNOPSIS

```
acrecbuf set -a DISKARRAY-NAME -id BUFFER-ID -use {SEND|RECV} [-xml]
```

DESCRIPTION

The settings of buffers used in an ETERNUS Disk storage system are changed.

To execute this command, it is required that the REC buffers have been already set.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-id *BUFFER-ID*

This option specifies a transfer buffer ID.

-use {SEND|RECV}

This option specifies the application of the buffer.

- SEND : For sending

- RECV : For receiving

-xml

This option is specified when displaying the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminated abnormally

EXAMPLES

```
> acrecbuf set -a DX90 -id 1 -use SEND
Successful completion
```

NOTES

- Set up buffers while no session exists in asynchronous Consistency mode, which is in ACTIVE or ERROR SUSPEND status.
- It takes tens of seconds to change buffer settings. Since transfer buffers are not available while their settings are changed, do not execute REC operations.
- This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.

D.1.14 acrecbuf stat (Command for displaying REC buffer status)

NAME

acrecbuf stat - Display of REC buffer status.

SYNOPSIS

```
acrecbuff stat -a DISKARRAY-NAME [-disk] [-xml]
```

DESCRIPTION

This command displays the status of buffers used in an ETERNUS Disk storage system.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-disk

This option displays the information for REC Disk buffer.

-xml

This option is specified when displaying the result of command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- [When you specify the option -disk]

```
> acrecbuff stat -a DX90 -disk
ID  Use  Rate RemoteBoxID                               DiskBuff DiskRate
-----
1   SEND 12% 00ETERNUSDXL##ET09E24AG###NP4310901018## "active"    30%
2   RECV  0% 00ETERNUSDXL##ET09E24AG###NP4310901018## "----"     ----
```

- [When you do not specify the option -disk]

```
> acrecbuff stat -a DX90
ID  Use  Rate RemoteBoxID
-----
1   SEND 12% 00ETERNUSDXL##ET09E24AG###NP4310901018##
2   RECV  0% 00ETERNUSDXL##ET09E24AG###NP4310901018##
```

The following table shows the meanings of the information displayed.

Title	Description
ID	Displays transfer buffer ID.
Use	Displays the transfer buffer attribute (application). - SEND: for sending - RECV: for receiving
Rate	Displays the buffer usage as a percentage. When the REC buffer is not available, "----" is displayed. - For sending: Displays the buffer usage as a percentage. Even if REC in asynchronous Consistency mode is not executed, the usage does not become 0 %. - For receiving: "0 %" is displayed at all times.
RemoteBoxID	Displays the BOX ID for REC ETERNUS Disk storage system.

Title	Description
DiskBuff	<p>Displays REC Disk buffer status only when -disk option is specified.</p> <ul style="list-style-type: none"> - --- : Reception transfer buffer - active : REC Disk buffer is available. - invalid : REC Disk buffer is not valid. - warning(code=xx) : REC Disk buffer is available but there is failure in a disk. - Either of the following codes is entered in code=xx. <ul style="list-style-type: none"> - 04 : Under recovery such as rebuild. (REC Disk buffer is available) - 08 : RAID making up a REC Disk buffer. Some have no redundancy. - in active(code=xx) : REC Disk buffer is not available. <ul style="list-style-type: none"> - 05 : RAID making up a REC Disk buffer is in error status. - 06 : RAID group of a REC Disk buffer is being formatted. - 07 : Copy destination does not support REC Disk buffer. - not support : REC Disk buffer is unsupported.
DiskRate	<p>If REC Disk buffer is in active or warning status, the usage is displayed as percentage, which is displayed only when -disk option is specified.</p> <p>If REC Disk buffer is not in use, "0%" is displayed.</p> <p>For other cases than the above mentioned, "---" is displayed.</p>

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.

D.1.15 acgroup create (Command for creating copy groups)

NAME

acgroup create - Creation of copy groups.

SYNOPSIS

```
acgroup create -g COPY-GROUP -type { OPC | QuickOPC | SnapOPCP | EC | REC } -a DISKARRAY-NAME [-remote REMOTE-DISKARRAY-NAME] [-xml]
```

DESCRIPTION

This command creates a copy group.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

The copy group name is an alias for the copy group that can be used with Express.

Specify copy group names using up to 64 alphanumeric characters, hyphens (-), underscores (_), hashes (#) or periods (.). The first character must be an alphanumeric character.

An error will occur when an attempt is made to create a copy group with the same name as a copy group that has already been registered.

`-type { OPC | QuickOPC | SnapOPCP | EC | REC }`

This option specifies a copy type.

Specify one of the following copy types:

- OPC
- QuickOPC
- SnapOPCP
- EC
- REC

`-a DISKARRAY-NAME`

This option specifies an ETERNUS Disk storage system name.

For REC, the access path of the ETERNUS Disk storage system specified here is used.

`-remote REMOTE-DISKARRAY-NAME`

For REC, this option specifies other ETERNUS Disk storage system name than the ETERNUS Disk storage system specified with the `-a` option.

The access path of the ETERNUS Disk storage system specified with the `-a` option is used, instead of the access path of the ETERNUS Disk storage system specified here.

`-xml`

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acgroup create -g group01 -type OPC -a DX80
Successful completion.
```

D.1.16 acgroup list (Command for displaying copy groups)

NAME

`acgroup list` - Display of copy groups.

SYNOPSIS

```
acgroup list [-xml]
```

DESCRIPTION

This command displays a list of copy groups.

OPTIONS

`-xml`

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acgroup list
```

```
CG Name  
-----  
Group01  
Group02
```

The following table shows the meaning of the information displayed.

Title	Explanation
CG Name	Displays copy group name.

D.1.17 acgroup detail (Command for displaying detailed information about copy groups)

NAME

acgroup detail - Detailed display of copy groups.

SYNOPSIS

```
acgroup detail -g COPY-GROUP [-xml]
```

DESCRIPTION

This command displays the copy pairs that have been set up to copy groups.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

- For OPC, QuickOPC, SnapOPCP and EC

```
> acgroup detail -g group01
```

```
Copy Group Name : group01  
Copy Group Type : OPC  
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

```
Pair
```

```

-----
DX80/0x1:DX80/0x6
DX80/0x2:DX80/0x7
DX80/0x3:DX80/0x8

```

The displayed content is shown next.

Title	Explanation
Copy Group Name	Displays a copy group name.
Copy Group Type	Displays the copy type set to the copy group.
Disk Array Name	Displays ETERNUS Disk storage system name and its Box ID that were specified with the "-a" option of acgroup create (Command for creating copy groups) .
Pair	Displays the copy pair that was set up.

- For REC

```
> acgroup detail -g group01
```

```

Copy Group Name      : group01
Copy Group Type      : REC
Disk Array Name      : DX90P (00ETERNUSDXL##ET09E24AG###NP4310901018##)
Remote Disk Array Name : DX90S (00ETERNUSDXL##ET09E24AG###NP4310901019##)

```

Pair

```

-----
DX90P/0x1:DX90S/0x1
DX90P/0x2:DX90S/0x2
DX90P/0x3:DX90S/0x3

```

The following table shows the meanings of the information displayed.

Title	Explanation
Copy Group Name	Displays a copy group name.
Copy Group Type	Displays the copy type set in the copy group.
Disk Array Name	Displays the ETERNUS Disk storage system name and its Box ID that were specified with the "-a" option of acgroup create (Command for creating copy groups) .
Remote Disk Array Name	Displays the ETERNUS Disk storage system name and its Box ID that were specified with the "-remote" option of acgroup create (Command for creating copy groups) .
Pair	Displays the copy pairs that have been set up.

D.1.18 [acgroup remove \(Command for removing copy groups\)](#)

NAME

`acgroup remove` - Removing copy groups.

SYNOPSIS

```
acgroup remove -g COPY-GROUP [-xml]
```

DESCRIPTION

This command removes copy groups.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminated abnormally

EXAMPLES

```
> acgroup remove -g group01
Successful completion.
```

NOTES

- Even if a copy group contains a pair, it is removed.
- Regardless of the Advanced Copy status of the pair, the copy group is removed. Therefore, check the Advanced Copy status and then remove the copy group. If you remove it accidentally, stop Advanced Copy of the pair registered in the group on ETERNUS Web GUI or create the same copy group once again to add it and then stop Advanced Copy.

D.1.19 `acpair add` (Command for adding copy pairs)

NAME

`acpair add` - Addition of copy pairs.

SYNOPSIS

```
acpair add -g COPY-GROUP -p PAIR [-xml]
```

DESCRIPTION

This command adds copy pairs to copy groups.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-p *PAIR*

This option specifies the copy pair to be added.

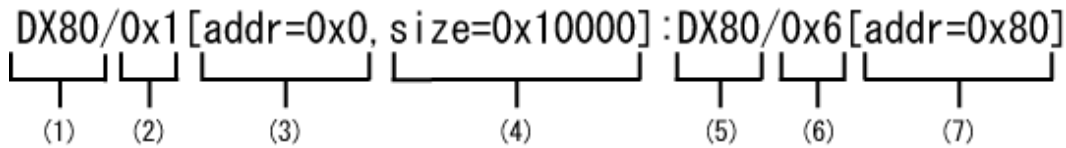
The following example shows the format for specifying copy pairs.

```
DX80/0x1:DX80/0x6
┌───┬───┬───┬───┐
│   │   │   │   │
└───┴───┴───┴───┘
  (1)  (2)  (3)  (4)
```

- (1) ETERNUS Disk storage system name for the copy source
- (2) Logical volume number for the copy source
- (3) ETERNUS Disk storage system name for the copy destination

- (4) Logical volume number for the copy destination

In addition, you can specify in LU to Partition format, as well.
The following is an example of LU to Partition format.



- (1) ETERNUS Disk storage system name for the copy source
- (2) Logical volume number for the copy source
- (3) Extent start position of the copy source (per block)
- (4) Extent size of the copy source (number of blocks)
- (5) ETERNUS Disk storage system name for the copy source
- (6) Logical volume number for the copy source
- (7) Extent start position of the copy destination (per block)

Point

.....
If it starts with "0x", it is a hexadecimal number.
.....

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acpair add -g group01 -p DX80/0x1:DX80/0x6
Successful completion.
```

The following is an example of registering a copy pair in LU to Partition format.

```
> acpair add -g group01 -p DX80/0x1[addr=0x0,size=0x10000]:DX80/0x6[addr=0x80]
Successful completion.
```

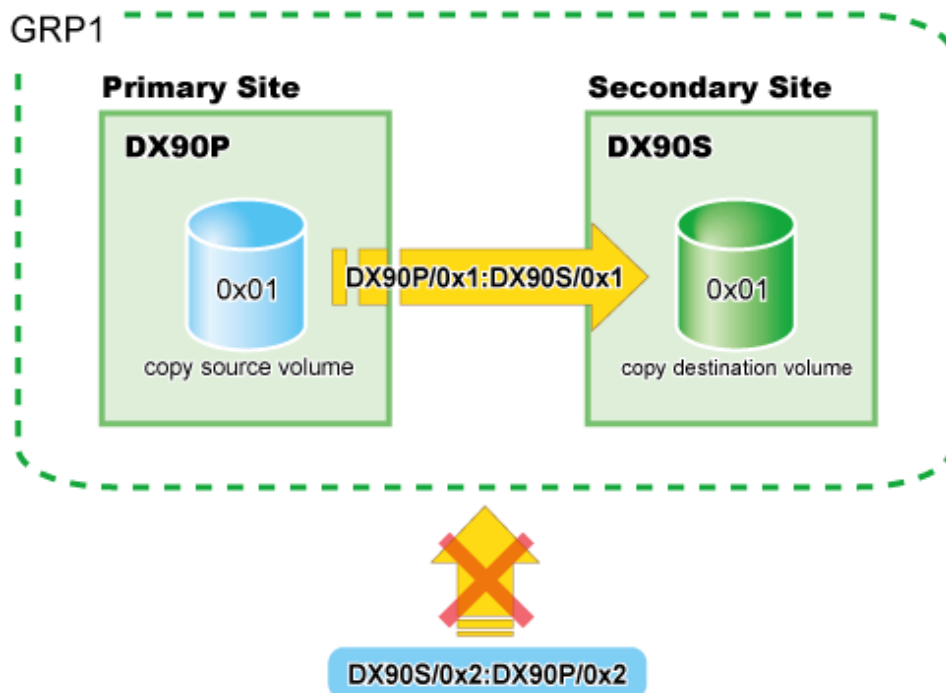
NOTES

- Make sure that the logical volumes specified for the copy source and the copy destination are of the same size.
- If the copy type is OPC, QuickOPC or EC:
 - Specify the ETERNUS Disk storage system name that was specified with the -a option of [acgroup create \(Command for creating copy groups\)](#).
 - When specifying a pair of ETERNUS Disk storage systems, specify the same ETERNUS Disk storage systems as those specified with the -a option when creating a copy group.
- If the copy type is SnapOPCP:
 - For a pair of ETERNUS Disk storage systems to be specified, specify the same ETERNUS Disk storage systems as those specified with the -a option when creating the copy group.

- If the number of copy destination volumes for the copy source volume of a specified pair exceeds the maximum number of sessions of Snapshot type Advanced Copy copies, this command ends abnormally.
- If the copy destination for the specified pair is not SDV, this command ends abnormally.
- If the copy type is REC:
 - Specify the ETERNUS Disk storage system name that was specified with either the -a or the -remote option of [acgroup create \(Command for creating copy groups\)](#).
 - Specify different ETERNUS names for the copy source and the copy destination.
 - The copy source ETERNUS Disk storage system name and the copy destination ETERNUS Disk storage system name for the copy pair being added must be the same as the copy source ETERNUS Disk storage system name and copy destination ETERNUS Disk storage system name for any copy pairs that have already been added to the copy group.
 - When specifying a pair of ETERNUS Disk storage systems, specify the same ETERNUS Disk storage systems as those specified with the -a or -remote option when creating a copy group.
 - For paired ETERNUS Disk storage systems names, specify different names for copy source and copy destination.

e.g.:

- OK: DX90P/0x50:DX90S/0x51
- NG: DX90P/0x50:DX90P/0x51
- The copy source and destination ETERNUS names for a specified pair should be the same as those for already added pair.



- If any pair in the same string exists in the group, it cannot be newly added.

Specify the same-size logical volumes for a pair you want to specify.

If you specify any logical volumes of different sizes and perform copy operation, it leads to the following results.

1. In the case of a copy-source logical volume size being larger than a copy-destination logical volume, when copy operation is executed, it will end abnormally.
2. In the case of a copy-source logical volume size being smaller than a copy-destination logical volume size, the copy will be the size of the copy-source logical volume.

D.1.20 `acpair remove` (Command for removing copy pairs)

NAME

`acpair remove` - Removing copy pairs.

SYNOPSIS

```
acpair remove -g COPY-GROUP -p PAIR [-xml]
```

DESCRIPTION

This command removes copy pairs from copy groups.

OPTIONS

`-g COPY-GROUP`

This option specifies the copy group name.

`-p PAIR`

This option specifies a copy pair to be deleted.

`-xml`

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acpair remove -g group01 -p DX80/0x1:DX80/0x6  
Successful completion.
```

Example of removing a copy pair in LU to Partition format.

```
> acpair remove -g group01 -p DX80/0x1[addr=0x0,size=0x10000]:DX80/0x6[addr=0x80]  
Successful completion
```

NOTES

Since pairs are deleted regardless of their Advanced Copy statuses, check the Advanced Copy status and then delete them. If you delete a pair accidentally, stop Advanced Copy of the pair registered on ETERNUS Web GUI or create the same pair once again and then stop Advanced Copy.

D.1.21 `acopc start` (Command for starting OPC or QuickOPC copy)

NAME

`acopc start` - Start of OPC or QuickOPC copy.

SYNOPSIS

- [For OPC copy group]

```
acopc start -g COPY-GROUP [-p PAIR] [-r] [-xml]
```


- [For QuickOPC copy group]

```
acopc start -g COPY-GROUP [-p PAIR] [-diff|-r] [-xml]
```

DESCRIPTION

This command performs OPC or QuickOPC copy to a specified copy group or copy pair.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

-p PAIR

This option specifies a copy pair.

-diff

This option starts a differential copy.

If the **-diff** option is not specified, a full copy is started.

-r

This option performs a copy in the reverse direction to the direction that has been specified.

If the copy type is QuickOPC, OPC will be executed.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acopc start -g group01
```

```
DX80/0x1:DX80/0x6
```

```
# DATE : 2008/06/24 16:28:00 - << OPC Started >>
```

```
# From:BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=1/  
Adr_high=0/Adr_low=0/size_high=0/size_low=0
```

```
# To :BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=6/  
Adr_high=0/Adr_low=0
```

```
DX80/0x2:DX80/0x7
```

```
# DATE : 2008/06/24 16:28:00 - << OPC Started >>
```

```
# From:BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=2/  
Adr_high=0/Adr_low=0/size_high=0/size_low=0
```

```
# To :BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=7/  
Adr_high=0/Adr_low=0
```

```
DX80/0x3:DX80/0x8
```

```
# DATE : 2008/06/24 16:28:00 - << OPC Started >>
```

```
# From:BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=3/  
Adr_high=0/Adr_low=0/size_high=0/size_low=0
```

```
# To :BoxID=3030453430304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=8/  
Adr_high=0/Adr_low=0
```

```
Succeeded : 3
```

```
Failed : 0
```

NOTES

- If the destination logical volume of a specified copy group or pair is protected by [acinhibit set \(Command for setting volume protection\)](#), this command terminates abnormally.

D.1.22 acopc query (Command for displaying the status of OPC or QuickOPC copy)

NAME

acopc query - Display of the status of OPC or QuickOPC copy.

SYNOPSIS

```
acopc query -g COPY-GROUP [-p PAIR] [-r] [-progress] [-xml]
```

DESCRIPTION

This command displays the status of OPC or QuickOPC copy for a specified copy group.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-p *PAIR*

This option specifies a copy pair.

-r

This option displays the status of a copy in the reverse direction to the direction that has been specified.

-progress

Displays the progress of copy processes.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- For OPC

- When the -progress option is not specified:

```
> acopc query -g Group01
```

```
Copy Group Name : Group01
```

```
Copy Group Type : OPC
```

```
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

Source	<=>	Target	SID	OPC Status	Copy Phase	Copied	Block
DX80/0x1	==>	DX80/0x3	0x21	"OPC Executing"	"Copying"		0
DX80/0x2	==>	DX80/0x4	0x22	"OPC Executing"	"Copying"		1048576

- When the `-progress` option is specified:

```
> acopc query -g Group01 -progress

Copy Group Name : Group01
Copy Group Type : OPC
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)

Source  <=> Target   Progress Copied Block Total Block
-----
DX80/0x1 ==> DX80/0x3    0%           0      1048576
DX80/0x2 ==> DX80/0x4   45%      1048576   2330168
```

- For QuickOPC

- When the `-progress` option is not specified:

```
> acopc query -g Group01

Copy Group Name : Group01
Copy Group Type : QuickOPC
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)

Source  <=> Target   SID  OPC Status      Copy Phase Copied Block
-----
DX80/0x1 ==> DX80/0x3 0x21  "OPC Executing" "Tracking"   1048576
DX80/0x2 ==> DX80/0x4 0x22  "OPC Executing" "Tracking"   1048576
```

- When the `-progress` option is specified:

```
> acopc query -g Group01 -progress

Copy Group Name : Group01
Copy Group Type : QuickOPC
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)

Source  <=> Target   Progress Copied Block Total Block
-----
DX80/0x1 ==> DX80/0x3    0%           0      1048576
DX80/0x2 ==> DX80/0x4   45%      471859   1048576
```

The following table shows the meanings of the information displayed.

Table D.10 When the `-progress` option is not specified

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and the ETERNUS name that was specified with the <code>"-a"</code> option of acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. <ul style="list-style-type: none"> - N/A: No copying is performed. - ==>: Copying from the source to the target. - <==: Copying from the target to the source.
Target	Displays the logical volume for the copy destination.
SID	Displays the session ID for the copy source.
OPC Status	Displays the execution status of the OPC.

Title	Explanation
	<ul style="list-style-type: none"> - OPC Starting: The OPC is starting up. - OPC Executing: The OPC is executing. - OPC action not startup: The specified session does not exist. - OPC Error Suspend: An error has occurred, preventing the copy process from continuing.
Copy Phase	Displays the current phase. <ul style="list-style-type: none"> - Copying: Copy processing is executing. - Tracking: Copy processing has completed, and tracking is in progress. - Copying/Tracking: Both copy processing and tracking are in progress. - Not set: Copy processing has not been performed.
Copied Block	Displays the number of blocks that have been copied.

Table D.11 When the -progress option is specified

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and the ETERNUS name that was specified with the "-a" option of the acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. <ul style="list-style-type: none"> - N/A: No copying is performed. - ==>: Copying from the source to the target - <==: Copying from the target to the source
Target	Displays the logical volume for the copy destination.
Progress	Displays the progress of copy processes as a percentage. The "N/A" is displayed when the copy process is not executed. If the progress of copy process is unclear, "???" is displayed.
Copied Block	Displays the number of blocks that have been copied. The "N/A" is displayed when the copy process is not executed. If the number of copied blocks is unclear, "???" is displayed.
Total Block	Displays the number of total blocks. If the entire copy block size is unclear, "???" is displayed.

NOTES

- Information such as Copy direction data and SID data may be displayed as "???".
- It is possible that the access path is incorrect. Therefore, check it using [acarray detail \(Command for displaying detailed information about ETERNUS Disk storage systems\)](#).
- For details on how to correctly set the access path, refer to "6.4.1.1 Access Path Settings".
- If the copy type of a copy group is EC, REC or SnapOPCP, this command ends abnormally.

D.1.23 acopc cancel (Command for canceling OPC or QuickOPC copy)

NAME

acopc cancel - Cancellation of OPC or QuickOPC copy.

SYNOPSIS

- [For OPC copy group]

```
acopc cancel -g COPY-GROUP [-p PAIR] [-r] [-xml]
```

- [For QuickOPC copy group]

```
acopc cancel -g COPY-GROUP [-p PAIR] [-r] [-force] [-xml]
```

DESCRIPTION

This command cancels OPC or QuickOPC to a specified copy group or copy pair.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-p *PAIR*

This option specifies a copy pair.

-r

This option stops copying.

-force

This option stops physical copying and tracking.

If this option is not specified, only tracking is stopped. The physical copying currently being executed is continued.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acopc cancel -g group01
DX80/0x1:DX80/0x6
# DATE : 2008/06/24 16:28:00 - << OPC Disconnected >>

DX80/0x2:DX80/0x7
# DATE : 2008/06/24 16:28:00 - << OPC Disconnected >>

DX80/0x3:DX80/0x8
# DATE : 2008/06/24 16:28:00 - << OPC Disconnected >>

Succeeded : 3
Failed    : 0
```

D.1.24 acsnap start (Command for starting SnapOPC+ copy)

NAME

acsnap start - Start of SnapOPC+ copy.

SYNOPSIS

```
acsnap start -g COPY-GROUP [-p PAIR | -v VOLUME-NAME] [-r] [-xml]
```

[When starting the estimation of the amount of snap data volume updates:]

```
acsnap start -estimate -v VOLUME-NAME [-xml]
```

DESCRIPTION

This command starts SnapOPC+ copy to a specified copy group or copy pair.

It also can start to estimate the number of updated blocks generated for the copy source volume.

1. If the `-p` option is not specified, a copy destination is automatically selected and Snapshot type copy is started.
If all copy destination volumes are generation-managed, the oldest snap generation is cancelled and selected as a copy destination.
2. If the `-p` option is specified, Snapshot type copy is started onto a specified copy destination.
If a past snap generation (excluding the oldest snap generation) is specified as a copy destination, this command ends abnormally.
3. If the `-v` option is specified, a copy destination for the specified copy source is automatically selected.

OPTIONS

`-g COPY-GROUP`

This option specifies a copy group name.

`-p PAIR`

This option specifies a copy pair.

`-r`

This option performs a copy in the reverse direction to the direction that has been specified.

The latest snap generation is selected as a copy source when a copy pair is not specified.

`-v VOLUME-NAME`

This option specifies a copy source logical volume. The copy destination is automatically selected.

Also when starting to estimate the amount of snap data volume updates, specify a copy-source logical volume.

The following is an example of a format to specify a logical volume.

DX80/0x1
┌───┬───┐
└───┴───┘
 (1) (2)

- (1) ETERNUS Disk storage system name

- (2) Logical volume number

In addition, you can specify extent start position and extent size, as well.

DX80/0x1[addr=0x0,size=0x99]
┌───┬───┬───┬───┐
└───┴───┴───┴───┘
 (1) (2) (3) (4)

- (1) ETERNUS Disk storage system name
- (2) Logical volume number
- (3) Extent start position (per block)
- (4) Extent size (number of blocks)

A string starting with "0x" represents a hexadecimal number.

-estimate

This option estimates the amount of snap data volume updates.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acsnap start -g group01

DX80/0x1:DX80/0x6
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Started >>

DX80/0x2:DX80/0x7
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Started >>

DX80/0x3:DX80/0x8
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Started >>

Succeeded : 3
Failed    : 0
```

[When starting to estimate the amount of snap data volume updates:]

```
> acsnap start -estimate -v DX80/0x1
Successful completion
```

NOTES

- When the copy type of a copy group is OPC, QuickOPC, EC or REC, this command ends abnormally.
- This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.
- If the destination logical volume of a specified copy group or copy pair is protected by [acinhibit set \(Command for setting volume protection\)](#), this command terminates abnormally.

D.1.25 acsnap query (Command for displaying the status of SnapOPC+ copy)

NAME

acsnap query - Display of the status of SnapOPC+ copy.

SYNOPSIS

```
acsnap query -g COPY-GROUP [-p PAIR] [-r] [-xml]
```

[When referring the estimation of the amount of snap data volume updates:]

```
acsnap query -estimate -v VOLUME-NAME [-xml]
```

DESCRIPTION

This command displays the status of a specified copy group or copy pair.

You can also refer to the number of updated blocks generated for the copy-source volume.

OPTIONS

-g *COPY-GROUP*

- This option specifies a copy group name.

-p *PAIR*

This option specifies a copy pair.

-r

This option displays the status of a copy in the reverse direction to the direction that has been specified.

-estimate

This option estimates the amount of snap data volume updates.

-v *VOLUME-NAME*

When referring to the estimation of the amount of snap data volume updates, specify a copy-source logical volume.

The following is an example of a format to specify a logical volume.

DX80/0x1

(1) (2)

- (1) ETERNUS Disk storage system name

- (2) Logical volume number

In addition, you can specify extent start position and extent size, as well.

DX80/0x1 [addr=0x0,size=0x99]

(1) (2) (3) (4)

- (1) ETERNUS Disk storage system name

- (2) Logical volume number

- (3) Extent start position (per block)

- (4) Extent size (number of blocks)

A string starting with "0x" represents a hexadecimal number.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
C:\>acsnap query -g Group01
```

```
Copy Group Name : Group01
```

```
Copy Group Type : SnapOPCP
```

```
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

Source	<=>	Target	SID	Snap Status	Gen Date	Copied Block
DX80/0x1	==>	DX80/0x5	0x23	"Copy On Write(Active)"	3 10minute	1048576
DX80/0x1	==>	DX80/0x4	0x22	"Copy On Write(Inactive)"	2 3hour	1048576
DX80/0x1	==>	DX80/0x3	0x21	"Copy On Write(Inactive)"	1 1day	1048576

The following table shows the meanings of the information displayed.

Title	Explanation
Source	Displays a copy-source logical volume.
<=>	Displays a copy direction. The following information is displayed. <ul style="list-style-type: none"> - N/A: No copy process is executed. - ==>: Copy process from source to target. - <==: Copy process from target to source.
Target	Displays a copy-destination logical volume.
SID	Displays a copy source session ID.
Snap Status	Displays Snapshot type executed status. Snap execution statuses are as follows. * If the -r option is specified, no information is displayed here. <ul style="list-style-type: none"> - Snap action not startup: No specified session exists. - Copy On Write(Active): Snapshot type is in process. (Latest snap generation). - Copy On Write(Inactive): Snapshot type is in process. (Past snap generations). - Snap Error Suspend: Error that cannot continue copy process occurred.
OPC Status	Displays OPC executed status. OPC execution statuses are as follows. * Only when -r option is specified, this information is displayed. <ul style="list-style-type: none"> - OPC action not startup: No specified session exists. - OPC Starting: OPC is being started. (OPC logical copy is in boot process.) - OPC Executing: OPC is in process. (OPC logical copy completed, physical copy being in process.) - OPC Error Suspend: Error that cannot continue copy process occurred.
Copy Phase	Displays the current phase. * If the -r option is specified, no information is displayed here. <ul style="list-style-type: none"> - No set: No copy process is executed. - Copying: Copy is in process.
Date	Displays the elapsed time of Snapshot type copy execution. * If the -r option is specified, no information is displayed here. The output format is as follows. <ul style="list-style-type: none"> - N/A: No copy process is being executed. - Less than 1H: Displayed on a per minute basis. - Less than 24H: Displayed on a per hour basis.

Title	Explanation
	- 24H or more: Displayed on a per day basis. * If below one minute, it is displayed as "0minute".
Gen	Displays snap generation numbers. * If the -r option is specified, no information is displayed here. For snap generation numbers, 1 is the oldest and as the number is larger, it shows more new generations. * If no copy process is executed, it is displayed as "N/A".
Copied Block	Displays the number of copied blocks. * If no copy process is executed, it is displayed as "N/A". If the number of copied blocks is unclear, "???" is displayed.

[When referring to the amount of snap data volume updates:]

```
C:\>acsnap query -estimate -v DX80/0x1
Update
-----
    10M
```

The following table shows the meanings of the information displayed.

Title	Explanation
Update	Displays the amount of snap data volume updates in MB.

NOTES

- Information such as Copy direction data and SID data may display as "???". It is possible that the copy-source logical volume size and copy-destination logical volume size are different or the access path is incorrect. Check the size of their logical volumes. If it is different, register the copy pair that the copy-source logical volume size and copy-destination logical volume size are same. And, check the access path using [D.1.4 acarray detail \(Command for displaying detailed information about ETERNUS Disk storage systems\)](#) details on how to correctly set the access path, refer to "[6.4.1.1 Access Path Settings](#)".
- If the copy group type is OPC, QuickOPC, EC or REC, this command ends abnormally. This command is not available for ETERNUS Disk storage systems registered as remote disk storage system.
- Copy-source logical volumes and snap generation numbers are sorted when displayed. (However, a pair that has no session is displayed at the bottom of the sort column.)

D.1.26 acsnap cancel (Command for canceling SnapOPC+ copy)

NAME

acsnap cancel - Cancellation of SnapOPC+ copy.

SYNOPSIS

```
acsnap cancel -g COPY-GROUP [-p PAIR | -v VOLUME-NAME] [-r | -force] [-xml]
```

[When cancelling the estimation of the amount of snap data volume updates:]

```
acsnap cancel -estimate -v VOLUME-NAME [-xml]
```

DESCRIPTION

This command cancels SnapOPC+ copy for a specified copy group or copy pair.

It is also possible to cancel the estimation of the number of updated blocks generated for the copy-source volume.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

-p PAIR

This option specifies a copy pair.

- If neither a pair nor the **-force** option is specified, the copy process of the oldest snap generation is cancelled.
- If a pair is not specified but the **-force** option is specified, the copy process of the latest snap generation is cancelled.

If **-p** option is specified at restore with **-r** option of the **acsnap start** command, specify also **-p** option at cancellation with this command.

-v VOLUME-NAME

The copy process of a specified logical volume is cancelled.

- If the **-force** option is not specified, the copy process of the oldest snap generation is cancelled.
- If the **-force** option is specified, the copy process of the latest snap generation is cancelled.
- If the **-r** option is specified, the restore process of the latest snap generation is cancelled.

Also, when cancelling the estimation of the amount of snap data volume updates, specify a copy-source logical volume.

The following is an example of a format to specify a logical volume.

DX80/0x1
└──┬──┘ └──┬──┘
 | | | |
 └──┬──┘ └──┬──┘
 (1) (2)

- (1) ETERNUS Disk storage system name
- (2) Logical volume number

In addition, you can specify extent start position and extent size, as well.

DX80/0x1 [addr=0x0,size=0x99]
└──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘
 | | | | | | | |
 └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘
 (1) (2) (3) (4)

- (1) ETERNUS Disk storage system name
- (2) Logical volume number
- (3) Extent start position (per block)
- (4) Extent size (number of blocks)

A string starting with "0x" represents a hexadecimal number.

-r

This option stops copying in the reverse direction to the direction that has been specified.

-force

This option forcibly stops SnapOPC+ session.

All the snap generations of a specified copy pair are stopped.

If no pair is specified, SnapOPC+ copy is forcibly cancelled for the latest snap generation, so that all snap generations are stopped.

This option is specifiable even if there is only one snap generation.

-estimate

This option estimates the amount of snap data volume updates.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acsnap cancel -g group01
```

```
DX80/0x1:DX80/0x6  
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Disconnected >>
```

```
DX80/0x2:DX80/0x7  
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Disconnected >>
```

```
DX80/0x3:DX80/0x8  
# DATE : 2008/06/24 16:28:00 - << SnapOPCP Disconnected >>
```

```
Succeeded : 3  
Failed    : 0
```

[When cancelling the estimation of the amount of snap data volume updates:]

```
> acsnap cancel -v DX80/0x1  
Successful completion
```

NOTES

- If the copy type of a copy group is OPC, QuickOPC, EC or REC, this command ends abnormally.
- This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.
- When specifying a pair of the past snap generations (excluding the oldest snap generation) with the -p option, specify the -force option.
- If the -p option and the -r option are specified when starting copy with "[acsnap start \(Command for starting SnapOPC+ copy\)](#)", specify only the -p option at cancellation with this command.

D.1.27 acec start (Command for starting synchronous high speed copy)

NAME

acec start - Start of synchronous high speed copy.

SYNOPSIS

- [When the copy type set in the copy group is EC]

```
acec start -g COPY-GROUP [-p PAIR] [-r] [-xml]
```

- [When the copy type set in the copy group is REC]

```
acec start -g COPY-GROUP [-p PAIR] [-r] [-transfer {sync[-split {auto|manual}]|through|consist|  
stack}] [-recovery {auto|manual}] [-skip] [-xml]
```

DESCRIPTION

This command starts synchronous high speed copy to a specified copy group or copy pair.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group name.

-p *PAIR*

This option specifies a copy pair.

-r

This option performs a copy in the reverse direction to the direction that has been specified.

-transfer {sync [-split {auto|manual}][through|consist|stack]}

This option specifies a transfer mode. (Only for REC)

The default mode is "stack".

- sync: Synchronous mode

This option specifies the split mode when sync was specified with the "-transfer" option. (Only for REC)

-split

The default mode is "auto".

- auto: Automatic Split

- manual: Manual Split

- through: Through mode

- consist: Consistency mode

- stack: Stack mode

-recovery {auto|manual}

This option specifies recovery mode. (Only for REC)

The default mode is "auto".

- auto: Automatic Recovery

- manual: Manual Recovery



See

Refer to "[Recovery mode](#)" for details of each mode.

-skip

This option is specified when the synchronous process is suspended by using the initial copy skip function.

This option is effective only when the synchronous high-speed copy for intra-box is started.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acec start -g group01
```

```
DX80/0x1:DX80/0x6
```

```
# DATE : 2008/06/24 16:28:00 - << EC Started >>
# From:BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=1/
Adr_high=0/Adr_low=0/size_high=0/size_low=0
# To :BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=6/
Adr_high=0/Adr_low=0
```

```
DX80/0x2:DX80/0x7
```

```
# DATE : 2008/06/24 16:28:00 - << EC Started >>
# From:BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=2/
Adr_high=0/Adr_low=0/size_high=0/size_low=0
# To :BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=7/
Adr_high=0/Adr_low=0
```

```
DX80/0x3:DX80/0x8
```

```
# DATE : 2008/06/24 16:28:00 - << EC Started >>
# From:BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=3/
Adr_high=0/Adr_low=0/size_high=0/size_low=0
# To :BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=8/
Adr_high=0/Adr_low=0
```

```
Succeeded : 3
```

```
Failed : 0
```

NOTES

If the destination logical volume of a specified copy group or pair is protected by [acinhibit set \(Command for setting volume protection\)](#), this command terminates abnormally.

D.1.28 acec query (Command for displaying the status of synchronous high speed copy)

NAME

acec query - Display of the status of synchronous high speed copy.

SYNOPSIS

```
acec query -g COPY-GROUP [-p PAIR] [-progress] [-r] [-xml]
```

DESCRIPTION

This command displays the status of synchronous high speed copy of a specified copy group or copy pair.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

-p PAIR

This option specifies a copy pair.

-progress

This option displays the progress of copy processes.

-r

This option displays the status of a copy in the reverse direction to the direction that has been specified.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- For EC

- When the -progress option is not specified:

```
> acec query -g ECGroup
```

```
Copy Group Name : ECGroup
```

```
Copy Group Type : EC
```

```
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

```
Source  <=> Target  SID  EC Status  Copy Phase Copied Block
-----
DX80/0x1 N/A DX80/0x3 N/A  "EC action not startup" "Not set" 0
DX80/0x2 ==> DX80/0x4 0x41 "EC Executing" "Copying" 1048576
```

The following table shows the meanings of the information displayed.

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and ETERNUS name that was specified the "-a" option of the acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. <ul style="list-style-type: none">- N/A: No copying is performed.- ==>: Copying from the source to the target.- <==: Copying from the target to the source.
Target	Displays the logical volume for the copy destination.
SID	Displays the session ID.
EC Status	Displays the execution status of the EC. <ul style="list-style-type: none">- EC Starting: The EC is starting up.- EC Executing: The EC is executing.- EC Suspend: The EC is suspended.- EC action not startup: The specified session does not exist.- EC Error Suspend: An error has occurred, preventing the copy process from continuing.
Copy Phase	Displays the current phase. <ul style="list-style-type: none">- Copying: Copy processing is executing.

Title	Explanation
	<ul style="list-style-type: none"> - Paired: The copy is in an equivalency maintenance state. - Not set: Either the specified session does not exist, or the copy process is not running.
Copied Block	Displays the number of blocks that have been copied.

- When the -progress option is specified:

```
> acec query -g ECGroup -progress
```

```
Copy Group Name : ECGroup
Copy Group Type : EC
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

```
Source  <=> Target   Progress Copied Block Total Block
-----
DX80/0x1 N/A DX80/0x3      N/A         N/A         N/A
DX80/0x2 ==> DX80/0x4    45%        471859     1048576
```

The following table shows the meanings of the information displayed.

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and ETERNUS name that was specified the "-a" option of acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. <ul style="list-style-type: none"> - N/A: No copying is performed. - ==>: Copying from the source to the target. - <==: Copying from the target to the source.
Target	Displays the logical volume for the copy destination.
Progress	Displays the progress of copy processes as a percentage. The "N/A" is displayed when the copy process is not executed. If the progress of copy process is unclear, "???" is displayed.
Copied Block	Displays the number of blocks that have been copied. The "N/A" is displayed when the copy process is not executed. If the number of copied blocks is unclear, "???" is displayed.
Total Block	Displays the number of total blocks. If the entire copy block size is unclear, "???" is displayed.

- For REC

- When the -progress option is not specified:

```
> acec query -g RECGroup
```

```
Copy Group Name      : RECGroup
Copy Group Type      : REC
Disk Array Name      : DX90P (00ETERNUSDXL##ET09E24AG####NP4310901018##)
Remote Disk Array Name : DX90S (00ETERNUSDXL##ET09E24AG####NP4310901019##)
```

```
Source  <=> Target   SID(RSID)  EC Status          Copy Phase Copied Block Rcv Split Xfer
```



```

-----
DX90P/0x1 N/A DX90S/0x6 N/A      "EC action not startup" "Not set"          0 ----
DX90P/0x2 ==> DX90S/0x7 0x4A(0x11) "EC Executing"          "Copying"          0 auto ----
through
DX90P/0x3 ==> DX90S/0x8 0x4C(0x13) "EC Suspend"          "Paired"          1048576 auto ----
through

```

The following table shows the meanings of the information displayed.

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and ETERNUS name that was specified with the "-a" option of acgroup create (Command for creating copy groups) .
Remote Disk Array Name	Displays the Box ID and ETERNUS name that was specified with the "-remote" option of acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. <ul style="list-style-type: none"> - N/A: No copying is performed. - ==>: Copying from the source to the target. - <==: Copying from the target to the source.
Target	Displays the logical volume for the copy destination.
SID(RSID)	Displays the Session ID of the ETERNUS Disk storage system (i.e. the Disk Array Name) and the Session ID of the Remote ETERNUS Disk storage system (i.e. the Remote Disk Array Name).
EC Status	Displays the execution status of the EC. <ul style="list-style-type: none"> - EC Starting: The EC is starting up. - EC Executing: The EC is executing. - EC Suspend: The EC is suspended - EC action not startup: The specified session does not exist. - EC Error Suspend: An error has occurred, preventing the copy process from continuing. - EC Hardware Suspend: The EC has paused because of a hardware error, such as a problem with the path between hardware devices. - EC Hardware Suspend(Use REC DISK): REC DISK buffer is in use due to a path error between hardware devices.
Copy Phase	Displays the current phase. <ul style="list-style-type: none"> - Copying: Copy processing is executing. - Paired: The copy is in an equivalency maintenance state. - Not set: Either the specified session does not exist, or the copy process is not running.
Copied Block	Displays the number of blocks that have been copied.
Recovery	Displays the recovery mode for REC copies. <ul style="list-style-type: none"> - auto: Indicates that the recovery mode is "Automatic". - manual: Indicates that the recovery mode is "Manual".

Title	Explanation
	- ----: Indicates that a REC copy is not being performed.
Split	Displays the split mode for REC copies. - auto: Indicates that the split mode is "Automatic". - manual: Indicates that the split mode is "Manual". - ----: Indicates that either a REC copy is not being performed or that the mode is not synchronous mode.
Xfer	Displays the transfer mode for REC copies. - sync: Indicates that the transfer mode is "synchronous". - through: Indicates that the transfer mode is "through". - consist: Indicates that the transfer mode is "consistency". - stack: Indicates that the transfer mode is "stack". - ----: a REC copy is not being performed.

- When the -progress option is specified:

```
> acec query -g RECGroup -progress
```

```
Copy Group Name      : RECGroup
Copy Group Type      : REC
Disk Array Name      : DX90P (00ETERNUSDXL##ET09E24AG###NP4310901018##)
Remote Disk Array Name : DX90S (00ETERNUSDXL##ET09E24AG###NP4310901019##)
```

```
Source  <=> Target  Progress Copied Block Total Block
-----
DX90P/0x1 N/A DX90S/0x6      N/A          N/A          N/A
DX90P/0x2 ==> DX90S/0x7      45%          471859      1048576
DX90P/0x3 ==> DX90S/0x8      100%         1048576     1048576
```

The following table shows the meanings of the information displayed.

Title	Explanation
Copy Group Name	Displays the copy group name.
Copy Group Type	Displays the type of copy that has been set up for the copy group.
Disk Array Name	Displays the Box ID and ETERNUS name that was specified with the "-a" option of acgroup create (Command for creating copy groups) .
Remote Disk Array Name	Displays the Box ID and ETERNUS name that was specified with the "-remote" option of acgroup create (Command for creating copy groups) .
Source	Displays the logical volume for the copy source.
<=>	Displays the copy direction. - N/A: No copying is performed - ==>: Copying from the source to the target - <==: Copying from the target to the source
Target	Displays the logical volume for the copy destination.
Progress	Displays the progress of copy processes as a percentage. The "N/A" is displayed when the copy process is not executed. If the progress of copy process is unclear, "???" is displayed.

Title	Explanation
Copied Block	Displays the number of blocks that have been copied. The "N/A" is displayed when the copy process is not executed. If the number of copied blocks is unclear, "???" is displayed.
Total Block	Displays the number of total blocks. If the entire copy block size is unclear, "???" is displayed.

NOTES

- Information such as Copy direction data and SID data may be displayed as "???".
- It is possible that the access path is incorrect. Therefore, check it using [acarray detail \(Command for displaying detailed information about ETERNUS Disk storage systems\)](#).
- For details on how to correctly set the access path, refer to "6.4.1.1 Access Path Settings".
- If the copy type of a copy group is OPC, QuickOPC or SnapOPCP, this command ends abnormally.

D.1.29 acec suspend (Command for suspending synchronous high speed copy)

NAME

acec suspend - Suspending synchronous high speed copy.

SYNOPSIS

- [For EC copy group]


```
acec suspend -g COPY-GROUP [-p PAIR | -concur] [-r] [-xml]
```
- [For REC copy group]


```
acec suspend -g COPY-GROUP [-p PAIR] [-r] [-force] [-xml]
```

```
acec suspend -g COPY-GROUP -concur [-r] [-xml]
```

DESCRIPTION

This command suspends synchronous high speed copy of a specified copy group or copy pair.

OPTIONS

- g *COPY-GROUP*
This option specifies a copy group.
- p *PAIR*
This option specifies a copy pair.
- r
This option temporarily suspends copying in the direction opposite to the specified one.
- force
This option forcibly and temporarily suspends the REC session.

-concur

This option suspends synchronous high-speed copy using the Concurrent suspension function.

When the copy type of the copy group is REC, this option can be specified only if the transfer mode is not Stack mode and an ETERNUS Disk storage system specified as an access path is copy-source.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

- Suspending synchronous high-speed copy (no using the Concurrent suspension function)

```
> acec suspend -g group01
```

```
DX80/0x1:DX80/0x6
```

```
# DATE : 2008/06/24 16:28:00 - << EC Suspended >>
```

```
DX80/0x2:DX80/0x7
```

```
# DATE : 2008/06/24 16:28:00 - << EC Suspended >>
```

```
DX80/0x3:DX80/0x8
```

```
# DATE : 2008/06/24 16:28:00 - << EC Suspended >>
```

```
Succeeded : 3
```

```
Failed    : 0
```

- Suspending synchronous high-speed copy using the Concurrent suspension function

```
> acec suspend -g group01 -concur
```

```
Successful completion.
```

NOTES

- The following message may be displayed when this command is executed by specifying -concur option for the REC copy group.

```
ccm5004 Operation failed. function=stxcec.SUSPEND.concur, message=STXC1002 ERROR Invalid  
logical volume name. Volume name=(0xa@00ETERNUSDXL##ET09E24AG###NP4310901018##).
```

Check that an ETERNUS Disk storage system of the copy source is not registered as a remote device, if the above message is displayed. When an ETERNUS Disk storage system of the copy source is not registered as a remote device, execute the command again after the re-registration the ETERNUS Disk storage system of the copy source.

- If the copy type of a copy group is OPC, QuickOPC or SnapOPCP, this command ends abnormally.

D.1.30 acec resume (Command for resuming synchronous high speed copy)

NAME

acec resume - Resuming synchronous high speed copy.

SYNOPSIS

- [For EC copy groups]

```
acec resume -g COPY-GROUP [-p PAIR] [-r] [-xml]
```

- [For REC copy groups]

```
acec resume -g COPY-GROUP [-p PAIR] [-r] [-remain] [-xml]
```

DESCRIPTION

This command resumes synchronous high speed copy of a specified copy group or copy pair.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

-p PAIR

This option specifies a copy pair.

-r

This option resumes copying in the reverse direction to the direction that has been specified.

-remain

This option resumes synchronous high-speed copy for the copy group or copy pair suspended by using the initial copy skip function.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acec resume -g group01
```

```
DX80/0x1:DX80/0x6
```

```
# DATE : 2008/06/24 16:28:00 - << EC Resumed >>
```

```
DX80/0x2:DX80/0x7
```

```
# DATE : 2008/06/24 16:28:00 - << EC Resumed >>
```

```
DX80/0x3:DX80/0x8
```

```
# DATE : 2008/06/24 16:28:00 - << EC Resumed >>
```

```
Succeeded : 3
```

```
Failed    : 0
```

NOTES

- If the destination logical volume of a specified copy group or pair is protected by [acinhibit set \(Command for setting volume protection\)](#), this command terminates abnormally.

D.1.31 acec reverse (Command for reversing synchronous high speed copy)

NAME

acec reverse - Reversing synchronous high speed copy.

SYNOPSIS

```
acec reverse -g COPY-GROUP [-p PAIR] [-r] [-xml]
```

DESCRIPTION

This command reverses the direction of synchronous high speed copy of a specified copy group or copy pair.

OPTIONS

-g COPY-GROUP

This option specifies a copy group name.

Only the following types of copy set to the copy group can be specified:

- EC
- REC

-p PAIR

This option specifies a copy pair.

-r

This option reverses the copying in the reverse direction to the direction that has been specified, so that the copy direction becomes the direction that has been specified.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acec reverse -g group01
```

```
DX80/0x1:DX80/0x6  
# DATE : 2008/06/24 16:28:00 - << EC Change >>
```

```
DX80/0x2:DX80/0x7  
# DATE : 2008/06/24 16:28:00 - << EC Change >>
```

```
DX80/0x3:DX80/0x8  
# DATE : 2008/06/24 16:28:00 - << EC Change >>
```

```
Succeeded : 3  
Failed    : 0
```

D.1.32 acec change (Command for changing the mode of synchronous high speed copy)

NAME

acec change - Change of the mode of synchronous high speed copy.

SYNOPSIS

```
acec change -g COPY-GROUP [-p PAIR] [-r] [-transfer {sync[-split {auto|manual}]|through|consist|stack}] [-recovery {auto|manual}] [-xml]
```

DESCRIPTION

This command changes the mode of synchronous high speed copy of a specified copy group or copy pair.

This command is only enabled when the copy type set to the copy group is REC.

OPTIONS

-g *COPY-GROUP*

This option specifies a copy group.

-p *PAIR*

This option specifies a copy pair.

-r

This option changes the mode for reverse-direction copy.

-transfer {sync [-split {auto|manual}]|through|consist|stack}

This option specifies a transfer mode.

- sync: Synchronous mode

This option specifies Split mode when sync was specified with the "-transfer" option.

-split

- auto: Automatic Split

- manual: Manual Split

- through: Through mode

- consist: Consistency mode

- stack: Stack mode

-recovery

This option specifies Recovery mode.

- auto: Automatic Recovery

- manual: Manual Recovery



See

.....
Refer to "[Recovery mode](#)" for details of each mode.
.....

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminated abnormally

EXAMPLES

```
> acec change -g group01 -transfer sync

DX90P/0x1:DX90S/0x1
# DATE : 2008/06/24 16:28:00 - << EC Change >>

DX90P/0x2:DX90S/0x2
# DATE : 2008/06/24 16:28:00 - << EC Change >>

DX90P/0x3:DX90S/0x3
# DATE : 2008/06/24 16:28:00 - << EC Change >>

Succeeded : 3
Failed    : 0
```

NOTE

- If the transfer mode of REC is Consistency mode or Stack mode, specify the `-force` option for [acec suspend \(Command for suspending synchronous high speed copy\)](#) to suspend REC session forcibly and then execute this command.

D.1.33 acec cancel (Command for cancelling synchronous high speed copy)

NAME

acec cancel - Canceling synchronous high speed copy.

SYNOPSIS

```
acec cancel -g COPY-GROUP [-p PAIR] [-r] [-force] [-xml]
```

DESCRIPTION

This command cancels synchronous high speed copy of a specified copy group or copy pair.

OPTIONS

`-g COPY-GROUP`

This option specifies a copy group name.

`-p PAIR`

This option specifies a copy pair.

`-r`

This option cancels copying in the reverse direction to the direction that has been specified.

`-force`

This option forcibly stops the session.

`-xml`

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acec cancel -g group01

DX80/0x1:DX80/0x6
# DATE : 2008/06/24 16:28:00 - << EC Disconnected >>

DX80/0x2:DX80/0x7
# DATE : 2008/06/24 16:28:00 - << EC Disconnected >>

DX80/0x3:DX80/0x8
# DATE : 2008/06/24 16:28:00 - << EC Disconnected >>

Succeeded : 3
Failed    : 0
```

D.1.34 acsdv init (Command for initializing Snap Data Volume)

NAME

acsdv init - Initialization of snap data volume.

SYNOPSIS

```
acsdv init -v VOLUME-NAME [-xml]
```

DESCRIPTION

This command initializes Snap Data Volume.

Initialization of snap data volume is suspended when Snapshot type processes are in progress.

OPTIONS

-v *VOLUME-NAME*

This option specifies a logical volume.

The following is an example of a format to specify a logical volume.

```
DX80/0x1
┌───┬───┐
│   │   │
└───┴───┘
  (1)  (2)
```

- (1) ETERNUS Disk storage system name

- (2) Logical volume number

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acsdv init -v DX80/0x1
Successful completion
```

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.

D.1.35 acsdv stat (Command for displaying the status of Snap Data Volume)

NAME

acsdv stat - Display of the status of a snap data volume.

SYNOPSIS

```
acsdv stat -v VOLUME-NAME [-xml]
```

DESCRIPTION

This command displays the status of a snap data volume.

OPTIONS

-v *VOLUME-NAME*

This option specifies a logical volume.

The following is an example of a format to specify a logical volume.

```
DX80/0x1
┌───┬───┐
│   │   │
└───┴───┘
  (1)  (2)
```

- (1) ETERNUS Disk storage system name

- (2) Logical volume number

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acsdv stat -v DX80/0x1
```

```
Rate Logical Physical Used Copy Host Pool
-----
0% 8388608 1048576 0 0 0 0
```

The following table shows the meanings of the information displayed.

Title	Explanation
Rate	Displays the usage of a snap data volume as a percentage.
Logical	Displays the logical capacity of a snap data volume in blocks.
Physical	Displays the physical capacity of a snap data volume in blocks.
Used	Displays the capacity of a snap data volume used area in blocks. Displays the sum capacity of copy usage and host usage.
Copy	Displays the copy usage out of snap data volume used capacity in blocks.
Host	Displays the host usage out of snap data volume used capacity in blocks.
Pool	Displays the usage of a snap data pool allocated to a snap data volume in blocks.

- Copy usage: Usage of updates performed during Snapshot type execution.
- Host usage: Usage of snap data volume updates performed when Snapshot type is not executed.

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.

D.1.36 acsdv poolstat (Command for displaying the status of Snap Data Pool)

NAME

acsdv poolstat - Display of the status of snap data pool.

SYNOPSIS

```
acsdv poolstat -a DISKARRAY-NAME [-xml]
```

DESCRIPTION

This command displays the status of snap data pool.

OPTIONS

-a *DISKARRAY-NAME*

This option specifies an ETERNUS Disk storage system name.

-xml

This option displays the result of the command execution in the XML format.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acsdv poolstat -a DX80
Pool-Type Rate Total      Used      Copy  Host      Free
-----
Normal     10%  20971520  2097152    0  2097152  18874368
Encrypted  0%   20971520    0         0         0  20971520
```

The following table shows the meanings of the information displayed.

Title	Explanation
Pool-Type	Displays the type of a snap data pool. <ul style="list-style-type: none"> - Normal: Normal (unencrypted) - Encrypted: Encrypted
Rate	Displays the usage of a snap data pool as a percentage.
Total	Displays the total capacity of a snap data pool in blocks.
Used	Displays the capacity of a snap data pool used area in blocks. Displays the sum capacity of copy usage and host usage.
Copy	Displays the copy usage out of snap data pool used capacity in blocks.
Host	Displays the host usage out of snap data pool used capacity in blocks.
Free	Displays the capacity of snap data pool unused area in blocks.

- Copy usage: Usage of updates performed during Snapshot type execution.
- Host usage: Usage of snap data volume updates performed when Snapshot type is not executed.

NOTES

This command is not available for ETERNUS Disk storage systems registered as remote disk storage systems.

D.1.37 acutil devs (Command for displaying logical volume information)

NAME

acutil devs - Display of logical volume information.

SYNOPSIS

```
acutil devs
```

DESCRIPTION

This command displays logical volume information for ETERNUS Disk storage systems.

EXIT STATUS

- =0: Terminate normally
- >0: Terminate abnormally

EXAMPLES

```
> acutil devs
```

```

Device          BOX-ID          LV No Size
-----
PHYSICALDRIVE4 00ETERNUSDXL##ET08E21A####LN4310901078## 0x61 1048576
PHYSICALDRIVE5 00ETERNUSDXL##ET08E21A####LN4310901078## 0x62 1048576
PHYSICALDRIVE6 00ETERNUSDXL##ET08E21A####LN4310901078## 0x63 1048576

```

The following table shows the meanings of the information displayed.

Title	Explanation
Device	Displays the name of the physical device using the following format: "PHYSICALDRIVE[disk number]". This is the same value as the "Disk #" displayed in the [Disk Management] window displayed by selecting [Administrative Tools], [Computer Management] and then [Disk Management] from the [Start] menu.
BOX-ID	Displays the BOX ID for the ETERNUS Disk storage system.
LV No	Displays the logical volume number in hexadecimal.
Size	Displays the size (in blocks) of the logical volume in decimal.

D.1.38 acgetvolinfo (Command for displaying logical volume information)

NAME

acgetvolinfo - Display of logical volume information.

SYNOPSIS

acgetvolinfo *DEVICE-NAME*

DESCRIPTION

This command displays logical volume information for ETERNUS Disk storage system.

OPERANDS

DEVICE-NAME

Specify a drive letter.

Example: X:

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acgetvolinfo X:
BOX-ID, LV No, Address, Size
00ETERNUSDXL##ET08E21A####LN4310901078##, 0x040, 0x0, 0x800000
```

The following table shows the meanings of the information displayed.

Title	Explanation
BOX-ID	Displays the BOX ID for the ETERNUS Disk storage system.
LV No	Displays the logical volume number in hexadecimal.
Address	Extent start position (per block) is displayed in hexadecimal.
Size	Extent size (number of blocks) is output in hexadecimal.

D.1.39 acutil refresh (Command for refreshing partition table)

NAME

acutil refresh - Refresh of partition table.

SYNOPSIS

```
acutil refresh -d DEVICE-NAME
```

DESCRIPTION

This command refreshes the partition table to update partition information for a specified disk.

OPTIONS

-d *DEVICE-NAME*

This option displays disk storage system name in the format of "PhysicalDrive [disk number]".

This is the same value as "Disk #" or "disk?" of AdvancedCopy Manager block device name displayed in the [Disk Management] window displayed by selecting [Administrative Tools], [Computer Management] and then [Disk Management] from the [Start] menu.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

```
> acutil refresh -d PhysicalDrive2  
Successful completion.
```

D.1.40 acmcapture (Command for collecting analysis data)

NAME

acmcapture - Collection of Express analysis data.

SYNOPSIS

```
<Express program directory>\AdvancedCopy Manager Copy Control Module\bin\acmcapture dirname
```

DESCRIPTION

This command collects Express analysis data. Data is collected for all Express components installed on the server where this command is executed.

[Format of the filename or directory name for analysis data]

The collected data is stored in a directory with the "acmcapture_HOSTNAME_YYYYMMDD_ttmss" format under the directory specified for "dirname".

The name of the host where the command is executed is used for HOSTNAME. If characters other than alphanumerics and hyphens are used in the host name, then "NOHOSTNAME" is used as the host name. Values are truncated to 15 characters.

- For YYYYMMDD, YYYY is the year, MM is the month, and DD is the day.
- For ttmss, tt is the hour, mm is minutes, and ss is seconds.

OPERANDS

dirname

For *dirname*, specify a director in which to store analysis data.

Specify a directory with plenty free space - 500MB or more is recommended. Regard 500MB as a rough guide, since the size of analysis data will vary depending on the system environment and conditions. If there is not enough free space, then this command will terminate abnormally without collecting analysis data.

Specify an existing directory, otherwise this command will terminate abnormally without collecting analysis data.

EXIT STATUS

=0: Terminate normally

>0: Terminate abnormally

EXAMPLES

Collect data to the C:\temp directory.

```
> acmcapture C:\temp
Executing.....
Completed.
OUTPUT=C:\temp\acmcapture_srv01_20090323_094614
```

NOTES

Execute this command when other Express commands are canceled. Data collection may not be performed correctly if other Express commands are running.

D.2 XML output format for Advanced Copy function

This section explains the XML output format for Advanced Copy function.

D.2.1 List of commands for supporting the XML output function

The following commands support the XML output function.

Table D.12 Command that support the XML output function

Command name	Command type	
	Display type	Execution type
acarray add	-	YES
acarray change	-	YES
acarray list	YES	-
acarray detail	YES	-
acarray pathscan	-	YES
acarray remove	-	YES
acinq lv	YES	-
acinq lunmap	YES	-
acinq ag	YES	-
acinq hostag	YES	-
acinhbit set	-	YES
acinhbit unset	-	YES
acgroup create	-	YES

Command name	Command type	
	Display type	Execution type
acgroup list	YES	-
acgroup detail	YES	-
acgroup remove	-	YES
acpair add	-	YES
acpair remove	-	YES
acopc start	-	YES
acopc query	YES	-
acopc cancel	-	YES
acsnap start	-	YES
acsnap query	YES	-
acsnap cancel	-	YES
acsdv init	-	YES
acsdv stat	YES	-
acsdv poolstat	YES	-
acec start	-	YES
acec query	YES	-
acec suspend	-	YES
acec resume	-	YES
acec reverse	-	YES
acec change	-	YES
acec cancel	-	YES
acrebuff set	-	YES
acrebuff stat	YES	-
acutil devs	YES	-
acutil refresh	-	YES



See

.....
The XML output format differs between the display type command and the execution type command. Refer to "[XML output format of display type command](#)" or "[XML output format of execution type command](#)" for each XML output format.
.....

D.2.2 XML output format

XML output format of display type command

The XML output format of display type command is as follows:

- Displays lists only.
- Displays tables only.
- Displays lists and tables.

The display example of each XML format is as follows.

Display of lists only

- Without -xml option

```
> acarray detail -a DX80

Disk Array Name : DX80
BOX-ID          : 00ETERNUSDXL##ET08E21A####LN4310901078##
IP Address      : 10.12.13.14
Admin User      : root
Access Path     : X:
```

- With -xml option

```
> acarray detail -a DX80 -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>0</ReturnCode>
  <Message></Message>
  <List>
    <Data id="Disk Array Name">DX80</Data>
    <Data id="BOX-ID">00ETERNUSDXL##ET08E21A####LN4310901078##</Data>
    <Data id="IP Address">10.12.13.14</Data>
    <Data id="Admin User">root</Data>
    <Data id="Access Path">X:</Data>
  </List>
</Response>
```

Display of tables only

- Without -xml option

```
> acarray list

Name  BOX-ID                                     IP Address
-----
DX80  00ETERNUSDXL##ET08E21A####LN4310901078##  10.12.13.14
DX80B 00ETERNUSDXL##ET08F22A####JP0000000001##  10.12.13.15
```

- With -xml option

```
> acarray list -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>0</ReturnCode>
  <Message></Message>
  <Table>
    <Row>
      <Data id="Name">DX80</Data>
      <Data id="BOX-ID">00ETERNUSDXL##ET08E21A####LN4310901078##</Data>
      <Data id="IP Address">10.12.13.14</Data>
    </Row>
    <Row>
      <Data id="Name">DX80B</Data>
      <Data id="BOX-ID">00ETERNUSDXL##ET08F22A####JP0000000001##</Data>
      <Data id="IP Address">10.12.13.15</Data>
    </Row>
  </Table>
</Response>
```

Displays of lists and tables

- Without -xml option

```
> acec query -g ECGroup
```

```
Copy Group Name : ECGroup
```

```
Copy Group Type : EC
```

```
Disk Array Name : DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)
```

Source	<=>	Target	SID	EC Status	Copy Phase	Copied Block
DX80/0x1	N/A	DX80/0x3	N/A	"EC action not startup"	"Not set"	N/A
DX80/0x2	==>	DX80/0x4	0x41	"EC Executing"	"Copying"	1048576

- With -xml option

```
> acec query -g ECGroup -xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<Response>
```

```
<ReturnCode>0</ReturnCode>
```

```
<Message></Message>
```

```
<List>
```

```
<Data id="Copy Group Name">ECGroup</Data>
```

```
<Data id="Copy Group Type">EC</Data>
```

```
<Data id="Disk Array Name">DX80 (00ETERNUSDXL##ET08E21A####LN4310901078##)</Data>
```

```
</List>
```

```
<Table>
```

```
<Row>
```

```
<Data id="Source">DX80/0x1</Data>
```

```
<Data id="&lt;=&gt;">N/A</Data>
```

```
<Data id="Target">DX80/0x3</Data>
```

```
<Data id="SID">N/A</Data>
```

```
<Data id="EC Status">"EC action not startup"</Data>
```

```
<Data id="Copy Phase">"Not set"</Data>
```

```
<Data id="Copied Block">N/A</Data>
```

```
</Row>
```

```
<Row>
```

```
<Data id="Source">DX80/0x2</Data>
```

```
<Data id="&lt;=&gt;">==&gt;</Data>
```

```
<Data id="Target">DX80/0x4</Data>
```

```
<Data id="SID">0x41</Data>
```

```
<Data id="EC Status">"EC Executing"</Data>
```

```
<Data id="Copy Phase">"Copying"</Data>
```

```
<Data id="Copied Block">1048576</Data>
```

```
</Row>
```

```
</Table>
```

```
</Response>
```



Information

If the error occurs when the command is executed (e.g. parameter error), the command outputs the error information like as follows.

Without -xml option

```
> acarray detail -a DX80
```

```
ccm8003 Could not open the file. file=C:\Program Files\AdvancedCopy Manager Copy Control Module\etc\db\eternus.xml.lck
```

With -xml option

```
> acarray detail -a DX80 -xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<Response>
```

```
<ReturnCode>8</ReturnCode>
```

```
<Message>ccm8003 Could not open the file. file=C:\Program Files\AdvancedCopy Manager Copy Control
```

```
Module\etc\db\eternus.xml.lck</Message>
</Response>
```



XML output format of execution type command

The XML format of execution type command is follows:

- Displays only execution result messages only
- Displays execution results including detail information

The display example for each XML format is as follows.

Display example of execution result message only

- Without -xml option

```
> acgroup create -g group01 -type OPC -a DX80
Successful completion.
```

- With -xml option

```
> acgroup create -g group01 -type OPC -a DX80 -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>0</ReturnCode>
  <Message>Successful completion.</Message>
</Response>
```

Display example of execution result including detail information

- Without -xml option

```
> acec start -g ECGroup

DX80/0x1: DX80/0x6
# DATE : 2008/06/24 16:28:00 - << EC Started >>
# From:BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/
Olu=1/Adr_high=0/Adr_low=0/size_high=0/size_low=0
# To :BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/
Olu=6/Adr_high=0/Adr_low=0

DX80/0x2:DX80/0x7
ccm5004 Operation failed. function=STXCopyEC.START, message=invalid BoxID.

Succeeded : 1
Failed : 1
```

- With -xml option

```
> acec start -g ECGroup -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>6</ReturnCode>
  <Message></Message>
  <ResultList>
    <Result>
      <Object>DX80/0x1:DX80/0x6</Object>
      <Status>Succeeded</Status>
      <Message></Message>
      <Detail>DATE : 2008/06/24 16:28:00 - &lt;&lt; EC Started &gt;&gt; &#13;
From:BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/
Olu=1/Adr_high=0/Adr_low=0/size_high=0/size_low=0&#13;
To :BoxID=303045343030304d3323232323234534353053323041232323234b44343033303633393030342323/Olu=6/
```

```

Adr_high=0/Adr_low=0</Detail>
</Result>
<Result>
  <Object>DX80/0x2:DX80/0x7</Object>
  <Status>Failed</Status>
  <Message>ccm5004 Operation failed. function=STXCopyEC.START, message=invalid BoxID.</Message>
  <Detail></Detail>
</Result>
</ResultList>
</Response>

```

Information

If any error occurs when the command is executed (e.g. parameter error), the command outputs the error information as follows.

Without -xml option

```

> acec start -g
ccm1001 Input parameter is illegal.

Usage:
  acec start -g COPY-GROUP(EC) [-p PAIR] [-r] [-xml]
  acec start -g COPY-GROUP(REC) [-p PAIR] [-r]
                [-transfer {sync [-split {auto|manual}]|through|consist|stack}]
                [-recovery {auto|manual}]
                [-skip]
                [-xml]

```

With -xml option

```

> acec start -g -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>1</ReturnCode>
  <Message>ccm1001 Input parameter is illegal.</Message>
</Response>

```

If a warning message is output when the command is executed, the command outputs the error information as follows.

Without -xml option

```

> acec reverse -g group01

DX80/0x1:DX80/0x6
# DATE : 2008/06/24 16:28:00 - << EC Change >>
Warning:ccm7001 The target logical volume is write protected. target logical volume=DX80/0x1

DX80/0x2:DX80/0x7
# DATE : 2008/06/24 16:28:00 - << EC Change >>

Succeeded : 2
Failed    : 0

```

With -xml option

```

> acec reverse -g group01 -xml
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <ReturnCode>0</ReturnCode>
  <Message>Successful completion.</Message>
  <ResultList>
    <Result>
      <Object>DX80/0x1:DX80/0x6</Object>
      <Status>Succeeded</Status>
      <Message>Warning:ccm7001 The target logical volume is write protected. target logical

```

```

volume=DX80/0x1</Message>
  <Detail>DATE : 2008/06/24 16:28:00 - &lt;&lt; EC Change &gt;&gt;</Detail>
</Result>
<Result>
  <Object>DX80/0x2:DX80/0x7</Object>
  <Status>Succeeded</Status>
  <Message></Message>
  <Detail>DATE : 2008/06/24 16:28:00 - &lt;&lt; EC Change &gt;&gt;</Detail>
</Result>
</ResultList>
</Response>

```



D.3 storageadm perfdata (Command for managing performance information)

This section explains the command for managing the operating environment.

NAME

storageadm perfdata - Management of performance information.

SYNOPSIS

```
$INS_DIR\Express\Manager\bin\storageadm perfdata export outdirname -ipaddr ipaddr [-recent 24]
```

(\$INS_DIR means "Program Directory" specified at the Express Manager installation.)

DESCRIPTION

This command outputs one-hour or 24-hour performance information for disk storage system before the command is executed.

By specifying the IP address of a disk storage system whose performance information is output and the time in the command operand, the disk storage system performance information is output in CSV format.

A target disk storage system must be managed by Express and performance monitoring is either still running or already completed.

The details of CSV files are as follows.

Table D.13 CM performance information for disk storage system

Items	Explanation
File name	CM.csv
Header line	Date, CM0xXX:CPUX - CPU Use Rate, CM0xXX:CPUX - Copy Remain, ...
Data line	<p><i>date,CM00u,CM00r, ... ,CMNNu,CMNNr</i></p> <p>The following information is output for each field. (After <i>date</i>, the information is repeated for the actual number of CMs.)</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>CM00u</i> : CM0x00:CPU0 (*1) CPU Load at <i>date</i> (Decimal notation. The unit is %.)</p> <p><i>CM00r</i> : CM0x00:CPU0 (*1) CM Copy remaining amount at <i>date</i>. (Decimal notation. The unit is GB.)</p> <p><i>CMNNu</i> : CM0xNN:CPUN (*1) CPU Load at <i>date</i>. (Decimal notation. The unit is %.)</p> <p><i>CMNNr</i> : CM0xNN:CPUN (*1) CM Copy remaining amount at <i>date</i>. (Decimal notation. The unit is GB.)</p>

Table D.14 LogicalVolume performance information for disk storage system

Items	Explanation
File name	LogicalVolume/ <i>nnnn</i> .csv (<i>nnnn</i> indicates the LogicalVolume number by hexadecimal notation.)
Header line	Date, LogicalVolume0xXXXX - Read IOPS, LogicalVolume0xXXXX - Write IOPS, LogicalVolume0xXXXX - Read Throughput, LogicalVolume0xXXXX - Write Throughput, LogicalVolume0xXXXX - Read Response Time, LogicalVolume0xXXXX - Write Response Time, LogicalVolume0xXXXX - Read Cache Hit Rate, LogicalVolume0xXXXX - Write Cache Hit Rate, LogicalVolume0xXXXX - Prefetch Cache Hit Rate.
Data line	<i>date,read,write,through-r,through-w,resp-r,resp-w,hit-r,hit-w,fetch</i> The following information is output for each field. <i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format) <i>read</i> : Read Count at <i>date</i> . (Decimal notation. The unit is IOPS.) <i>write</i> : Write Count at <i>date</i> . (Decimal notation. The unit is IOPS.) <i>through-r</i> : Read data transfer rate at <i>date</i> . (Decimal notation. The unit is MB/S.) <i>through-w</i> : Write data transfer rate at <i>date</i> . (Decimal notation. The unit is MB/S.) <i>resp-r</i> : Read Response Time at <i>date</i> . (Decimal notation. The unit is msec.) <i>resp-w</i> : Write Response Time at <i>date</i> . (Decimal notation. The unit is msec.) <i>hit-r</i> : Read Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.) <i>hit-w</i> : Write Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.) <i>fetch</i> : Read Pre-fetch Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.)

Table D.15 RAID Group performance information for disk storage system

Items	Explanation
File name	RAID Group/ <i>nnnn</i> .csv (<i>nnnn</i> indicates the RAID Group number by hexadecimal notation.)
Header line	Date, RAID Group0x0xXXXX - Read IOPS, RAID Group0x0xXXXX - Write IOPS, RAID Group0x0xXXXX - Read Throughput, RAID Group0x0xXXXX- Write Throughput, RAID Group0x0xXXXX - Read Response Time, RAID Group0x0xXXXX - Write Response Time, RAID Group0x0xXXXX - Read Cache Hit Rate, RAID Group0x0xXXXX - Write Cache Hit Rate, RAID Group0x0xXXXX - Prefetch Cache Hit Rate.
Data line	<i>date,read,write,through-r,through-w,resp-r,resp-w,hit-r,hit-w,fetch</i> The following information is output for each field. <i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format) <i>read</i> : Read Count at <i>date</i> . (Decimal notation. The unit is IOPS.) <i>write</i> : Write Count at <i>date</i> . (Decimal notation. The unit is IOPS.) <i>through-r</i> : Read data transfer rate at <i>date</i> . (Decimal notation. The unit is MB/S.) <i>through-w</i> : Write data transfer rate at <i>date</i> . (Decimal notation. The unit is MB/S.) <i>resp-r</i> : Read Response Time at <i>date</i> . (Decimal notation. The unit is msec.) <i>resp-w</i> : Write Response Time at <i>date</i> . (Decimal notation. The unit is msec.) <i>hit-r</i> : Read Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.) <i>hit-w</i> : Write Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.) <i>fetch</i> : Read Pre-fetch Cache Hit Rate at <i>date</i> . (Decimal notation. The unit is %.)

Table D.16 Disk performance information for disk storage system

Items	Explanation
File name	Disk/ <i>nnnn</i> .csv (<i>nnnn</i> indicates the DE number by hexadecimal notation.)
Header line	Date, DE0xXX:SlotX - busy time, ...
Data line	<i>date,Disk0, ... ,DiskN</i>

Items	Explanation
	<p>The following information is output for each field. (After <i>date</i>, the information is repeated for the actual number of Disks.)</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>Disk0</i> : Disk0 Disk busy rate at <i>date</i>. (Decimal notation. The unit is %.)</p> <p><i>DiskN</i> : DiskN Disk busy rate at <i>date</i>. (Decimal notation. The unit is %.)</p>

Table D.17 CA/CM Port performance information for dis storage system

Items	Explanation
File name	<p>Port/<i>nnnn</i>.csv</p> <p>(<i>nnnn</i> indicates the CA/CM Port number by hexadecimal notation. CA/CM port numbers are assigned in ascending order, starting with 0000 for the lowest CA/CM port number in the device.</p> <p>CM0x0 CA0x0 Port0 is 0000, CM0x0 CA0x0 Port1 is 0001, : CM0x7 CA0x3 Port2 is 007E, CM0x7 CA0x3 Port3 is 007F.)</p>
Header line	<p>- Case of CA Port</p> <p>Date, CM0xX:CA0xX:PortX - Read IOPS, CM0xX:CA0xX:PortX - Write IOPS, CM0xX:CA0xX:PortX - Read Throughput, CM0xX:CA0xX:PortX - Write Throughput</p> <p>- Case of CM Port</p> <p>Date, CM0xX:PortX - Read IOPS, CM0xX:PortX - Write IOPS, CM0xX:PortX - Read Throughput, CM0xX:PortX - Write Throughput</p>
Data line	<p><i>date,read,write,through-r,through-w</i></p> <p>The following information is output for each field.</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>read</i> : Read Count at <i>date</i>. (Decimal notation. The unit is IOPS.)</p> <p><i>write</i> : Write Count at <i>date</i>. (Decimal notation. The unit is IOPS.)</p> <p><i>through-r</i> : Read data transfer rate at <i>date</i>. (Decimal notation. The unit is MB/S.)</p> <p><i>through-w</i> : Write data transfer rate at <i>date</i>. (Decimal notation. The unit is MB/S.)</p>

Table D.18 Performance information for disk storage system active disks

Items	Explanation
File name	ACTIVE_DISK.csv
Header line	Date, Total Disks, Active Disks
Data line	<p><i>date,total,active</i></p> <p>The following information is output for each field.</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>total</i> : Overall number of loaded disk devices at <i>date</i>. (Decimal notation. The unit is Disk.)</p> <p><i>active</i> : Overall number of active disk devices at <i>date</i>. (Decimal notation. The unit is Disk.)</p>

Table D.19 Power consumption performance information for disk storage system

Items	Explanation
File name	SYSTEM_POWER_CONSUMPTION.csv
Header line	Date, System Power Consumption
Data line	<p><i>date, power</i></p> <p>The following information is output for each field.</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>power</i> : Power used by the device as a whole at <i>date</i>. (Decimal notation. The unit is W.)</p>

Table D.20 Temperature performance information for disk storage system

Items	Explanation
File name	SYSTEM_TEMPERATURE.csv
Header line	Date, System Temperature
Data line	<p><i>date, temperature</i></p> <p>The following information is output for each field.</p> <p><i>date</i> : Performance Information Acquisition Time. (YYYY/MM/DD hh:mm:ss format)</p> <p><i>temperature</i>: Air intake temperature at device at <i>date</i>. (Decimal notation. The unit is degrees Centigrade.)</p>

OPERANDS

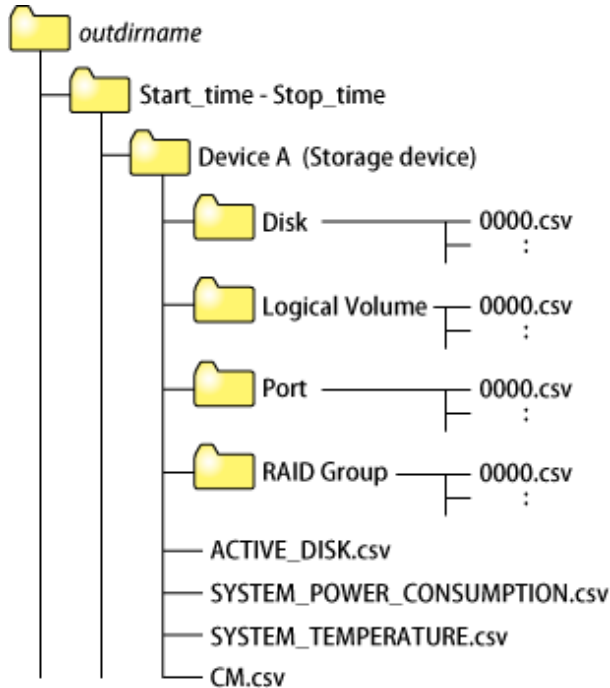
export

Outputs performance information for the specified time in CSV format.

outdirname

Specify the directory that outputs performance information.

Performance information is output to the *outdirname* directory based on the following configuration.



The following free space is required for this directory.

```

(((0.1 + 0.4 * installed DEs + 0.1 * installed CM ports + 0.2 * (LUs + RAID groups)) * (86400 / 60)) + (0.2 + 0.6 * installed DEs + 0.2 * installed CM ports + 0.4 * (LUs + RAID groups))) / 1024
  
```

OPTIONS

-ipaddr *ipaddr*

This option specifies the IP address of the device that outputs performance information.

The output target device must satisfy the following conditions:

- Storage devices output performance information must be registered in this software.

For the settings of performance monitoring, refer to "Performance management".

-recent 24

This option collects the latest 24-hour performance data.

If this option is skipped, the latest 1-hour performance data is collected.

EXAMPLES

Output of performance information for a device with IP address 10.12.13.14 to the c:\work directory:

```
> storageadm perfdata export "C:\work" -ipaddr 10.12.13.14
```

NOTES

The full path of an existing directory must be specified in *outdirname*.

D.4 express_managersnap (Collecting Express Manager troubleshooting information)

This section explains the commands for collecting Express Manager troubleshooting information.

NAME

`express_managersnap` - Collection of Express Manager troubleshooting information

SYNOPSIS

```
$INS_DIR\Express\Manager\bin\express_managersnap -dir dirname [-all]
```

(*\$INS_DIR* means "Program Directory" specified at the Express Manager installation.)

DESCRIPTION

This command collects Express Manager server information. Only user of OS administrative group can execute this command.

This command collects information on the Express Manager server if any trouble occurs.

Submit the information collected with this command to a Fujitsu system engineer.

OPTIONS

-dir *dirname*

Corrects the troubleshooting information on *dirname* directory. Specify the full path name that starts from the drive letter for *dirname*. The maximum length that can be specified for *dirname* is 100 bytes.

The collected information is gathered in the directory that its name "EXyyyyymmddhhmm.zip". Before executing this command, please confirm that *dirname* directory has the following free space.

Collected information	Required free space
Initial investigation information	more than 1MB
All troubleshooting information	more than 15 MB

-all

Collects all troubleshooting information on servers. Data includes lots of information, which will increase the size of the data. This option is not necessary for initial investigation.

EXAMPLES

Collecting the troubleshooting information for initial investigation on D:\temp directory.

```
> express_managersnap -dir D:\temp
```

D.5 express_diag(Diagnosis of Express Manager environment)

This section explains the command for diagnosing Express Manager environment.

NAME

`express_diag` - Diagnosis of Express Manager environment.

SYNOPSIS

```
$INS_DIR\Express\Manager\bin\express_diag
```

(`$INS_DIR` means "Program Directory" specified at the Express Manager installation.)

DESCRIPTION

Express Manager environment is diagnosed and the result is output to stdout. To execute the command, operating system administrator privileges are required.

The output format is as follows.

```
Component
  test name : result
  test name : result
  ...
Component
  test name : result
  test name : result
  ...
```

The following table shows the meanings of the information displayed.

Title	Explanation
Component	Displays a component name. Any of the following names is displayed. Express Web GUI - Express Manager - Storage Cruiser Manager
test name	Displays a test name. Either of the following test names is displayed. - <service name> service/daemon test Checks whether service/daemon of <service name> is booted. - <file name> file test

Title	Explanation
	Checks whether the file of <file name> exists.
result	Displays a test result. Either of the following results is displayed. <ul style="list-style-type: none"> <li>- Passed <li>Indicates that the test has been passed. <li>- Failed <li>Indicates that the test has not been passed or has failed for some reason.

- In the event that the test result of service is "Failed":

Open [Control panel] - [Management tool] - [Service] to check the service displayed in <service name>.

- In the event that the service of <service name> is stopped:
Start the service.

- In the event that the service of <service name> is not displayed:
Express Manager environment may have been destroyed.

Collect the required material to solve the trouble from the output results of this diagnostic tool and "[D.4 express_managersnap \(Collecting Express Manager troubleshooting information\)](#)" and then contact a Fujitsu system engineer (SE).

- In the event that the test result of file is "Failed":

There is the case that a test result becomes "Failed" of the file by just after the installation of Express Manager or a function to use.

- contact.db

When setting of 'specifying contact information for trouble occurrence' is not considered to be it, this file is not made.

- property.db

When setting of 'Information Managed with Express' is not considered to be it, this file is not made.

- History information (Number of days kept, File Size)
- Screen update information
- E-mail Information (mail configuration information, mail destination information)

- array.db

- manager.db

- alias.db

'ETERNUS SF Express Manager' service never stops, and non-registration a disk storage system, these files are not made.

- user.db

When non-registration a disk storage system, this file is not made.

- server.db

When not additional server information, this file is not made.

- ConfigurationChangeDB.xml

When operation to become the save object of 'Configuration change history' is not performed, this file is not made.

- History information (Number of days kept, File Size)
- Screen update information
- E-mail Information (mail configuration information, mail destination information)
- Registering Disk Storage Systems
- Registering server information

- LoginLogoutDB.xml

When login to Express Web GUI is never performed, this file is not made.

- EventDB.xml

When not receiving SNMP Trap from disk storage system, and when not executing Copy Control Module by Express Web GUI, this file is not made.

When use a function, but the test result of the file becomes "Failed", Express Manager environment may have been destroyed.

In the event that the trouble is still not solved despite of some actions or some trouble is occurring though no failure is not detected by this diagnostic tool, collect the required material to solve the trouble from "[D.4 express_managersnap \(Collecting Express Manager troubleshooting information\)](#)" and then contact a Fujitsu system engineer (SE).

EXAMPLES

```
> express_diag
Express Web GUI
  'ETERNUS SF Express Apache Service' service/daemon test : Passed
  'ETERNUS SF Express Tomcat Service' service/daemon test : Passed
  'httpd.conf' file test : Passed
  'express.xml' file test : Passed
Express Manager
  'ETERNUS SF Express Manager' service/daemon test : Passed
  'contact.db' file test : Passed
  'property.db' file test : Passed
  'array.db' file test : Passed
  'manager.db' file test : Passed
  'user.db' file test : Passed
  'alias.db' file test : Passed
  'server.db' file test : Failed
  'ConfigurationChangeDB.xml' file test : Passed
  'LoginLogoutDB.xml' file test : Failed
  'EventDB.xml' file test : Passed
Storage Cruiser Manager
  'ETERNUS SF Storage Cruiser Manager' service/daemon test : Passed
  'SNMP Trap Service' service/daemon test : Passed
  '1_3_6_1_4_1_211_4_1_1_126_1_60.xml' file test : Passed
  '1_3_6_1_4_1_211_4_1_3_21_1.xml' file test : Passed
  '1_3_6_1_4_1_211_4_1_3_21_3.xml' file test : Passed
  '1_3_6_1_4_1_347.xml' file test : Passed
  'Trap.bat' file test : Passed
```

Appendix E Messages

This appendix explains the messages output from Express.

E.1 Message Format

Messages consist of a message ID and message text.

Each message is explained according to the sections described in the following table.

Table E.1 Message format

Item	Description
Message text	Shows how the message is displayed.
Description	Explains the reason why the message is displayed, or the conditions under which the message is displayed.
Parameters	Explains the meanings of parameters if included in the messages.
System action	Explains what action the system takes when the message is displayed.
Administrator response	This section explains the actions that the administrator should take in response to the message.

E.2 Messages output at installation or uninstallation

This appendix explains the messages output at installation or uninstallation.



Point

Messages are displayed in Japanese when you select Japanese in language selection dialog of installer and the server can display Japanese. In other cases, messages are displayed in English.

esfinst00401

This program requires administrator privileges. Install again via a user with administrator privileges.

Description

An user who doesn't belong to Administrators group executed installation.

System action

Interrupts the processing.

Administrator response

Login with user in Administrators group and install again.

Contact a Fujitsu system engineer if the trouble is still not solved.

esfinst00402

Internal error (internal component installation) - Error Code: {0}

Description

Essential component installation failed.

Parameters

{ 0 } : error code

System action

Interrupts the processing.

Administrator response

Uninstall essential component and install again.

Contact a Fujitsu system engineer to notify of the error code if the trouble is still not solved.

esfinst00404

Processing has stopped. Code:{ 0 }

Description

Configuration of definition file failed.

Parameters

{ 0 } : error code

System action

Interrupts the processing.

Administrator response

Contact a Fujitsu system engineer to notify of the error code.

esfinst00405

System Update Failed. Uninstall before re-installation. Code:{ 0 }

Description

System updating failed.

Parameters

{ 0 } : error code

System action

Interrupts the processing.

Administrator response

Execute uninstallation and install again.

Contact a Fujitsu system engineer to notify of the error code if the trouble is still not solved.

esfinst00406

Since { 0 } exists, ETERNUS SF Express cannot be installed.

Description

Express can not be installed because exclusive software is already installed.

Parameters

{ 0 } : Exclusive software

System action

Interrupts the processing.

Administrator response

Uninstall the exclusive software and Install Express.

esfinst00407

Processing has stopped. (runtime installation)

Description

Installation of runtime library failed.

System action

Interrupts the processing.

Administrator response

Contact a Fujitsu system engineer.

esfinst00408

The service names of this product can not be registered. The service names have been used by other product or have other aliases. (these have alias)

Description

The service can not be registered by following reasons.

- The service name of this product has been used as an alias of the other product.
- The service name of this product has the other alias.

System action

Interrupts the processing.

Administrator response

After taking the following actions, install again.

- Change the alias name which is the same name as the service name of this product.
 - Remove the alias of this product.
-

esfinst00409

The operating system is not supported. (does not support) Check the operating system.

Description

Can't install because of unsupported OS.

System action

Interrupts the processing.

System action

Install on supported OS.

esfinst00410

Processing has stopped. Code:{ 0}

Description

Internal error occurred due to system error.

Parameters

{ 0 } : error code

System action

Interrupts the processing.

Administrator response

Execute uninstallation and install again.
Contact a Fujitsu system engineer if the trouble is still not solved.

esfinst00412

A port number could not be set.

Description

Configuration of the port failed.

System action

Interrupts the processing.

Administrator response

Execute uninstallation and install again.
Contact a Fujitsu system engineer if the trouble is still not solved.

esfinst00413

The service could not be registered. Service Name: { 0 }

Description

Service registration failed.

Parameters

{ 0 } : service name

System action

Interrupts the processing.

Administrator response

Execute uninstallation and install again.
Contact a Fujitsu system engineer if the trouble is still not solved.

esfinst00414

{ 0 } older than ETERNUS SF Express is installed. Please install again, after install the even or newer { 0 }.

Description

This product can't be installed because the following lower version product than this product is installed.

- ETERNUS SF AdvancedCopy Manager Copy Control Module

Parameters

{ 0 } : following product

- ETERNUS SF AdvancedCopy Manager Copy Control Module
- ETERNUS SF License Manager

System action

Interrupts the processing.

Administrator response

Upgrade the displayed product to the same level of this product and install this product again.

esfinst00415

The even or newer ETERNUS SF Express Manager is already installed.

Description

The even or newer this product is already installed.

System action

Interrupts the processing.

Administrator response

None

esfinst00417

This system can not display Japanese. Please install again, after choosing suitable language on Choose Setup Language dialog.

Description

Japanese is selected on Choose Setup Language dialog on the server which can not display Japanese.

System action

Interrupts the processing.

Administrator response

Select available language.

esfinst00501

Either no port number was specified or an invalid value was entered. Enter a value between 1204 and 65535 as the port number.

Description

Either no port number was specified or an invalid value was entered.

System action

Display the "Enter Port Number" screen again.

Administrator response

Enter available port number according to the message.

esfinst00502

{ 0 } is being used by other service. Use another port number.

Description

The port number used by the other service was specified.

Parameters

{ 0 } : port number

System action

Display the "Enter Port Number" screen again.

Administrator response

Enter the other port number.

esfinst00503

Do not input the same port number.

Description

The same number is specified in multiple enter fields.

System action

Display the "Enter Port Number" screen again.

Administrator response

Specify different port numbers to enter fields.

esfinst00504

System Update Failed. Please contact Fujitsu Technical Support Service. Uninstallation will be completed.

Description

System updating failed. Uninstallation is continued.

System action

Uninstallation is continued.

Administrator response

None

esfinst00505

Specify installation directory name using any printable ASCII characters other than the following symbols. " | : * ? / . < > , % % & ^ = ! ;

Description

Invalid character as a directory name was used.

System action

The "Specify Installation destination" screen is displayed again.

Administrator response

Specify valid directory name.

esfinst00506

The length of specified directory name is inadequate length.

Description

The length of directory name is not adequate.

System action

The processing is terminated.

The "Specify installation destination" screen is displayed again.

Administrator response

Directory name should be alphanumeric and the lengths should be more than 4 characters and less than 81 characters.

esfinst00507

Disk ({0}) has an insufficient free space. Install this product on another disk.

Description

Disk capacity is insufficient.

Parameters

{0} : disk name

System action

The "Specify installation destination" screen is displayed again.

Administrator response

Specify the disk which has more than 500 MB free space.

esfinst00508

A removable drive was specified. Specify a fixed drive for the installation destination.

Description

Can't install on unfixed drive.

System action

The "Specify installation destination" screen is displayed again.

Administrator response

Specify fixed drive as installation target.

esfinst00509

Specified directory name is invalid.

Description

Format of directory name is not adequate.

System action

The "Specify installation destination" screen is displayed again.

Administrator response

Specify a directory name with adequate format.

esfinst00511

The service could not be deleted. Service Name: {0}

Description

Removal of the service failed.

Parameters

{0} : Service name

System action

Uninstallation is continued.

Administrator response

When following services are remained after uninstallation, remove them manually.

- ETERNUS SF Express Manager
- ETERNUS SF Express Apache Service
- ETERNUS SF Express Tomcat Service
- ETERNUS SF Storage Cruiser Manager

esfinst00512

A port number could not be deleted.

Description

Removal of the port failed.

System action

Uninstallation is continued.

Administrator response

After uninstallation, check the services file. If port is still remained, remove it manually, confirm the removal.

- services file name
C:\Windows\System32\drivers\etc\services
- service name
 - esfexpressmgr
 - esfexpressweb
 - sscruisera
 - nfport

esfinst00513

The bundlesoft could not be uninstalled. (internal component uninstallation) - Code:{ 0:I}

Description

Uninstallation of components was stopped.

Parameters

{ 0:I} : component name: error number

System action

Uninstallation is continued.

Administrator response

After uninstallation, open [Add or Remove Programs] and remove components displayed in the message.

esfinst00514

System Update Failed. Please collect this message and contact Fujitsu Technical Support Service. Uninstallation will be completed.
code={ 0}

Description

Updating system failed.

Parameters

{0} : error code

System action

Uninstallation is continued.

Administrator response

Contact a Fujitsu system engineer to notify of the error code.

E.3 Message output from Manager

This appendix explains the messages that are issued by Express Manager.

E.3.1 Messages Explanations

esfmgr00001

Internal error has occurred.

Description

Internal error has occurred in the Manager processing.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr00101

TCP Port registration for the service ({0}) is not found.

Description

TCP Port registration for the service is failed.

Parameters

{0} : Name of the service

System action

Interrupts the processing.

Administrator response

Take the following procedure to check the port registration.

1. Open the file shown below by text editor.

```
[Windows System Folder]\drivers\etc\services
```

2. Check whether there is expected TCP port in the file. If there is not the Port in the file, add the port.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr01001

User name or password of the management server is invalid.

Description

The user name or password to log in the manager is invalid.

System action

Interrupts the processing.

Administrator response

Input the valid user name and password.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr01002

The specified user does not have an administrative privilege.

Description

The specified user does not have an administrative privilege.

System action

Interrupts the processing.

Administrator response

Input the user name and password for the user having administrative privileges.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr01003

Computer Browser service is not started.

Description

Computer Browser service is not started.

System action

Interrupts the processing.

Administrator response

Make sure whether the Computer Browser service is started. (Only when the computer belongs to a Windows domain)

If the computer belongs to a Windows domain, it is required that the Computer Browser service has been started in order to use the ETERNUS Web GUI.

For this reason, make sure that the [Status] of the Computer Browser service is [Started] by clicking on [Control Panel] > [Administrative Tools] > [Services].

esfmgr02001

Specified disk array (*{0}*) is being configured or its status is being updated. Please wait for a while and retry.

Description

Configuration of specified device is being changed or update processing of status is operating.

Parameters

{0} : IP Address / FQDN / Serial Number

System action

The processing is terminated.

Administrator response

Wait for a while and retry.

If the Express Web GUI can not be started, collect this message and troubleshooting information as shown in [express_managersnap \(Collecting Express Manager troubleshooting information\)](#).

esfmgr02002

Specified disk array (*{ 0 }*) is being configured from other client(*{ 1 }*) or its status is being updated. Please wait for a while and retry.

Description

Configuration of specified device is being changed by other client or update processing of status is operating.

Parameters

- *{ 0 }* : IP Address / FQDN / Serial Number
- *{ 1 }* : Information of the client

System action

The processing is terminated.

Administrator response

Wait for a while and retry.

If the Express Web GUI can not be started, collect this message and troubleshooting information as shown in [express_managersnap \(Collecting Express Manager troubleshooting information\)](#).

esfmgr10001

Failed to communicate with the disk array (*{ 0 }*).

Description

Failed to communicate with the Disk storage system.

Parameters

{ 0 } : IP address of the Disk storage system.

System action

Interrupts the processing.

Administrator response

An error may have occurred on the communication destination Disk storage system or network. Check the connection between the server that the Manager is installed and the Disk storage system.

esfmgr10002

Specified disk array (*{ 0 }*) is already registered on this software.

Description

The specified Disk storage system has already been registered in this software.

Parameters

{ 0 } : Specified IP address

System action

Interrupts the processing.

Administrator response

To reload the configuration of the registered Disk storage system, select the [Reload conf].

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10003

Specified disk array ({0}) is already registered with a different IP address ({1}) on this software.

Description

The specified Disk storage system is already registered with a different IP address.

Parameters

- {0} : Specified IP address
- {1} : IP address of the registered Disk storage system

System action

Interrupts the processing.

Administrator response

Check the followings.

- If the Disk storage system's IP address has been changed, register the Disk storage system again as shown in "[Chapter 6 Operation](#)".
- Although the Disk storage system has multiple IP addresses, registration for the Disk storage system is required with only one IP address. When you want to change the Disk storage system's IP address, register the Disk storage system again as shown in "[Chapter 6 Operation](#)".

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10004

Specified IP address ({0}) or SNMP community name ({1}) is incorrect. The disk array could not be detected.

Description

The Disk storage system was not able to be detected because specified IP address or SNMP Community Name is not the one of the Disk storage system.

Parameters

- {0} : Specified IP address
- {1} : Specified SNMP community name

System action

Interrupts the processing.

Administrator response

Check the following procedure.

- Make sure correct SNMP Community Name and IP address are input.
- Check the Disk storage system's power supply and connection state.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10005

Specified IP address (*{0}*) is not an IP address (*{1}*) for master CM. The disk array could not be detected.

Description

Because it was not the IP address of master CM, specified IP address was not able to detect the Disk storage system.

Parameters

- *{0}* : Specified IP address
- *{1}* : The IP address for master CM

System action

Interrupts the processing.

Administrator response

There is a possibility that the IP address of slave CM has been specified. Make sure IP address of master CM is input.

esfmgr10006

Specified device (*{0}*) is not supported by this software.

Description

The specified device is not supported by this software.

Parameters

{0} : Indicates the specified IP address

System action

Interrupts the processing.

Administrator response

Specify the IP address of the device to be supported.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10007

Firmware version of specified device is not supported. *{0}* or higher is required.

Description

The firmware version is not supported by this software.

Parameters

{0} : Indicates lowest supported firmware version.

System action

Interrupts the processing.

Administrator response

Update the firmware version of the specified ETERNUS Disk storage system to supported version or higher.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10008

The serial number of specified disk array (*{O}*) is already registered.

Description

Registration of the specified ETERNUS Disk storage system failed.

Parameters

{O} : Specified Serial Number

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10009

Specified user(*{I}*) account of the disk array (*{O}*) does not have Software User Role.

Description

Specified user does not have Software user role.

Parameters

- *{O}* : IP address or FQDN of the Disk storage system
- *{I}* : Specified user name

System action

Interrupts the processing.

Administrator response

Check role of the user and retry with correct user name and password.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10021

Failed to delete the disk array (*{O}*).

Description

The deletion of the Disk storage system failed.

Parameters

{O} : Specified Disk storage system name

System action

Interrupts the processing.

Administrator response

Select [Disk Array] - [Delete] in [Action] pane to retry.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10031

Specified address ({0}) is not the one of the registered disk array.

Description

Failed in the update of information on the Disk storage system because a different IP address or FQDN had been specified.

Parameters

{0} : Specified IP address or FQDN

System action

Interrupts the processing.

Administrator response

Make sure correct IP address or FQDN are input.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10032

Specified name is not the one of the registered disk array.

Description

Failed in the update of information on the Disk storage system because a different Disk storage system name had been specified.

Parameters

{0} : Specified Disk storage system name

System action

Interrupts the processing.

Administrator response

Make sure correct Disk storage system name is input.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10033

Changing account of the disk array ({0}) is failed.

Description

An error occurred in changing account.

Parameters

{0} : IP address or FQDN of the Disk storage system

System action

Interrupts the processing.

Administrator response

Check the network status, remove the disk array and re-register it. Then, try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10101

The one different from the registered disk array ({0}) was detected.

Description

Detected Disk storage system is different from the registered Disk storage system.

Parameters

{0} : Registered IP address

System action

Interrupts the processing.

Administrator response

There is a possibility that the Disk storage system's IP address has been changed.

Select [Disk Array] - [Delete] in [Action] pane to delete the Disk storage system and add it.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10022

Failed to configure disk array ({0}) or obtain its information. Command={1} Detail message={2}

Description

An error occurred in configuring Disk storage system or obtaining its information.

Parameter

- {0} : Specified IP address
- {1} : Command
- {2} : Detail message

System action

Interrupts the processing.

Administrator response

Check the following procedure.

1. Confirm the Command and detail message.
2. Refer to "[E.6 Message output from Copy Control Module](#)", and confirm the content corresponding to described message ID

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10023

There are AdvancedCopy sessions running at the specified disk array ({0}).

Description

Failed to delete registration of the specified ETERNUS Disk Storage system because there are Advanced Copy sessions.

Parameters

{0} : Specified IP address

System action

Interrupts the processing.

Administrator response

Check the Advanced Copy sessions and remove it.

NOTICE There is the possibility that the volume is broken if Advanced Copy sessions are deleted in physical copy progress.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10024

Failed to check of the copy session. disk array({ 0})

Description

Failed to check the specified ETERNUS Disk Storage system because there are Advanced Copy sessions.

Parameters

{ 0} : Specified IP address

System action

Interrupts the processing.

Administrator response

Check the Advanced Copy sessions and remove it.

NOTICE There is the possibility that the volume is broken if Advanced Copy sessions are deleted in physical copy progress.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10901

Failed to configure disk array({ 0}) or obtain its information. Detail message={ 1}

Description

An error occurred in configuring Disk storage system or obtaining its information.

Parameter

- { 0} : Specified Disk storage system name
- { 1} : Detail message

System action

Interrupts the processing.

Administrator response

Check the following procedure.

1. Confirm the message number (the part of E**** of "Error: E****") of detail message.
2. According to the message number of detail message perform the following:

- "Error: E0060 Resource locked."

Check the other user is not processing the Disk storage system setting with other tools when detail message is "Error: E0060 Resource locked".

Or, wait for a while and retry.

- Other than "Error: E0060 Resource locked."

Refer to the "Error Messages" of "ETERNUS DX60/DX80/DX90 Command Line Interface (CLI) User's Guide" or "ETERNUS CLI User's Guide -ETERNUS DX80 S2/DX90 S2, ETERNUS DX410 S2/DX440 S2-" and check "Message Countermeasure for the error" corresponding to abovementioned message number.

Or, wait for a while and retry.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10902

Communication failed. The disk array with specified IP address({ 0}) could not be detected.

Description

The Disk storage system was not able to be detected because of the Telnet communication failure.

Parameters

{ 0} : Specified IP address

System action

Interrupts the processing.

Administrator response

Check the following procedure.

- Check the Disk storage system's power supply and connection state.
- Make sure that the telnet communication of the Disk storage system is enabled.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10903

Specified user name or password of the disk array is invalid.

Description

Specified user name or password of the Disk storage system is invalid.

System action

Interrupts the processing.

Administrator response

Check the user name and password and retry with correct user name and password.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10904

Failed to register license. There is a possibility that specified license key is invalid.

Description

Failed to register license.

System action

Interrupts the processing.

Administrator response

Check the license key and input valid license key.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10905

It is not supported to register or to refer to the license by this edition.

Description

Failed to register or to refer to license.

System action

The processing is terminated.

Administrator response

This function is not supported by the installed edition of ETERNUS SF Express.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr10999

Loading disk array configuration is in process. Wait for a while to retry.

Description

Loading Disk storage system configuration is in process. Wait for a while to retry.

System action

Interrupts the processing.

Administrator response

Wait for a while, and retry.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12000

Failed to start the performance monitor.

Description

Failed to start the performance monitor.

System action

Interrupts the processing.

Administrator response

Check the device status and network, then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12001

Failed to stop the performance monitor.

Description

Failed to stop the performance monitor.

System action

Interrupts the processing.

Administrator response

Check the device status and network, then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12002

Failed to obtain the status of performance monitor.

Description

Failed to obtain the status of performance monitor.

System action

Interrupts the processing.

Administrator response

Check the device status and network, then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12003

Network error occurred in monitoring performance.

Description

Network error occurred in monitoring performance.

System action

Interrupts the processing.

Usually, even if an error occurs in monitoring performance, the processing is retried.

Administrator response

Check the device or network.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12004

Unable to access a file of performance monitor.

Description

Unable to access a file of performance monitor.

System action

Interrupts the processing.

Administrator response

Check whether the file system is not write-protection or check whether there is enough free space in the file system.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12005

Internal error has occurred at performance monitor.

Description

Internal error has occurred at performance monitor.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr12006

The LogicalVolume does not exist.

Description

The logical volume does not exist.

The performance monitoring of the Disk storage system where logical volume is not defined cannot be executed.

System action

Interrupts the processing.

Administrator response

Please execute it again after defining logical volume in the Disk storage system.

esfmgr12007

Unable to login a device.

Description

This message indicates that an attempt was made to login to the target device to set performance monitoring for the device or to read the configuration information but failed because another user has already logged into the device.

System action

The processing is terminated.

Administrator response

Log out the process that logged into the target device and then re-execute the processing.

esfmgr30001

Failed to communicate with the disk array (`{0}`).

Description

Failed to communicate with the Disk storage system.

Parameters

`{0}` : Specified IP address

System action

Interrupts the processing.

Administrator response

Check the network status between the management server and the Disk storage system and retry.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr30002

Required service has not been started.

Description

Required service has not been started.

System action

Interrupts the processing.

Administrator response

Restart the management server, and retry.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr30003

The device is not registered or eco mode setting failed.

Description

The device is not registered or eco mode setting failed.

System action

The processing is terminated.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr30011

Failed to configure disk array({ 0}) or obtain its information. Message ID = { 1} Detail message={ 2}

Description

An error occurred in configuring Disk storage system or obtaining its information.

Parameter

- { 0} : Specified IP address
- { 1} : Message ID
- { 2} : Detail message

System action

Interrupts the processing.

Administrator response

Check the following procedure.

1. Confirm the message ID and Detail message.
2. Refer to "[E.3.2 Detailed messages](#)", and confirm the content corresponding to described message ID.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr55001

Specified server does not exist.

Description

Specified server does not exist.

System action

The processing is terminated.

Administrator response

There is a possibility that other users have already removed the specified server.

Please cancel once and confirm list of servers on [Monitoring] pane - [Server] tab, and confirm specified server is exist.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr55002

Server Name is not correct.

Description

The input server name cannot be registered.

System action

Interrupts the processing.

Administrator response

Please confirm the server name, and input it again.

Server name should be 16 characters or less

Alphanumeric character and the following signs can be used for server name. Also, the server name that has already been registered cannot be registered.

Available signs:

! " # \$ % & ' () * + - . / : ; < = > ? @ [] ^ _ ` { | } ~

esfmgr55003

Alias is not correct.

Description

The input alias cannot be registered.

System action

Interrupts the processing.

Administrator response

Please confirm the alias, and input it again.

Alias should be 16 characters or less.

Alphanumeric character and the following signs can be used for server name.

esfmgr55004

Host interface type is not correct.

Description

Registering server information failed.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr55005

Input "WWN" or "iSCSI Name and IP Address" or "SAS Address" are not correct.

Description

Specified parameter cannot be registered.

System action

Interrupts the processing.

Administrator response

Please confirm input "WWN" or "iSCSI Name and IP Address" or "SAS Address".

The input rule is as follows.

- WWN : Hexadecimal number of 16 characters
- iSCSI Name : Character string within 223 characters starts by character string of "iqn." or "eui."
- IP Address : nnn.nnn.nnn.nnn
- SAS Address : Hexadecimal number of 16 characters

Also, the one that has already been registered cannot be registered.

esfmgr55101

Disk Array configuration information has been changed.

Description

There is a configuration change of the disk storage system that Express Manager doesn't detect.

System action

The processing is terminated after refreshing configuration of the disk storage system.

Administrator response

There was a configuration change of the disk storage system that Express Manager doesn't detect.

Information has been updated automatically. Please check configuration of the disk storage system.

esfmgr55102

Specified parameter is invalid.

Description

An error occurred in configuring Disk storage system or obtaining its information.

System action

Interrupts the processing.

Administrator response

Confirm that 2 or more disks are specified when creating a RAID group.

If only 1 disk is specified, specify 2 or more disks and re-create a RAID group.

If there is any trouble though 2 or more disks are specified, collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr55103

This function does not support FibreCAT.

Description

An invalid function was executed for FibreCAT.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr60000

Email sending failed.

Description

Administrators could not receive event notification emails.

System action

Interrupts the processing.

Administrator response

Check email address in Contacts, Details and SMTP server settings.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfmgr60001

Internal Error (File I/O Error) occurred during collect troubleshooting information.

Description

Internal Error (File I/O Error) occurred while collecting troubleshooting information.

System action

Interrupts the processing.

Administrator response

- Confirm that there is no access to the installation folder, and retry.
- Contact a Fujitsu SE, if the problem persists.

esfmgr60002

Collect troubleshooting information is still running.

Description

Troubleshooting information collection is still running.

System action

Interrupts the processing.

Administrator response

- Confirm other users who are executing this function do not exist. Wait for a while, and retry.
- Contact a Fujitsu SE, if the problem persists.

E.3.2 Detailed messages

This chapter explains detail messages displayed on parameter of esfmgr30011, "[Messages beginning with STXS](#)", "[Messages beginning with ssmgr](#)", and "[Messages beginning with swsag](#)".

When messages other than explaining by the following are displayed, see "[6.3.2 Trouble analysis](#)", collect that message and troubleshooting information, and contact a Fujitsu SE.

Messages beginning with STXS

- Message output format

The message output format is as follows:

Message code Error level Body

The following table shows error levels:

Error level	Description
INFO	Display end of the process. No special action is required.
ERROR	Fatal error occurred. Refer to [<i>Action</i>].

STXS1011 ERROR The format of the specified parameter is invalid. [parameter name="{0}", value="{1}"]

Description

Specified parameter format is invalid.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

- Please confirm the input value.
- Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS1012 ERROR The parameter name has been duplicated. [parameter name="{0}"]**Description**

Same parameter has been set more than one time.

Parameters

{0} : Parameter

System action

Interrupts the processing.

Administrator response

Please confirm the input value.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS1016 ERROR The specified parameter name does not exist. [parameter name="{0}"]**Description**

Specified parameter name does not exist.

Parameters

{0} : Parameter

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS1025 ERROR The parameter has been duplicated. [parameter name="{0}", parameter value="{1}"]**Description**

Multiple values have been set for the same parameter.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the parameter values and try again.

STXS1027 ERROR The specified parameter is invalid. [parameter name="{0}", parameter value="{1}"]**Description**

Specified parameter is invalid.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the parameter to execute and try again.

STXS1032 ERROR The specified function parameter format is invalid. [function parameter name="{0}", function parameter value="{1}"]

Description

Format of the function parameter is invalid.

Parameters

- {0} : Function parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the parameter and try again.

STXS1033 ERROR The number of comma-delimited parameters exceeds the maximum number allowed. [parameter name="{0}", parameter value="{1}"]

Description

The number of comma-delimited parameter values exceeds the maximum number allowed.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the parameter values and try again.

STXS1034 ERROR The number of parameters specified with a colon exceeds the maximum number allowed. [parameter name="{0}", parameter value="{1}"]

Description

The number of parameters specified with a colon exceeds the maximum number allowed.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the number of parameters specified and try again.

STXS1039 ERROR The parameters cannot be simultaneously specified. [parameter name1="{0}", parameter name2="{1}"]

Description

- When setting a FC port

The Loop ID cannot be specified if a connection method other than "loop" is specified. The host response number cannot be specified if "on" is selected for the Affinity functions.

- When executing other functions

More than one parameter has been specified. However, only specification of one parameter is possible.

Parameters

- {0} : Parameter number 1
- {1} : Parameter number 2

System action

Interrupts the processing.

Administrator response

Check the parameter by [Description] to execute and try again.

STXS3006 ERROR Failed to write file. [file name="{0}"]

Description

Failed to write the file.

Parameters

{0} : File name

System action

Interrupts the processing.

Administrator response

Check if the operation management server file system is write-protected or file system capacity is insufficient.

If the problem remains, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4000 ERROR The device is under maintenance. [status: "{0}"]

Description

The command cannot be executed since the ETERNUS Disk storage system is undergoing maintenance work.

Or, there is a possibility that abnormality occurred in the ETERNUS Disk storage system after executing the function.

Parameters

{0} : Device status

System action

Interrupts the processing.

Administrator response

Try again after maintenance work completes.

If the problem remains, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4002 ERROR The device is not supported. [IP address="{0}", model="{1}", type="{2}"]

Description

The ETERNUS Disk storage system is not supported.

Or, command access to the support device failed.

Parameters

- {0} : IP address
- {1} : Device model
- {2} : Device type

System action

Interrupts the processing.

Administrator response

Not supported, this ETERNUS Disk storage system cannot be used. Use ETERNUS Web GUI to perform maintenance work for the ETERNUS Disk storage system.

Refer to the action of [STXS5002 ERROR Failed to access the device. \[code="{0}", result="{1}"\]](#) for the support device.

"Device type" may not be output.

STXS4015 ERROR The device has been locked. [ipaddress="{0}"]

Description

The ETERNUS Disk storage system is being used by another user.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

If another user is using the ETERNUS Disk storage system, execute the command after the user finishes using the ETERNUS Disk storage system.

If the ETERNUS Disk storage system remains in use due to command abnormal end, cancel the maintenance state of the ETERNUS Disk storage system.

STXS4017 ERROR Firmware does not support this operation. [IP address="{0}"]

Description

The function cannot be used since the firmware version does not support it.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

To use the function, the firmware needs to be upgraded. Contact a Fujitsu engineer.

STXS4018 ERROR The specified RAID group has not been registered. [RAID group number="{0}"]

Description

The specified RAID group has not been created in the ETERNUS Disk storage system.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Check the RAID groups in the ETERNUS Disk storage system and try again.

STXS4028 ERROR The specified RAID group number is already being used for a temporary RAID group. [RAID group number="{0}"]

Description

The specified RAID group cannot be operated since it is a working RAID group.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Check the RAID groups in the ETERNUS Disk storage system and try again.

STXS4030 ERROR The specified RAID group is a Mainframe RAID group. [RAID group number="{0}"]

Description

The specified RAID group cannot be operated since mainframe volume or MVV volume is created in the RAID group.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Check the RAID groups in the ETERNUS Disk storage system and specify a RAID group with no mainframe volume or MVV volume and try again.

STXS4031 ERROR The parameter cannot be used for this device. [parameter name="{0}"]

Description

The specified parameter cannot be used in the specified ETERNUS Disk storage system model or firmware.

Parameters

{0} : Parameter

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4032 ERROR The number of created RAID groups has reached the maximum number allowed. [IP address="{0}"]

Description

The specified number of RAID groups exceeds the maximum number allowed in the ETERNUS Disk storage system.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Check the number of RAID groups.

Refer to the "ETERNUS Web GUI User Guide" for the maximum number of RAID groups per ETERNUS Disk storage system.

STXS4033 ERROR The specified disk cannot be used. [disk number="{0}"]

Description

The disk that is not data disk has been specified.

Parameters

{0} : Disk number

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration for each RAID Level. Specify a valid disk and try again.

STXS4034 ERROR A different type of disk drive exists when creating a RAID.

Description

Mixed types of disks have been specified.

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration in each RAID Level. Specify correct disks and try again.

STXS4035 ERROR The number of specified disk drives ("{0}") for "{1}" is invalid.

Description

The specified number of disks exceeds the number of disks allowed in each RAID Level.

Parameters

- {0} : Range of disks to be specified
- {1} : RAID Level

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration in each RAID Level. Specify the correct number of disks and try again.

STXS4036 ERROR The combination of disk drives that were specified for "{0}" is invalid. (invalid FC-Loop)

Description

Installation locations of the specified disks cause invalid RAID Level combination (invalid FC-Loop).

Parameters

{0} : RAID Level

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration in each RAID Level. Correct disk installation locations and try again.

STXS4037 ERROR The combination of disk drives that were specified for RAID5 is invalid. (invalid pair BRT)

Description

The specified disk combination in RAID5 is not configured with disks belonging to the same BRT pair.

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration in each RAID Level. Specify correct disks and try again.

STXS4038 ERROR The number of specified disk drives is not an even number.

Description

The specified number of disks is not an even number.

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for disk configuration in each RAID Level. Specify an even number of disks and try again.

STXS4039 ERROR CM has not been installed in the specified device. [IP address="{0}"]**Description**

CM (CPU) has not been installed in the device.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Install CM (CPU) using ETERNUS Web GUI.

Check that CM (CPU) has been installed successfully and try again.

STXS4040 ERROR The CM whose status is not Online exists in the specified device. [IP address="{0}"]**Description**

There is a CM whose status is not online in the device.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Change the CM status to online using ETERNUS Web GUI.

Check that the status of all CMs are online and try again.

STXS4041 ERROR The specified CM has not been installed. [CM="{0}"]**Description**

The specified CM is not installed in the device.

Parameters

{0} : CM number

System action

Interrupts the processing.

Administrator response

Check the CM using ETERNUS Web GUI and try again.

STXS4042 ERROR The specified volume has not been registered. [volume number="{0}"]**Description**

The specified volume number is not registered in the device.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Check the volume number and try again.

STXS4043 ERROR The specified type of volume is not supported. [volume number="{0}"]

Description

An unsupported volume has been selected.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Check the volume type, and try again.

STXS4044 ERROR The number of created affinity groups has reached the maximum number allowed. [IP address="{0}"]

Description

The number of affinity groups exceeds the maximum number allowed per device.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for the maximum number of affinity groups allowed per device. Check the number of affinity groups and try again.

STXS4045 ERROR The specified alias name has already been registered in the device. [name="{0}"]

Description

The specified name has already been registered in the device.

While adding LUN Mapping, this message may be output if an alias name is not specified.

Parameters

{0} : Specified name

System action

Interrupts the processing.

Administrator response

Specify the name not registered and try again.

STXS4046 ERROR The specified affinity group has not been registered. [affinity group number="{0}"]

Description

The specified affinity group number is not registered in the device.

Parameters

{0} : Affinity group number

System action

Interrupts the processing.

Administrator response

Check the affinity group number and try again.

STXS4047 ERROR The specified affinity group has been concatenated. [affinity group number="{0}"]

Description

A concatenated affinity group number has been specified.

Parameters

{0} : Affinity group number

System action

Interrupts the processing.

Administrator response

A concatenated affinity group is unsupported and cannot be specified.

Operate a concatenated affinity group using ETERNUS Web GUI.

STXS4048 ERROR The volume in which LUN has been mapped has been specified. [volume number="{0}"]

Description

A volume in which a LUN has been mapped has been specified.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Check the LUN mapping of the specified affinity group or port, and try again.

STXS4049 ERROR The affinity group in which host affinity is set has been specified. [affinity group number="{0}"]

Description

An affinity group number associated with host affinity has been specified.

Delete the affinity group number after canceling host affinity set in the affinity group.

Parameters

{0} : Affinity group number

System action

Interrupts the processing.

Administrator response

Delete the specified affinity group number from the associated host affinity.

Then, delete the specified affinity group number again.

STXS4050 ERROR The specified WWN has already been registered in the device. [WWN="{0}"]**Description**

The specified WWN has already been registered in the device.

Parameters

{0} : WWN

System action

Interrupts the processing.

Administrator response

Specify an unregistered WWN and try again.

STXS4051 ERROR The number of created WWNs has reached the maximum number allowed. [IP address="{0}"]**Description**

The number of WWNs exceeds the maximum number of WWNs that can be created per device.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for the maximum number of WWNs per device. Check the number of WWNs and try again.

STXS4052 ERROR The specified host response has not been registered. [host response number="{0}"]**Description**

The specified host response number is not registered in the device.

Parameters

{0} : Host response number

System action

Interrupts the processing.

Administrator response

Check the host response number and try again.

STXS4053 ERROR The specified host number has not been registered. [host number="{0}"]**Description**

The specified host number is not registered in the device.

Parameters

{0} : Host number

System action

Interrupts the processing.

Administrator response

Check the host number and try again.

STXS4054 ERROR The specified host number has been associated with an affinity group. [host number="{0}"]

Description

A host number associated with host affinity has been specified.

Delete the host number after canceling host affinity set in the host.

Parameters

{0} : Host number

System action

Interrupts the processing.

Administrator response

Delete the specified host number from the associated host affinity.

Then, delete the specified host number again.

STXS4055 ERROR A volume in which LUN has not been mapped has been specified. [volume number="{0}"]

Description

A volume to which LUN has not been mapped has been specified.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Check the LUN mapping of the specified affinity group number and try again.

STXS4056 ERROR A LUN that has not been mapped in the volume has been specified. [LUN="{0}"]

Description

LUN which has not been mapped to any volume has been specified.

Parameters

{0} : LUN

System action

Interrupts the processing.

Administrator response

Check the LUN mapping of the specified affinity group or port, and try again.

STXS4058 ERROR All LUNs cannot be deleted. [affinity group number="{0}"]

Description

All LUNs cannot be deleted. The affinity group should define one or more LUN mappings.

Parameters

{0} : Affinity group number

System action

Interrupts the processing.

Administrator response

Check the number of LUN mappings defined in the specified affinity group number and try again.

Delete the affinity group to delete all LUN mappings.

STXS4059 ERROR The port specified by the identification number is not supported. [port identification number="{0}"]

Description

The specified port cannot be operated.

Parameters

{0} : Port identification number

System action

Interrupts the processing.

Administrator response

Check the port and try again.

STXS4060 ERROR Affinity mode of the port specified by the identification number is not ON. [port identification number="{0}"]

Description

Affinity mode is off for the specified port.

Parameters

{0} : Port identification number

System action

Interrupts the processing.

Administrator response

Turn on affinity mode for the specified port and try again.

STXS4061 ERROR The specified host number has already been registered in the host affinity. [host number="{0}"]

Description

The specified host number has already been registered in the host affinity.

Parameters

{0} : Host number

System action

Interrupts the processing.

Administrator response

Check the host number that has not been registered in the host affinity and retry again.

STXS4062 ERROR The host specified by the host number is not registered in "{0}". [host number="{1}"]**Description**

The specified host is unavailable host (HostWWN, iSCSI, or SAS address) because it is not registered.

Parameters

- {0} : HostWWN, iSCSI, or SAS address
- {1} : Host number

System action

Interrupts the processing.

Administrator response

Check the host number and try again.

STXS4063 ERROR The concatenated destination affinity group has been specified. [affinity group number="{0}"]**Description**

A concatenation destination affinity group number has been specified.

Parameters

{0} : Affinity group number

System action

Interrupts the processing.

Administrator response

A concatenation destination affinity group cannot be specified to host affinity.

Check the affinity group that are not concatenation destination affinity group and try again.

STXS4064 ERROR The concatenated affinity group cannot be set in a host response mode for which a host number has been specified. [host number="{0}"]**Description**

A concatenated affinity group cannot be set with the host specific mode set to the host response number associated with the specified host number.

Parameters

{0} : Host number

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for details about host specific mode and concatenated affinity groups. Check host specific mode of the associated host response number and try again.

STXS4065 ERROR The number of created host affinities in the port has reached the maximum number allowed. [port identification number="{0}"]**Description**

More than maximum number of host affinities that can be created has been specified for the port.

Parameters

{0} : Port identification number

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for details about the maximum number of host affinities that can be set per port. Check the number of host affinities specified for the port.

STXS4066 ERROR The specified host number has not been registered in the host affinity. [host number="{0}"]

Description

The specified host number is not registered in the host affinity.

Parameters

{0} : Host number

System action

Interrupts the processing.

Administrator response

Check the host number and try again.

STXS4067 ERROR The number of volumes to be created exceeds the maximum number allowed for the specified RAID group. [RAID group number="{0}"]

Description

The total number of volumes that has been specified and volumes that has been created in the RAID group so far exceeds the maximum number of volumes allowed.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for details about the maximum number of volumes for each RAID group.

Check the number of volumes already created in the RAID group and try again.

If there are two or more specified size volumes, reduce the number.

STXS4068 ERROR The operation cannot be performed in the specified RAID group status. [RAID group number="{0}" status="{1}"]

Description

The specified RAID group status is abnormal.

Parameters

- {0} : RAID group number

- {1} : RAID group status

System action

Interrupts the processing.

Administrator response

Return "Available" the status of the RAID group and try again.

If status does not return to normal, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4069 ERROR Volumes cannot be created due to a capacity shortage in the specified RAID group. [RAID group number="{0}"]

Description

The total size of the specified volumes exceeds free space in the RAID group.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Check free space in the RAID group and adjust the size of the volume to be created.

STXS4070 ERROR The number of volumes to be created exceeds the maximum number allowed for the device. [IP address="{0}"]

Description

The total number of volumes that have been specified and volumes that have been created in the device so far exceeds the maximum number of volumes allowed.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide" for details about the maximum number of volumes for each device. Check the number of volumes already created in the device and try again.

If there are two or more specified size volumes, reduce the number.

STXS4071 ERROR The specified RAID group is in the process of LDE. [RAID group number="{0}"]

Description

The specified RAID group is in the process of LDE(Logical Device Expansion).

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Try again after RAID group LDE is completed.

STXS4072 ERROR The volume has been defined in the specified RAID group. [RAID group number="{0}"]

Description

The volume has been defined in the specified RAID group.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Delete defined volume by deleting RAID groups.

STXS4073 ERROR The specified disk is not installed in the device. [disk number="{0}"]

Description

The specified disk is not installed in the device.

Parameters

{0} : Disk number

System action

Interrupts the processing.

Administrator response

Check the disk and try again.

STXS4074 ERROR The specified volume is in the process of advanced copy. [volume number="{0}"]

Description

The specified volume is in the process of advanced copy.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Try again after advanced copy of the volume is completed.

STXS4075 ERROR The target firmware does not support RAID6. [IP address="{0}"]

Description

An attempt to create RAID6 has been made for firmware that does not support RAID6.

Parameters

{0} : IP address

System action

Interrupts the processing.

Administrator response

Firmware that does support RAID6 and try again.

STXS4076 ERROR The specified disk is not available. [disk number="{0}" status="{1}"]

Description

Disk can be used, when the following status.

- Present or Available

Parameters

- {0} : Disk number
- {1} : Status

System action

Interrupts the processing.

Administrator response

Wait until disk status returns to normal and try again.

If status does not return to normal, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS4077 ERROR The specified disk has been assigned to another RAID group. [disk number="{0}"]

Description

The specified disk has already been assigned to another RAID group.

Parameters

- {0} : Disk number

System action

Interrupts the processing.

Administrator response

Check the disk and try again.

STXS4078 ERROR The disk that has this capacity cannot be used. [disk number="{0}"]

Description

9GB and 18GB disks cannot be used.

Parameters

- {0} : Disk number

System action

Interrupts the processing.

Administrator response

Specify disks other than 9GB and 18GB disks and try again.

STXS4087 ERROR The specified WWN is invalid. [WWN="{0}"]**Description**

The specified WWN is invalid.

A string of the same characters (000, fff, or FFF) has been specified for WWN.

Parameters

{0} : WWN

System action

Interrupts the processing.

Administrator response

Please assign right WWN.

STXS4088 ERROR The specified volume type cannot be deleted. [volume number="{0}"]**Description**

An unsupported volume has been specified.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Specify a volume to be supported to execute deletion again.

STXS4089 ERROR The specified volume is in the progress of RAID migration. [volume number="{0}"]**Description**

The specified volume is undergoing RAID migration.

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Try again after the volume RAID migration is completed.

STXS4095 ERROR The RAID group that includes the specified volume is in the process of LDE. [volume number="{0}"]**Description**

The RAID group that includes the specified volume is in the process of LDE(Logical Device Expansion).

Parameters

{0} : Volume number

System action

Interrupts the processing.

Administrator response

Try again after RAID group LDE is completed.

STXS4096 ERROR The specified LUN is being used. [LUN="{0}"]

Description

The specified LUN has already been used for LUN mapping.

Parameters

{0} : LUN

System action

Interrupts the processing.

Administrator response

Specify the LUN that has not been used for LUN mapping and try again.

STXS4098 ERROR The specified LUN is out of the range that can be registered. [LUN="{0}"]

Description

The specified number of logical units is out of the range that can be registered.

Parameters

{0} : LUN

System action

Interrupts the processing.

Administrator response

Specify a LUN within the range that can be registered, and try again.

The maximum number of mappings that can be created for one affinity group or port varies depending on host specific mode set in the host response list.

Refer to the "ETERNUS Web GUI User Guide" for the maximum number of mappings that can be created for one affinity group.

STXS4099 ERROR The specified RAID group has been blocked. [RAID group number="{0}"]

Description

The specified RAID group has been blocked.

Parameters

{0} : RAID group number

System action

Interrupts the processing.

Administrator response

Wait until RAID group status returns to normal and try again.

If status does not return to normal, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS4100 ERROR The number of specified volumes exceeds the maximum number allowed for LUN mapping.

Description

The specified number of volumes exceeds the maximum number of volumes that can be mapped.

System action

Interrupts the processing.

Administrator response

Check the number of mapped volumes.

The maximum number of mappings that can be created for one affinity group or port varies depending on host specific mode set in the host response list. Refer to the "ETERNUS Web GUI User Guide" for the maximum number of mappings that can be created for one affinity group or port.

STXS4101 ERROR The specified disk is a system disk. [disk number="{0}"]

Description

A system disk has been specified in the RAID group.

Parameters

{0} : Disk number

System action

Interrupts the processing.

Administrator response

Specify a disk that is not a system disk and try again.

STXS4102 ERROR The specified port has not been installed. [port identification number="{0}"]

Description

The specified port is not installed in the device.

Parameters

{0} : Port identification number

System action

Interrupts the processing.

Administrator response

Specify an installed port to the ETERNUS Disk storage system and try again.

STXS4103 ERROR The specified number has been registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified number has already been registered.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the number and try again.

STXS4104 ERROR The specified number is out of the range that can be registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified number is out of the range of number that can be registered.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

After checking the number, try again.

For the numbers that can be registered, refer to "ETERNUS Web GUI User Guide".

STXS4105 ERROR The maximum number that can be created per device has already been exceeded.

Description

The maximum number that can be created per device has already been exceeded.

System action

Interrupts the processing.

Administrator response

For the maximum number that can be created per device, refer to "ETERNUS Web GUI User Guide".

Check the maximum number that can be created in the device, and try again.

STXS4106 ERROR The host response cannot be changed to the specified host specific mode. [hostresponse number="{0}", host specific mode="{1}"]

Description

The specified host response cannot be changed because its status is either of the following.

- There is mapping for LUN#255 onwards for the port in which the specified host response is set.
- The host in which the specified host response is set is associated with a concatenated affinity group.

Parameters

- {0} : Host response number
- {1} : Host specific mode

System action

Interrupts the processing.

Administrator response

Check the associated host, and try again.

STXS4107 ERROR The specified host response has been used with another function. [parameter name="{0}", parameter value="{1}"]

Description

The host response which is set for the port or host has been specified.

Cancel the host response from the port or host before deleting it.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Delete the specified host response from the set port or host.

Then, try to delete the specified host response again.

STXS4108 ERROR The specified number has not been registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified number has not been registered.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

Check the number and try again.

STXS4110 ERROR The default host response cannot be deleted. [parameter name="{0}", parameter value="{1}"]

Description

The specified host response cannot be deleted because it is the default host response.

Parameters

- {0} : Parameter
- {1} : Specified value

System action

Interrupts the processing.

Administrator response

No action is required.

STXS4112 ERROR The parameter name cannot be specified for the default host response. [parameter name="{0}"]

Description

The specified parameter cannot be set for the default host response.

The following parameter cannot be specified for the default host response.

- name

Parameters

{0} : Parameter

System action

Interrupts the processing.

Administrator response

No action is required.

STXS4113 ERROR Could not acquire information from device.

Description

Information could not be acquired from the ETERNUS Disk storage system.

System action

Interrupts the processing.

Administrator response

No information exists in the ETERNUS Disk storage system, or the information is being updated. Wait for a while, then try again.

STXS4114 ERROR The Function cannot be specified in the device. [Function="{0}"]

Description

A Function unsupported by the device has been specified.

Parameters

{0} : Function

System action

Interrupts the processing.

Administrator response

Check the functions supported by the command, and try again.

STXS4119 ERROR The capacity that can be created in the device exceeds the maximum capacity.

Description

The capacity that can be created in the ETERNUS Disk storage system exceeds the maximum capacity.

System action

Interrupts the processing.

Administrator response

Check the maximum capacity that can be created in the ETERNUS Disk storage system, and try again.

For the maximum capacity that can be created in the ETERNUS Disk storage system, refer to "ETERNUS Web GUI User Guide".

STXS4121 ERROR Device functions are disabled. [Device function="{0}"]

Description

- When canceling the daylight saving time settings

The daylight saving settings was canceled when daylight saving time settings are disabled.

- When canceling the NTP server settings

The NTP server settings was canceled when time settings by the NTP server are disabled.

- When executing other functions

The device functions are disabled.

Parameters

{0} : Function name

System action

Interrupts the processing.

Administrator response

- When adding disk storage system

There is possibility that Free License have not been registered. Register it using ETERNUS Web GUI.

- When canceling the daylight saving time/NTP server settings

No action is required.

- When executing other functions

Use ETERNUS Web GUI to enable the functions, and try again.

STXS4122 ERROR Specified volume is being encrypted. [Volume number="{0}"]

Description

The specified volume is being encrypted.

Parameters

{0} : Volume Number

System action

Interrupts the processing.

Administrator response

Try again after the volume encryption has been completed.

STXS4129 ERROR Cannot change configuration as function is in operation.

Description

- When Advanced Copy table size setting is processed

Copy table size cannot be changed because Advanced Copy is being processed.

- When enabling the Advanced Copy function

The Advanced Copy function cannot be enabled because Advanced Copy is in progress.

System action

Interrupts the processing.

Administrator response

Try again after the function behavior has been finished.

STXS4130 ERROR The affinity mode is not off for the port of the specified port identification number. [port identification number="{0}"]

Description

Affinity mode is ON for the specified port.

Parameters

{0} : Port identification Number

System action

Interrupts the processing.

Administrator response

Set the affinity mode to OFF for the specified port, and try again.

STXS4132 ERROR Specified password does not match the password that has been set in the device.

Description

The specified password is different from the password that has been set in the device.

System action

Interrupts the processing.

Administrator response

Specify the correct password, and try again.

STXS4133 ERROR Specified password does not match the confirmation password.

Description

The specified password is different from the confirmation password.

System action

Interrupts the processing.

Administrator response

Specify the same password for password and confirmation password, and try again.

STXS4134 ERROR Specified value has already been registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified value has already been registered in the device.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Specify a value that is not registered, and try again.

STXS4135 ERROR Specified combination of values has been already registered. [parameter name1="{0}", parameter value1="{1}", parameter name2="{2}", parameter value2="{3}"]

Description

The specified combination of values has already been registered in the device.

Parameters

- {0} : Parameter name1
- {1} : Parameter value1
- {2} : Parameter name2
- {3} : Parameter value2

System action

Interrupts the processing.

Administrator response

Specify a combination of values that is not registered, and try again.

STXS4136 ERROR Specified IP address is not usable. [address type="{0}", IP address="{1}", subnet mask="{2}"]

Description

- When setting USER port or REMCS port

The following addresses cannot be used.

- Network address
 - Broadcast address
 - IP address for the USER port or REMCS port that is same as that of gateway
 - IP address for the USER port or REMCS port that is in a different subnet from that of gateway
 - IP address for the USER port that is the same as that of the REMCS port
 - IP addresses for the USER port and REMCS port that are of the same subnet
 - IP address for the USER port or REMCS port that is same as the destination network address
 - IP address for the USER port or REMCS port that is in the same subnet as the destination network address
 - IP address for the USER port or REMCS port that is the same as that of the Slave CM IP
 - IP address for the USER port or REMCS port, and a Slave CM IP address that is of a different subnet
 - IP address for the Slave CM IP that is the same as that of gateway
 - IP address for the Slave CM IP that is the same as that of the primary DNS
 - IP address for the Slave CM IP that is the same as that of the secondary DNS
 - Slave CM IP address for the USER port that is the same as the Slave CM IP address of the REMCS port
- When setting destination information for the USER port or REMCS port

The following addresses cannot be used.

- Broadcast address
 - IP address of the USER port or REMCS port that is same as the destination network address
 - IP address of the USER port or REMCS port that is in the same subnet as the destination network address
- When setting the NTP server for managing the date and time

The following addresses cannot be used for the NTP server.

- Broadcast address of the used LAN (USER/REMCS) port

- Network address of the used LAN (USER/REMCS) port
- IP address of the used LAN (USER/REMCS) port
- When setting the iSCSI-CA port or iSCSI-RA port

The following addresses cannot be used.

- Network address
- Broadcast address
- IP address for iSCSI-CA port or iSCSI-RA port that is the same as that of gateway
- IP address for iSCSI-CA port or iSCSI-RA port, and an IP address for gateway that is of a different subnet

Parameters

- {0} : Address type
- {1} : IP address
- {2} : Subnet mask

System action

Interrupts the processing.

Administrator response

Check the network configuration, and try again.

STXS4137 ERROR Necessary settings are not performed. [parameter name="{0}"]

Description

- When setting a FC port
 - The Loop ID cannot be specified if the connection method for the target port is not set to FC-AL connection.
 - The host response number cannot be specified if the Affinity functions of the target port are enabled.
- When setting USER port or REMCS port
 - The Primary DNS must be set when setting the Secondary DNS.
 - The gateway must be set when setting the Primary/Secondary DNS on a different subnet from the IP address of the port.
 - If the connection destination network address is set, the gateway cannot be disabled.
- When setting destination information for the USER port or REMCS port
 - The gateway must be set when setting the destination network address.
 - When the USER port or REMCS port is disabled, the destination network address cannot be set.

Parameters

{0} : Parameter name

System action

Interrupts the processing.

Administrator response

- When setting a FC port

No action is required.
- When using other functions

Set the necessary parameters, and try again.

STXS4138 ERROR Operation cannot be performed with the specified disk. [disk number="{0}"]

Description

- When registering a hot spare

One of the following disks is specified.

- system disk
- disk other than a data disk
- disk whose status is abnormal
- disk that configures a RAID group
- disk whose type is different from that of the specified RAID group
- disk whose capacity is smaller than the minimum capacity disk that configures the specified RAID group

- When canceling a hot spare registration

One of the following disks is specified.

- disk other than a hot spare disk
- disk whose status is abnormal (including specified disks that are currently in use)
- disk that configures a RAID group

Parameters

{0} : Disk number

System action

Interrupts the processing.

Administrator response

Refer to the "ETERNUS Web GUI User Guide".

Specify a valid disk, and try again.

STXS4139 ERROR Specified device has an error.

Description

The specified device has an error.

System action

Interrupts the processing.

Administrator response

Wait a while for the device status to be normal, and try again.

If the problem remains, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS4140 ERROR Operation cannot be performed on the specified volume.

Description

- a. The capacity of the specified volume is less than the minimum capacity (1024MB).
- b. The disk type of the RAID group to which the specified volume belongs is not the same as that of the specified RAID group.
- c. The status of the specified volume is abnormal.

System action

Interrupts the processing.

Administrator response

- a. Specify a volume that has a capacity of 1024MB or more, and try again.
- b. Specify a volume and RAID group with disks of the same type, and try again.
- c. Wait for a while, and when the volume status changes to normal, try again.

If the volume status does not change to normal, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4141 ERROR Limit of concatenation has been reached.

Description

As a result of concatenation, the status is as one of the following.

- The volume capacity is above the volume maximum capacity (32TB).
- The number of volumes that were concatenated is above the maximum (16).

System action

Interrupts the processing.

Administrator response

Check the concatenation configuration, and try again.

STXS4154 ERROR Specified information is not registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified information is not registered.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Remove registered disk array and re-register it then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXS4156 ERROR The format of the specified parameter is invalid for this device. [parameter name="{0}"]

Description

The format of the parameter is invalid for the specified ETERNUS Disk storage system model or firmware.

Parameters

{0} : Parameter

System action

Interrupts the processing.

Administrator response

Refer to the description of operands for the operation to be performed, check the parameters, and then try again.

STXS5001 ERROR Failed to check the progress of device operation. [code="{0}"]

Description

Progress check command has been interrupted due to the device.

Parameters

{0} : Command code

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS5002 ERROR Failed to access the device. [code="{0}", result="{1}"]

Description

Command access to the device failed.

Parameters

- {0} : Command code
- {1} : Result

System action

Interrupts the processing.

Administrator response

The following are possible causes:

- ETERNUS Disk storage system status is abnormal
- ETERNUS Disk storage system component failed
- Network environment is invalid
- LAN connection status is invalid
- Number of disks used exceeds the number of disks that can be installed

Check the above causes and if the problem remains, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8002 ERROR The values of the parameter exceed the range allowed. [parameter name="{0}", parameter value="{1}"]

Description

The parameter values exceed the range allowed.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8005 ERROR The combination of parameters is not correct. [parameter name="{0}", parameter value="{1}"]

Description

The combination of parameters is not correct.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8006 ERROR The specified status for the parameter is invalid. [parameter name="{0}", parameter value="{1}"]

Description

The specified status for the parameter is invalid.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8007 ERROR The specified parameter is invalid. [parameter name="{0}", parameter value="{1}"]

Description

The specified parameter is invalid.

Parameters

- {0} : Parameter name

- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8008 ERROR The specified size is invalid. [parameter name="{0}", parameter value="{1}"]

Description

The specified size is invalid.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8042 ERROR The password is invalid. [parameter name="{0}", parameter value="{1}"]

Description

The password is invalid.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Re-register user information according to "[7.5.5 Changing the User Name or Password](#)" and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8070 ERROR The resource is being used. [parameter name="{0}", parameter value={1}]

Description

The resource is being used.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Stop the use of the resource or wait for a while, and then try again.

STXS8071 ERROR The specified resource is being used by another function or configuration. [parameter name="{0}", parameter value="{1}"]

Description

The specified resource is being used by another function or configuration.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Select [Disk Array] - [Reload Conf] in [Action] pane in Express web GUI and refresh the disk array information. Then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8080 ERROR The specified capacity or number has reached the limit. [parameter name="{0}", parameter value="{1}"]

Description

The specified capacity or number has reached the limit.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8081 ERROR There are no more usable disks. [parameter name="{0}", parameter value="{1}"]

Description

There are no more usable disks.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Prepare the required number of usable disks and try again.

STXS8090 ERROR The specified parameter cannot be used in the current state of the ETERNUS Disk storage system. [parameter name="{0}", parameter value="{1}"]

Description

The specified parameter cannot be used in the current state of the ETERNUS Disk storage system.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Check the status of the ETERNUS Disk storage system and try again.

STXS8093 ERROR The specified parameter cannot be used for the host affinity mode. [parameter name="{0}", parameter value="{1}"]

Description

The specified parameter cannot be used for the host affinity mode.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Check the host affinity mode and try again.

STXS8094 ERROR The specified parameter cannot be used for the encryption mode. [parameter name="{0}", parameter value="{1}"]

Description

The specified parameter cannot be used for the encryption mode.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Check the encryption mode of the ETERNUS Disk storage system and try again.

STXS8110 ERROR The specified target does not exist. [parameter name="{0}", parameter value="{1}"]

Description

The specified target does not exist.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Select [Disk Array] - [Reload Conf] in [Action] pane in Express web GUI and refresh the disk array information. Then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8120 ERROR The specified value has already been registered. [parameter name="{0}", parameter value="{1}"]

Description

The specified value has already been registered.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Select [Disk Array] - [Reload Conf] in [Action] pane in Express web GUI and refresh the disk array information. Then try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

STXS8156 ERROR LDE is currently being performed. [parameter name="{0}", parameter value="{1}"]

Description

LDE is currently being performed.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Wait for LDE to complete and then try again.

STXSD010 ERROR The volume that is configured with SEDs is specified to be encrypted. [parameter name="{0}", parameter value="{1}"]

Description

The volume that is configured with SEDs is specified to be encrypted.

Parameters

- {0} : Parameter name
- {1} : Parameter value

System action

Interrupts the processing.

Administrator response

Specify a volume that is not configured with SEDs for encryption.

Messages beginning with ssmgr

ssmgr3021

Username or password is incorrect for device.

Description

Failed to login to device because username or password is incorrect.

System action

Interrupts the processing.

Administrator response

When this message is displayed by registering device, enter the correct username and password, and register again.

When this message is displayed for the registered device, refer to "[7.5.5 Changing the User Name or Password](#)".

ssmgr3022

Another user has logged in to device. Logout and run function again.

The target device: {0};{1}

Description

The Manager could not login to the device because another user has already logged into the device.

Parameters

- {0} : Indicates device name that is set for the device to which login failed.
- {1} : Indicates the IP address of the device to which login failed.

System action

Interrupts the processing.

Administrator response

Log out the process logged into the target device, and then re-execute.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3317

Failed to modify the iSCSI Port.

Description

Failed to set the iSCSI port.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3318

Failed to obtain the iSCSI Port.

Description

Failed to obtain the iSCSI port.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3377

Specified iSCSI PortID (`{0}`) is not found in the specified storage device (`{1}`).

Description

The specified port ID does not exist in the specified storage device.

Parameters

- `{0}` : Port ID specified
- `{1}` : IP address specified for the storage device

System action

Interrupts the processing.

Administrator response

Possible responses are:

- If the port ID specified is invalid:
Specify a valid port ID, and then re-execute.
 - If the IP address specified for the storage device is invalid:
Specify a valid IP address for the storage device, and then re-execute.
-

ssmgr3403

Specified storage device (`{0}`) could not be found.

Description

An error occurred during the storage device settings or the management information could not be obtained.

Parameters

{ 0 } : IP address

System action

Interrupts the processing.

Administrator response

Check that the specified storage device is supported.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3405

The operation cannot be executed, because the fatal inconsistent data was detected in the database of this software.

Description

The fatal inconsistent data was detected in the database of this software.

System action

Interrupts the processing.

Administrator response

Settings for the storage device have been made, but these settings have not been successfully reflected in the database for this software.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3410

Specified RAID group ({ 0 }) does not exist.

Description

The specified RAID group number does not exist.

Parameters

{ 0 } : Indicates the RAID group number

System action

Interrupts the processing.

Administrator response

Specify the correct RAID group number, and then re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3413

Because the number of RAID groups reaches the upper bound, it is not possible to make it.

Description

The RAID group could not be created because the maximum number of RAID groups for the storage device has been reached.

System action

Interrupts the processing.

Administrator response

Check the number of RAID groups that have been registered with the device. To create a new RAID group, an existing RAID will need to be deleted.

ssmgr3414

The RAID group cannot be made by combining specified disks ($\{O\}$).

Description

Processing has terminated because the specified combination of disks is incorrect.

Parameters

$\{O\}$: Indicates the disk number

System action

Interrupts the processing.

Administrator response

The problem may be due to one of the following. Check the disk and then execute the processing again.

- An invalid combination of disks may have been specified when the RAID group was created
- A disk that is already being used by another RAID group may have been specified
- Disks with different types may have been specified
- The specified disk may not exist
- The reason for failure to create the RAID group may be because the status of the specified disk is "error"
- The disk numbers unsuitable for the RAID Level

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3415

The value of assign CM($\{O\}$) specified when the RAID group is made is wrong.

Description

Processing has terminated because the value of the CM (that was assigned when the RAID group was created) was incorrect.

Parameters

$\{O\}$: Indicates the assigned CM

System action

Interrupts the processing.

Administrator response

Specify the correct assigned CM number, and then re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3417

The type of specified volume ($\{O\}$) is a unsupported.

Description

Processing has terminated because the type of volume specified is not supported by the command.
The only types of volumes that the command supports are OLU volumes that are not LUN concatenated.

Parameters

{0} : Indicates the volume number

System action

Interrupts the processing.

Administrator response

Specify the correct volume number, and then re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3420

Specified AffinityGroup({0}) does not exist.

Description

The specified affinity group does not exist.

Parameters

{0} : Indicates the affinity group number

System action

Interrupts the processing.

Administrator response

Specify the correct affinity group number, and then re-execute.

ssmgr3422

As for specified volume ({0}), the LUN mapping is done.

Description

LUN mapping for the specified volume number is complete.

Parameters

{0} : Indicates the volume number

System action

Interrupts the processing.

Administrator response

Specify the correct volume number, and then re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3427

Because the number of volumes that can be made in RAID group ({0}) exceeds the upper bound, the volume cannot be made.

Description

Processing has terminated because the number of volumes exceeds the maximum number of volumes that can be created within a RAID group.

Parameters

{0} : Indicates the RAID group number

System action

Interrupts the processing.

Administrator response

Check the number of volumes in the RAID groups that have been registered with the device. To create a new volume, either specify a different RAID group, or delete an existing volume.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3428

The status of specified RAID group ({0}) is abnormal.

Description

Processing has terminated because the status of the specified RAID group prevents processing from being performed.

Parameters

{0} : Indicates the RAID group number

System action

Interrupts the processing.

Administrator response

Check the status of the RAID group. Execute the processing again after the status returns to "normal".

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3429

Because the capacity of specified RAID group ({0}) is insufficient, the volume cannot be made.

Description

The volume cannot be created because the RAID group does not have enough capacity.

Parameters

{0} : Indicates the RAID group number

System action

Interrupts the processing.

Administrator response

Check the capacity of the RAID group, specify the correct volume capacity and re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3430

Because the number of volumes that can be made exceeds the upper bound, it is not possible to make it.

Description

Processing has terminated because the number of volumes exceeds the maximum number of volumes that can be registered with the device.

System action

Interrupts the processing.

Administrator response

Check the number of volumes that have been registered with the device. To create a new volume, an existing volume will need to be deleted.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3431

The volume exists in specified RAID group ($\{0\}$).

Description

Processing has terminated because an attempt was made to delete the RAID group where the volume is located.

Parameters

$\{0\}$: Indicates the RAID group number

System action

Interrupts the processing.

Administrator response

RAID groups that contain volumes cannot be deleted. To delete RAID groups, please delete the volumes in the RAID group before deleting the RAID group.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3436

The RAID group where specified volume ($\{0\}$) is included cannot operate it because of the LDE.

Description

Operations cannot be performed on the volume because Logical Device Expansion (LDE) is being performed for the RAID group that includes the specified volume.

Parameters

$\{0\}$: Indicates the volume number

System action

Interrupts the processing.

Administrator response

Execute the processing again after the Logical Device Expansion for the RAID group finishes.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3440

The RAID group to make the specified volume does not exist.

Description

There are no RAID groups where a volume can be created.

System action

Interrupts the processing.

Administrator response

Specify the correct RAID group number, and then re-execute.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3441

The specified RAID group cannot register the volume.

Description

The volume could not be registered in the RAID group.

System action

Interrupts the processing.

Administrator response

Check the RAID group, and then re-execute.

Volumes cannot be specified as open volumes if any volumes other than open volumes, SDV volumes or SDPV volumes have been registered with the RAID group.

If this does not solve the problem, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3454

The specified port(*{ 0}*) cannot set the HostReponse.

Description

The HostReponse number was specified for a port for which the affinity mode is ON.

Parameters

{ 0} : Port ID

System action

Interrupts the processing.

Administrator response

Check that the port that was specified is valid, and then re-execute.

If the problem is not resolved, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3455

Specified HostResponse({ 0}) does not exist.

Description

The specified HostResponse does not exist.

Parameters

{ 0} : HostResponse number

System action

Interrupts the processing.

Administrator response

Specify a valid HostResponse number, and then re-execute.

If the problem is not resolved, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3458

The specified port({ 0}) is a unsupported.

Description

The specified port is unsupported.

Parameters

{ 0} : Port ID

System action

Interrupts the processing.

Administrator response

Specify a valid port ID, and then re-execute.

If the problem is not resolved, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3462

The specified port({ 0}) is wrong.

Description

The specified port is invalid.

Parameters

{ 0} : Port ID

System action

Interrupts the processing.

Administrator response

Specify a valid port, and then re-execute.

If the problem is not resolved, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3464

The specified HostResponse({ 0}) cannot be used.

Description

The specified Host Specific Mode for the HostResponse cannot be set.

Parameters

{ 0} : HostResponse number

System action

Interrupts the processing.

Administrator response

LUN#256 or greater has been used for port LUN mapping, therefore the Host Specific Mode for the HostResponse must be one of AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address). Check the Host Specific Mode for the HostResponse, and then re-execute.

If the problem is not resolved, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3465

The specified value is used with other { 0}.

Description

A value already used with another function was specified.

Parameters

{ 0} : Function name

System action

Interrupts the processing.

Administrator response

The iSCSI port, iSCSI host IP address, iSCSI name, iSCSI alias name, and iSCSI host name cannot be duplicated with another iSCSI port or iSCSI host and registered. Check the settings, and then re-execute.

If the problem is not resolved, then collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3467

Network setting of { 0} is wrong.

Description

The network setting is invalid.

Parameters

{ 0 } : Function name

System action

Interrupts the processing.

Administrator response

The following settings cannot be specified for the iSCSI port IP address, subnet, or gateway:

- Network address
- Broadcast address
- The IP address and gateway IP address cannot be the same
- The IP address and gateway IP address cannot have different subnets

Check the settings, and then re-execute.

If the problem is not resolved, collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3486

The resource of the device ({ 0 }) is insufficient.

Description

The maximum of capacity in which the format was enforceable was exceeded at the same time.

Parameters

{ 0 } : IP address of storage device.

System action

Interrupts the processing.

Administrator response

Execute it again after completing the format executing it now.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3490

The function is disabled for the device ({ 0 })

Description

The operation cannot be performed because the license for one of the following functions has not been registered or the function is disabled.

- Thin provisioning function
- Encryption function
- Advanced Copy function

Parameters

{ 0 } : IP address

System action

Interrupts the processing.

Administrator response

Register the corresponding license or enable the function and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3491

The status of device (`{0}`) is abnormal.

Description

The specified operation cannot be performed because the status of the device is "error".

Parameters

`{0}` : IP address of storage device.

System action

Interrupts the processing.

Administrator response

Check the status of the device, and execute the processing again after the status returns to "normal".

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3502

The specified value is out of range.

Description

The value specified for one of the following items is out of range:

- Disk
- RAID group
- Thin provisioning pool
- Volume
- Volume capacity
- Host response
- Port
- Host WWN
- iSCSI host
- SAS address
- Affinity group
- LUN
- REC buffer
- REC path

System action

Interrupts the processing.

Administrator response

Check the value entered and the storage device status and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3503

The status of specified value is abnormal.

Description

The operation cannot be performed because the status of one the following items is abnormal:

- Disk
- RAID group
- Thin provisioning pool
- Volume
- CM
- Port

System action

Interrupts the processing.

Administrator response

Check that the specified item has resumed a normal status and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3504

The specified value cannot be used.

Description

Any of the following specified values cannot be used.

- disk
- RAID group
- volume
- host response
- port
- affinity group

System action

Interrupts the processing.

Administrator response

Execute it again after confirming the state of the specified value.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3506

The specified value is in use.

Description

Any of the following specified values being used, it is not possible to operate it.

- disk
- volume
- affinity group
- port

System action

Interrupts the processing.

Administrator response

Execute it again after confirming the specified value or the state of the storage device.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3508

The number of disk reaches the upper bound.

Description

It reaches upper bounds of the number of disks that can be operated at a time, it is not possible to operate it.

System action

Interrupts the processing.

Administrator response

Execute it again after confirming the specified number of disks.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3513

The specified value is not registered.

Description

One of the following specified items is not registered:

- Disk
- RAID group
- Thin provisioning pool
- Volume
- Host response
- Host WWN
- iSCSI host
- SAS address

- Affinity group
- LUN
- Eco-mode schedule
- REC buffer
- REC path

System action

Interrupts the processing.

Administrator response

Check the specified item and the status of the storage device and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3514

The specified value has already been registered.

Description

One of the following specified items has already been registered:

- Disk
- RAID group
- Thin provisioning pool
- Volume
- Volume capacity
- Host response
- Host WWN
- iSCSI host
- SAS address
- Affinity group
- LUN
- RAID group name
- Thin provisioning pool name
- Volume name
- Host response name
- Host name
- Affinity group name
- REC buffer
- REC path

System action

Interrupts the processing.

Administrator response

Check the specified item and the storage device and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3515

Encrypted volume exists.

Description

The operation cannot be performed because an encrypted volume exists.

System action

Interrupts the processing.

Administrator response

Check the status of the storage device and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3517

The device (*{0}*) is boot up or shutdown.

Description

It is not possible to operate it while being cutting the power supply of the storage device or turning on the power supply.

Parameters

{0} : IP address of storage device.

System action

Interrupts the processing.

Administrator response

Execute it again after completing the start of the storage device.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3518

Volume is formatting.

Description

The operation cannot be performed because a volume is currently formatting.

System action

Interrupts the processing.

Administrator response

Try again after the volume formatting has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3519

Volume is encrypting or decrypting.

Description

The operation cannot be performed because a volume is currently encrypting or decrypting.

System action

Interrupts the processing.

Administrator response

Try again after the volume has finished encrypting or decrypting.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3520

Advanced Copy is processing.

Description

The operation cannot be performed because an Advanced Copy is under way.

System action

Interrupts the processing.

Administrator response

Try again after the Advanced Copy has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3521

RAID migration is processing.

Description

The operation cannot be performed because a RAID migration is under way.

System action

Interrupts the processing.

Administrator response

Try again after the RAID migration has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3522

LDE is processing.

Description

The operation cannot be performed because a Logical Device Expansion is under way.

System action

Interrupts the processing.

Administrator response

Try again after the Logical Device Expansion has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3523

REC session exists.

Description

The operation cannot be performed because a REC session exists.

System action

Interrupts the processing.

Administrator response

Try again after the REC session has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3524

The device (*{0}*) is updating the controller firmware.

Description

The operation cannot be performed because a controller firmware update is under way for the specified device.

Parameters

{0}: IP address

System action

Interrupts the processing.

Administrator response

Try again after the controller firmware update has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3525

The device (*{0}*) is remote maintenance processing.

Description

The operation cannot be performed because the specified device is under remote maintenance.

Parameters

{0}: IP address

System action

Interrupts the processing.

Administrator response

Try again after the remote maintenance has ended.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3527

The specified value reaches the upper bound.

Description

The maximum possible number has been reached for one of the following settings:

- Number of registered RAID groups
- Number of registered thin provisioning pools
- Number of registered volumes
- Number of registered host WWNs
- Number of registered iSCSI hosts
- Number of registered SAS addresses
- Number of registered affinity groups
- Advanced Copy table size
- REC buffer size
- REC path

System action

Interrupts the processing.

Administrator response

Check the configuration regarding the specified registered item in the Storage device. If a new configuration is necessary, the current configuration must be deleted.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3531

The specified combination cannot be used.

Description

The specified combination can not be set.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3533

The specified value cannot be used for specified storage device (*{}*).

Description

The problem can be one of the following:

- An alias was set for a device that can not use aliases

- Encryption was enabled for a volume that does not support encryption.
- Encryption was enabled for a thin provisioning pool that does not support encryption.
- An unsupported value was set for the specified device when configuring a thin provisioning pool.
- An unsupported value was set for the specified device when expanding the capacity of a thin provisioning pool.
- A dedicated hot spare was set for a device that cannot use dedicated hot spares.
- A RAID migration to a thin provisioning pool operation was started on a system that does not support this type of operation.
- A REC disk backup size was set on the specified device where this setting is not supported.

Parameters

{ 0 } : IP address

System action

Interrupts the processing.

Administrator response

Check the device or the firmware version and try again.

If the firmware version is old, upgrade the firmware and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3537

The type of specified Port ({ 0 }) is different.

Description

The specified port type is different.

Parameters

{ 0 } : Port ID

System action

Interrupts the processing.

Administrator response

Set the correct port type and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3538

Failed to obtain the information for the remote device ({ 0 }). detail message={ 1 }

Description

The information for the remote device could not be obtained.

Parameters

{ 0 } : IP address for the remote device

{ 1 } : detailed message

System action

Interrupts the processing.

Administrator response

Check the status of the remote device and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3539

Failed to measure the round trip time.

Description

The problem can be one of the following:

- REC path connection type is set to direct.
- REC path status is abnormal.

System action

Interrupts the processing.

Administrator response

Check the connection and the REC path and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3540

REC path setting is wrong.

Description

The problem can be one of the following:

- The status of the device where the REC path is set and the specified REC path status do not match.
- The specified REC path setting is wrong.

System action

Interrupts the processing.

Administrator response

Check the REC path settings and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3548

The device (*{0}*) not managed in this software is set to the REC path.

Description

A device not managed by this software has been attached to the REC path.

Parameters

{0} : BOX ID

System action

Interrupts the processing.

Administrator response

Register the corresponding device in the software and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3549

The specified REC path ({0}) does not exist.

Description

The specified REC path does not exist.

Parameters

{0} : Combination of the connection source port and the connection destination port

System action

Interrupts the processing.

Administrator response

Correct the REC path setting and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3555

The PIN data exists in specified volume ({0}).

Description

Processing ended because the PIN data existed in the specified volume.

The volume where the PIN data exists cannot be formatted.

Parameters

{0} : Number of volume.

System action

Interrupts the processing.

Administrator response

Execute it again after confirming the volume.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3558

The specified value is functionally wrong.

Description

The specified value is functionally wrong.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3559

CHAP setting is unsupported

Description

The problem can be one of the following:

- CHAP certification has been set for the specified iSCSI port
- CHAP certification has been set for the source device iSCSI port of the REC path
- The CHAP certified user name set for the source device iSCSI port of the REC path contains a "?" character.
- The CHAP certified password set for the source device iSCSI port of the REC path contains a "?" character.

System action

Interrupts the processing.

Administrator response

Check the CHAP certification setting and try again.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3733

Failed to obtain the encryption mode information.

Description

The encryption information could not be obtained.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3737

Failed to create the REC path.

Description

The REC path creation failed.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3738

Failed to delete the REC path.

Description

The REC path deletion failed.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3739

Failed to obtain the REC path information.

Description

The REC path information could not be obtained.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3740

Failed to set the Round Trip Time.

Description

The Round Trip Time could not be set.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

ssmgr3743

Failed to obtain the REC buffer information.

Description

REC buffer information could not be obtained.

System action

Interrupts the processing.

Administrator response

Collect this message and troubleshooting information and contact a Fujitsu SE.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

Messages beginning with swsag

swsag0209

Network I/O Error on storage communication.

Description

An I/O error occurred during communication with the storage.

System action

Interrupts the processing.

Administrator response

Check the LAN environment for problems.

swsag0294

It failed in the setting or the information acquisition of the storage device.

Description

It failed in the setting or the information acquisition of the storage device.

System action

Interrupts the processing.

Administrator response

Confirm whether to find hard abnormality in the storage device.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

swsag0295

A communication error occurred with the storage device.

Description

It failed in the setting or the information acquisition of the storage device.

System action

Interrupts the processing.

Administrator response

Confirm whether there is problem in the environment of LAN.

Collect this message and troubleshooting information and contact a Fujitsu SE, if the problem persists.

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

E.4 Message output when Advanced Copy is executed

This chapter explains the messages output when Advance Copy is executed using the Express Web GUI.

esfmgr10801

The copy started. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name1*,[*Source_Server_name2*,...]]_ [,SourceStorage=*Source_Storage_name*]

[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy started.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10802

The copy accepted. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy was accepted. (Logical copy has finished)

Parameters

- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination

- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10803

The copy was stopped. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
 [,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
 [,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
 [,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy was stopped.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10804

The copy was suspended. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*] [,SourceStorage=*Source_Storage_name*] ,DestinationVolume=*Destination_Volume_name*
[,DestinationServer=*Destination_Server_name*] [,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*,
Direction=*Direction*

Description

Copy was suspended.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- Copy_Type :
 - Clone(Split mirror) [EC]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10805

The copy was resumed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy was resumed.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name

- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(Split mirror) [EC]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10806

The copy was reversed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*
 [,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
 [,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
 [,DestinationStorage=*Destination_Storage_name*],CopyType=*Copy_Type*, Direction=*Direction*}

Description

Copy direction was reversed.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(Split mirror) [EC]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10807

The copy mode was changed. CopyMode=*Copy_Mode*,{SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy mode was changed.

Parameters

- *Copy_Mode* : Copy mode
 - Sync : Synchronous mode
 - Stack : Asynchronous mode
 - Consistency : Consistency mode
 - Through : Through mode
- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

None.

esfmgr10811

The copy was not started. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*], CopyType=*Copy_Type*, Direction=*Direction*

Description

Copy cannot be started.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair or the copy group has been deleted, therefore anything is not done.

esfmgr10812

The copy was canceled. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name* [,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]] [,SourceStorage=*Source_Storage_name*] [,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*] [,DestinationStorage=*Destination_Storage_name*] ,CopyType=*Copy_Type* ,Direction=*Direction*}

Description

Copy was forcibly canceled.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

None.

Administrator response

Check the copy destination volume. Re-execute copy as required.

esfmgr10813

The cancel operation failed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
 [,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
 [,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
 [,DestinationStorage=*Destination_Storage_name*] ,CopyType=*Copy_Type* ,Direction=*Direction*

Description

Copy Stop operation failed.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, anything is not done because the status is as follows.

- The executed copy of the copy pair or the copy group has finished.
- The copy pair or the copy group has been deleted.

esfmgr10814

The suspending operation failed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*] ,CopyType=*Copy_Type* ,Direction=*Direction*

Description

Copy Suspend operation failed.

Parameters

- *Source_Volume_name* : volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(Split mirror) [EC]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair or the copy group has been deleted, therefore anything is not done.

esfmgr10815

The resuming operation failed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*] ,CopyType=*Copy_Type* ,Direction=*Direction*

Description

Copy Resume operation failed.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(Split mirror) [EC]
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair or the copy group has been deleted, therefore anything is not done.

esfmgr10816

The copy was not reversed. {SourceVolume=*Source_Volume_name* | CopyGroup=*Copy_Group_name*}
[,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] [,SourceStorage=*Source_Storage_name*]
[,DestinationVolume=*Destination_Volume_name*] [,DestinationServer=*Destination_Server_name*]
[,DestinationStorage=*Destination_Storage_name*] ,CopyType=*Copy_Type* ,Direction=*Direction*

Description

Copy direction cannot be reversed.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(Split mirror) [EC]

- Remote [REC]
- *Direction* : Pre-reverse copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair or the copy group has been deleted, therefore anything is not done.

esfmgr10817

```
The change mode operation failed. CopyMode=Copy_Mode, {SourceVolume=Source_Volume_name |
CopyGroup=Copy_Group_name} [,SourceServer=Source_Server_name [,Source_Server_name2 [,...]]]
[,SourceStorage=Source_Storage_name] [,DestinationVolume=Destination_Volume_name]
[,DestinationServer=Destination_Server_name] [,DestinationStorage=Destination_Storage_name] ,CopyType=Copy_Type
,Direction=Direction
```

Description

Copy mode cannot be changed.

Parameters

- *Copy_Mode* : Copy mode
 - Sync : Synchronous mode
 - Stack : Asynchronous mode
 - Consistency : Consistency mode
 - Through : Through mode
- *Source_Volume_name* : Volume name specified to copy source
- *Copy_Group_name* : Copy group name
- *Source_Server_name* : Server name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Copy_Type* : Copy type
 - Remote [REC]
- *Direction* : Copy direction
 - Forward
 - Backward

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair or the copy group has been deleted, therefore anything is not done.

esfmgr10821

The copy pair was created. SourceVolume=*Source_Volume_name*, SourceStorage=*Source_Storage_name* [,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]] ,DestinationVolume=*Destination_Volume_name* [,DestinationStorage=*Destination_Source_Storage_name*] [,DestinationServer=*Destination_Server_name*], CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy pair was created.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Source_Server_name* : Server name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

None.

Administrator response

None.

esfmgr10822

The copy pair was not created. SourceVolume=*Source_Volume_name*, SourceStorage=*Source_Storage_name* [,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]] ,DestinationVolume=*Destination_Volume_name* [,DestinationStorage=*Destination_Storage_name*] [,DestinationServer=*Destination_Server_name*], CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy pair cannot be created.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source

- *Source_Server_name* : Server name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

The process is suspended.

Administrator response

Refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

esfmgr10823

The copy pair was removed. SourceVolume=*Source_Volume_name*, SourceStorage=*Source_Storage_name* [,SourceServer=*Source_Server_name*1[,*Source_Server_name*2[,...]]] ,DestinationVolume=*Destination_Volume_name* [,DestinationStorage=*Destination_Storage_name*] [,DestinationServer=*Destination_Server_name*], CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy pair was deleted.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Source_Server_name* : Server name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

None.

Administrator response

None.

esfmgr10824

The copy pair was not removed. SourceVolume=*Source_Volume_name*, SourceStorage=*Source_Storage_name* [,SourceServer=*Source_Server_name1* [,*Source_Server_name2* [,...]]], DestinationVolume=*Destination_Volume_name* [,DestinationStorage=*Destination_Storage_name*] [,DestinationServer=*Destination_Server_name*], CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy pair cannot be deleted.

Parameters

- *Source_Volume_name* : Volume name specified to copy source
- *Source_Storage_name* : Storage system name specified to copy source
- *Source_Server_name* : Server name specified to copy source
- *Destination_Volume_name* : Volume name specified to copy destination
- *Destination_Storage_name* : Storage system name specified to copy destination
- *Destination_Server_name* : Server name specified to copy destination
- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy pair has been deleted, therefore anything is not done.

esfmgr10825

The copy group was created. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group was created.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]

- Snapshot [SnapOPC+]
- Remote [REC]
- *Copy_Group_name* : Copy group name

System action

None.

Administrator response

None.

esfmgr10826

The copy group was not created. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group cannot be created.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

The process is suspended.

Administrator response

Refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

esfmgr10827

The copy group was modified. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group was changed.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

None.

Administrator response

None.

esfmgr10828

The copy group was not modified. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group cannot be changed.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy group has been deleted, therefore anything is not done.

esfmgr10829

The copy group was deleted. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group was deleted.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

None.

Administrator response

None.

esfmgr10830

The copy group was not deleted. CopyType=*Copy_Type*, CopyGroup=*Copy_Group_name*

Description

Copy group cannot be deleted.

Parameters

- *Copy_Type* : Copy type
 - Clone(One Time) [OPC]
 - Clone(Recurring) [QuickOPC]
 - Clone(Split mirror) [EC]
 - Snapshot [SnapOPC+]
 - Remote [REC]
- *Copy_Group_name* : Copy group name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.
If it is not displayed, the copy group has been deleted, therefore anything is not done.

esfmgr10831

The storage name was changed. OldStorageName=*Old_Storage_Name*, NewStorageName=*New_Storage_Name*

Description

Disk storage system name was changed.

Parameters

- *Old_Storage_Name* : Pre-change disk storage system name
- *New_Storage_Name* : Post-change disk storage system name

System action

None.

Administrator response

None.

esfmgr10832

The storage name was not changed. OldStorageName=*Old_Storage_Name*, NewStorageName=*New_Storage_Name*

Description

Disk storage system name cannot be changed.

Parameters

- *Old_Storage_Name* : Pre-change disk storage system name

- *New_Storage_Name* : Post-change disk storage system name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the disk storage system has been deleted, therefore anything is not done.

esfmgr10833

The access path was changed. *OldAccessPath=Old_Access_Path*, *NewAccessPath=New_Access_Path*, *StorageName=Storage_Name*

Description

Access path was changed.

Parameters

- *Old_Access_Path* : Pre-change access path or pre-change physical drive device name
- *New_Access_Path* : Post-change access path or post-change physical drive device name
- *Storage_Name* : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10834

The access path was not changed. *OldAccessPath=Old_Access_Path*, *NewAccessPath=New_Access_Path*, *StorageName=Storage_Name*

Description

Access path cannot be changed.

Parameters

- *Old_Access_Path* : Pre-change access path or pre-change physical drive device name
- *New_Access_Path* : Post-change access path or post-change physical drive device name
- *Storage_Name* : Disk storage system name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the disk storage system has been deleted, therefore anything is not done.

esfmgr10835

The storage switched its location. *StorageName=Storage_Name*

Description

Disk storage system location was changed.

Parameters

Storage_Name : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10836

The location of the storage was not switched. StorageName=*Storage_Name*

Description

Disk storage system location cannot be changed.

The following factor is possible.

- There is not an access path to the ETERNUS Disk storage system from the management server.

Parameters

Storage_Name : Disk storage system name

System action

The process is suspended.

Administrator response

Make sure from the management server that there is an access path to the ETERNUS Disk storage system. If no access path exists, set up an access path.

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the disk storage system has been deleted, therefore anything is not done.

esfmgr10841

The storage name was registered. StorageName=*Storage_Name*

Description

Disk storage system was registered.

Parameters

Storage_Name : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10842

The storage name was not registered. StorageName=*Storage_Name*

Description

Disk storage system cannot be registered.

The following factor is possible.

- There is not an access path to the disk storage system from the management server.

Parameters

Storage_Name : Disk storage system name

System action

The process is suspended.

Administrator response

Make sure from the management server that there is no access path to the ETERNUS Disk storage system. If no access path exists, set up an access path.

If a message with "ccm" put at its head is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

esfmgr10843

The IP address of the storage name was changed. OldIPAddress=*Old_IP_Address*, NewIPAddress=*New_IP_Address*, StorageName=*Storage_Name*

Description

Disk storage system IP address was changed.

Parameters

- *Old_IP_Address* : Pre-change IP address
- *New_IP_Address* : Post-change IP address
- *Storage_Name* : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10844

The IP address of the storage name was not changed. OldIPAddress=*Old_IP_Address*, NewIPAddress=*New_IP_Address*, StorageName=*Storage_Name*

Description

Disk storage system IP address cannot be changed.

Parameters

- *Old_IP_Address* : Pre-change IP address
- *New_IP_Address* : Post-change IP address
- *Storage_Name* : Disk storage system name

System action

The process is suspended.

Administrator response

Refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

esfmgr10845

The user name and/or password were changed. StorageName=*Storage_Name*

Description

User name and password specified to disk storage system were change.

Parameters

Storage_Name : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10846

The user name and/or password were not changed. StorageName=*Storage_Name*

Description

User name and password specified to disk storage system cannot be changed.

Parameters

Storage_Name : Disk storage system name

System action

The process is suspended.

Administrator response

Refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

esfmgr10851

The copy group definitions were exported. StorageName=*Storage_Name*

Description

Copy group definition was exported.

Parameters

Storage_Name : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10852

The copy group definitions were not exported. StorageName=*Storage_Name*

Description

Copy group definition cannot be exported.

Parameters

Storage_Name : Disk storage system name

System action

The process is suspended.

Administrator response

If the message prefix "ccm" is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

If it is not displayed, the copy group has been deleted, therefore anything is not done.

esfmgr10853

The copy group definitions were imported. StorageName=*Storage_Name*

Description

Copy group definition was imported.

Parameters

Storage_Name : Disk storage system name

System action

None.

Administrator response

None.

esfmgr10854

The copy group definitions were not imported. StorageName=*Storage_Name*

Description

Copy group definition cannot be imported.

The following factor is possible.

- The file exported from other ETERNUS Disk storage system was specified.

Parameters

Storage_Name : Disk storage system name

System action

The process is suspended.

Administrator response

Specify the file from which ETERNUS Disk storage system copy group definition was exported.

If a message with "ccm" put at its head is displayed, refer to "[E.6.1 Message Explanations](#)" to take action according to "Administrator response" for the relevant message.

E.5 Message output from Command

This section explains the messages output from CLI.

E.5.1 Messages for "storageadm perfdata" command

esfcmd67101

storageadm.exe:not privileged

Description

The command was executed without OS administrator privileges.

Administrator response

Execute using OS administrator privileges.

esfcmd67170

There is no performance watch target device in specified FQDN.

Description

There is no performance monitored device in specified FQDN.

System action

Interrupts the processing.

Administrator response

Confirm command syntax.

ssmgr7010

The Performance Monitoring is not set. Please confirm the Performance Monitoring setting.

Description

The Performance Monitoring is not set.

System action

Interrupts the processing.

Administrator response

Set the Performance Monitoring, and then re-execute.

swsag0001

Command terminated normally.

Description

The command was executed successfully.

System action

The command terminates normally.

Administrator response

None.

swsag0172

Internal Program Error occurred. [*DETAIL*]

Description

An internal error was detected in the program.

Parameters

DETAIL: Detailed information for the error.

System action

Interrupts the processing.

Administrator response

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

swsag0345

Unexpected error has occurred.

Description

An unexpected event occurred.

System action

Interrupts the processing.

Administrator response

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

swsag0491

syntax error. detail=[*DETAIL*]

Description

The command syntax is invalid. "usage" is displayed.

Parameters

DETAIL : One of the following is displayed:

- If the command was not specified :
command is not specified.
- If the specified command [value] is invalid :
command [value] is invalid.
- If the specified parameter is invalid :
parameter is invalid.
- If the specified option [value] is invalid :
option [value] is invalid.
- If the format of the option [value] or the value of the option [value] is invalid :
[value] is invalid value or format.

System action

The system displays "usage" and interrupts the processing.

Administrator response

The system administrator reviews the command syntax and then re-executes the operation.

E.5.2 Messages for "express_managersnap" command

esfcmd67100

express_managersnap:[*OBJ*]:failed to create file or directory

Description

The specified file or directory cannot be created.

Parameters

OBJ: The specified file or directory

System action

The processing is terminated.

Administrator response

Check the following, remove the cause of the problem, and execute the command again.

- Check the directory permission.
- Check that there is enough disk area available.

esfcmd67101

express_managersnap:not privileged

Description

The command was executed without OS administrator privileges.

System action

The processing is terminated.

Administrator response

Execute using OS administrator privileges.

esfcmd67102

express_managersnap:[*OPTION*]:illegal option

Description

The option is invalid, usage is displayed.

Parameters

OPTION: The specified option

System action

The processing is terminated.

Administrator response

Check the command then execute it again.

esfcmd67126

express_managersnap:[*OBJ*]:No such directory

Description

The directory specified was not found.

Parameters

OBJ: The specified file or directory

System action

The processing is terminated.

Administrator response

Specify the correct directory.

esfcmd67129

express_managersnap:syntax error

Description

A command syntax error has occurred. Usage is displayed.

System action

The processing is terminated.

Administrator response

Check the command then execute it again.

esfcmd67130

express_managersnap:[*OPTION*]:option requires an argument

Description

An argument was not specified for the option. Usage is displayed.

Parameters

OPTION: Required option

System action

The processing is terminated.

Administrator response

Check the command then execute it again.

esfcmd67131

express_managersnap:[*OPTION*]: argument too long

Description

The option argument specified is too long.

Parameters

OPTION: Required option

System action

The processing is terminated.

Administrator response

Correct the attribute of the option then execute the command again.

esfcmd67162

express_managersnap:[*OPTION*]:is required

Description

The option argument must be specified.

Parameters

OPTION: Required option

System action

The processing is terminated.

Administrator response

Correct the option parameter, and then re-execute the command.

esfcmd67820

express_managersnap:[*COMMAND*] process is still running.

Description

The process command is running.

Parameters

COMMAND: The command in running

System action

The processing is terminated.

Administrator response

After the process finishes, re-execute the command.

E.5.3 Messages for "express_diag" command

esfcmd67101

express_diag:not privileged

Description

The command was executed without administrative privileges.

System action

The processing is terminated.

Administrator response

Execute this command with administrative privileges.

esfcmd67129

express_diag:syntax error

Description

Syntax error has occurred. Usage is displayed.

System action

The processing is terminated.

Administrator response

Confirm command syntax.

esfcmd67210

express_diag:Internal Program Error occurred. [*DETAIL*]

Description

An internal error occurred.

Parameters

DETAIL : Detail message

System action

The processing is terminated.

Administrator response

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

esfcmd67220

express_diag:Abnormal data exists in the configuration file.

Description

An abnormal data was detected in the configuration file.

System action

The processing is continued.

An abnormal data is not processed.

Administrator response

Collect the troubleshooting information as shown in "[6.3.2 Trouble analysis](#)".

E.5.4 Message for upgrade tool

esfcmd77000

The preparation for upgrade install has been completed.

Description

The command was normally executed.

System action

The command is normally executed.

Administrator response

None

esfcmd77001

The maintenance for upgrade install has been completed.

Description

The command was normally executed.

System action

The command is normally executed.

Administrator response

None

esfcmd77101

The parameter is required.

Description

File backup destination is not specified.

Administrator response

Specify a backup destination.

esfcmd77301

The operation user does not belong to the administrators group.

Description

The user who tries to execute the command has no execution privileges.

System action

Processes are suspended.

Administrator response

Login with a user account with Administrator privileges and re-execute the command.

esfcmd77302

Unable to stop ETERNUS SF Express Manager.

Description

Stopping services failed.

System action

Processes are suspended.

Administrator response

Stop ETERNUS SF Express Manager services and re-execute the command.

esfcmd77303

Unable to start the ETERNUS SF Express Manager.

Description

Starting services failed.

System action

Processes are terminated.

Administrator response

Restart ETERNUS SF Express Manager to check that it is actually started.

esfcmd77304

The ETERNUS SF Express Manager is not installed.

Description

ETERNUS SF Express Manager is not installed.

System action

Processes are suspended.

Administrator response

After installing ETERNUS SF Express Manager, re-execute the command.

esfcmd77305

The backup files are not found in [*DirName*].

Description

Files are not present in the specified directory.

Parameters

DirName: Specified directory

System action

Processes are suspended.

Administrator response

Specify a proper backup destination and re-execute the command.

esfcmd77306

Unable to copy.

Description

File copy failed.

System action

Processes are suspended.

Administrator response

Check the following points, remove the trouble cause and re-execute the command.

- Directory privileges
 - Disk capacity
-

esfcmd77307

Unable to get the information of ETERNUS SF Express Manager.

Description

Product information about ETERNUS SF Express Manager could not be obtained.

System action

Processes are suspended.

Administrator response

Collect information to contact a Fujitsu system engineer.

esfcmd77308

The upgrade tool has been failed.

Description

Setup for upgrade failed.

System action

Processes are suspended.

Administrator response

Collect information to contact a Fujitsu system engineer.

esfcmd77309

Unable to create log file.

Description

Log file creation failed.

System action

Processes are suspended.

Administrator response

After checking the TEMP environment variable, re-execute the command.

esfcmd77310

The specified directory [*DirName*] is not found.

Description

The specified directory does not exist.

Parameters

DirName : Specified directory

System action

Processes are suspended.

Administrator response

Specify a proper backup destination and re-execute the command.

esfcmd77311

The specified directory [*DirName*] is too long.

Description

The directory is specified in too many characters.

Parameters

DirName : Specified directory

System action

Processes are suspended.

Administrator response

Specify the directory in 150 or less characters and re-execute the command.

esfcmd77312

The ETERNUS SF Express Manager that this tool is not supported is installed.

Description

ETERNUS SF Express whose version is not supported by this tool is installed.

System action

Processes are suspended.

Administrator response

Since ETERNUS SF Express whose version is not supported by this tool is installed, the command is not executable. Check the version of the tool with that of installed ETERNUS SF Express and re-execute the command.

esfcmd77313

The specified directory [*DirName*] is not full path.

Description

The specified directory is not an absolute path.

Parameters

DirName : Specified directory

System action

Processes are suspended.

Administrator response

Specify an absolute path for a backup directory to re-execute the command.

esfcmd77314

The backup files or directory are found in [*DirName*].

Description

A file or directory already exists in the backup destination.

Parameters

DirName : Specified directory

System action

Processes are suspended.

Administrator response

Specify a location in which there is no directory or file with the name of "ETERNUS SF" and re-execute the command.

esfcmd77315

The even or newer ETERNUS SF Express Manager is already installed.

Description

The same or newer version of ETERNUS SF Express has already been installed.

System action

Processes are suspended.

Administrator response

Since the same or newer version of ETERNUS SF Express has been installed, the pre-upgrade setup tool is not needed to be used.

E.6 Message output from Copy Control Module

This section explains the messages output from Copy Control Module.

E.6.1 Message Explanations

ccm1001

An invalid argument was specified.

Description

An invalid argument has been specified.

System action

Interrupts the processing.

Administrator response

Check the valid values for the argument, and then execute the command again.

ccm1002

An invalid option was specified. option=[*OPTION*]

Description

An invalid option has been specified.

Parameters

OPTION: The specified option

System action

Interrupts the processing.

Administrator response

Check the valid values for the option, and then execute the command again.

ccm1003

An invalid parameter was specified. option=[*OPTION*], parameter=[*PARAM*]

Description

An invalid parameter has been specified.

Parameters

- *OPTION*: The specified option
- *PARAM*: The specified parameter

System action

Interrupts the processing.

Administrator response

Check the valid values for the parameter, and then execute the command again.

ccm1004

An invalid option was specified for the copy type. copy group=[*GROUP*], copy type=[*TYPE*], option=[*OPTION*]

Description

An invalid option has been specified for a copy group.

Parameters

- *GROUP*: Copy group
- *TYPE*: Copy type
- *OPTION*: The specified option

System action

Interrupts the processing.

Administrator response

Check the valid values for the copy type, and then execute the command again.

ccm2001

This command requires operating system's administrative privileges.

Description

This command can only be executed with Administrator privileges.

System action

Interrupts the processing.

Administrator response

Execute the command as a user with Administrator privileges.

ccm2002

The license is not registered.

Description

The license has not been registered yet.

System response

Interrupts the processing.

Administrator response

Register the license, and then execute the command again.

ccm3001

The specified disk array is already registered. disk array=[*DISKARRAY*]

Description

Information for the specified ETERNUS Disk storage system has already been registered.

Parameters

DISKARRAY: ETERNUS name or ETERNUS Disk storage system IP address

System action

Interrupts the processing.

Administrator response

Use [acarray list \(Command for displaying information about ETERNUS Disk storage systems\)](#) to confirm the existing ETERNUS disk storage systems information (ETERNUS name, Box ID and IP address of ETERNUS disk storage systems).

ccm3002

The specified copy group is already registered. copy group=[*GROUP*]

Description

The copy group has already been registered.

Parameters

GROUP: Copy group name

System action

Interrupts the processing.

Administrator response

Execute the command again, specifying a copy group name that has not been registered yet.

ccm3003

The specified copy pair already registered. copy group=[*GROUP*], pair=[*PAIR*]

Description

The copy pair has already been registered.

Parameters

- *GROUP*: Copy group name
- *PAIR*: Copy pair name

System action

Interrupts the processing.

Administrator response

Execute the command again, specifying a copy pair name that has not been registered yet.

ccm3004

An invalid copy pair was specified. pair=[*PAIR*], detail=[*DETAIL*]

Description

An invalid copy pair has been specified.

Parameters

- *PAIR* : Copy pair name
- *DETAIL* : Detailed information about the cause of the error

The *DETAIL* is will be one of the following strings:

Strings indicated in <i>DETAIL</i>	Cause of error
invalid format	The format of the copy pair is incorrect.
invalid disk array	The specified ETERNUS Disk storage systems have not been set up for the copy group.
same disk array	The same ETERNUS Disk storage systems have been specified for both the copy source and the copy destination.
invalid copy direction	The copy direction is not the same as the other copy pairs that have already been added to the copy group.
invalid Snap Data Volume	The copy-destination logical volume of the specified copy pair is not Snap Data Volume.
old disk array info	The ETERNUS Disk storage system was not re-registered when the version upgrade was done.

System action

Interrupts the processing.

Administrator response

The action required depends on the *DETAIL* string, as described below:

Strings indicated in <i>DETAIL</i>	Appropriate action
invalid format	Execute the command again, specifying a correct format for the copy pair.
invalid disk array	Execute the command again, specifying the ETERNUS Disk storage systems that has been set up for the copy group.
same disk array	Execute the command again, specifying different ETERNUS Disk storage systems for the copy source and the copy destination.
invalid copy direction	Execute the command again, using the same copy direction as for the other copy pairs that have already been added to the copy group.
invalid Snap Data Volume	Execute the command again, specifying the Snap Data Volume for the copy-destination logical volume.
old disk array info	Execute the command again, after the re-registration of ETERNUS Disk storage system.

ccm3005

An invalid volume is specified. volume=[*VOLUME*], detail=[*DETAIL*]

Description

An invalid logical volume has been specified.

Parameters

- *VOLUME*: Logical volume name
- *DETAIL*: Detailed information about the cause of the error

The *DETAIL* is will be one of the following strings:

Strings indicated in <i>DETAIL</i>	Cause of error
invalid format	The format of the logical volume is incorrect.

System action

Interrupts the processing.

Administrator response

The action required depends on the *DETAIL* string, as described below:

Strings indicated in <i>DETAIL</i>	Appropriate action
invalid format	Confirm the format of logical volume. And then execute the command again, specifying a correct format.

ccm3006

The number of generation is exceeded the registerable number. Maximum Number of Generation=[*NUMBER*]

Description

The number of generations registerable to a copy group is exceeded.

Parameters

NUMBER: Maximum number of generation that can be registered

System action

Interrupts the processing.

Administrator response

Check whether the number of copy pairs that have the same copy-source logical volume is exceeded the maximum number or not.

ccm3007

The REC buffer could not be found. ID=[*ID*]

Description

The specified buffer ID does not exist.

Parameters

ID: ID of the REC buffer

System action

Interrupts the processing.

Administrator response

Execute the command again, specifying the correct ID.

ccm3008

An invalid access path is specified. access path=[*PATH*], detail=[*DETAIL*]

Description

An invalid access path has been specified.

Parameters

- *PATH*: Access path
- *DETAIL*: Detailed information about the cause of the error

The *DETAIL* is will be one of the following strings:

Strings indicated in <i>DETAIL</i>	Cause of error
invalid access path	The access path is incorrect.

System action

Interrupts the processing.

Administrator response

The action required depends on the *DETAIL* string, as described below:

Strings indicated in <i>DETAIL</i>	Appropriate action
invalid access path	Execute the command again, specifying the access path of the specifying ETERNUS Disk storage systems.

ccm3009

The remote ETERNUS disk storage system is defined in the specified copygroup. remote disk storage system= [*DISKARRAY*]

Description

The remote ETERNUS disk storage system is defined for the specified copy group.

Parameters

DISKARRAY: The name of ETERNUS disk storage systems

System response

Interrupt the processing.

Administrator response

Check that the specified ETERNUS disk storage systems are not remote ETERNUS disk storage systems.

To display the list of remote ETERNUS disk storage systems, execute the [acarray list \(Command for displaying information about ETERNUS Disk storage systems\)](#) with -remote option.

ccm4001

The specified disk array does not exist. disk array=[*DISKARRAY*]

Description

There is no information for the specified ETERNUS Disk storage system.

Parameters

DISKARRAY: The name of ETERNUS disk storage systems

System action

Interrupts the processing.

Administrator response

Use [acarray list \(Command for displaying information about ETERNUS Disk storage systems\)](#) to check whether the specified ETERNUS name is correct.

ccm4002

The specified disk array does not exist. disk array=[*BOXID*]

Description

There is no information for the specified ETERNUS Disk storage system.

Parameters

BOXID: The box ID of ETERNUS Disk storage systems

System action

Interrupts the processing.

Administrator response

The information for the ETERNUS Disk storage system specified by the BOXID has been deleted.

Register the same box ID information for the specified ETERNUS Disk storage system again, and then execute the command again.

ccm4003

The specified copy group was not found. copy group=[*GROUP*]

Description

The specified copy group has not been set up.

Parameters

GROUP: Copy group name

System action

Interrupts the processing.

Administrator response

Use [acgroup list \(Command for displaying copy groups\)](#) to check whether the specified copy group name is correct.

ccm4004

No copy pair was found for the specified copy group. copy group=[*GROUP*]

Description

The copy pair has not been set up for the specified copy group.

Parameters

GROUP: Copy group name

System action

Interrupts the processing.

Administrator response

Set up the copy pair for the specified copy group, and then execute the command again.

ccm4005

The specified copy pair was not found. copy group=[*GROUP*], pair=[*PAIR*]

Description

The specified copy pair has not been set up for the copy group.

Parameters

- *GROUP*: Copy group name
- *PAIR*: Copy pair name

System action

Interrupts the processing.

Administrator response

Set up the specified copy pair for the copy group, and then execute the command again.

ccm4006

The specified logical volume was not found. logical volume=[*VOLUME*]

Description

The specified logical volume does not exist.

Parameters

VOLUME: Logical volume name

System action

Interrupts the processing.

Administrator response

Execute the command again, specifying an existing logical volume.

ccm4007

An invalid copy group was specified. copy group=[*GROUP*], copy type=[*TYPE*]

Description

The operation that the user is trying to execute cannot be performed on the specified copy group.

Parameters

- *GROUP*: The specified copy group
- *TYPE*: The copy type set in the copy group

System action

Interrupts the processing.

Administrator response

Check the copy type that has been set up for the specified copy group.

ccm4008

The logical volume is not found. copy group=[*GROUP*], logical volume=[*VOLUME*]

Description

There is no logical volume.

Parameters

- *GROUP*: The specified copy group
- *VOLUME*: Logical volume name

System action

Interrupts the processing.

Administrator response

Execute the command again, specifying an existing copy source logical volume in the specified copy group.

ccm4009

Remote ETERNUS Disk storage system cannot be specified. disk array=[*DISKARRAY*]

Description

The remote ETERNUS Disk storage systems cannot be specified.

Parameters

DISKARRAY: The name of ETERNUS Disk storage systems

System action

Interrupts the processing.

Administrator response

Confirm the specified ETERNUS Disk storage system is not a remote ETERNUS Disk storage system.

Use [acarray list \(Command for displaying information about ETERNUS Disk storage systems\)](#) with the remote option to check whether the specified ETERNUS name is correct.

ccm4010

An access path could not be found. disk storage system=[*DISKARRAY*]

Description

An access path could not be found.

Parameters

DISKARRAY: The name of ETERNUS Disk storage systems

System response

Interrupts the processing.

Administrator response

Confirm that the specified ETERNUS disk storage system has a valid access path.

ccm4011

The directory could not be found. directory=[*DIRECTORY NAME*]

Description

The specified directory is not found.

Parameters

DIRECTORY NAME: Directory name

System response

Interrupts the processing.

Administrator response

Confirm that the directory actually exists, or check whether the directory name is correct, and then execute the command again.

ccm5001

Operation aborted. The configuration file is in use.

Description

Processing was interrupted because a CCM configuration file was being updated by one of the commands listed below:

- acarray add
- acarray change
- acarray remove
- acgroup create
- acgroup remove
- acpair add
- acpair remove

System action

Interrupts the processing.

Administrator response

Wait for the conflicting command to finish, and then execute the command again.

ccm5002

Operation failed. function=[*FUNC*], message=[*MSG*]

Description

The process has failed.

Parameters

- *FUNC*: Process name
- *MSG*: Message

System action

Interrupts the processing.

Administrator response

Take the appropriate action according to the error message.

ccm5003

Operation failed. function=[*FUNC*], message=[*MSG*]

Description

The process has failed.

Parameters

- *FUNC*: Process name

- *MSG*: Message

System action

Interrupts the processing.

Administrator response

Take the appropriate action indicated by "[E.6.2 Detailed Messages](#)" displayed in the *MSG* section.

ccm5004

Operation failed. function=[*FUNC*], message=[*MSG*]

Description

The process has failed.

Parameters

- *FUNC*: Process name
- *MSG*: Message

System action

Interrupts the processing.

Administrator response

Take the appropriate action indicated by "[E.6.2 Detailed Messages](#)" displayed in the *MSG* section.

If a message not listed in "[E.6.2 Detailed Messages](#)" is displayed, then please refer to "[Appendix F Detail Error Messages of ETERNUS](#)".

ccm5005

An invalid mount point was specified. mount point=[*MNTP*]

Description

An invalid mount point or drive letter has been specified.

Parameters

MNTP: The mount point or drive letter

System action

Interrupts the processing.

Administrator response

Check the mount point or drive letter, and then execute the command again. For details on how to check mount points and drive letters, refer to [acgetvolinfo \(Command for displaying logical volume information\)](#).

ccm5006

An invalid device was specified. device=[*DEVICE*]

Description

An invalid device has been specified.

Parameters

DEVICE: Device

System action

Interrupts the processing.

Administrator response

Devices must be specified using the following format: "PhysicalDrive [*device number*]". Execute the command again, specifying a valid format for the device.

ccm5007

The target logical volume is write protected. target logical volume=[*VOLUME*]

Description

The copy destination logical volume is protected.

Parameters

VOLUME: Copy destination logical volume

System response

Interrupts the processing.

Administrator response

Cancel the copy destination logical volume protection settings, and then execute the command again.

ccm7001

The target logical volume is write protected. target logical volume=[*VOLUME*]

Description

The copy destination logical volume is protected.

Parameters

VOLUME: Copy destination logical volume

System response

Continues the processing.

Administrator response

No response is required.

ccm8001

A general system function failed. function=[*FUNC*], error=[*ERROR*]

Description

The execution of a system function has failed.

Parameters

- *FUNC*: System function
- *ERROR*: Error content

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8002

Could not open the registry. registry key=[*KEY*]

Description

Opening a registry has failed.

Parameters

KEY: Name of the registry key

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8003

Could not open the file. file=[*FILE*]

Description

Opening a file has failed.

Parameters

FILE: File name

System action

Interrupts the processing.

Administrator response

Check the status of the file system.

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8004

Could not write the file. file=[*FILE*]

Description

Writing to a file has failed.

Parameters

FILE: File name

System action

Interrupts the processing.

Administrator response

Check the status of the file system.

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8005

Could not delete the file. file=[*FILE*]

Description

Deleting a file has failed.

Parameters

FILE: File name

System action

Interrupts the processing.

Administrator response

Check the status of the file system.

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8006

Could not start Java VM.

Description

Starting the Java VM has failed.

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8007

A memory allocation failed.

Description

Allocating a memory area has failed.

System action

Interrupts the processing.

Administrator response

Check the memory usage status.

- If there is not enough memory, then increase it.
 - Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE
-

ccm8008

Could not read the file. file=[*FILE*]

Description

Reading a file has failed.

Parameters

FILE: File name

System action

Interrupts the processing.

Administrator response

Check the status of the file system.

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm8009

License Manager is not installed.

Description

License Manager has not been installed.

System response

Interrupts the processing.

Administrator response

Install License Manager and register the license. And then execute the command again.

ccm9001

The configuration file has an invalid format. file=[*FILE*]

Description

The content of the configuration file is invalid.

Parameters

FILE: File name

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm9002

An error occurred in accessing the Java property file. property=[*PROPERTY*]

Description

Java property is not referable.

Parameters

PROPERTY: Property name

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

ccm9003

An unexpected error occurred.

Description

A system error has occurred.

System action

Interrupts the processing.

Administrator response

Refer to [acmcapture \(Command for collecting analysis data\)](#) to collect the data necessary for troubleshooting by acmcapture command, and then contact a Fujitsu SE

E.6.2 Detailed Messages

no such session.

Description

There is no session for the specified copy pair.

System action

Interrupts the processing.

Administrator response

Operations cannot be executed on copy pairs for which there is no copy session.

Check the session status using either [acopc query \(Command for displaying the status of OPC or QuickOPC copy\)](#) or [acec query \(Command for displaying the status of synchronous high speed copy\)](#).

invalid logical volume name.

Description

Either the access path specified at ETERNUS Disk storage system registration time or the device name specified using a command is invalid.

System action

Interrupts the processing.

Administrator response

Check that the specified device name is correct.

Or, check the drive letter or device name specified in the access path.

STXC0100 ERROR Specified command parameter is incorrect. Parameter=(PARAM)

Description

The specified parameter is not correct.

Parameters

PARAM: Parameter

Administrator response

Correct the parameter and try again.

If "No parameter" is displayed in *PARAM*, specify a parameter for the command and try again.

STXC1000 ERROR Insufficient Snap Data Pool. Required capacity=(CAPACITY).

Description

Snap Data Pool area is insufficient and command cannot be executed.

Parameters

CAPACITY: Capacity

Administrator response

Secure free Snap Data Pool capacity that is larger than the capacity notified by the message and try again.

STXC1002 ERROR Invalid logical volume name. Volume name=(VOLNAME).

Description

The specified logical volume name is not valid.

Parameters

VOLNAME: Logical volume name

Administrator response

Check the logical volume name specified by the parameter and try again.

STXC1003 ERROR Logical volume is already defined in another copy operation.

Description

The specified logical volume has already been defined as the copy source or copy destination for another copy session.

Administrator response

Review the specification for the logical volume of the copy source or copy destination and try again.

STXC1004 ERROR Maximum session reached.

Description

Copying cannot start because the number of sessions simultaneously operatable on the ETERNUS Disk storage system has already reached maximum.

Administrator response

Check the sessions, delete the unneeded ones among them, and try again.

STXC1005 ERROR Another copy has already started.

Description

For the specified logical volume, a copy operation of another type is already running.

Administrator response

Review the specification for the logical volume name.

STXC1006 ERROR Target volume is already defined in another copy operation.

Description

The specified copy destination logical volume has already been defined as the copy destination for another copy session.

Administrator response

Review the specification for the copy destination logical volume name.

STXC1007 ERROR Logical volume is already reserved.

Description

The logical volume has already been reserved by another user.

Administrator response

Wait for a few seconds and try again.

STXC1009 ERROR Logical volume is busy.

Description

The logical volume is being used by another user.

Administrator response

Wait for a few seconds and try again.

STXC1010 ERROR Specified option is invalid.

Description

The specified option is invalid.

Administrator response

Correct the processing option setting and try again.

STXC1011 ERROR Invalid parameter. Parameter=(PARAM).

Description

The parameter is incorrect.

Parameters

PARAM: Parameter

Administrator response

The parameter value is incorrect. Correct the parameter and try again.

STXC1013 ERROR Target volume size mismatch.

Description

Copying cannot execute because the size of the copy destination logical volume is inappropriate.

Administrator response

For the copy destination, specify a logical volume that is equal in size to the copy source logical volume.

STXC1014 ERROR Target volume overlap source volume.

Description

Copy destination logical volume and copy source logical volume area are overlapped.

Administrator response

Change the copy destination or copy source logical volume setting.

STXC1016 ERROR The group file of the form not permitted was specified.**Description**

Operation cannot be performed because the specified format of the group file is not permitted.

Administrator response

One of the cases indicated below can be assumed. Re-specify the group file, and try again.

- A group file which describes copy pairs may have been specified in a logical volume operation.
- A group file which describes logical volumes may have been specified in a copy pair operation.

STXC1017 ERROR The option that cannot be used for copy session is specified.**Description**

An option that cannot operate a copy session is specified.

Administrator response

One of the cases indicated below can be assumed. Re-specify the option.

- The transfer mode specified at the copy operation start is not the same as the transfer mode specified at copy restart (recovery).

STXC1100 ERROR Session does not exist.**Description**

No session exists between the specified logical volumes.

Administrator response

Check that the logical volume specification is correct and try again.

STXC1102 ERROR Invalid Snap Data Volume.**Description**

The specification for Snap Data Volume is invalid.

Administrator response

One of the cases indicated below can be assumed. Review the specification for the logical volume and try again.

- The copy destination logical volume specified when starting SnapOPC+ copying is not Snap Data Volume.
- The copy source logical volume specified when starting SnapOPC+ copying is Snap Data Volume.
- Either the copy source logical volume name specified or the copy destination volume when starting EC/OPC/QuickOPC copying is Snap Data Volume.

STXC1104 ERROR Operation sequence error.**Description**

The current status cannot execute the specified operation.

Administrator response

Check the copy status for any of the following cases:

- Suspend was executed for the session that is not in equivalence status.
- Stop was executed for the session in Error Suspend status or Halt status.
- Initialization was executed for the Snap Data Volume for which a SnapOPC+ session was running.
- Start of SnapOPC+ was executed for the Snap Data Volume that is being initialized.

- Suspend was executed for the session in Suspend status.
- Copy stop, copy resume, or copy direction reversal was executed for the session that is not in Suspend status.

STXC1106 ERROR Insufficient memory.

Description

Memory shortage occurred.

Administrator response

Execute the following and try again.

- Shut down unnecessary programs.

STXC1107 ERROR Alias is not defined.

Description

The ETERNUS Disk storage system alias that is specified as the copy source or copy destination has not been defined.

Administrator response

Check that the ETERNUS Disk storage system alias has been registered. If the alias is not registered, register the path information and try again.

STXC1108 ERROR The specification of physical information is incorrect.

Description

The specified physical information is incorrect.

Administrator response

One of the cases indicated below can be assumed. Correct the physical information description.

- A start location or copy size that exceeds 2TB was specified for a copy operation to an ETERNUS Disk storage system which does not support copy operations above 2TB.
- Other than "0" is specified for the start location, but "0" is specified for the copy size.
- A size that is larger than actual capacity is specified for the copy size.

STXC1109 ERROR ETERNUS cannot be recognized.

Description

The ETERNUS Disk storage system specified by alias name cannot be recognized.

Administrator response

One of the cases indicated below can be assumed. Correct the physical information description.

- Disk information was reconfigured after the path information was set.
In this case, retry after setting the path information.
- Path connection between ETERNUS Disk storage systems is not established (for REC).

STXC1200 ERROR Unexpected error.

Description

An unexpected error occurred.

Administrator response

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXC1201 ERROR Internal inconsistency.

Description

Internal inconsistency occurred.

Administrator response

Collect the troubleshooting information as shown in "6.3.2 Trouble analysis".

STXC1202 ERROR Unsupported function.

Description

An unsupported function was called.

Administrator response

Check the version of the ETERNUS Disk storage system firmware.

STXC1203 ERROR The operation is not permitted.

Description

User does not possess required root privilege to perform copy operation.

Administrator response

Perform copy operations with root privilege.

STXC1204 ERROR SCSI error detected. Error=(*ERROR*).

Description

An error was detected through the SCSI command.

Parameters

ERROR: Error information

Administrator response

Check the connection status of the device and try again. If this error persists, contact Fujitsu technical staff (CE).

STXC1208 ERROR Specified logical volume is not ETERNUS.

Description

The specified logical volume is not an ETERNUS Disk storage system.

Administrator response

Specify an ETERNUS Disk storage system logical volume and try again.

STXC1209 ERROR Insufficient resource in ETERNUS.

Description

The command is not executable due to ETERNUS Disk storage system resource shortage.

Administrator response

Take any of the following actions:

- Check/set the Advanced Copy option license.
 - Check/set the device resources for such errors as "Table size not set" and "Table size not enough".
-

STXC1212 ERROR Disk drive off by the ECO mode.

Description

The disk drive is stopped due to the Eco-mode.

Administrator response

Try again when the disk drive is activated.

STXC1213 ERROR Invalid file system.

Description

The file system is invalid.

Administrator response

The file system is unsupported. Check the file configuration and try again.

STXC1214 ERROR Preconditions for copy operation are not satisfied.

Description

The preconditions for the copy operation are not satisfied.

Administrator response

Check for the following causes, and check the copy status.

- Tried to start SnapOPC+ session for a copy pair for which a SnapOPC+ session already exists.
 - Tried to restore SnapOPC+ session that does not exist for the copy pair.
 - Tried to suspend EC session for a copy pair for which no EC exists.
 - Tried to suspend EC session without waiting.
 - A group configuration that cannot be simultaneously operated is specified.
 - Retried to suspend a copy session without resolving the error.
-

STXC1220 ERROR Change mode operation failed because of communication error. Cause=(DETAIL).

Description

Communication error or ETERNUS Disk storage system error occurred and changing session mode failed.

Parameters

DETAIL : Detailed information

Administrator response

- When *DETAIL* is "NOT_CHANGED"
Check the device connection status and try again.
 - When *DETAIL* is "CROSS"
Check the device connection status and try again. If this error occurs again, contact Fujitsu technical engineer (CE).
-

STXC1222 ERROR ETERNUS unit inconsistency.

Description

The copy source and copy destination ETERNUS Disk storage systems settings disagree and remote copy cannot be executed.

Administrator response

Check that the bitmap ratio of the ETERNUS Disk storage system advanced copy table size for the copy source and copy destination is not the same.

STXC1223 ERROR The copy operation with ETERNUS is incorrect.

Description

The copy operation with ETERNUS Disk storage system is not correct.

Administrator response

Take any of the following actions:

- Check ETERNUS Disk storage system firmware version between cabinets.
Contact Fujitsu system engineer (SE) when ETERNUS Disk storage system firmware version cannot be confirmed.
- Check whether the size of the copy source volume and the copy destination volume is the same.
- Check the server is connected to the ETERNUS Disk storage system of the copy source volume at the suspend processing by the Concurrent suspend mode operation. Moreover, check the path information settings is executed to the ETERNUS Disk storage system of the copy source volume.

STXC1224 ERROR Communication error occurred.

Description

Communication error occurred between the ETERNUS Disk storage systems and remote copy operation cannot be performed.

Administrator response

Check the device connection status and try again.

STXC1225 ERROR MPHD environment is incorrect.

Description

The multipath driver environment is incorrect.

Administrator response

Correct the multipath driver settings.

STXC1226 ERROR GDS environment is incorrect.

Description

The GDS environment is incorrect.

Administrator response

Correct the GDS environment settings.

STXC1250 ERROR Specified LUN_V Number is invalid.

Description

The specified LUN_V number is incorrect.

Administrator response

One of the cases indicated below can be assumed. Check the parameter settings and the status of the ETERNUS Disk storage system, and try again.

- A LUN_V number that does not exist or cannot be accessed is specified.
- Tried to start copy between an encrypted volume and non-encrypted volume.
- Specify the volume which contains bad sector.

STXC1252 ERROR Operation is not supported.

Description

Operation cannot be performed as operation is not supported.

Administrator response

One of the cases indicated below can be assumed. Correct the parameter settings, and try again.

- Tried to execute a copy operation of a size that exceeds 2TB. (For Linux)

STXC1300 ERROR Time out detected.

Description

Timeout was detected while Suspend was being executed.

Administrator response

Try to execute the command again.

Or, correct any mistakes with the timeout monitoring frequency and interval specified in the parameters.

STXC1301 WARNING The operation was accepted.

Description

The copy operation was accepted, but the process is not completed.

Administrator response

Check the copy status to confirm whether the copy operation is completed.

If this message appears when the copy operation is suspended, correct any mistakes with the timeout monitoring frequency and interval specified in the parameters.

STXC1400 ERROR File open error. File name=(*FILE*). Cause=(*CAUSE*).

Description

Failed to open the file.

Parameters

FILE: File name

CAUSE: Cause code

Administrator response

Check file status by referring to the cause code and the file name sent by the message.

STXC1401 ERROR The file name of ACCC can not be acquired. Cause=(*CAUSE*).

Description

Files required for operation of ACCC cannot be obtained.

Parameters

CAUSE: Cause code

Administrator response

The ACCC operating environment may be corrupted. Check that the following files exist in the sub directory (etc) of the install directory.

- stxc.ini
- trcdef.ini
- stxcvolinf (for Solaris/Linux)
- stxc.alias (for Solaris/Linux)

STXC1402 ERROR ACCC parameter name is not defined. Parameter=(*PARAM*).

Description

Invalid parameter name is set in the ACCC predefinition file.

Parameters

PARAM: Parameter name

Administrator response

Correct the ACCC predefinition file and try again.

STXC1403 ERROR ACCC parameter value is not allowed. Parameter=(PARAM).

Description

Invalid parameter value is set in the ACCC predefinition file.

Parameters

PARAM: Parameter name

Administrator response

Correct the ACCC predefinition file and try again.

STXC1404 ERROR ACCC parameter value is out of range. Parameter=(PARAM).

Description

A parameter value that is out of the range is set in the ACCC predefinition file.

Parameters

PARAM: Parameter name

Administrator response

Specify a parameter value in the ACCC predefinition file that is within the definable range.

STXC1405 ERROR The combination of ACCC parameters is incorrect.

Description

The parameter combination defined in the ACCC predefinition file is incorrect.

Administrator response

Correct the ACCC predefinition file and try again.

STXC1406 ERROR Waiting time cannot be set.

Description

The monitoring time for suspendable status cannot be set.

Administrator response

The following may have occurred. Check and correct parameters or the predefinition file.

- Accumulated monitoring interval and monitoring count values exceed their respective permissible values.
 - The monitoring count is specified but the monitoring interval is not set (or set to 0).
-

STXC1407 ERROR ACCC parameter is not defined. Parameter=(PARAM).

Description

Parameters necessary for ACCC operation are not set in the ACCC predefinition file.

Parameters

PARAM: Parameter name

Administrator response

Set the parameters displayed in the message in the ACCC predefinition file.

STXC1409 ERROR ACCC (*PARAM*) parameter is already defined.

Description

Defined parameter has been defined twice in the ACCC predefinition file.

Parameters

PARAM: Parameter name

Administrator response

Correct the ACCC predefinition file and try again.

STXC1410 ERROR Alias number reached the maximum.

Description

The ETERNUS Disk storage system alias reached the maximum number that can be managed by ACCC and path information cannot be set.

Administrator response

Check alias definition status and if there are unnecessary alias names, delete them.

STXC1411 ERROR Alias is already defined.

Description

The ETERNUS Disk storage system alias has already been registered.

Administrator response

Specify another alias and try again.

STXC1412 ERROR Alias identifier does not exist.

Description

An ETERNUS Disk storage system alias with the specified ID does not exist.

Administrator response

Check the alias definition status and ID, and try again.

STXC1500 ERROR Error occurred recognition of ETERNUS management file. Cause=(*CAUSE*).

Description

The ETERNUS Disk storage system management file cannot be obtained.

Parameters

CAUSE: Cause code

Administrator response

The following may be causes. Take an action based on the CAUSE (cause code).

- When the CAUSE is -1 or -2:
MICC is not installed or registry is rewritten.

- When the CAUSE is -3:
The file used for setting ETERNUS Disk storage system registration information is corrupted or deleted.

STXC1600 ERROR ETERNUS is not registered on ETERNUS management file.

Description

The ETERNUS Disk storage system has not been registered in the management file.

Administrator response

Register the ETERNUS Disk storage system and try again.

STXC1700 ERROR Alias management file access error. Cause=(CAUSE).

Description

An error occurred when the ETERNUS Disk storage system alias management file was accessed.

Parameters

CAUSE: Cause code

Administrator response

The following may be causes. Take an action based on the CAUSE (cause code).

- Registry key acquisition, reference
- File read/write
- File cannot be created

STXC1801 ERROR Group_file does not exist.

Description

The group file does not exist.

Administrator response

Check the group file name specified in the parameter, and try again.

STXC1802 ERROR Syntax error was detected in Group File.line=(LINE).

Description

There is a syntax error in the group file description.

Parameters

LINE: Line number of the line in which the syntax error was detected

Administrator response

Check the contents of the group file specified in the parameter, and try again.

STXC1803 ERROR There is no volume name in Copy Group File.

Description

The copy information is not registered in the group file.

Administrator response

Check the contents of the group file specified in the parameter, and try again.

STXC1804 ERROR Error occurred with copy operation described in group file. VOLINFO. Error message=(MSG).

Description

An error occurred with the copy operation described in the group file.

Parameters

- *VOLINFO*: Name of the logical volume in which the error occurred.
 - "Source=(copy source logical volume name).Target=(copy destination logical volume name)" is for copy pairs.
 - "Volume=(Logical volume name)" is for logical volumes.
- *MSG*: Message text

Administrator response

Deal with the error according to the MSG.

STXC1805 ERROR The number of the copy pairs or logical volumes described in the group file exceeds the maximum number.

Description

The copy operation cannot be performed, as the number of copy pairs or logical volumes described in the group file exceeds the maximum number.

Administrator response

Take any of the following actions:

- Divide the group
- Change the `max_grouping_ses` parameter value in the predefinition file.

STXS1027

The specified parameter is invalid. [parameter name=*NAME*, parameter value=*VALUE*]

Description

An incorrect affinity group number has been specified.

Parameters

- *NAME*: Parameter name
- *VALUE*: Parameter value

System action

Interrupts the processing.

Administrator response

Use [acinq ag \(Command for displaying a list of affinity groups\)](#) to check the specified affinity group number.

STXS2001

The specified user name and password have not been registered in the device. [user=*USER*]

Description

The user name and password have not been registered on the ETERNUS Disk storage system.

Parameters

USER: User name

System action

Interrupts the processing.

Administrator response

Check whether the user name and password are correct.

STXS2002

The specified user does not have privileges greater than that of an administrator. [user=*USER*]

Description

The user does not have Administrator privileges.

Parameters

USER : User name

System action

Interrupts the processing.

Administrator response

Use ETERNUS Web GUI to check the user privileges.

STXS2008

The registered user and password are not registered in the current device. [IP address=*IPADDR*], user=*USER*]

Description

The user name and password have not been registered on the ETERNUS Disk storage system.

Parameters

- *IPADDR* : IP address
- *USER* : User name

System action

Interrupts the processing.

Administrator response

The ETERNUS Web GUI user account has either been changed or deleted.

Change the registration information for the ETERNUS Disk storage system by referring to "[6.5 Changing configuration](#)".

STXS2009

The operation cannot be performed with the user privileges when registering the device. [IP address=*IPADDR*], user=*USER*]

Description

The user does not have Administrator privileges.

Parameters

- *IPADDR* : IP address
- *USER* : User name

System action

Interrupts the processing.

Administrator response

The user account privileges for ETERNUS Web GUI have been changed.

Use ETERNUS Web GUI to check the user privileges.

STXS4002

The device is not supported. [IP address=*IPADDR*], model=*MODEL*], type=*TYPE*]

Description

The specified ETERNUS Disk storage system is not supported.

Parameters

- *IPADDR*: IP address
- *MODEL*: ETERNUS Disk storage systems model
- *TYPE*: ETERNUS Disk storage systems type

System action

Interrupts the processing.

Administrator response

Check that the ETERNUS Disk storage system meets the "[2.1 Hardware conditions](#)".

STXS4046

The specified affinity group has not been registered. [affinity group number=*GROUP*]

Description

The specified affinity group has not been registered.

Parameters

GROUP: Affinity group number

System action

Interrupts the processing.

Administrator response

Use [acinq ag \(Command for displaying a list of affinity groups\)](#) to check the specified affinity group number.

STXS4047

The specified affinity group has been concatenated. [affinity group number=*GROUP*]

Description

A concatenated affinity group has been specified.

Parameters

GROUP: Affinity group number

System action

Interrupts the processing.

Administrator response

Concatenated affinity groups cannot be specified.

STXS7004

Failed to communicate with the device. [IP address=*IPADDR*]

Description

Communications with the ETERNUS Disk storage system have failed.

Parameters

IPADDR : IP address

System action

Interrupts the processing.

Administrator response

It is not possible to communicate with the ETERNUS Disk storage system.

Refer to "[5.3 Configuring the Network Environment](#)" to check the status of the network, and then execute the command again.

E.7 Error Messages on Troubleshooting Data Collection Command

This section explains the error messages output when the troubleshooting data collection command is executed.

Table E.2 Error Messages on Troubleshooting Data Collection Command

Item number	Error Message	Explanation	Action
1	An invalid argument was specified.	An invalid argument was specified.	Check the specification method of the argument specified in the option. Specify the correct argument and re-execute.
2	The specified directory does not exist.	The specified directory does not exist.	Specify an existing directory and re-execute.
3	The operation was interrupted.	The operation was interrupted for one of the following reasons: <ol style="list-style-type: none">1. A user without permission executed the command.2. There is insufficient disk space (capacity).	<ol style="list-style-type: none">1. Check the permissions of the user who executed the command and re-execute.2. Secure sufficient disk space (capacity), then re-execute.

Appendix F Detail Error Messages of ETERNUS

This appendix describes the detailed error messages output by the ETERNUS Disk storage system, which were inserted into the messages.

If an error message not shown in this table appears, a hardware failure may have occurred. In such an event, contact your Fujitsu customer engineer (CE).

Table F.1 Detail Error Messages of ETERNUS

No.	Error message	Explanation	Corrective action
1	invalid logical volume name.	The specified copy source or destination device is not found.	Check that the slice information exists on the copy source or destination device.
2	invalid extent number.	An internal conflict occurred. (The number of extents is invalid (STXGetVolmuInfo))	Ask a Fujitsu systems engineer (SE) to collect the data necessary for troubleshooting. (NOTE)
3	invalid source BoxID.	An internal conflict occurred. (The copy source box identifier was invalid.)	
4	invalid destination BoxID.	An internal conflict occurred. (The copy destination box identifier was invalid.)	
5	invalid source OLU.	The specified copy source or destination device is not found.	Check the partition information for the copy source device.
6	invalid destination OLU.	The specified copy source or destination device is not found.	Check the partition information for the copy destination device.
7	invalid extent.	The copy source or destination device does not exist.	Check the slice information on the copy source or destination device.
8	invalid source extent size.	An internal conflict occurred. (Not entire volume copy but copy size is 0.)	Ask a Fujitsu systems engineer (SE) to collect the data necessary for troubleshooting. (NOTE)
9	invalid copy interval.	The specified copy interval is invalid.	
10	invalid option flag.	An internal conflict occurred. (The operation specification flag is invalid.)	
11	invalid MPHD environment.	An MPHD path name was specified for the logical volume name when MPHD was not installed.	Check whether MPHD is installed.
12	invalid SynfinityDISK environment.	SynfinityDISK resource is not supported.	Specify a resource other than SynfinityDISK.
13	invalid GDHD environment.	A GDHD path name was specified for the logical volume name when GDHD was not installed.	Check whether GDHD is installed.
14	memory allocation error.	Dynamic memory allocation failed.	Allocate sufficient memory or a swap area, or terminate any other programs that are being executed.
15	not STX.	The copy source or destination device does not exist.	Check the slice information on the copy source or destination device.
16	SCSI command busy.	One of the following events occurred. <ul style="list-style-type: none"> - The specified OPC/EC copy source or target device is already being used for another OPC/EC copy target or source. - The specified OPC/EC copy target device is already being used for another OPC/EC copy target. 	Take the applicable action as follows: <ul style="list-style-type: none"> - Ensure that the OPC/EC copy source or target device is not used for another copy source or target. - Ensure that the OPC/EC copy source is not used for another copy source.

No.	Error message	Explanation	Corrective action
		<ul style="list-style-type: none"> - The maximum number of OPC/EC that can run concurrently in the disk array has already been reached. - BUSY was detected in the SCSI path. - The copy that is not managed by AdvancedCopy Manager is done. - The upper limit for the number that can operate simultaneously for each LUN has already been reached. 	<ul style="list-style-type: none"> - Wait until the OPC/EC of the device specified by the backup execution status display command ends, and then re-execute processing. - Wait for about five seconds and then re-execute processing. - Confirm the status of the copy by using ETERNUS Web GUI. <p>For other cases, contact a Fujitsu customer engineer (CE).</p>
17	SCSI command conflict.	A SCSI error (a command conflict) was detected.	Check the device connection status and then retry.
18	SCSI queue full.	A SCSI error (queue full) was detected.	If this fails to solve the problem, contact a Fujitsu customer engineer (CE).
19	Not support.	The specified copy function is not supported.	Contact a Fujitsu customer engineer (CE).
20	hardware error requiring CE-CALL.	A SCSI error (CheckCondition) was detected.	Check the device connection status and then retry.
21	SCSI condition met.	A SCSI error (Condition met) was detected.	If this fails to solve the problem, contact a Fujitsu customer engineer (CE).
22	unexpected SCSI error.	A SCSI error (abnormal status) was detected.	
23	invalid OLU.	<p>The specified copy source or destination device is invalid because:</p> <ul style="list-style-type: none"> - The same device is specified for the copy source or copy destination in "Copy all volumes". - The specified device cannot be used. - Consistency mode was specified for the RAID consolidation volume. - A non-existent OLU was specified when the volume status was displayed. 	<p>Check the device that is the copy source or the device partition information of the copy destination, and retry the function.</p> <p>If this fails to solve the problem, collect the data necessary for troubleshooting, and then contact a Fujitsu systems engineer (SE). (NOTE)</p>
24	invalid BoxID.	The specified remote cabinet identifier is invalid.	Check the connection conditions between cabinets, and retry.
25	invalid role.	The specified Remote Advanced Copy direction is invalid.	If this fails to solve the problem, then contact a Fujitsu customer engineer (CE).
26	setup is inadequate	<p>The copy settings are not sufficient for normal operation. One of the following events occurred:</p> <ul style="list-style-type: none"> - The license has not been set with the Advanced Copy option. - There are not enough device resources (e.g., "table size not set", "table size not enough", "REC buffer size not set"). 	Contact a Fujitsu customer engineer (CE) and systems engineer (SE).
27	bit map resolution disagree.	The bitmap resolution between cabinets is inconsistent.	

No.	Error message	Explanation	Corrective action
28	communication interrupted.	An error occurred in communication between cases.	Check the connection state between the cabinets, and retry processing. If this fails to solve the problem, contact a Fujitsu customer engineer (CE).
29	another partner is not supported.	The version of firmware of one cabinet is not supported.	Contact a Fujitsu customer engineer (CE).
30	the session mode was not changed.	An attempt to switch the session mode has failed. (But the original status remains as is.)	Check the connection status between cabinets and then retry.
31	the session mode crosses.	An attempt to switch the session mode has failed. (Information between cabinets is inconsistent.)	If this fails to solve the problem, contact a Fujitsu customer engineer (CE) and systems engineer (SE).
32	the operation of SnapOPC was failed.	One of the following has occurred: - An error has occurred accessing a Snap Data volume. - Reverse copy was implemented when there was not a SnapOPC session.	Take one of the following actions: - Check the partition information for the copy destination disk, and then rerun the command. - Check the SnapOPC session status, and then rerun the command. If this fails to solve the problem, contact a Fujitsu customer engineer (CE) and systems engineer (SE).
33	the operation of REC buffer was failed.	An attempt to either display information or change the settings for the REC buffer has failed.	Check the settings status of the REC buffer and then rerun the command. If this fails to solve the problem, contact a Fujitsu customer engineer (CE) and systems engineer (SE).
34	the operation of concurrent suspend was failed.	A concurrent suspension operation has failed. (But the original status remains as is.)	Check the status of all sessions, and then rerun the command. For HP-UX and AIX editions, check that the copy destination volume is the same size or larger than the copy source volume. If this fails to solve the problem, contact a Fujitsu systems engineer (SE).
35	invalid Snap Data volume.	A Snap Data volume specification error has been detected. - SnapOPC/SnapOPC+ has been specified but the copy destination is not a Snap Data volume. - SnapOPC/SnapOPC+ has been specified but the copy source is a Snap Data volume. - OPC/ROPC/QuickOPC or EC/REC was specified but either the copy source or the copy destination is a Snap Data volume. - A volume other than a Snap Data volume was specified for Snap Data volume initialization.	Check the partition information for the copy source or copy destination device, and then rerun the command. If this fails to solve the problem, contact a Fujitsu customer engineer (CE) and systems engineer (SE).

No.	Error message	Explanation	Corrective action
36	out of sequence.	<p>One of the following occurred:</p> <ul style="list-style-type: none"> - The status does not allow execution of this command. - Invalid status or invalid phase detected for the SCSI access. - Replication cancellation was executed to a SnapOPC+ generation other than the oldest generation. 	<p>Take one of the following actions:</p> <ul style="list-style-type: none"> - Check the processing status, and then try again. - Check the session status, and then try again. - Check the Snap generation number, and then try again. <p>If this fails to solve the problem, contact a Fujitsu systems engineer (SE).</p>

NOTE:

Refer to the following, collect the data necessary for troubleshooting.
[acmcapture \(troubleshooting data collection command\)](#)

Appendix G Detailed messages of events

This appendix explains detailed messages of events that are output from Express according to the following table.

Detailed messages are displayed at "Event Details" window.

Table G.1 Event format

Item	Description
Event text	Shows how the event is displayed.
Description	Explains the reason why the event is displayed, or the conditions under which the event is displayed.
Parameters	Explains the meanings of parameters if included in the events.
Administrator response	This section explains the actions that the administrator should take in response to the message.



See

.....
Please refer to the hardware manual for meanings and corrective actions of events reported from the device.
.....

G.1 Detailed messages of events related to event notification email

This section explains detailed messages of events related to event notification email.

Sending Email has failed. (E-mail address : [TOADDRESS] SMTP server : [SMTPSERVER] Detail code : [DETAILCODE])

Description

This is warning message.

Event notification emails sending failure.

Administrators cannot receive event notification emails.

Parameters

- TOADDRESS: Destination of email address
- SMTPSERVER: Name of SMTP server
- DETAILCODE: Detail code number

Administrator response

Contact the system administrator.

Check email addresses in [Contacts] and SMTP server settings in [Preferences].

G.2 Detailed messages of events related to Disk storage system configuration change

This section explains detailed messages of events related to Disk storage system configuration change.

[KEYNAME] has been removed.

Description

This is Information message.

Disk storage system configuration has been changed (deletion from Disk storage system).

For example, in case of removing volume 1, "Volume - No.1 has been removed" is displayed.

Parameters

KEYNAME: Indicates removed part.



When the type is the FibreCAT SX Disk storage system, only "Disk Array Information" is displayed.

Administrator response

None.

The value of [VALUENAME] of [KEYNAME] has been changed from [ORIGINALVALUE] [UNIT] to [CURRENTVALUE] [UNIT].

Description

This is Information message.

Disk storage system configuration change (changing value of Disk storage system).

For example, in case of changing free capacity from 1000MB to 500MB of the RAID group 1, "The value of Free Capacity of Raid Group - No.1 has been changed from 1000(MB) to 500(MB)." is displayed.

Parameters

- VALUENAME: Indicates name of value.
- KEYNAME: Indicates changed part.



When the type is the FibreCAT SX Disk storage system, only "Disk Array Information" is displayed.

- ORIGINALVALUE: Indicates value before it changes.
- CURRENTVALUE: Indicates present value.
- UNIT: Unit of changed information. (Example (MB))
When the unit is unnecessary, it is not displayed.

Administrator response

None.

[KEYNAME] has been added.

Description

This is Information message.

Disk storage system configuration change (addition to Disk storage system).

Parameters

KEYNAME: Indicates added part.



When the type is the FibreCAT SX Disk storage system, only "Disk Array Information" is displayed.

Administrator response

None.

G.3 Detailed messages of events related to changing the IP address

This section explains the events related to changing the IP address for the server that is running Express Manager.

IP address of the operation management server was changed from [OLD-IP ADDRESS] to [NEW-IP ADDRESS]. Set new destination of SNMP Trap to storage devices.

Description

This is warning message.

Change the IP address for the server that is running Express Manager.

Parameters

- OLD-IP ADDRESS: Old IP address.
- NEW-IP ADDRESS: New IP address.

Administrator response

Please correct the SNMP Trap destination to a new IP address.

- For ETERNUS Disk storage system
Please correct it by ETERNUS Web GUI.
- For FibreCAT SX Disk storage system
Please correct it by FibreCAT SX WBI.

G.4 Detailed messages of events related to performance monitoring

This section explains detailed messages of events related to performance monitoring.

Performance data collecting failure.

Description

This is error message.

Failure in performance data collection.

Administrator response

Please confirm the device and the LAN state with the IP address shown in the event message.

Performance data re-collecting start.

Description

This is Information message.

Start of performance data re-collection.

Administrator response

None.

Performance date re-collecting success.

Description

This is Information message.

Success in performance data re-collection.

Administrator response

None.

G.5 Event related to device polling function

This section explains the events related to device polling function.

When the device polling function of Express detects the change of the device state, display it in the event as follows.

Connection Timeout.

Description

This is warning message.

The state has been changed to connection timeout.

Administrator response

Please confirm whether the LAN between Manager and the device is operating normally.

Please confirm whether the state of each device is proper and whether, processes of network communication such as SNMP are operating normally.

If the community name of a device that uses SNMP for communication is changed, change SNMP community name by referring to "[7.5.4 Changing the SNMP community name](#)".

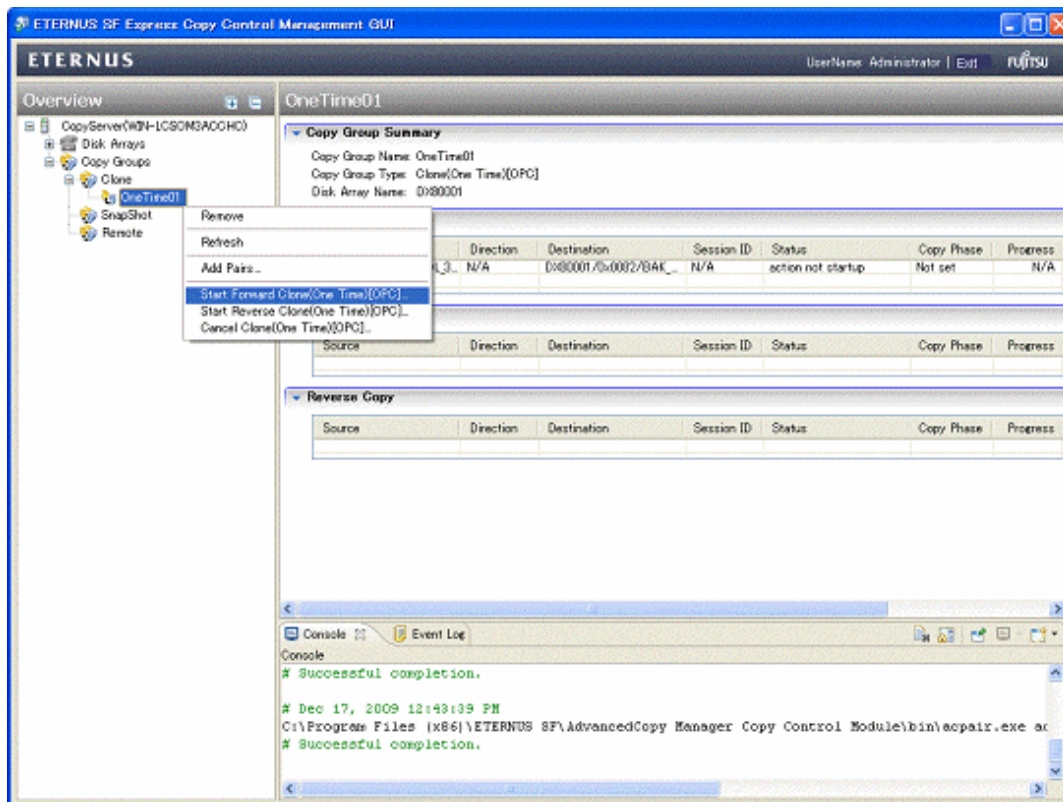
Appendix H Main Changes from Express V14.1

This appendix explains main changes from Express V14.1.

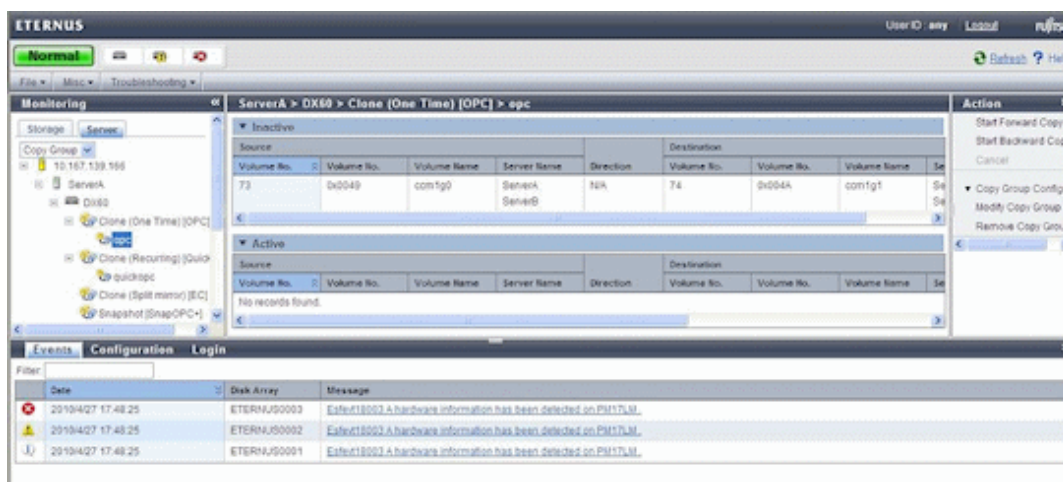
H.1 Copy Operation

Express V14.2 is used via the Web browser. Express V14.1 displayed an operation list with right click and let users select a desired operation. In V14.2, you can select a desired operation from the [Action] pane.

- Express V14.1



- Express V14.2



H.2 Message

The messages associated with copy operations executed on the Express Web GUI have been changed.

Message output time		Message displayed in V14.1	Message displayed in V14.2
Register ETERNUS Disk storage system	Normal end	DiskArray <StorageName> added OK.	esfmgr10841 The storage name was registered. StorageName=<Storage_Name>
	Abnormal end	Failed to add DiskArray <StorageName>.	esfmgr10842 The storage name was not registered. StorageName=<Storage_Name>
Create copy group	Normal end	CopyGroup <CopyGroup Name> created OK.	esfmgr10825 The copy group was created. CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
	Abnormal end	Failed to create CopyGroup <CopyGroup Name>.	esfmgr10826 The copy group was not created. CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
Register pair to copy group	Normal end	Pair <Pair Name> added OK.	esfmgr10821 The copy pair was created. SourceVolume=<Source_Volume_name>, SourceStorage=<Source_Storage_name>, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]]], DestinationVolume=<Destination_Volume_name>, [DestinationStorage=<Destination_Storage_name>], [DestinationServer=<Destination_Server_name>], CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
	Abnormal end	Failed to add Pair <Pair Name>.	esfmgr10822 The copy pair was not created. SourceVolume=<Source_Volume_name>, SourceStorage=<Source_Storage_name>, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]]], DestinationVolume=<Destination_Volume_name>, [DestinationStorage=<Destination_Storage_name>], [DestinationServer=<Destination_Server_name>], CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
Change disk storage system name	Normal end	DiskArray name <diskarray old name> changed OK.	esfmgr10831 The storage name was changed. OldStorageName=<Old_Storage_Name>, NewStorageName=<New_Storage_Name>
	Abnormal end	Failed to change DiskArray name <diskarray old name>.	esfmgr10832 The storage name was not changed. OldStorageName=<Old_Storage_Name>, NewStorageName=<New_Storage_Name>
Change access path	Normal end	Access path for <diskarray name> changed OK.	esfmgr10833 The access path was changed. OldAccessPath=<Old_Access_Path>, NewAccessPath=<New_Access_Path>, StorageName=<Storage_Name>
	Abnormal end	Failed to change accesspath for <diskarray name>.	esfmgr10834 The access path was not changed. OldAccessPath=<Old_Access_Path>, NewAccessPath=<New_Access_Path>, StorageName=<Storage_Name>
Delete pair information registered to copy group	Normal end	Pair <pair name> removed OK.	esfmgr10823 The copy pair was removed. SourceVolume=<Source_Volume_name>, SourceStorage=<Source_Storage_name>, [SourceServer=<Source_Server_name1>],

Message output time	Message displayed in V14.1	Message displayed in V14.2
		[<Source_Server_name2>,[...]], DestinationVolume=<Destination_Volume_name>, [DestinationStorage=<Destination_Storage_name>], [DestinationServer=<Destination_Server_name>], CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
	Abnormal end	Failed to remove pair <pair name>. esfmgr10824 The copy pair was not removed. SourceVolume=<Source_Volume_name>, SourceStorage=<Source_Storage_name>, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]]], DestinationVolume=<Destination_Volume_name>, [DestinationStorage=<Destination_Storage_name>], [DestinationServer=<Destination_Server_name>], CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
Delete copy group	Normal end	CopyGroup <copygroup name> removed OK. esfmgr10829 The copy group was deleted. CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
	Abnormal end	Failed to remove copygroup <copygroup name>. esfmgr10830 The copy group was not deleted. CopyType=<Copy_Type>, CopyGroup=<Copy_Group_name>
- Start Forward OPC on copy group - Start Forward QuickOPC on copy group	Normal end	Copy for copygroup <copygroup name> started OK. esfmgr10801 The copy started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]], [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
- Start Forward EC on copy group - Start Forward REC on copy group - Start Forward SnapOPC+ on copy group	Abnormal end	Failed to start copy for copygroup <copygroup name>. esfmgr10811 The copy was not started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]], [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
- Start Reverse OPC on copy group - Start Reverse QuickOPC	Normal end	Copy for copygroup <copygroup name> started OK. esfmgr10801 The copy started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]], [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>],

Message output time		Message displayed in V14.1	Message displayed in V14.2
on copy group			[DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
- Start Reverse EC on copy group - Start Reverse REC on copy group	Abnormal end	Failed to start copy for copygroup <copygroup name>.	esfmgr10811 The copy was not started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]_], [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
- Cancel OPC on copy group - Cancel QuickOPC on copy group	Normal end	Copy for copygroup <copygroup name> canceled OK.	esfmgr10812 The copy was canceled. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>} [,SourceServer=<Source_Server_name1>[,<Source_Server_name2>[...]]] [,SourceStorage=<Source_Storage_name>] [,DestinationVolume=<Destination_Volume_name>] [,DestinationServer=<Destination_Server_name>] [,DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to cancel copy for copygroup <copygroup name>.	esfmgr10813 The cancel operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>} [,SourceServer=<Source_Server_name1>[,<Source_Server_name2>[...]]] [,SourceStorage=<Source_Storage_name>] [,DestinationVolume=<Destination_Volume_name>] [,DestinationServer=<Destination_Server_name>] [,DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
- Suspend EC on copy group - Suspend REC on copy group	Normal end	Copy for copygroup <copygroup name> suspended OK.	esfmgr10804 The copy was suspended. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to suspend copy for copygroup <copygroup name>.	esfmgr10814 The suspending operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>

Message output time		Message displayed in V14.1	Message displayed in V14.2
<ul style="list-style-type: none"> - Resume EC on copy group - Resume REC on copy group 	Normal end	Copy for copygroup <copygroup name> resumed OK.	esfmgr10805 The copy was resumed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to resume copy for copygroup <copygroup name>.	esfmgr10815 The resuming operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Reverse EC on copy group - Reverse REC on copy group 	Normal end	Copy for copygroup <copygroup name> reversed OK.	esfmgr10806 The copy was reversed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to reverse copy for copygroup <copygroup name>.	esfmgr10816 The copy was not reversed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Stop EC on copy group - Stop REC on copy group 	Normal end	Copy for copygroup <copygroup name> stopped OK.	esfmgr10802 The copy accepted. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>], [DestinationVolume=<Destination_Volume_name>], [DestinationServer=<Destination_Server_name>], [DestinationStorage=<Destination_Storage_name>], CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to stop copy for copygroup <copygroup name>.	esfmgr10813 The cancel operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>,

Message output time		Message displayed in V14.1	Message displayed in V14.2
			[<Source_Server_name2>,[...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
Change copy mode of REC on copy group	Normal end	Copy mode for copygroup <copygroup name> changed OK.	esfmgr10807 The copy mode was changed. CopyMode=<Copy_Mode>, {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to change copy mode for copygroup <copygroup name>.	esfmgr10817 The change mode operation failed. CopyMode=<Copy_Mode>, {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Start Forward OPC on Pair - Start Forward QuickOPC on Pair - Start Forward EC on pair 	Normal end	Copy for pair <pair name> started OK.	esfmgr10801 The copy started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]]_, [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	<ul style="list-style-type: none"> - Start Forward REC on pair - Start Forward SnapOPC+ on Pair 	Abnormal end	Failed to start copy for Pair <pair name>.
<ul style="list-style-type: none"> - Start Reverse OPC on pair - Start Reverse 	Normal end	Copy for pair <pair name> started OK.	esfmgr10801 The copy started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,[...]]_, [SourceStorage=<Source_Storage_name>,

Message output time		Message displayed in V14.1	Message displayed in V14.2
QuickOPC on pair - Start Reverse EC on pair - Start Reverse REC on pair			[DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to start copy for Pair <pair name>.	esfmgr10811 The copy was not started. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]], [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
- Cancel OPC on pair - Cancel QuickOPC on pair	Normal end	Copy for pair <pair name> canceled OK.	esfmgr10812 The copy was canceled. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name> [,SourceServer=<Source_Server_name1>[,< Source_Server_name2>[...]]] [,SourceStorage=<Source_Storage_name> [,DestinationVolume=<Destination_Volume_name> [,DestinationServer=<Destination_Server_name> [,DestinationStorage=< Destination_Storage_name>] ,CopyType=< Copy_Type>, Direction=<direction>
	Abnormal end	Failed to cancel copy for pair <pair name>.	esfmgr10813 The cancel operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name> [,SourceServer=<Source_Server_name1>[,< Source_Server_name2>[...]]] [,SourceStorage=<Source_Storage_name> [,DestinationVolume=<Destination_Volume_name> [,DestinationServer=<Destination_Server_name> [,DestinationStorage=< Destination_Storage_name>] ,CopyType=< Copy_Type>, Direction=<direction>
- Suspend EC on pair - Suspend REC on pair	Normal end	Copy for pair <pair name> suspended OK.	esfmgr10804 The copy was suspended. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to suspend copy for pair <pair name>.	esfmgr10814 The suspending operation failed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>[...]]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>

Message output time		Message displayed in V14.1	Message displayed in V14.2
			[DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Resume EC on pair - Resume REC on pair 	Normal end	Copy for pair <pair name> resumed OK.	esfmgr10805 The copy was resumed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to resume copy for pair <pair name>.	esfmgr10815 The resuming operation faild. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Reverse EC on pair - Reverse REC on pair 	Normal end	Copy for pair <pair name> reversed OK.	esfmgr10806 The copy was reversed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to reverse copy for pair <pair name>.	esfmgr10816 The copy was not reversed. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
<ul style="list-style-type: none"> - Stop EC on pair - Stop REC on pair 	Normal end	Copy for pair <pair name> stopped OK.	esfmgr10802 The copy accepted. {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to stop copy for pair <pair name>.	esfmgr10813 The cancel operation failed. {SourceVolume=<Source_Volume_name>

Message output time		Message displayed in V14.1	Message displayed in V14.2
			CopyGroup=<Copy_Group_name>, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
Change copy mode of REC on pair	Normal end	Copy mode for pair <pair name> changed OK.	esfmgr10807 The copy mode was changed. CopyMode=<Copy_Mode>, {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>
	Abnormal end	Failed to change copy mode for pair <pair name>.	esfmgr10817 The change mode operation failed. CopyMode=<Copy_Mode>, {SourceVolume=<Source_Volume_name> CopyGroup=<Copy_Group_name>}, [SourceServer=<Source_Server_name1>, [<Source_Server_name2>,...]] [SourceStorage=<Source_Storage_name>, [DestinationVolume=<Destination_Volume_name>, [DestinationServer=<Destination_Server_name>, [DestinationStorage=<Destination_Storage_name>, CopyType=<Copy_Type>, Direction=<direction>

Note: <> : indicates parameters.

H.3 Commands for Advanced Copy Functions

The following command name has been changed.

Version	Changed point
V14.1	acinq hag (command for displaying a list of host affinity groups)
V14.2	acinq hostag (command for displaying a list of host affinity)



See

For details of command for displaying a list of host affinity, refer to "[D.1.10 acinq hostag \(Command for displaying a list of host affinity\)](#)".

H.4 Messages output from Copy Control Module

The messages output from Copy Control Module have been changed.

Message ID	Messages output in V14.1	Messages output from V14.2
ccm1001	Input parameter is illegal.	An invalid argument was specified.
ccm1002	An invalid option is specified. option=[<i>OPTION</i>]	An invalid option was specified. option=[<i>OPTION</i>]
ccm1003	An invalid parameter is specified. option=[<i>OPTION</i>], parameter=[<i>PARAMETER</i>]	An invalid parameter was specified. option=[<i>OPTION</i>], parameter=[<i>PARAMETER</i>]
ccm1004	An invalid option is specified. copy group=[<i>COPYGROUP</i>], copy type=[<i>COPYTYPE</i>], option=[<i>OPTION</i>]	An invalid option was specified for the copy type. copy group=[<i>COPYGROUP</i>], copy type=[<i>COPYTYPE</i>], option=[<i>OPTION</i>]
ccm2001	This program requires administrative privileges of the operation system.	This command requires operating system's administrative privileges.
ccm3001	The disk array already exists. disk array=[<i>DISKARRAY</i>]	The specified disk array is already registered. disk array=[<i>DISKARRAY</i>]
ccm3002	The copy group already exists. copy group=[<i>COPYGROUP</i>]	The specified copy group is already registered. Copy group=[<i>COPYGROUP</i>]
ccm3003	The pair already exists. copy group=[<i>COPYGROUP</i>], pair=[<i>PAIR</i>]	The specified copy pair is already registered. copy group=[<i>COPYGROUP</i>], pair=[<i>PAIR</i>]
ccm3004	An invalid pair is specified. pair=[<i>PAIR</i>], detail=[<i>DETAIL</i>]	An invalid copy pair was specified. pair=[<i>PAIR</i>], detail=[<i>DETAIL</i>]
ccm4001	The disk array does not exist. disk array=[<i>DISKARRAY</i>]	The specified disk array does not exist. disk array=[<i>DISKARRAY</i>]
ccm4002	The disk array does not exist. disk array=[<i>BOX- ID</i>]	The specified disk array does not exist. disk array=[<i>BOX-ID</i>]
ccm4003	The copy group is not found. copy group=[<i>COPYGROUP</i>]	The specified copy group was not found. copy group=[<i>COPYGROUP</i>]
ccm4004	The pair is not found. copy group=[<i>COPYGROUP</i>]	No copy pair was found for the specified copy group. copy group=[<i>COPYGROUP</i>]
ccm4005	The pair is not found. copy group=[<i>COPYGROUP</i>], pair=[<i>PAIR</i>]	The specified copy pair was not found. copy group=[<i>COPYGROUP</i>], pair=[<i>PAIR</i>]
ccm4006	The logical volume is not found. logical volume=[<i>LOGICAL-VOLUME</i>]	The specified logical volume was not found. logical volume=[<i>LOGICAL-VOLUME</i>]
ccm4007	An invalid copy group is specified. copy group=[<i>COPYGROUP</i>], copy type=[<i>COPYTYPE</i>]	An invalid copy group was specified. copy group=[<i>COPYGROUP</i>], copy type=[<i>COPYTYPE</i>]
ccm5005	An invalid mount point is specified. mount point=[<i>MOUNTPOINT</i>]	An invalid mount point was specified. mount point=[<i>MOUNTPOINT</i>]
ccm5006	An invalid device is specified. device=[<i>DEVICE</i>]	An invalid device was specified. device=[<i>DEVICE</i>]

H.5 SNMP trap reception program

SNMP trap reception program have been changed.

Target	Version	Content
ETERNUS SF Express Manager	14.1	- Use SystemWalker MpWksttr as SNMP trap reception service.

Target	Version	Content
		<ul style="list-style-type: none"> - When coexisting with ServerView AlarmService, mpmsts ON command execution is necessary. - When coexisting Systemwalker Centric Manager, No settings are necessary.
	14.2	<ul style="list-style-type: none"> - Use OS standard SNMP Trap Service as SNMP trap reception service. - When coexisting with ServerView AlarmService, mpmsts ON command execution is not necessary. - When coexisting with Systemwalker Centric Manager, Systemwalker Centric Manager needs settings for coexisting with AlarmService.

Glossary

Access Path

Path required by a server to access disks in a Disk storage system.

Advanced Copy function

A hardware copy function of ETERNUS Disk storage systems. This is a generic name of EC and OPC.

CCM (Copy Control Module)

A tool that enables backup using the Advanced Copy function of the ETERNUS Disk storage system.

EC

This is an abbreviation for Equivalent Copy. It is one of the copy functions of the hardware devices in the ETERNUS Disk storage systems. This function maintains the mirror state between the disks in a hardware device. When detach control is executed from software, a copy of such a disk is created.

ETERNUS Disk storage system

Disk array refers to a device that contains multiple hard disks to use it as large capacity storage. It is sometimes referred as "RAID" as the RAID technology which improves the reliability and performance of the device is used. ETERNUS is the product name for Fujitsu's high-reliability and performance disk arrays.

ETERNUS Multipath Driver

The multipath driver for the ETERNUS DX60, DX80/DX80 S2, DX90/DX90 S2 which is the successor for ETERNUS Multipath driver. By setting a single logical path out of multiple physical access paths, the driver ensures the access to a Disk storage system is alive even when one of the access paths is failed.

ETERNUS Web GUI

Software product for monitoring and displaying the status of the ETERNUS DX60, DX80/DX80 S2, DX90/DX90 S2 machine and for setup and maintenance.

FC (Fibre Channel)

One of the interfaces for serial transfer. The features of FC include high-speed and long distance transfer to a server.

Logical copy

The logical copy allows a backup or restoration request to be logically completed before completing the actual copy.

OPC

This is an abbreviation of the term "one point copy" which is a hardware function of ETERNUS Disk storage systems. This function executes disk copy at high speeds at the hardware level. When software issues a copy request, a physical copy operation is performed by the hardware. However, the emulation function makes it look like the copy is completed at the software level.

Physical copy

Actual copy processing performed in an ETERNUS Disk storage system after logical copy is completed.

A server is not aware of the physical copy as it is performed background.

Quick OPC

This is a copy method generally used to copy only the data that is updated after a physical copy of all data by OPC is completed.

It is a suitable copy method for Disk to Disk backup.

Differential OPC is an old name for QuickOPC.

RAID (Redundant Arrays of Inexpensive (Independent) Disks)

A technology that secures performance and fault-tolerance by distributing data to multiple hard disks.

RAID Level

The RAID Level (RAID0-RAID6) is classified according to how data is allocated to disks or how redundancy is configured.

REC

Abbreviation for "Remote Equivalent Copy". REC uses a hardware function of ETERNUS Disk storage systems to achieve EC (Equivalent Copy) between different cabinets.

Redundancy

Redundancy is implemented for fault tolerance or improving reliability by adding stand-by devices in addition to the normal configuration.

Session

Unit of copying execution that is performed by the Advanced Copy function.

SMTP (Simple Mail Transfer Protocol) Server

A server which sends email.

SDV (Snap Data Volume)

This is a volume for storing the copy used as the SnapOPC+ destination. It is necessary to define a Snap Data Volume in advance of SnapOPC+ being invoked.

SnapOPC+

This method copies only the pre-update status of the data parts that are to be updated, and saves the data in snap generation units (a copy-on-write copy method). This method can be used for efficient data copying since it reduces the data size at the copy destination and data can be saved in snap generation units. This copy method is suited to backing up file servers.

Storage

Storage refers to external storage devices such as a disk array device or a tape device including ETERNUS Disk storage system, F649x series and Spectris/Platinum.

Storage system

A storage system refers to the overall configuration including servers performs daily transactions and storage units which stores the data.

Suspend/Resume function

This function sets Suspend or Resume for the EC equivalency maintenance status. The synchronous backup operation can be made faster because the function can create a differential copy from the Suspend state.

Index

[A]

acarray add (Command for resgistering ETERNUS Disk storage system).....	184
acarray change (Command for changing ETERNUS names and access paths for ETERNUS Disk storage systems).....	186
acarray detail (Command for displaying detailed information about ETERNUS Disk storage systems).....	187
acarray list (Command for displaying information about ETERNUS Disk storage systems).....	186
acarray pathscan (Command for automatically setting access paths).....	188
acarray remove (Command for removing registration information for ETERNUS Disk storage systems).....	189
acec cancel (Command for cancelling synchronous high speed copy).....	230
acec change (Command for changing the mode of synchronous high speed copy).....	229
acec query (Command for displaying the status of synchronous high speed copy).....	220
acec resume (Command for resuming synchronous high speed copy).....	226
acec reverse (Command for reversing synchronous high speed copy).....	228
acec start (Command for starting synchronous high speed copy).....	218
acec suspend (Command for suspending synchronous high speed copy).....	225
acgetvolinfo (Command for displaying logical volume information).....	235
acgroup create (Command for creating copy groups).....	199
acgroup detail (Command for displaying detailed information about copy groups).....	201
acgroup list (Command for displaying copy groups).....	200
acgroup remove (Command for removing copy groups deletion command).....	202
acinhibit set (Command for setting volume protection).....	195
acinhibit unset (Command for unsetting volume protection).....	196
acinq ag (Command for displaying a list of affinity groups).....	193
acinq hostag (Command for displaying a list of host affinity).....	194
acinq lunmap (Command for displaying LUN Mapping information).....	192
acinq lv (Command for displaying logical volume information).....	190
acmcapture (Command for collecting analysis data).....	236
acopc cancel (Command for canceling OPC or QuickOPC copy).....	211
acopc query (Command for displaying the status of OPC or QuickOPC copy).....	208
acopc start (Command for starting OPC or QuickOPC copy).....	206
acpair add (Command for adding copy pairs).....	203
acpair remove (Command for removing copy pairs).....	206
acrecbuff set (Command for setting REC buffers).....	197
acrecbuff stat (Command for displaying REC buffer status).....	197
acsdv init (Command for initializing Snap Data Volume).....	231

acsdv poolstat (Command for displaying the status of Snap Data Pool).....	233
acsdv stat (Command for displaying the status of Snap Data Volume).....	232
acsnap cancel (Command for canceling SnapOPC+ copy).....	216
acsnap query (Command for displaying the status of SnapOPC+ copy).....	213
acsnap start (Command for starting SnapOPC+ copy).....	212
acutil devs (Command for displaying logical volume information).....	234
acutil refresh (Command for refreshing partition table).....	235
Advanced Copy configuration.....	134
Alias.....	126,127,128
Assigned CM.....	133

[B]

Business administrator.....	12
-----------------------------	----

[C]

Commands for Advanced Copy function.....	182
Configuration Change History.....	138

[D]

Detail Error Messages of ETERNUS.....	400
Disk Selection.....	133

[E]

Encrypt.....	130
Encryption Mode.....	128
Events.....	138
express_diag (Diagnosis of Express Manager environment).....	248
express_managersnap (Collecting Express Manager troubleshooting information).....	247

[H]

Hardware administrator.....	12
HBA Type.....	126
Host ID1.....	126
Host ID2.....	126

[I]

IP Address or FQDN.....	127
-------------------------	-----

[L]

Login/Logout History.....	138
---------------------------	-----

[M]

Mail Sender.....	134
Management server.....	15

[N]

Name.....	126,127,128,133
Number of Disks.....	133
Number of Volumes.....	130

[P]

Password.....	128
---------------	-----

[R]

RAID Level.....	133
REC operation mode.....	160
Recovery mode.....	161
Remote Advanced Copy configuration.....	134

[S]

Size.....	129
SMTP Port.....	134
SMTP Server.....	134
SNMP Community Name.....	128
Source Volume Size.....	129
storageadm perfdata (Command for managing performance information).....	243
System administrator.....	12

[T]

Transfer mode.....	160
Type.....	129

[U]

Username.....	128
---------------	-----