



FUJITSU Storage ETERNUS SF

Express V16.4 / Storage Cruiser V16.4 / AdvancedCopy Manager V16.4

Release Notes

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Preface

Purpose

This manual describes the update information of the following products:

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

Intended Readers

This manual is intended for users who plan or perform the upgrade to this version from a previous version of these software products, or who perform the upgrade process (mainly for system administrators).

Organization

This manual is composed as follows:

[Chapter 1 Overview of New Features](#)

This chapter describes the overview of new functions.

[Chapter 2 Compatibility Information](#)

This chapter describes the contents changed from the previous version.

[Chapter 3 Program Fix List](#)

This chapter describes the overview of applied fixes.

Notation

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

Operating Systems

Product Name	Notation	
Microsoft(R) Windows Server(R) 2008 Standard (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM) (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM) (32-bit)(64-bit)	Windows Server 2008	Windows
Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter	Windows Server 2008 R2	
Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter	Windows Server 2012	
Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Datacenter	Windows Server 2012 R2	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	

Product Name	Notation	
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7	
Windows(R) 8 Windows(R) 8 Pro	Windows 8	
Windows(R) 8.1 Windows(R) 8.1 Pro	Windows 8.1	
Windows(R) 10 Home Windows(R) 10 Pro Windows(R) 10 Mobile	Windows 10	
Solaris(TM) 9 Operating system	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	Linux
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
Red Hat(R) Enterprise Linux(R) 7 (for Intel64)	RHEL7	
SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T	SUSE Linux Enterprise Server 11	
HP-UX 11i v3	HP-UX	
AIX(R) V6.1 AIX(R) V7.1	AIX	
VMware vSphere(R) 5	VMware vSphere 5	VMware
VMware vSphere(R) 6	VMware vSphere 6	

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

FUJITSU Storage ETERNUS

Formal Name	Abbreviation	
FUJITSU Storage ETERNUS DX60	-	ETERNUS DX series or ETERNUS Disk storage system
FUJITSU Storage ETERNUS DX410 FUJITSU Storage ETERNUS DX440	ETERNUS DX400 series	
FUJITSU Storage ETERNUS DX8100 FUJITSU Storage ETERNUS DX8400 FUJITSU Storage ETERNUS DX8700	ETERNUS DX8000 series	
FUJITSU Storage ETERNUS DX60 S2 FUJITSU Storage ETERNUS DX80 S2 FUJITSU Storage ETERNUS DX90 S2	-	ETERNUS DX S2 series
FUJITSU Storage ETERNUS DX410 S2 FUJITSU Storage ETERNUS DX440 S2	ETERNUS DX400 S2 series	
FUJITSU Storage ETERNUS DX8100 S2 FUJITSU Storage ETERNUS DX8700 S2	ETERNUS DX8000 S2 series	

Formal Name	Abbreviation	
FUJITSU Storage ETERNUS DX60 S3 FUJITSU Storage ETERNUS DX100 S3 FUJITSU Storage ETERNUS DX200 S3	-	ETERNUS DX S3 series
FUJITSU Storage ETERNUS DX500 S3 FUJITSU Storage ETERNUS DX600 S3	-	
FUJITSU Storage ETERNUS DX8700 S3 FUJITSU Storage ETERNUS DX8900 S3	ETERNUS DX8000 S3 series	
FUJITSU Storage ETERNUS AF250 FUJITSU Storage ETERNUS AF650	ETERNUS AF series	
FUJITSU Storage ETERNUS DX200F	-	ETERNUS All-Flash Arrays

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

NetApp FAS Series and V-Series are abbreviated as follows.

Firmware Version	String Included in Firmware Name	Abbreviation
Data ONTAP 6.x Data ONTAP 7.x	(Any string)	NetApp FAS Series NetApp V-Series
Data ONTAP 8 - 8.2.x	7-Mode	
Data ONTAP 8 - 8.2.x	Cluster-Mode	NetApp FAS Series (with clustered Data ONTAP) NetApp V-Series (with clustered Data ONTAP)
Data ONTAP 8.3 or later	(Any string)	

Software Products

Formal Name	Abbreviation
Windows(R) Internet Explorer(R)	Internet Explorer
Mozilla(R) Firefox(R)	Firefox
Google Chrome(TM)	Chrome
Microsoft(R) Windows Server(R) Failover Clustering	WSFC
Microsoft(R) Exchange Server	Exchange Server
Microsoft(R) SQL Server(R)	SQL Server
VMware(R) ESX(R)	VMware ESX
VMware(R) ESXi(TM)	VMware ESXi
VMware(R) vCenter(TM) Server	VMware vCenter Server or vCenter Server
FUJITSU Software PRIMECLUSTER Global Disk Services	GDS
FUJITSU Software PRIMECLUSTER Global File Services	GFS

Manuals

Formal Name	Abbreviation
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Quick Reference	ETERNUS SF Quick Reference
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Release Notes	ETERNUS SF Release Notes

Formal Name	Abbreviation
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Installation and Setup Guide	ETERNUS SF Installation and Setup Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Migration Guide	ETERNUS SF Migration Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Web Console Guide	ETERNUS SF Web Console Guide
FUJITSU Storage ETERNUS SF Storage Cruiser / AdvancedCopy Manager Cluster Environment Setup Guide	ETERNUS SF Cluster Environment Setup Guide
FUJITSU Storage ETERNUS SF Storage Cruiser / AdvancedCopy Manager Operation Guide for VMware vSphere Virtual Volumes	ETERNUS SF Operation Guide for VMware vSphere Virtual Volumes
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Messages	ETERNUS SF Messages
FUJITSU Storage ETERNUS SF Express / Storage Cruiser Event Guide	ETERNUS SF Event Guide
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Glossary	ETERNUS SF Glossary

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

Others

- ETERNUS SF Web Console is abbreviated as "Web Console".
 - In this manual, the following products are collectively described as "Windows Server 2008 or later".
 - Windows Server 2008
 - Windows Server 2008 R2
 - Windows Server 2012
 - Windows Server 2012 R2
 - In this manual, unless there is a special explanatory note, ETERNUS Disk storage system includes ETERNUS All-Flash Arrays. However, the following functions are not supported in ETERNUS All-Flash Arrays:
 - Energy saving operation for storage device
 - NAS operation for storage device
- The following function is not supported in ETERNUS DX200F All-Flash Arrays:
- Automated Storage Tiering operation at multiple tiers (two or more)

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Notes

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Update History

Content of Update	Updated Section	Revision
The information related to ETERNUS DX200F is described.	"Others" in Preface, 1.1.2, 1.2.3	1.1
The overview of new features supported with this version is described.	Chapter 1	2
The incompatible information from previous version is described.	2.2.4, 2.2.15, 2.3.33, 2.3.34, 2.3.36 - 2.3.41, 2.4.10, 2.4.26 - 2.4.34, 2.5.14 - 2.5.16	
The program bugs fixed with this version are described.	Chapter 3	
Incompatible information is modified.	2.4.34	2.1
Information related to the ETERNUS DX200F is modified or added.	"Others" in Preface, 2.5.15	3

Content of Update	Updated Section	Revision
The overview of new features supported with this version is described.	Chapter 1	
Incompatible information is modified.	2.3.7, 2.3.21, 2.3.23, 2.4.24, 2.4.34, 2.5.5	
Information that Red Hat(R) Enterprise Linux(R) AS v.4 and Red Hat(R) Enterprise Linux(R) ES v.4 are no longer supported is described.	2.3.11, 2.4.7	
The incompatible information from previous version is described.	2.2.16 - 2.2.18, 2.3.42 - 2.3.49, 2.5.17	
The program bugs fixed with this version are described.	Chapter 3	3.1
The term "VMware Virtual Volumes" is changed to "VMware vSphere Virtual Volumes" according to the terms used by VMware, Inc.	Throughout this manual	
Information related to VMware vSphere(R) 6 is added.	"Notation" in Preface	
Incompatible information is modified.	2.3.46	
Information related to the ETERNUS DX8700 S3/DX8900 S3 is added.	"Notation" in Preface, 1.3.2, 1.4.1, 1.7.2	3.2
Information related to NetApp FAS Series and V-Series is added.	"Notation" in Preface, 1.3.2	
Information related to Windows Server 2003 is deleted.	"Notation" in Preface	4
Information related to Windows 10 is added.	"Notation" in Preface	
The overview of new features supported with this version is described.	Chapter 1	
Incompatible information is modified.	2.2.18, 2.3.11, 2.3.49, 2.3.50, 2.4.7, 2.5.18 - 2.5.20	
The program bugs fixed with this version are described.	Chapter 3	4.1
The overview of new features is described.	1.2.1, 1.2.3, 1.3.2, 1.3.4	
The description of the inter-box backup of a NAS volume is added.	1.5.1	
Incompatible information is described.	2.5.21	
The overview of new features is described.	1.1.2	4.2
The overview of new features is described.	1.2.1, 1.3.2, 1.3.5, 1.4.2	4.3
The overview of new features is described.	1.2.3, 1.3.4, 1.5.1	4.4
Information related to HP-UX 11i v1/v2 is deleted.	"Notation" in Preface	5
Information related to VMware vSphere 4 is deleted.	"Notation" in Preface	
Information related to the ETERNUS DX80/DX90 is deleted.	"Notation" in Preface	
Information related to the ETERNUS AF250/AF650 is added.	"Notation" and "Others" in Preface	
The overview of new functions that are supported with this version is described.	Chapter 1	
Incompatible information is described.	2.2.1, 2.2.2, 2.3.10 - 2.3.12, 2.3.51, 2.4.6 - 2.4.8, 2.4.10, 2.5.22	
The program bugs fixed with this version are described.	Chapter 3	

Manual Organization and Reading Suggestions

Manual Organization

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

When to Read	Related Manuals (Abbreviated)	Related Products (*1)			Explanation
		EXP	SC	ACM	
Before installation	Quick Reference	Yes	Yes	Yes	This manual is common for all products.
	Release Notes	Yes	Yes	Yes	This manual is common for all products.
	Overview	-	-	Yes	This manual is unique for the product.
During installation	Installation and Setup Guide	Yes	Yes	Yes	This manual is common for all products.
	Cluster Environment Setup Guide	-	Yes	Yes	This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	Yes	Yes	Yes	This manual is common for all products.
During operation	Operation Guide	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: <ul style="list-style-type: none"> - Express Operation Guide - Storage Cruiser Operation Guide - Storage Cruiser Operation Guide for Optimization Function - AdvancedCopy Manager Operation Guide (for Windows) - AdvancedCopy Manager Operation Guide (for Solaris) - AdvancedCopy Manager Operation Guide (for Linux) - AdvancedCopy Manager Operation Guide (for HP-UX) - AdvancedCopy Manager Operation Guide (for AIX) - AdvancedCopy Manager Operation Guide for Copy Control Module - Storage Cruiser / AdvancedCopy Manager Operation Guide for VMware vSphere Virtual Volumes
	Web Console Guide	Yes	Yes	Yes	This manual is common for all products.
Anytime	Event Guide	Yes	Yes	-	This manual is common for Express and Storage Cruiser.
	Messages	Yes	Yes	Yes	This manual is common for all products.
	Glossary	Yes	Yes	Yes	This manual is common for all products.

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

How to Read Manuals

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

Purpose	Manual	Main Contents	How to Read
Acquiring a product	Quick Reference	<ul style="list-style-type: none"> - Product overview - Installation decision 	Read if you want to acquire a fundamental knowledge of

Purpose	Manual	Main Contents	How to Read
overview and basic operation knowledge		<ul style="list-style-type: none"> - Overview of the necessary tasks from installation to first use 	the product and its operation in order to decide to install it or not.
	AdvancedCopy Manager Overview	<ul style="list-style-type: none"> - Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system 	
Confirming the updated contents	Release Notes	<ul style="list-style-type: none"> - New function overview - Incompatibilities with previous version - Fixed bugs 	Read if you want to know the updated contents from a previous version and if you perform the upgrade.
Deciding if an upgrade is required	Migration Guide	<ul style="list-style-type: none"> - Notes and cautions about the upgrade - Upgrade procedure 	Read if you want to upgrade from a previous version.
Installing and correctly operating the product Setting up operating environment depending on purpose	Installation and Setup Guide	<ul style="list-style-type: none"> - Operating environment - Installation procedure - Setup procedure - Uninstallation procedure 	Read if you want to install and setup the product.
	Cluster Environment Setup Guide	<ul style="list-style-type: none"> - Supported cluster software - Installation procedure for a clustered system - Setup procedure for a clustered system - Uninstallation procedure for a clustered system 	Read if you want to install and setup the product on a clustered system.
Administration and operation of the installed system	Express Operation Guide	<ul style="list-style-type: none"> - Starting and stopping the software - Device monitoring - Data copy inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance 	Read if you want to start or shutdown the system, monitor the operation status, do backup/restore operations, etc.
	Storage Cruiser Operation Guide	<ul style="list-style-type: none"> - Starting and stopping the software - Device monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	

Purpose	Manual	Main Contents	How to Read
	Storage Cruiser Operation Guide for Optimization Function	<ul style="list-style-type: none"> - Operating environment construction - Operating status monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	AdvancedCopy Manager Operation Guide (for Windows)	<ul style="list-style-type: none"> - Starting and stopping the software - Data backup/restore inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	AdvancedCopy Manager Operation Guide (for Solaris)		
	AdvancedCopy Manager Operation Guide (for Linux)		
AdvancedCopy Manager Operation Guide (for HP-UX)			
AdvancedCopy Manager Operation Guide (for AIX)			
AdvancedCopy Manager Operation Guide for Copy Control Module			
	Storage Cruiser / AdvancedCopy Manager Operation Guide for VMware vSphere Virtual Volumes	<ul style="list-style-type: none"> - Operating environment construction - Virtual machine operation using a virtual volume - Backup/restore of the virtual machine - Necessary tasks after an architectural modification of the system as well as product maintenance 	
	Web Console Guide	<ul style="list-style-type: none"> - Operating environment - Screen layout description 	
Dealing with messages issued by the software	Messages	<ul style="list-style-type: none"> - Messages and their explanations - Parameter (variable information) description - System action - Countermeasures 	Read if you want a practical way of investigating and dealing with messages issued by the software.
Dealing with events issued by the software	Event Guide	<ul style="list-style-type: none"> - Phenomenon of event - Countermeasures 	Read if you need to find a practical way of investigating and dealing with events.
Researching the meaning of specific terms	Glossary	<ul style="list-style-type: none"> - Product specific terminology explanation 	Read if you want to learn the meaning of important terms, product specific terms or

Purpose	Manual	Main Contents	How to Read
related to the products and other important terms		<ul style="list-style-type: none"> - Explanation of important terminology appearing in the manual - Synonyms and related terms - Proper form of abbreviated terms 	abbreviations used in the manuals.

Contents

Chapter 1 Overview of New Features.....	1
1.1 New Functions of Common for All Products.....	1
1.1.1 New Browser Support.....	1
1.2 New Functions of Express.....	1
1.2.1 New Device Support.....	1
1.2.2 Compatibility with New Functions of ETERNUS Disk Storage System.....	1
1.2.3 Automatic Update of Status of Components in Storage Device.....	1
1.2.4 Displaying of Port Link Status.....	2
1.3 New Functions of Storage Cruiser.....	2
1.3.1 New Functions Available With Standard License.....	2
1.3.1.1 New Device Support.....	2
1.3.1.2 Compatibility with New Functions of ETERNUS Disk Storage System.....	2
1.3.1.3 Automatic Update of Status of Components in Storage Device.....	3
1.3.1.4 Displaying of Port Link Status.....	3
1.3.1.5 Deleting RAID Groups That Constitute Tier Pool.....	3
1.3.2 New Functions Available With Optimization Option License.....	3
1.3.2.1 Automatic Update of Information for Automated Storage Tiering.....	3
1.3.2.2 Expanding Total Value of Used Capacity for Evaluable Tier Pools.....	4
1.3.2.3 Adding Capacity Unit That Can Be Used for Minimum Required Capacity of Sub-pools.....	4
1.3.2.4 Deleting RAID Groups That Constitute Tier Pool.....	4
1.3.3 New Functions Available With Storage Cluster Option License.....	4
1.3.3.1 Expansion of Supported Configuration.....	4
1.4 New Functions of AdvancedCopy Manager.....	4
1.4.1 New Device Support.....	4
1.4.2 Compatibility with New Functions of ETERNUS Disk Storage System.....	4
Chapter 2 Compatibility Information.....	5
2.1 Incompatible Information List.....	5
2.2 Incompatible Information of Express.....	15
2.2.1 Changes for Supported Storage Devices.....	15
2.2.2 Changes for Supported Web Browsers.....	15
2.2.3 Changes for Supported Operating Systems.....	15
2.2.4 Administrator's Belonging Group.....	16
2.2.5 Specification of FQDN (Fully Qualified Domain Name).....	16
2.2.6 Troubleshooting Information Sending Function.....	17
2.2.7 Copy Group Definition Export/Import Function.....	17
2.2.8 RAID Group Automatic Creation Function.....	17
2.2.9 Different Name Setting Function for Device Information.....	17
2.2.10 Web Console Connection Address.....	18
2.2.11 Changes License Management Operation.....	18
2.2.12 Messages and Event Logs.....	18
2.2.13 Express_diag Command.....	18
2.2.14 Storageadm Perfdata Command Path Name (for Windows).....	19
2.2.15 Troubleshooting Information Collection Command Name and Path Name (for Windows).....	19
2.2.16 Response Time Displayed by Performance Management.....	19
2.2.17 Monitor Volume Range for Performance Management.....	19
2.2.18 Selectable RAID Type and Reliability When Using High-Capacity Disks.....	20
2.2.19 Output Messages.....	20
2.3 Incompatible Information of Storage Cruiser.....	21
2.3.1 First Argument Value to Be Handed Over to Event Linkage Function.....	21
2.3.2 Daemon Start/Stop Command.....	21
2.3.3 Cmdline Resource for Clustered Systems.....	21

2.3.4	Displayed Contents for LVM (for HP-UX)	22
2.3.5	Message of Communication Recovery Event	23
2.3.6	Ssmgr3228 Message	23
2.3.7	SNMP Trap Reception Program Specification	23
2.3.8	Default Installation Path of Programs (for Windows)	24
2.3.9	Troubleshooting Information Collection Command Name and Path Name	25
2.3.10	Changes for Supported Devices	25
2.3.11	Changes for Supported Operating Systems	26
2.3.12	Changes for Supported Web Browsers	27
2.3.13	Changes for Supported Agent Version	28
2.3.14	Storage Volume Configuration Navigator	28
2.3.15	Supports of GUI Client	28
2.3.16	Changes for Login Account	28
2.3.17	Memo Information Table and Revolving Light Icon	28
2.3.18	Beacon Function for Solaris Server Node	29
2.3.19	Display Information of Correlation Management	29
2.3.20	Changes for Performance Management	29
2.3.21	Information Required for ETERNUS Disk Storage System Registration	30
2.3.22	SNMP Trap Setup Function Checking at Device Registration	30
2.3.23	SNMP Trap Setup After Registering Fibre Channel Switch	30
2.3.24	Thin Provisioning Pool Threshold Monitoring Icon	30
2.3.25	Display Method of Thin Provisioning Pool Capacity Chart	30
2.3.26	Managed Server Deletion Process	31
2.3.27	VM Host Deletion Procedure if VM Guests Exist on VM Host	31
2.3.28	Displayed Contents of End to End View	31
2.3.29	Changes for Map View	32
2.3.30	Output Information of Storageadm Port Command and Storageadm Iscsiport Command	33
2.3.31	Firmware Version Notation of ETERNUS Disk Storage System	33
2.3.32	Sanadmsh Chtraprcvp Command Format	34
2.3.33	Changes Connection Method Between Storage Cruiser's Manager and Managed Switches	34
2.3.34	Response Time Displayed by Performance Management	35
2.3.35	Tiering Policy Import Command Name	35
2.3.36	Output Message IDs of Storage Cruiser	35
2.3.37	Output Messages of Automated Storage Tiering	35
2.3.38	Item Name of Tiering Policy	40
2.3.39	Action Name of Tier Pool	40
2.3.40	Item Name of Tier Pool	40
2.3.41	Item Name of FTV	41
2.3.42	Display Contents in TFO Group List Screen for Storage Cluster Function	41
2.3.43	Output Messages of Storage Cluster Function	41
2.3.44	Monitor Volume Range for Performance Management	41
2.3.45	Selectable RAID Type and Reliability When Using High-Capacity Disks	42
2.3.46	Recognition Methods for VM Guests	42
2.3.47	Item Name of Automated QoS Function	43
2.3.48	Output Messages of Automated QoS Function	43
2.3.49	Output Messages	43
2.3.50	Action Name for Enabling/Disabling Extreme Cache Function	43
2.3.51	Capacity Displayed for Automated Storage Tiering	44
2.4	Incompatible Information of AdvancedCopy Manager	44
2.4.1	Registration Method for Remote ETERNUS Disk Storage System Using AdvancedCopy Manager Copy Control Module	44
2.4.2	Host Affinity Group List Display Command Name of AdvancedCopy Manager Copy Control Module	44
2.4.3	Output Messages of AdvancedCopy Manager Copy Control Module	45
2.4.4	Name of Term Used with AdvancedCopy Manager Copy Control Module	45

2.4.5 Supports of GUI Client.....	46
2.4.6 Changes for Supported Storage Devices.....	46
2.4.7 Changes for Supported Operating Systems.....	46
2.4.8 Changes for Supported Web Browsers.....	48
2.4.9 Changes for Supported Agent Version.....	49
2.4.10 Changes for Supported Software.....	49
2.4.11 Default Installation Path of Programs (for Windows).....	49
2.4.12 Installation Destination Directory of Program (for Solaris, Linux).....	50
2.4.13 Command Preview.....	50
2.4.14 Stgmgrinfobkup Command Processing at -t Option Specification.....	50
2.4.15 Output Information of Stgenvdisp Command.....	51
2.4.16 Swstbackup Command Processing (for Windows).....	51
2.4.17 Swsrpmake Command and Swsrpscancel Command Processing (for Windows).....	51
2.4.18 Environment Setup/Deletion Methods for PRIMECLUSTER (for Linux).....	52
2.4.19 Troubleshooting Information Collection Command Name and Path Name.....	52
2.4.20 Swsrpmake Command Processing on Combining Cascade Copy and Concurrent OPC.....	53
2.4.21 Acopc Start Command and Acsnap Start Command Processing.....	53
2.4.22 Environment Setup/Deletion Methods for Clustered Systems (for Solaris, HP-UX).....	54
2.4.23 AdvancedCopy Manager Copy Control Module Customization Procedure.....	54
2.4.24 Copy Progress Rate of QuickOPC.....	54
2.4.25 Information to Be Displayed If Hardware Error, etc. Occurs.....	55
2.4.26 Automatic Configuration of Maintenance Mode of MSCS or WSFC.....	56
2.4.27 Database Backup/Restore Method.....	56
2.4.28 Database Save/Recovery Method.....	56
2.4.29 Target of Management Information Package Backup of AdvancedCopy Manager.....	57
2.4.30 Commands/Services/Daemons Related to AdvancedCopy Manager Database.....	57
2.4.31 Items Displayed by Stgenvdisp Command.....	58
2.4.32 Meaning of -d Option of Stgrepcnv Command.....	59
2.4.33 Meaning of -b Option of Stgforcedelsrv Command.....	59
2.4.34 Name of NAS Backup Volume and Copy Group Created by Setting of NAS Backup.....	59
2.5 Incompatible Information of Common for All Products.....	60
2.5.1 Count Method in Extended Copy Sessions and Default Filter on Session List Screen.....	60
2.5.2 Setting Method and Minimum Value for Copy Table Size.....	61
2.5.3 Screen Refresh Interval and Display/Input Unit of Web Console.....	61
2.5.4 Help Button Design and Online Help Display Procedures of Web Console.....	61
2.5.5 Changes Communication Port Default Value.....	62
2.5.6 Sanma.conf Configuration Checking for Device Registration.....	62
2.5.7 Customizing Configuration File.....	62
2.5.8 Operations for Host Response.....	63
2.5.9 Changes Character Strings in Performance Chart Window.....	63
2.5.10 Online Manual in DVD-ROM Media.....	64
2.5.11 Online Help Feature.....	64
2.5.12 Changes Configuration File Path for Port Number.....	64
2.5.13 Name of Commands Related to Configuration Import.....	64
2.5.14 Holding of Checks Placed in Table Checkboxes and Table Radio Buttons.....	65
2.5.15 Displayed Strings for CA Type Information.....	65
2.5.16 Category Pane Related to NAS Management Operation in Web Console.....	65
2.5.17 Change of Input Condition for Shared Folder Name.....	66
2.5.18 Change of Web Console Dashboard.....	66
2.5.19 Change of Column Name on Web Console Various Log Screens.....	66
2.5.20 Change of Action Name for Record Count Preference on Web Console.....	67
2.5.21 Displayed Contents of NAS Management Operation on Web Console.....	67
2.5.22 Displayed Contents Related to AntiVirus Function of Web Console.....	68

Chapter 1 Overview of New Features

1.1 New Functions of Common for All Products

1.1.1 New Browser Support

You can use the Web Console with the following web browsers:

- Firefox ESR 45
- Microsoft Edge 25
- Chrome 50 (Android version)

1.2 New Functions of Express

1.2.1 New Device Support

From this version, the ETERNUS AF250 can be used.

Refer to the *ETERNUS SF Event Guide* for information on the event traps notified from the device.

1.2.2 Compatibility with New Functions of ETERNUS Disk Storage System

Express can manage the ETERNUS DX100 S3/DX200 S3 and the ETERNUS DX200F that have the following component:

- Port type 10G Base-T iSCSI

Express can use the following functions that are added in the ETERNUS DX100 S3/DX200 S3:

- Displaying Read Intensive SSDs (RI SSD)
- Creating RAID groups, Thin Provisioning pools, and Tier pools that are composed of RI SSDs
- Expanding the maximum number of volumes that can be created in the storage device

The ETERNUS DX100 S3 can use a maximum of 4096 volumes and the ETERNUS DX200 S3 can use a maximum of 8192 volumes.

Express can use the following function that is added in the ETERNUS DX200 S3 and the ETERNUS DX200F:

- Deduplication and compression of data on a virtual volume

Express can use the following function that is added in the ETERNUS DX60 S3, DX100 S3/DX200 S3, and the ETERNUS DX200F:

- SnapOPC+ that uses TPVs as copy destination volumes



.....
To use the above functions, the firmware version of the target storage device must be V10L60 or later.
.....

1.2.3 Automatic Update of Status of Components in Storage Device

If the components mounted on the ETERNUS DX60 S3, DX100 S3/DX200 S3 and the ETERNUS DX200F fail/recover, Express updates the device component status automatically.

With this function, you do not need to perform the **Reload Conf.** operation with the Web Console.



.....
To use the above function, the firmware version of the target storage device must be V10L60 or later.
.....

1.2.4 Displaying of Port Link Status

The link status of the following ports mounted on the ETERNUS DX60 S3, DX100 S3/DX200 S3 and the ETERNUS DX200F can be displayed:

- FC port
- iSCSI port
- SAS port
- FCoE port



.....
To use the above function, the firmware version of the target storage device must be V10L60 or later.
.....

1.3 New Functions of Storage Cruiser

1.3.1 New Functions Available With Standard License

1.3.1.1 New Device Support

The following functions can be used with the ETERNUS AF series. The support level is "A".

- Fault monitoring (receiving and analyzing SNMP Traps, monitoring polling with ping, and obtaining the device status)
- Linkage through management window
- Performance management

Refer to "Support Levels" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

Refer to the *ETERNUS SF Event Guide* for information on the event traps notified from the device.

1.3.1.2 Compatibility with New Functions of ETERNUS Disk Storage System

Storage Cruiser can manage the ETERNUS DX100 S3/DX200 S3 and the ETERNUS DX200F that have the following component:

- Port type 10G Base-T iSCSI

Storage Cruiser can manage the ETERNUS DX500 S3/DX600 S3, DX8700 S3/DX8900 S3 that have the following component:

- FC port 16G-CA(4port)

Storage Cruiser can use the following function that is added in the ETERNUS DX100 S3/DX200 S3:

- Expanding the maximum number of volumes that can be created in the storage device

The ETERNUS DX100 S3 can use a maximum of 4096 volumes and the ETERNUS DX200 S3 can use a maximum of 8192 volumes.

Storage Cruiser can use the following function that is added in the ETERNUS DX200 S3:

- Model updating to the ETERNUS DX500 S3

Storage Cruiser can use the following function that is added in the ETERNUS DX500 S3/DX600 S3:

- Expanding the number of hosts that can be connected to the device

Storage Cruiser can use the following functions that are added in the ETERNUS DX S3 series (excluding DX60 S3):

- Displaying Read Intensive SSDs (RI SSD)
- Creating RAID groups, Thin Provisioning pools, and Tier pools that are composed of RI SSDs

Storage Cruiser can use the following function that is added in the ETERNUS DX200 S3, DX500 S3/DX600 S3 and the ETERNUS DX200F:

- Deduplication and compression of data on a virtual volume

Point

To use the above functions, the firmware version of the target storage device must be V10L60 or later.

1.3.1.3 Automatic Update of Status of Components in Storage Device

If the components mounted on the ETERNUS DX S3 series and the ETERNUS DX200F fail/recover, Storage Cruiser updates the device component status automatically.

With this function, you do not need to perform the **Reload Conf.** operation with the Web Console.

Point

To use the above function, the firmware version of the target storage device must be V10L60 or later.

1.3.1.4 Displaying of Port Link Status

The link status of the following ports mounted on the ETERNUS DX S3 series and the ETERNUS DX200F can be displayed:

- FC port
- iSCSI port
- SAS port
- FCoE port

Point

To use the above function, the firmware version of the target storage device must be V10L60 or later.

1.3.1.5 Deleting RAID Groups That Constitute Tier Pool

The function to delete RAID groups that constitute a Tier pool is supported. This function makes it possible to reduce the total capacity of a Tier pool without deleting the Tier pool.

Point

To use this structure, the firmware version of the target storage device must be V10L60 or later. Refer to "Deletion of RAID Groups in One Layer Tier Pool" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

1.3.2 New Functions Available With Optimization Option License

1.3.2.1 Automatic Update of Information for Automated Storage Tiering

Storage Cruiser automatically updates the evaluation/relocation status of the access status data for Automated Storage Tiering.

With this function, you do not need to perform the **Status Update** operation for the relocation target volume when performing the following operations with the Web Console:

- Stopping the relocation process that is currently running
- Deleting the evaluation result (when deleting the evaluation result without executing a relocation)



See

Refer to "Start/Stop Relocation" and "Confirm Evaluation Result/Relocation Information and Delete Evaluation Result" in the *ETERNUS SF Web Console Guide* for information on each operation procedure.

1.3.2.2 Expanding Total Value of Used Capacity for Evaluable Tier Pools

For Tier pools of the ETERNUS DX S3 series (excluding DX60 S3), the total value of the evaluable used capacity can be expanded from 1 PB to a maximum of 6 PB in the same time period.

1.3.2.3 Adding Capacity Unit That Can Be Used for Minimum Required Capacity of Sub-pools

The petabyte unit value can be specified in the setting item **Minimum Required Capacity** for the sub-pool of the Tier pool.

1.3.2.4 Deleting RAID Groups That Constitute Tier Pool

The function to delete RAID groups that constitute a Tier pool is supported. This function makes it possible to reduce the total capacity or the number of tiers of a Tier pool without deleting the Tier pool.



Point

To use this structure, the firmware version of the target storage device must be V10L60 or later. Refer to "Deletion of RAID Groups" in the *ETERNUS SF Storage Cruiser Operation Guide for Optimization Function* for details.

1.3.3 New Functions Available With Storage Cluster Option License

1.3.3.1 Expansion of Supported Configuration

The following configurations are available with the Storage Cluster function:

- iSCSI host interface
- Automatic Failover through the REC path of the iSCSI port



Point

To use this structure, the firmware version of the target storage device must be V10L60 or later. Refer to "Storage Cluster Function" in the *ETERNUS SF Storage Cruiser Operation Guide* for details.

1.4 New Functions of AdvancedCopy Manager

1.4.1 New Device Support

From this version, the ETERNUS AF series can be used.

1.4.2 Compatibility with New Functions of ETERNUS Disk Storage System

AdvancedCopy Manager can use the following function that is added in the ETERNUS DX S3 series and the ETERNUS DX200F:

- SnapOPC/SnapOPC+ that uses TPVs or FTVs as copy destination volumes



Point

To use the above function, the firmware version of the target storage device must be V10L60 or later.

Chapter 2 Compatibility Information

This chapter describes the contents changed from the previous version of products.

2.1 Incompatible Information List

Table 2.1 Incompatible Information List of Express

Functions and Compatibility Issues	Version Before Migration								
	14.2 or Earlier	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Changes for Supported Storage Devices	I	I	I	I	I	I	I	I	I
Changes for Supported Web Browsers	I	I	I	I	I	I	I	I	I
Changes for Supported Operating Systems	I	I	I	I	I	C	C	C	C
Administrator's Belonging Group	I	C	C	C	C	C	C	C	C
Specification of FQDN (Fully Qualified Domain Name)	I	C	C	C	C	C	C	C	C
Troubleshooting Information Sending Function	I	C	C	C	C	C	C	C	C
Copy Group Definition Export/Import Function	I	C	C	C	C	C	C	C	C
RAID Group Automatic Creation Function	I	C	C	C	C	C	C	C	C
Different Name Setting Function for Device Information	I	C	C	C	C	C	C	C	C
Web Console Connection Address	I	C	C	C	C	C	C	C	C
Changes License Management Operation	I	C	C	C	C	C	C	C	C
Messages and Event Logs	I	C	C	C	C	C	C	C	C
Express_diag Command	I	C	C	C	C	C	C	C	C
Storageadm Perfdata Command Path Name (for Windows)	I	C	C	C	C	C	C	C	C
Troubleshooting Information Collection Command Name and Path Name (for Windows)	I	C	C	C	C	C	C	C	C
Response Time Displayed by Performance Management	I	I	I	I	I	I	C	C	C
Monitor Volume Range for Performance Management	C	I	I	I	I	I	I	C	C
Selectable RAID Type and Reliability When Using High-Capacity Disks	C	I	I	I	I	I	I	C	C
Output Messages	I	I	I	I	I	I	I	I	C
Count Method in Extended Copy Sessions and Default Filter on Session List Screen	C	I	C	C	C	C	C	C	C
Setting Method and Minimum Value for Copy Table Size	C	I	C	C	C	C	C	C	C
Screen Refresh Interval and Display/Input Unit of Web Console	C	I	I	C	C	C	C	C	C
Help Button Design and Online Help Display Procedures of Web Console	C	I	I	C	C	C	C	C	C
Changes Communication Port Default Value	I	I	I	I	I	C	C	C	C
Sanma.conf Configuration Checking for Device Registration	C	I	I	I	I	C	C	C	C

Functions and Compatibility Issues	Version Before Migration								
	14.2 or Earlier	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Customizing Configuration File	C	I	I	I	I	C	C	C	C
Operations for Host Response	I	I	I	I	I	C	C	C	C
Changes Character Strings in Performance Chart Window	C	I	I	I	I	C	C	C	C
Online Manual in DVD-ROM Media	I	I	I	I	I	C	C	C	C
Online Help Feature	C	I	I	I	I	C	C	C	C
Changes Configuration File Path for Port Number	C	I	I	I	I	C	C	C	C
Name of Commands Related to Configuration Import	C	I	I	I	I	C	C	C	C
Holding of Checks Placed in Table Checkboxes and Table Radio Buttons	I	I	I	I	I	I	C	C	C
Displayed Strings for CA Type Information	C	C	C	C	C	I	C	C	C
Category Pane Related to NAS Management Operation in Web Console	C	C	C	C	C	I	C	C	C
Change of Input Condition for Shared Folder Name	C	C	C	C	C	I	I	C	C
Change of Web Console Dashboard	C	I	I	I	I	I	I	I	C
Change of Column Name on Web Console Various Log Screens	C	I	I	I	I	I	I	I	C
Change of Action Name for Record Count Preference on Web Console	C	C	C	C	C	C	I	I	C
Displayed Contents of NAS Management Operation on Web Console	C	C	C	C	C	I	I	I	I (*1)
Displayed Contents Related to AntiVirus Function of Web Console	C	C	C	C	C	C	C	I	I

Key

C: Compatible. No known compatibility issues.

I: Incompatible. Possible compatibility issues.

*1: This incompatibility occurs only when upgrading from an environment in which the Management Server is not applied with the Program Urgent Fix for supporting the ETERNUS DX100 S3/DX200 S3 that has a firmware version V10L51 or later.

Table 2.2 Incompatible Information List of Storage Cruiser (When Version Before Migration is 15.0 or Later)

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
First Argument Value to Be Handed Over to Event Linkage Function	C	C	C	C	C	C	C	C
Daemon Start/Stop Command	I	I	I	I	C	C	C	C
Cmdline Resource for Clustered Systems	I	I	I	I	C	C	C	C
Displayed Contents for LVM (for HP-UX)	C	C	C	C	C	C	C	C
Message of Communication Recovery Event	C	C	C	C	C	C	C	C
Ssmgr3228 Message	C	C	C	C	C	C	C	C
SNMP Trap Reception Program Specification	I	I	I	C	C	C	C	C
Default Installation Path of Programs (for Windows)	C	C	C	C	C	C	C	C

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Troubleshooting Information Collection Command Name and Path Name	C	C	C	C	C	C	C	C
Changes for Supported Devices	I	I	I	I	I	I	I	I
Changes for Supported Operating Systems	I	I	I	I	I	I	I	I
Changes for Supported Web Browsers	I	I	I	I	I	I	I	I
Changes for Supported Agent Version	I	I	I	I	C	C	C	C
Storage Volume Configuration Navigator	C	C	C	C	C	C	C	C
Supports of GUI Client	C	C	C	C	C	C	C	C
Changes for Login Account	C	C	C	C	C	C	C	C
Memo Information Table and Revolving Light Icon	C	C	C	C	C	C	C	C
Beacon Function for Solaris Server Node	C	C	C	C	C	C	C	C
Display Information of Correlation Management	C	C	C	C	C	C	C	C
Changes for Performance Management	C	C	C	C	C	C	C	C
Information Required for ETERNUS Disk Storage System Registration	C	C	C	C	C	C	C	C
SNMP Trap Setup Function Checking at Device Registration	C	C	C	C	C	C	C	C
SNMP Trap Setup After Registering Fibre Channel Switch	I	I	I	I	C	C	C	C
Thin Provisioning Pool Threshold Monitoring Icon	C	C	C	C	C	C	C	C
Display Method of Thin Provisioning Pool Capacity Chart	C	C	C	C	C	C	C	C
Managed Server Deletion Process	C	C	C	C	C	C	C	C
VM Host Deletion Procedure if VM Guests Exist on VM Host	C	C	C	C	C	C	C	C
Displayed Contents of End to End View	I	C	C	C	C	C	C	C
Changes for Map View	I	C	C	C	C	C	C	C
Output Information of Storageadm Port Command and Storageadm Iscsiport Command	I	C	C	C	C	C	C	C
Firmware Version Notation of ETERNUS Disk Storage System	I	I	C	C	C	C	C	C
Sanadmsh Chtraprcvip Command Format	I	I	I	I	C	C	C	C
Changes Connection Method Between Storage Cruiser's Manager and Managed Switches	I	I	I	I	I	C	C	C
Response Time Displayed by Performance Management	I	I	I	I	I	C	C	C
Tiering Policy Import Command Name	C	C	I	I	C	C	C	C
Output Message IDs of Storage Cruiser	I	I	I	I	C	C	C	C
Output Messages of Automated Storage Tiering	I	I	I	I	I	C	C	C
Item Name of Tiering Policy	C	C	C	C	I	C	C	C
Action Name of Tier Pool	C	C	C	C	I	C	C	C
Item Name of Tier Pool	C	C	C	I	I	C	C	C
Item Name of FTV	C	C	C	C	I	C	C	C

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Display Contents in TFO Group List Screen for Storage Cluster Function	C	C	C	C	C	I	C	C
Output Messages of Storage Cluster Function	C	C	C	C	C	I	C	C
Monitor Volume Range for Performance Management	I	I	I	I	I	I	C	C
Selectable RAID Type and Reliability When Using High-Capacity Disks	I	I	I	I	I	I	C	C
Recognition Methods for VM Guests	I	I	I	I	I	I	C	C
Item Name of Automated QoS Function	C	C	C	C	C	I	C	C
Output Messages of Automated QoS Function	C	C	C	C	C	I	C	C
Output Messages	I	I	I	I	I	I	I	C
Action Name for Enabling/Disabling Extreme Cache Function	C	C	C	C	I	I	I	C
Capacity Displayed for Automated Storage Tiering	I	I	I	I	I	I	I	I
Count Method in Extended Copy Sessions and Default Filter on Session List Screen	I	C	C	C	C	C	C	C
Setting Method and Minimum Value for Copy Table Size	I	C	C	C	C	C	C	C
Screen Refresh Interval and Display/Input Unit of Web Console	I	I	C	C	C	C	C	C
Help Button Design and Online Help Display Procedures of Web Console	I	I	C	C	C	C	C	C
Sanma.conf Configuration Checking for Device Registration	I	I	I	I	C	C	C	C
Customizing Configuration File	I	I	I	I	C	C	C	C
Operations for Host Response	I	I	I	I	C	C	C	C
Changes Character Strings in Performance Chart Window	I	I	I	I	C	C	C	C
Online Manual in DVD-ROM Media	I	I	I	I	C	C	C	C
Online Help Feature	I	I	I	I	C	C	C	C
Changes Configuration File Path for Port Number	I	I	I	I	C	C	C	C
Name of Commands Related to Configuration Import	I	I	I	I	C	C	C	C
Holding of Checks Placed in Table Checkboxes and Table Radio Buttons	I	I	I	I	I	C	C	C
Displayed Strings for CA Type Information	C	C	C	C	I	C	C	C
Category Pane Related to NAS Management Operation in Web Console	C	C	C	C	I	C	C	C
Change of Input Condition for Shared Folder Name	C	C	C	C	I	I	C	C
Change of Web Console Dashboard	I	I	I	I	I	I	I	C
Change of Column Name on Web Console Various Log Screens	I	I	I	I	I	I	I	C
Change of Action Name for Record Count Preference on Web Console	C	C	C	C	C	I	I	C
Displayed Contents of NAS Management Operation on Web Console	C	C	C	C	I	I	I	I (*1)
Displayed Contents Related to AntiVirus Function of Web Console	C	C	C	C	C	C	I	I

Key

C: Compatible. No known compatibility issues.

I: Incompatible. Possible compatibility issues.

*1: This incompatibility occurs only when upgrading from an environment in which the Management Server is not applied with the Program Urgent Fix for supporting the ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3 that has a firmware version V10L51 or later.

Table 2.3 Incompatible Information List of Storage Cruiser (When Version Before Migration is 14.2 or Earlier)

Functions and Compatibility Issues	Version Before Migration						
	13.0	13.1	13.2	13.3	13.4	14.0, 14.1	14.2
First Argument Value to Be Handed Over to Event Linkage Function	I	I	C	C	C	C	C
Daemon Start/Stop Command	I	I	I	I	I	I	I
Cmdline Resource for Clustered Systems	I	I	I	I	I	I	I
Displayed Contents for LVM (for HP-UX)	I	I	I	I	C	C	C
Message of Communication Recovery Event	I	I	I	I	I	C	C
Ssmgr3228 Message	C	C	C	C	C	I	C
SNMP Trap Reception Program Specification	I	I	I	I	I	I	I
Default Installation Path of Programs (for Windows)	I	I	I	I	I	I	I
Troubleshooting Information Collection Command Name and Path Name	I	I	I	I	I	I	I
Changes for Supported Devices	I	I	I	I	I	I	I
Changes for Supported Operating Systems	I	I	I	I	I	I	I
Changes for Supported Web Browsers	C	C	C	C	C	C	C
Changes for Supported Agent Version	I	I	I	I	I	I	I
Storage Volume Configuration Navigator	C	I	I	I	I	I	I
Supports of GUI Client	I	I	I	I	I	I	I
Changes for Login Account	I	I	I	I	I	I	I
Memo Information Table and Revolving Light Icon	I	I	I	I	I	I	I
Beacon Function for Solaris Server Node	I	I	I	I	I	I	I
Display Information of Correlation Management	I	I	I	I	I	I	I
Changes for Performance Management	I	I	I	I	I	I	I
Information Required for ETERNUS Disk Storage System Registration	I	I	I	I	I	I	I
SNMP Trap Setup Function Checking at Device Registration	I	I	I	I	I	I	I
SNMP Trap Setup After Registering Fibre Channel Switch	C	C	C	C	C	C	C
Thin Provisioning Pool Threshold Monitoring Icon	C	C	C	C	C	I	I
Display Method of Thin Provisioning Pool Capacity Chart	C	C	C	C	C	I	I
Managed Server Deletion Process	I	I	I	I	I	I	I
VM Host Deletion Procedure if VM Guests Exist on VM Host	C	C	C	C	I	I	I
Displayed Contents of End to End View	I	I	I	I	I	I	I
Changes for Map View	I	I	I	I	I	I	I
Output Information of Storageadm Port Command and Storageadm Iscsiport Command	C	C	C	C	C	C	I

Functions and Compatibility Issues	Version Before Migration						
	13.0	13.1	13.2	13.3	13.4	14.0, 14.1	14.2
Firmware Version Notation of ETERNUS Disk Storage System	I	I	I	I	I	I	I
Sanadmsh Chtraprcvip Command Format	I	I	I	I	I	I	I
Changes Connection Method Between Storage Cruiser's Manager and Managed Switches	I	I	I	I	I	I	I
Response Time Displayed by Performance Management	I	I	I	I	I	I	I
Tiering Policy Import Command Name	C	C	C	C	C	C	C
Output Message IDs of Storage Cruiser	C	C	C	I	I	I	I
Output Messages of Automated Storage Tiering	C	C	C	C	C	C	C
Item Name of Tiering Policy	C	C	C	C	C	C	C
Action Name of Tier Pool	C	C	C	C	C	C	C
Item Name of Tier Pool	C	C	C	C	C	C	C
Item Name of FTV	C	C	C	C	C	C	C
Display Contents in TFO Group List Screen for Storage Cluster Function	C	C	C	C	C	C	C
Output Messages of Storage Cluster Function	C	C	C	C	C	C	C
Monitor Volume Range for Performance Management	C	C	C	C	C	C	C
Selectable RAID Type and Reliability When Using High-Capacity Disks	C	C	C	C	C	C	C
Recognition Methods for VM Guests	C	C	C	C	I	I	I
Item Name of Automated QoS Function	C	C	C	C	C	C	C
Output Messages of Automated QoS Function	C	C	C	C	C	C	C
Output Messages	C	C	C	C	I	I	I
Action Name for Enabling/Disabling Extreme Cache Function	C	C	C	C	C	C	C
Capacity Displayed for Automated Storage Tiering	C	C	C	C	C	C	C
Count Method in Extended Copy Sessions and Default Filter on Session List Screen	C	C	C	C	C	C	C
Setting Method and Minimum Value for Copy Table Size	C	C	C	C	C	C	C
Screen Refresh Interval and Display/Input Unit of Web Console	C	C	C	C	C	C	C
Help Button Design and Online Help Display Procedures of Web Console	C	C	C	C	C	C	C
Sanma.conf Configuration Checking for Device Registration	C	C	C	C	C	C	C
Customizing Configuration File	I	I	I	I	I	I	I
Operations for Host Response	C	C	C	C	C	C	C
Changes Character Strings in Performance Chart Window	C	C	C	C	C	C	C
Online Manual in DVD-ROM Media	I	I	I	I	I	I	I
Online Help Feature	C	C	C	C	C	C	C
Changes Configuration File Path for Port Number	C	C	C	C	C	C	C
Name of Commands Related to Configuration Import	C	C	C	C	C	C	C
Holding of Checks Placed in Table Checkboxes and Table Radio Buttons	I	I	I	I	I	I	I

Functions and Compatibility Issues	Version Before Migration						
	13.0	13.1	13.2	13.3	13.4	14.0, 14.1	14.2
Displayed Strings for CA Type Information	C	C	C	C	C	C	C
Category Pane Related to NAS Management Operation in Web Console	C	C	C	C	C	C	C
Change of Input Condition for Shared Folder Name	C	C	C	C	C	C	C
Change of Web Console Dashboard	C	C	C	C	C	C	C
Change of Column Name on Web Console Various Log Screens	C	C	C	C	C	C	C
Change of Action Name for Record Count Preference on Web Console	C	C	C	C	C	C	C
Displayed Contents of NAS Management Operation on Web Console	C	C	C	C	C	C	C
Displayed Contents Related to AntiVirus Function of Web Console	C	C	C	C	C	C	C

Key

C: Compatible. No known compatibility issues.

I: Incompatible. Possible compatibility issues.

Table 2.4 Incompatible Information List of AdvancedCopy Manager (When Version Before Migration is 15.0 or Later)

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Registration Method for Remote ETERNUS Disk Storage System Using AdvancedCopy Manager Copy Control Module	C	C	C	C	C	C	C	C
Host Affinity Group List Display Command Name of AdvancedCopy Manager Copy Control Module	C	C	C	C	C	C	C	C
Output Messages of AdvancedCopy Manager Copy Control Module	C	C	C	C	C	C	C	C
Name of Term Used with AdvancedCopy Manager Copy Control Module	C	C	C	C	C	C	C	C
Supports of GUI Client	C	C	C	C	C	C	C	C
Changes for Supported Storage Devices	I	I	I	I	I	I	I	I
Changes for Supported Operating Systems	I	I	I	I	I	I	I	I
Changes for Supported Web Browsers	I	I	I	I	I	I	I	I
Changes for Supported Agent Version	I	I	I	I	C	C	C	C
Changes for Supported Software	I	I	I	I	I	I	I	I
Default Installation Path of Programs (for Windows)	C	C	C	C	C	C	C	C
Installation Destination Directory of Program (for Solaris, Linux)	C	C	C	C	C	C	C	C
Command Preview	C	C	C	C	C	C	C	C
Stgmgrinfobkup Command Processing at -t Option Specification	C	C	C	C	C	C	C	C
Output Information of Stgenvdisp Command	C	C	C	C	C	C	C	C
Swtbackup Command Processing (for Windows)	C	C	C	C	C	C	C	C
Swsrpmake Command and Swsrpcancel Command Processing (for Windows)	C	C	C	C	C	C	C	C
Environment Setup/Deletion Methods for PRIMECLUSTER (for Linux)	C	C	C	C	C	C	C	C

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Troubleshooting Information Collection Command Name and Path Name	C	C	C	C	C	C	C	C
Swsrpmake Command Processing on Combining Cascade Copy and Concurrent OPC	I	C	C	C	C	C	C	C
Acopc Start Command and Acsnap Start Command Processing	I	C	C	C	C	C	C	C
Environment Setup/Deletion Methods for Clustered Systems (for Solaris, HP-UX)	I	C	C	C	C	C	C	C
AdvancedCopy Manager Copy Control Module Customization Procedure	I	C	C	C	C	C	C	C
Copy Progress Rate of QuickOPC	I	C	C	C	C	C	C	C
Information to Be Displayed If Hardware Error, etc. Occurs	I	I	C	C	C	C	C	C
Automatic Configuration of Maintenance Mode of MSCS or WSFC	I	I	I	I	I	C	C	C
Database Backup/Restore Method	I	I	I	I	I	C	C	C
Database Save/Recovery Method	I	I	I	I	I	C	C	C
Target of Management Information Package Backup of AdvancedCopy Manager	I	I	I	I	I	C	C	C
Commands/Services/Daemons Related to AdvancedCopy Manager Database	I	I	I	I	I	C	C	C
Items Displayed by Stgenvdisp Command	I	I	I	I	I	C	C	C
Meaning of -d Option of Stgrepcnv Command	I	I	I	I	I	C	C	C
Meaning of -b Option of Stgforcedelsrv Command	I	I	I	I	I	C	C	C
Name of NAS Backup Volume and Copy Group Created by Setting of NAS Backup	C	C	C	C	I	I	C	C
Count Method in Extended Copy Sessions and Default Filter on Session List Screen	I	C	C	C	C	C	C	C
Setting Method and Minimum Value for Copy Table Size	I	C	C	C	C	C	C	C
Screen Refresh Interval and Display/Input Unit of Web Console	I	I	C	C	C	C	C	C
Help Button Design and Online Help Display Procedures of Web Console	I	I	C	C	C	C	C	C
Changes Communication Port Default Value	I	I	I	I	C	C	C	C
Sanma.conf Configuration Checking for Device Registration	I	I	I	I	C	C	C	C
Customizing Configuration File	I	I	I	I	C	C	C	C
Online Manual in DVD-ROM Media	I	I	I	I	C	C	C	C
Online Help Feature	I	I	I	I	C	C	C	C
Changes Configuration File Path for Port Number	I	I	I	I	C	C	C	C
Name of Commands Related to Configuration Import	I	I	I	I	C	C	C	C
Holding of Checks Placed in Table Checkboxes and Table Radio Buttons	I	I	I	I	I	C	C	C
Displayed Strings for CA Type Information	C	C	C	C	I	C	C	C

Functions and Compatibility Issues	Version Before Migration							
	15.0	15.1	15.2	15.3	16.0	16.1	16.2	16.3
Category Pane Related to NAS Management Operation in Web Console	C	C	C	C	I	C	C	C
Change of Input Condition for Shared Folder Name	C	C	C	C	I	I	C	C
Change of Web Console Dashboard	I	I	I	I	I	I	I	C
Change of Column Name on Web Console Various Log Screens	I	I	I	I	I	I	I	C
Change of Action Name for Record Count Preference on Web Console	C	C	C	C	C	I	I	C
Displayed Contents Related to AntiVirus Function of Web Console	C	C	C	C	C	C	C	C

Key

C: Compatible. No known compatibility issues.

I: Incompatible. Possible compatibility issues.

Table 2.5 Incompatible Information List of AdvancedCopy Manager (When Version Before Migration is 14.2 or Earlier)

Functions and Compatibility Issues	Version Before Migration		
	14.0 or Earlier	14.1	14.2
Registration Method for Remote ETERNUS Disk Storage System Using AdvancedCopy Manager Copy Control Module	I	I	C
Host Affinity Group List Display Command Name of AdvancedCopy Manager Copy Control Module	I	I	C
Output Messages of AdvancedCopy Manager Copy Control Module	I	I	C
Name of Term Used with AdvancedCopy Manager Copy Control Module	I	I	I
Supports of GUI Client	I	I	I
Changes for Supported Storage Devices	I	I	I
Changes for Supported Operating Systems	I	I	I
Changes for Supported Web Browsers	C	C	C
Changes for Supported Agent Version	I	I	I
Changes for Supported Software	I	I	I
Default Installation Path of Programs (for Windows)	I	I	I
Installation Destination Directory of Program (for Solaris, Linux)	I	I	I
Command Preview	I	I	I
Stgmgrinfobkup Command Processing at -t Option Specification	I	I	I
Output Information of Stgenvdisp Command	I	I	I
Swsbackup Command Processing (for Windows)	I	I	I
Swsrpmake Command and Swsrpcancel Command Processing (for Windows)	I	I	I
Environment Setup/Deletion Methods for PRIMECLUSTER (for Linux)	I	I	I
Troubleshooting Information Collection Command Name and Path Name	I	I	I

Functions and Compatibility Issues	Version Before Migration		
	14.0 or Earlier	14.1	14.2
Swsrpmake Command Processing on Combining Cascade Copy and Concurrent OPC	C	C	C
Acopc Start Command and Acsnap Start Command Processing	C	C	C
Environment Setup/Deletion Methods for Clustered Systems (for Solaris, HP-UX)	I	I	I
AdvancedCopy Manager Copy Control Module Customization Procedure	C	C	C
Copy Progress Rate of QuickOPC	I	I	I
Information to Be Displayed If Hardware Error, etc. Occurs	I	I	I
Automatic Configuration of Maintenance Mode of MSCS or WSFC	I	I	I
Database Backup/Restore Method	I	I	I
Database Save/Recovery Method	I	I	I
Target of Management Information Package Backup of AdvancedCopy Manager	I	I	I
Commands/Services/Daemons Related to AdvancedCopy Manager Database	I	I	I
Items Displayed by Stgenvdsp Command	I	I	I
Meaning of -d Option of Stgropcnv Command	I	I	I
Meaning of -b Option of Stgforcedelsrv Command	I	I	I
Name of NAS Backup Volume and Copy Group Created by Setting of NAS Backup	C	C	C
Count Method in Extended Copy Sessions and Default Filter on Session List Screen	C	C	C
Setting Method and Minimum Value for Copy Table Size	C	C	C
Screen Refresh Interval and Display/Input Unit of Web Console	C	C	C
Help Button Design and Online Help Display Procedures of Web Console	C	C	C
Changes Communication Port Default Value	I	I	I
Sanma.conf Configuration Checking for Device Registration	C	C	C
Customizing Configuration File	C	C	C
Online Manual in DVD-ROM Media	I	I	I
Online Help Feature	C	C	C
Changes Configuration File Path for Port Number	C	C	C
Name of Commands Related to Configuration Import	C	C	C
Holding of Checks Placed in Table Checkboxes and Table Radio Buttons	I	I	I
Displayed Strings for CA Type Information	C	C	C
Category Pane Related to NAS Management Operation in Web Console	C	C	C
Change of Input Condition for Shared Folder Name	C	C	C

Functions and Compatibility Issues	Version Before Migration		
	14.0 or Earlier	14.1	14.2
Change of Web Console Dashboard	C	C	C
Change of Column Name on Web Console Various Log Screens	C	C	C
Change of Action Name for Record Count Preference on Web Console	C	C	C
Displayed Contents Related to AntiVirus Function of Web Console	C	C	C

Key

C: Compatible. No known compatibility issues.

I: Incompatible. Possible compatibility issues.

2.2 Incompatible Information of Express

This section describes the changes from the previous version of Express.

2.2.1 Changes for Supported Storage Devices

The following storage devices are no longer supported.

Version	Details
16.4 or later	ETERNUS DX80/DX90



See

.....
Refer to "Supported Devices" in the *ETERNUS SF Installation and Setup Guide* for information on the devices that can be managed by this version of Express.
.....

2.2.2 Changes for Supported Web Browsers

The following web browsers are no longer supported.

Version	Details
15.0 or later	Internet Explorer 7 Firefox 3.5
16.0 or later	Firefox 3.6 Firefox ESR 10
16.4 or later	Internet Explorer 8



See

.....
Refer to "Supported Web Browsers" in the *ETERNUS SF Web Console Guide* for the version of the supported web browsers.
.....

2.2.3 Changes for Supported Operating Systems

The following operating systems are no longer supported.

Version	Details
15.0 or later	Windows Server 2003, Standard Edition (non-SP) Windows Server 2003, Standard x64 Edition (non-SP and SP2) Windows Server 2003, Enterprise Edition (non-SP) Windows Server 2003, Enterprise x64 Edition (non-SP and SP2) Windows Server 2003 R2, Standard Edition (non-SP) Windows Server 2003 R2, Standard x64 Edition (non-SP and SP2) Windows Server 2003 R2, Enterprise Edition (non-SP) Windows Server 2003 R2, Enterprise x64 Edition (non-SP and SP2)
16.0 or later	Windows Server 2003, Standard Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2008 Standard without Hyper-V (32-bit) Windows Server 2008 Enterprise without Hyper-V (32-bit) Windows Server 2008 Datacenter without Hyper-V (32-bit) Windows Server 2008 Standard SP2 without Hyper-V (32-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (32-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (32-bit) Windows Server 2008 Standard (32-bit) Windows Server 2008 Enterprise (32-bit) Windows Server 2008 Datacenter (32-bit) Windows Server 2008 Standard SP2 (32-bit) Windows Server 2008 Enterprise SP2 (32-bit) Windows Server 2008 Datacenter SP2 (32-bit) Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 6 (for x86)

If Express is installed in the above operating systems, the upgrade to this version cannot be performed. If you wish to use Express of this version, it is necessary to install it newly in the operating systems supported by Express.



See

Refer to "Operating Environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for the operating systems supported by this version of Express.

2.2.4 Administrator's Belonging Group

The administrator's belonging group has been changed.

Version	Details
14.2 or earlier	System administrator: User in the Administrators group Business administrator: User in the Administrators group
15.0 or later	System administrator: User in the ESFAdmin role group Business administrator: User in the ESFMon or ESFAdmin role group

2.2.5 Specification of FQDN (Fully Qualified Domain Name)

The specification of FQDN has been changed.

Version	Details
14.2 or earlier	In the Web Console, the following operations can specify FQDN. - Registering or changing ETERNUS Disk storage system

Version	Details
	- SMTP server setting in Contacts information settings
15.0 or later	In the Web Console, the following operations cannot specify FQDN. <ul style="list-style-type: none"> - Registering or changing ETERNUS Disk storage system - SMTP server setting in Contacts information settings

2.2.6 Troubleshooting Information Sending Function

The function to send troubleshooting information by e-mail is no longer supported.

Version	Details
14.2 or earlier	It is possible to send the troubleshooting information to the address specified by e-mail.
15.0 or later	The function is no longer supported.

2.2.7 Copy Group Definition Export/Import Function

The copy group definition export/import function is no longer supported.

Version	Details
14.2 or earlier	It is possible to use the copy group definition export/import function, and move the local site's copy group definition to the remote site. When performing a forced cancel or forced suspend operation to the remote copy session at the remote site, it is necessary to first export the copy group definition at the local site.
15.0 or later	The copy group definition export/import function is no longer supported. Instead, perform a forced cancel or forced suspend of the remote copy session without moving the copy group definition to the remote site.



See

Refer to the following manuals for information on the forced cancel or forced suspend of remote copy sessions on this version:

- "Display/Forcible Suspend/Forcible Cancel Copy Session" in the *ETERNUS SF Web Console Guide*
- "Forcibly Stopping Copy Sessions" and "Forcibly Suspending REC Sessions" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module*

2.2.8 RAID Group Automatic Creation Function

The RAID group automatic creation function for some models is no longer supported.

Version	Details
14.2 or earlier	It is possible to be selected required disks automatically and created RAID groups with the RAID group automatic creation function.
15.0 or later	The RAID group automatic creation function is not supported for ETERNUS DX60/DX60 S2/DX80/DX90.

2.2.9 Different Name Setting Function for Device Information

The function to set different names from names on the devices is no longer supported.

Version	Details
14.2 or earlier	It is possible to set different names (alias names) from names on the devices for servers, storage devices, and volumes.
15.0 or later	It is no longer supported to set different names (alias names) from names on the devices for servers, storage devices, and volumes.

2.2.10 Web Console Connection Address

The address to connect to the Management Server has been changed.

Version	Details
14.2 or earlier	<code>https://ipAddress:portNumber/express/</code>
15.0 or later	<code>https://ipAddress:portNumber/</code>



See

Refer to "How to Start Web Console" in the *ETERNUS SF Web Console Guide* for details.

2.2.11 Changes License Management Operation

The license management process has been changed.

Version	Details
14.2 or earlier	<ul style="list-style-type: none"> - The Advanced Copy license is selected in install options. - For product upgrades to Storage Cruiser and AdvancedCopy Manager, it is necessary to uninstall/install each product.
15.0 or later	<ul style="list-style-type: none"> - The Advanced Copy license can be set from the Web Console and command. - Product upgrades to Storage Cruiser and AdvancedCopy Manager are possible only through software license registration of the relevant products.
16.0 or later	<ul style="list-style-type: none"> - In order to use Express, the ETERNUS SF Express license is required.



See

Refer to "License Management" in the *ETERNUS SF Installation and Setup Guide* for details.

2.2.12 Messages and Event Logs

The messages and event logs have been changed.

Version	Details
14.2 or earlier	Output the Express unique messages and event logs.
15.0 or later	Output the messages and event logs the same as Storage Cruiser.

2.2.13 Express_diag Command

The `express_diag` command is no longer supported.

Version	Details
14.2 or earlier	It is possible to use <code>express_diag</code> command.
15.0 or later	The <code>express_diag</code> command is no longer supported. If a problem occurs with the Express's manager, collect the required troubleshooting information and contact Fujitsu Technical Support.

2.2.14 Storageadm Perfdata Command Path Name (for Windows)

The path name of the `storageadm perfdata` command has been changed.

Version	Details
14.2 or earlier	<code>installDir\Express\Manager\bin (*1)</code>
15.0 or later	<code>installDir\ESCM\Manager\opt\FJSVssmgr\bin (*2)</code>

*1: The `installDir` is "Program Directory" specified at the Express installation.

*2: The `installDir` is "Program Directory" specified at the ETERNUS SF Manager installation.

2.2.15 Troubleshooting Information Collection Command Name and Path Name (for Windows)

The troubleshooting information collection command name and path have been changed.

Version	Details
14.2 or earlier	<code>installDir\Express\Manager\bin\express_managersnap (*1)</code>
15.0 or later	<code>installDir\Common\bin\esfsnap (*2)</code>

*1: The `installDir` is "Program Directory" specified at the Express installation.

*2: The `installDir` is "Program Directory" specified at the ETERNUS SF Manager installation.

2.2.16 Response Time Displayed by Performance Management

The response time of volumes and RAID groups has been changed.

Version	Details
16.0 or earlier	The response time of volumes and RAID groups is a value influenced by I/O generated by operations of Advanced Copy.
16.1 or later	The response time of volumes and RAID groups is a value not influenced by I/O generated by operations of Advanced Copy. If Advanced Copy operates, it may be higher than values displayed on Version 16.0 or earlier.

2.2.17 Monitor Volume Range for Performance Management

The specification when "All" is selected for the range of the monitoring volume at the start of performance management has been changed.

Version	Details
15.0 to 16.1	Even if a volume has been created or deleted, that volume is not included as a target for performance management.
16.2 or later	By detecting the creation or deletion of a volume, that volume is included as a target for performance management.

2.2.18 Selectable RAID Type and Reliability When Using High-Capacity Disks

The selectable RAID type and reliability type when using a high-capacity disk (for example, 6 TB disk) in the Web Console have been changed.

Version	Details
16.1 or earlier	When creating a RAID group, all the RAID levels can be selected. When creating/expanding a Thin Provisioning Pool and a Tier pool, all reliability types can be selected.
16.2 or later	The RAID levels that can be selected when creating a RAID group are as follows: <ul style="list-style-type: none"> - RAID0 - RAID1 - RAID6 - RAID6-FR The reliability types can be selected when creating/expanding a Thin Provisioning Pool and a Tier pool are as follows: <ul style="list-style-type: none"> - Striping (RAID0) - Mirroring (RAID1) - High Reliability (RAID6) - High Reliability (RAID6-FR)

2.2.19 Output Messages

The output messages of Express have been changed.

Message ID	Version	Details
ssmgr3411	16.1 or earlier	The volume of the un-support is registered in specified RAID group ({0}).
	16.2 or later	An unsupported volume is registered on the specified RAID group ({0}).
ssmgr3417	16.1 or earlier	The type of specified volume ({0}) is a un-support.
	16.2 or later	The type of the specified volume ({0}) is not supported.
ssmgr3421	16.1 or earlier	Connection AffinityGroup({0}) is a un-support.
	16.2 or later	Connection AffinityGroup ({0}) is not supported.
ssmgr3450	16.1 or earlier	The specified device ({0}) is an un-support Thin Provisioning.
	16.2 or later	The specified device ({0}) does not support Thin Provisioning.
ssmgr3458	16.1 or earlier	The specified port({0}) is a un-support.
	16.2 or later	The specified port ({0}) is not supported.
ssmgr3552	16.1 or earlier	The specified REC buffer is an un-support.
	16.2 or later	The specified REC buffer is not supported.
ssmgr3559	16.1 or earlier	CHAP setting is an un-support.
	16.2 or later	CHAP setting is not supported.
ssmgr3561	16.1 or earlier	The specified device ({0}) is an un-support Flexible Tier function.
	16.2 or later	The specified device ({0}) does not support Flexible Tier function.
ssmgr3616	16.1 to 16.2	The specified quota setting does not exist. Quota Setting=(NAS Volume No.= <i>volumeNumber</i> , Type= <i>type</i> , Name= <i>name</i>), ...

Message ID	Version	Details
	16.3 or later	The specified quota setting does not exist.

2.3 Incompatible Information of Storage Cruiser

This section describes the changes from the previous version of Storage Cruiser.

2.3.1 First Argument Value to Be Handed Over to Event Linkage Function

In the trouble message handed by first argument, the product name of SN200 has been changed.

Version	Details
13.1 or earlier	"SilkWorm <i>productName</i> "
13.2 or later	" <i>productName</i> "



Example

- For Version 13.1 or earlier

```
"AP:SSC: INFO: swsag4203:FC Port No.0 Online in M540(SilkWorm 48000[192.0.2.1])"
```

- For Version 13.2 or later

```
"AP:SSC: INFO: swsag4203:FC Port No.0 Online in M540(48000[192.0.2.1])"
```

2.3.2 Daemon Start/Stop Command

The daemon start/stop command is no longer supported.

When these commands are built in operation on the system of previous version, delete them before upgrading to this version.

For Solaris

Version	Details
13.1 or earlier	/opt/FJSVrcxmr/sbin/rcxmgrctl is provided.
13.2 to 15.3	/opt/FJSVssmgr/sbin/managerctl is provided.
16.0 or later	The daemon start/stop command is not provided.

For Linux

Version	Details
15.3 or earlier	/opt/FJSVssmgr/sbin/managerctl is provided.
16.0 or later	The daemon start/stop command is not provided.

2.3.3 Cmdline Resource for Clustered Systems

The Cmdline resource for clustered systems is no longer supported.

When these scripts are built in operation on the system of previous version, delete them before upgrading to this version.

For Solaris

Type of Script	Version	Details
Start script	13.1 or earlier	/opt/FJSVrcxmr/cluster/cmd/rcxclstartcmd is provided.
	13.2 to 15.3	/opt/FJSVssmgr/cluster/cmd/rcxclstartcmd is provided.
	16.0 or later	The Cmdline resource is not provided.
Stop script	13.1 or earlier	/opt/FJSVrcxmr/cluster/cmd/rcxclstopcmd is provided.
	13.2 to 15.3	/opt/FJSVssmgr/cluster/cmd/rcxclstopcmd is provided.
	16.0 or later	The Cmdline resource is not provided.
Check script	13.1 or earlier	/opt/FJSVrcxmr/cluster/cmd/rcxclcheckcmd is provided.
	13.2 to 15.3	/opt/FJSVssmgr/cluster/cmd/rcxclcheckcmd is provided.
	16.0 or later	The Cmdline resource is not provided.

For Linux

Type of Script	Version	Details
Start script	15.3 or earlier	/opt/FJSVssmgr/cluster/cmd/rcxclstartcmd is provided.
	16.0 or later	The Cmdline resource is not provided.
Stop script	15.3 or earlier	/opt/FJSVssmgr/cluster/cmd/rcxclstopcmd is provided.
	16.0 or later	The Cmdline resource is not provided.
Check script	15.3 or earlier	/opt/FJSVssmgr/cluster/cmd/rcxclcheckcmd is provided.
	16.0 or later	The Cmdline resource is not provided.

2.3.4 Displayed Contents for LVM (for HP-UX)

The integration icon name and basic information for LVM logical/physical volume have been changed.

Item	Version	Details
Integration icon name for logical volume	13.3 or earlier	PVLink Logical Volumes(<i>volumeName</i>)
	13.4 to 14.2	LVM Logical Volumes(<i>volumeName</i>)
	15.0 or later	The icon for integrating two or more volumes is not displayed. In the Web Console, each volume is displayed individually.
Basic information of integration icon for logical volume	13.3 or earlier	PVLink Logical Volumes(<i>volumeName</i>)
	13.4 to 14.2	LVM Logical Volumes(<i>volumeName</i>)
	15.0 or later	The icon for integrating two or more volumes is not displayed. In the Web Console, each volume is displayed individually.
Basic information of integration icon for physical volume	13.3 or earlier	PVLink Physical Volumes(<i>volumeName</i>)
	13.4 to 14.2	LVM Physical Volumes(<i>volumeName</i>)
	15.0 or later	The icon for integrating two or more volumes is not displayed. In the Web Console, each volume is displayed individually.

Basic information of integration icon is displayed by clicking **Basic information** tab in property screen for the integration icon.

Example

- For Version 13.3 or earlier

Integration icon name for logical volume: PVLink Logical Volumes(vg01)

Integration icon for logical volume - **Basic information** tab: PVLink Logical Volumes(vg01)

Integration icon for physical volume - **Basic information** tab: PVLink Physical Volumes(c2t0d0-7)

- For Version 13.4 to 14.2

Integration icon name for logical volume: LVM Logical Volumes(vg01)

Integration icon for logical volume - **Basic information** tab: LVM Logical Volumes(vg01)

Integration icon for physical volume - **Basic information** tab: LVM Physical Volumes(c2t0d0-7)

2.3.5 Message of Communication Recovery Event

For the Managed devices using the "Communication status check" polling method, the messages of communication recovery event have been changed.

Version	Details
13.4 or earlier	Unit status changed: OK Unit status changed: Warning Unit status changed: Error
14.0 or later	Connection OK

See

Refer to "Device Polling" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the polling methods.

2.3.6 Ssmgr3228 Message

The ssmgr3228 message output by storage management commands has been changed.

Version	Details
14.1 or earlier	The specified raid group number is used in the Thin Provisioning Pool.
14.2 or later	The specified raid group cannot operate.

2.3.7 SNMP Trap Reception Program Specification

The SNMP Trap reception program specification has been changed.

For Windows

Version	Details
14.1 or earlier	<ul style="list-style-type: none">- SystemWalker MpWksttr is used as the SNMP Trap monitoring service.- If in use with ServerView AlarmService, the mpmsts ON command must be executed.- If in use with Systemwalker Centric Manager, no special settings are required.
14.2 or later	<ul style="list-style-type: none">- The OS standard SNMP Trap monitoring service is used. For Windows Server 2003: SNMP Trap Service For Windows Server 2008 or later: SNMP Trap- If in use with ServerView AlarmService, the mpmsts ON command need not be executed.

Version	Details
	<ul style="list-style-type: none"> - If in use with Systemwalker Centric Manager, the settings indicating coexistence with ServerView AlarmService are required at the Systemwalker Centric Manager side.

For Linux

Version	Details
14.1 or earlier	<ul style="list-style-type: none"> - FJSVswstt is used as the SNMP Trap monitoring daemon. - No special settings are required to use FJSVswstt. - If in use with ServerView AlarmService, the ServerView trap transfer program is required. - If in use with any of the Systemwalker Centric Manager versions or with ServerView Resource Coordinator VE Version 2.1.1 to 2.1.3, no special settings are required.
14.2 or later	<ul style="list-style-type: none"> - The snmptrapd in the OS standard net-snmp package is used as the SNMP Trap monitoring daemon. - The snmptrapd settings must be changed in order to use the snmptrapd. - If in use with ServerView AlarmService, the ServerView trap transfer program (SMAWtrpsv) is not required. - If in use with any of the Systemwalker Centric Manager versions or with ServerView Resource Coordinator VE Version 2.1.1 to 2.1.3, the settings indicating use with ServerView AlarmService are required at the Systemwalker Centric Manager or ServerView Resource Coordinator VE side.

For Solaris

Version	Details
15.2 or earlier	<ul style="list-style-type: none"> - If in use with Systemwalker Centric Manager Version 13.5 or earlier, no special settings are required. - The coexistence with Systemwalker Centric Manager Version 13.6 or later cannot be done.
15.3 or later	<ul style="list-style-type: none"> - The coexistence with Systemwalker Centric Manager Version 13.5 or earlier cannot be done. - If in use with Systemwalker Centric Manager Version 13.6 or later, no special settings are required.

2.3.8 Default Installation Path of Programs (for Windows)

The default installation path for programs that include manager functions has been changed.

Version	Details
14.2 or earlier	C:\Program Files\ETERNUS-SSC\Manager
15.0 or later	C:\ETERNUS_SF\ESC\Manager

Example

When having installed a program to the default installation location, the absolute path for the shell script used with a shell linkage function is as follows:

- For Version 14.2 or earlier

```
C:\Program Files\ETERNUS-SSC\Manager\opt\FJSVssmgr\lib\sample\trapop.bat
```

- For Version 15.0 or later

```
C:\ETERNUS_SF\ESC\Manager\opt\FJSVssmgr\lib\sample\trapop.bat
```

2.3.9 Troubleshooting Information Collection Command Name and Path Name

The name and path name of the troubleshooting information collection command for the Storage Cruiser's manager have been changed.

For Windows

Version	Details
14.2 or earlier	<i>installDir</i> \Manager\opt\FJSVsmgr\sbin\managersnap (*1)
15.0 or later	<i>installDir</i> \Common\bin\esfsnap (*2)

*1: The *installDir* is "Program Directory" specified at the Storage Cruiser's manager installation.

*2: The *installDir* is "Program Directory" specified at the ETERNUS SF Manager installation.

For Solaris

Version	Details
13.1 or earlier	/opt/FJSVrcxmr/sbin/rcxmgrsnap
13.2 to 14.2	/opt/FJSVsmgr/sbin/managersnap
15.0 or later	/opt/FJSVesfcm/bin/esfsnap

For Linux

Version	Details
14.2 or earlier	/opt/FJSVsmgr/sbin/managersnap
15.0 or later	/opt/FJSVesfcm/bin/esfsnap

2.3.10 Changes for Supported Devices

The following devices are no longer supported.

Version	Details
15.0 or later	ETERNUS4000 models 80 and 100 ETERNUS3000 (all models) ETERNUS6000 (all models) ETERNUS GR series ETERNUS SX300, SX300S ETERNUS VS900 ETERNUS LT120/LT130/LT160 FibreCAT SX series EMC Symmetrix DMX, Clarix HITACHI HDS (HITACHI DATA SYSTEM) Disk array
16.0 or later	ETERNUS2000 (all models) ETERNUS4000 (all models) ETERNUS8000 (all models) ETERNUS VD800 Virtual Disk Controller ETERNUS SN200MDS Cisco MDS McDATA Intrepid 6140 McDATA Sphereon 4500
16.4 or later	ETERNUS DX80/DX90 ETERNUS LT60



See

Refer to "Supported Devices" in the *ETERNUS SF Installation and Setup Guide* for information on the devices that can be managed by this version of Storage Cruiser.

2.3.11 Changes for Supported Operating Systems

The following operating systems are no longer supported.

Version	Details
15.0 or later	<ul style="list-style-type: none"> - Storage Cruiser's manager <ul style="list-style-type: none"> Windows Server 2008 R2 Foundation (non-SP and SP2) Windows Server 2003, Standard Edition (non-SP) Windows Server 2003, Enterprise Edition (non-SP) Windows Server 2003 R2, Standard Edition (non-SP) Windows Server 2003 R2, Standard x64 Edition (non-SP and SP2) Windows Server 2003 R2, Enterprise Edition (non-SP) Windows Server 2003 R2, Enterprise x64 Edition (non-SP and SP2) - Storage Cruiser's agent <ul style="list-style-type: none"> Windows Server 2008 for Itanium-Based Systems (non-SP and SP2) Windows Server 2003, Standard Edition (non-SP) Windows Server 2003, Standard x64 Edition (non-SP) Windows Server 2003, Enterprise Edition (non-SP) Windows Server 2003, Enterprise x64 Edition (non-SP) Windows Server 2003, Enterprise Edition for Itanium-based Systems SP2 Windows Server 2003 R2, Standard Edition (non-SP) Windows Server 2003 R2, Standard x64 Edition (non-SP) Windows Server 2003 R2, Enterprise Edition (non-SP) Windows Server 2003 R2, Enterprise x64 Edition (non-SP) Solaris 8 Operating System Red Hat Enterprise Linux 5 (for Intel Itanium) Red Hat Enterprise Linux AS (v.4 for Itanium) Red Hat Enterprise Linux AS (v.3 for x86) Red Hat Enterprise Linux ES (v.3 for x86) SUSE Linux Enterprise Server 9 for EM64T
16.0 or later	<ul style="list-style-type: none"> - Storage Cruiser's manager <ul style="list-style-type: none"> Windows Server 2003, Standard Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2008 Standard without Hyper-V (32-bit) Windows Server 2008 Enterprise without Hyper-V (32-bit) Windows Server 2008 Datacenter without Hyper-V (32-bit) Windows Server 2008 Standard SP2 without Hyper-V (32-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (32-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (32-bit) Windows Server 2008 Standard (32-bit) Windows Server 2008 Enterprise (32-bit) Windows Server 2008 Datacenter (32-bit) Windows Server 2008 Standard SP2 (32-bit) Windows Server 2008 Enterprise SP2 (32-bit) Windows Server 2008 Datacenter SP2 (32-bit) Solaris 9 Operating System

Version	Details
	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 6 (for x86) - Storage Cruiser's agent HP-UX 11.0 AIX 5L 5.3 VMware Infrastructure 3 Foundation VMware Infrastructure 3 Standard VMware Infrastructure 3 Enterprise
16.2 or later	- Storage Cruiser's agent Red Hat Enterprise Linux AS (v.4 for x86) Red Hat Enterprise Linux AS (v.4 for EM64T) Red Hat Enterprise Linux ES (v.4 for x86) Red Hat Enterprise Linux ES (v.4 for EM64T)
16.3 or later	- Storage Cruiser's agent Windows Server 2003, Standard Edition SP2 Windows Server 2003, Standard x64 Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003, Enterprise x64 Edition SP2 Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Standard x64 Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2003 R2, Enterprise x64 Edition SP2
16.4 or later	- Storage Cruiser's agent HP-UX 11i v1 HP-UX 11i v2(PA-RISC) HP-UX 11i v2(Itanium)

If Storage Cruiser is installed in the above operating systems, the upgrade to this version cannot be performed. If you wish to use Storage Cruiser of this version, it is necessary to install it newly in the operating systems supported by Storage Cruiser.



See

Refer to "Operating Environment of ETERNUS SF Manager" and "Operating Environment of Storage Cruiser's Agent" in the *ETERNUS SF Installation and Setup Guide* for the operating systems supported by this version of Storage Cruiser.

2.3.12 Changes for Supported Web Browsers

The following web browsers are no longer supported.

Version	Details
16.0 or later	Firefox 3.6 Firefox ESR 10
16.4 or later	Internet Explorer 8



See

Refer to "Supported Web Browsers" in the *ETERNUS SF Web Console Guide* for the version of the supported web browsers.

2.3.13 Changes for Supported Agent Version

Connection to the following Storage Cruiser's agents is no longer supported.

Version	Details
16.0 or later	Softek Storage Cruiser's agent (all versions) ETERNUS SF Storage Cruiser's agent Version 13.x



See

Refer to "Combining ETERNUS SF Agent and ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for supported manager and agent combinations.

2.3.14 Storage Volume Configuration Navigator

Storage Volume Configuration Navigator is no longer supported.

Version	Details
14.2 or earlier	It is possible to use the Storage Volume Configuration Navigator.
15.0 or later	Storage Volume Configuration Navigator is no longer supported.

2.3.15 Supports of GUI Client

The GUI client has been replaced with the Web Console. Uninstall the installed GUI client.

Version	Details
14.2 or earlier	When operating the Storage Cruiser function with a GUI, the operation is performed from the Storage Cruiser GUI client installed on the PC.
15.0 or later	When operating the Storage Cruiser function with a GUI, the operation is performed from a web browser.



See

Refer to the *ETERNUS SF Web Console Guide* for information on the usable web browsers and how to use the Web Console.

2.3.16 Changes for Login Account

The login account has been changed.

Version	Details
14.2 or earlier	In order to connect to the Management Server from the Storage Cruiser client, a dedicated Storage Cruiser account is necessary.
15.0 or later	In order to connect to the Management Server from the Web Console, a dedicated Storage Cruiser account is not necessary. The Management Server's OS account is used.

2.3.17 Memo Information Table and Revolving Light Icon

The memo information table and the revolving light icon are no longer supported.

Version	Details
14.2 or earlier	- Display and edition of memo information is possible.

Version	Details
	- The revolving light icon is displayed on the Resource view.
15.0 or later	- Display and edition of memo information is not possible. The memo information created with previous versions cannot be restored in the new version. - The revolving light icon is not displayed.

2.3.18 Beacon Function for Solaris Server Node

The beacon function for the Solaris server node has been changed.

Version	Details
14.2 or earlier	The beacon function is available.
15.0 or later	The beacon function is not available.

2.3.19 Display Information of Correlation Management

The correlation management display has been changed.

Version	Details
14.2 or earlier	- It is possible to display the detailed relational management configuration within the device as a separate window element.
15.0 or later	- List view is possible but not as a separate window element. - The following items relative to correlation management cannot be displayed: <ul style="list-style-type: none"> - Business components (application) display - DBMS display - File system (mount point) display - Mirror drive display - Multipath driver display - Raw Device display - IOB display - Router display - DE display - Battery display - Element integrated display - Connection display - Configuration information saving

2.3.20 Changes for Performance Management

The performance management processing has changed.

Version	Details
14.2 or earlier	- The processing for threshold monitoring of performance management function displays the condition report. - The content displaying in the performance management graph is available to output as a JPEG file.

Version	Details
15.0 or later	<ul style="list-style-type: none"> - The processing for threshold monitoring of performance management function does not display the condition report. - The content displaying in the performance management graph is not available to output as a JPEG file.

2.3.21 Information Required for ETERNUS Disk Storage System Registration

The information necessary for device registration of the following storage devices has been changed:

- ETERNUS DX60/DX60 S2/DX80/DX90
- ETERNUS DX400 series
- ETERNUS DX8000 series
- ETERNUS2000, ETERNUS4000, ETERNUS8000

Version	Details
14.2 or earlier	It is not necessary to specify an account of the storage device.
15.0 or later	It is necessary to specify an account of the storage device.

2.3.22 SNMP Trap Setup Function Checking at Device Registration

The setup function checking of SNMP Trap for registering ETERNUS Disk storage system and Fibre Channel switch has been changed.

Version	Details
14.2 or earlier	The automatic setting function for SNMP Trap destination address is checked by default.
15.0 or later	The automatic setting function for SNMP Trap destination address is not checked by default.



2.3.23 SNMP Trap Setup After Registering Fibre Channel Switch

Support for SNMP Trap setup after a Fibre Channel switch has been registered has changed.

Version	Details
14.2 or earlier	SNMP Trap setup can be enabled after a Fibre Channel switch has been registered.
15.0 to 15.3	If SNMP Trap settings are changed after a Fibre Channel switch has been registered, the device must be reregistered.
16.0 or later	SNMP Trap setup can be enabled after a Fibre Channel switch has been registered.

2.3.24 Thin Provisioning Pool Threshold Monitoring Icon

The icon displayed when the usage of Thin Provisioning Pool exceed "alarm threshold" has been changed.

Version	Details
14.2 or earlier	Displays "  .
15.0 or later	Displays "  .

2.3.25 Display Method of Thin Provisioning Pool Capacity Chart

The display method for Capacity Chart of Thin Provisioning Pool has been changed.

Version	Details
14.2 or earlier	<ul style="list-style-type: none"> - The following items that can be selected as the content to be displayed: <ul style="list-style-type: none"> - Used capacity - Remain capacity - The following items that can be selected as the unit: <ul style="list-style-type: none"> - TB - % - The following items that can be selected as the Duration: <ul style="list-style-type: none"> - Past 1 month - Past <i>n</i> year (<i>n</i> : 1 - 10) - Two or more graph windows of Thin Provisioning Pool can be displayed with one direction.
15.0 or later	<ul style="list-style-type: none"> - The content to be displayed is only "Used Capacity". - The unit is only TB. - The following items that can be selected as the Duration: <ul style="list-style-type: none"> - Past 1 month - Past 1 Year - Past 10 years - One graph window of Thin Provisioning Pool can be displayed with one direction.

2.3.26 Managed Server Deletion Process

The process for deleting a Management Server with a set access path has been changed.

Version	Details
14.2 or earlier	In the case of the access path being set when deleting the Management Server, the access path is deleted at the same time.
15.0 or later	In the case of the access path being set when deleting the Management Server, it is not possible to delete the access path at the same time.

2.3.27 VM Host Deletion Procedure if VM Guests Exist on VM Host

The process for deleting a VM host if VM guests exist under this VM host has been changed.

Version	Details
14.2 or earlier	When a VM host is deleted, all the VM guests under that VM host are deleted as well from the ETERNUS SF system.
15.0 or later	If a VM host with existing VM guests is deleted, all the VM guests must be first deleted from the ETERNUS SF system. The VM guests cannot be deleted as the same time as the VM host.

2.3.28 Displayed Contents of End to End View

In the displayed contents of the End to End view, the mount points and multipath driver devices fetched from Storage Cruiser's agent are added. The same applies for CSV output.

Displayed Contents		Version of Storage Cruiser	
Category	Item	15.0 or Earlier	15.1 or Later
Server	Name	Displayed	Displayed
	Type	Displayed	Displayed
	Mount Point	Not displayed	Displayed
	Multipath Driver Device	Not displayed	Displayed
	Interface Type	Displayed	Displayed
	HBA WWPN	Displayed	Displayed
	HBA iSCSI Name / IP Address	Displayed	Displayed
Switch (connected to Server)	Name	Displayed	Displayed
	Port	Displayed	Displayed
Switch (connected to Storage)	Name	Displayed	Displayed
	Port	Displayed	Displayed
Storage	Name	Displayed	Displayed
	Port	Displayed	Displayed
	AG	Displayed	Displayed
	LUN	Displayed	Displayed
	Volume	Displayed	Displayed
	TPP	Displayed	Displayed
	RG	Displayed	Displayed
	RG (Concatenated)	Displayed	Displayed



Note

The items [Mount Point] and [Multipath Driver Device] display a hyphen ("-") when:

- The OS of the Managed Server is Windows, and the version of Storage Cruiser's agent is Version 15.0 or earlier.

2.3.29 Changes for Map View

The map view function has been changed.

Version	Details
14.2 or earlier	A map (icon) display and a list display are available. The map display can display connecting lines between icons, statuses of access paths, and physical lines that are forming access paths, and allows for drag-and-drop setting of access paths.
15.0	Only a list display, but no map display is available. Settings for the map display (display of connecting lines between icons, statuses of access paths, and physical lines that are forming access paths, as well as drag-and-drop setting of access paths) are not available.
15.1 or later	A map display and a list display are available. The map display allows for display of connecting lines between icons, statuses of access paths, and physical lines that are forming access paths. Drag-and-drop setting of access paths is not available.

2.3.30 Output Information of Storageadm Port Command and Storageadm Iscsiport Command

The output information of the storageadm port command and storageadm iscsiport command for the following devices has been changed.

Device Name	Number of CMs per Device	Number of ports per CM	Remarks
ETERNUS DX60/DX60 S2	1	2	
ETERNUS DX80	2	1	
ETERNUS DX90	1	4	The storageadm port command only

[Output information of the storageadm port command]

Version	Details
15.0 or earlier	<p>Absent port information is displayed. The command execution example is as follows.</p> <pre># /opt/FJSVssmgr/sbin/storageadm port info -ipaddr 1.2.3.4 -csv PORT ID,PORT NAME,STATUS,TYPE,AFFINITY,PORT ADDRESS,SUPPLEMENT INFORMATION 00,CM0Port0,Online,FC-CA,On,1234567890ABCDEE,- 01,CM0Port1,Undefined,FC-CA,Off,0000000000000000,- 10,CM1Port0,Online,FC-CA,On,1234567890ABCDEF,- 11,CM1Port1,Undefined,FC-CA,Off,0000000000000000,-</pre>
15.1 or later	<p>Absent port information is not displayed. The command execution example is as follows.</p> <pre># /opt/FJSVssmgr/sbin/storageadm port info -ipaddr 1.2.3.4 -csv PORT ID,PORT NAME,STATUS,TYPE,AFFINITY,PORT ADDRESS,SUPPLEMENT INFORMATION 00,CM0Port0,Online,FC-CA,On,1234567890ABCDEE,- 10,CM1Port0,Online,FC-CA,On,1234567890ABCDEF,-</pre>

[Output information of the storageadm iscsiport command]

Version	Details
15.0 or earlier	<p>Absent port information is displayed. The command execution example is as follows.</p> <pre># /opt/FJSVssmgr/sbin/storageadm iscsiport info -ipaddr 1.2.3.4 -csv PORT ID,NAME,STATUS,TYPE,AFFINITY,ISCSI NAME,IP ADDRESS 00,CM0Port0,Online,iSCSI-CA,On,iqn.2000-09.com.fujitsu:storage- system.e2000:0000000029,172.16.4.40 01,CM0Port1,Undefined,iSCSI-CA,Off,,- 10,CM1Port0,Online,iSCSI-CA,On,iqn.2000-09.com.fujitsu:storage- system.e2000:0000000029,172.16.4.41 11,CM1Port1,Undefined,iSCSI-CA,Off,,-</pre>
15.1 or later	<p>Absent port information is not displayed. The command execution example is as follows.</p> <pre># /opt/FJSVssmgr/sbin/storageadm iscsiport info -ipaddr 1.2.3.4 -csv PORT ID,NAME,STATUS,TYPE,AFFINITY,ISCSI NAME,IP ADDRESS 00,CM0Port0,Online,iSCSI-CA,On,iqn.2000-09.com.fujitsu:storage- system.e2000:0000000029,172.16.4.40 10,CM1Port0,Online,iSCSI-CA,On,iqn.2000-09.com.fujitsu:storage- system.e2000:0000000029,172.16.4.41</pre>

2.3.31 Firmware Version Notation of ETERNUS Disk Storage System

The firmware version notation of ETERNUS Disk storage system has been changed.

Version	Details	Remarks
15.1 or earlier	VxxLyyPzzzz	xx: Version, yy: Level, zzzz: Release
15.2 or later	VxxLyy-zzzz	

2.3.32 Sanadmsh Chtraprcvip Command Format

The values that can be specified for *DeviceID* operand of the sanadmsh chtraprcvip command have changed.

Version	Details
15.3 or earlier	<p>The following can be specified as a device type:</p> <ul style="list-style-type: none"> - -host - -storage - -library - -switch - -hub - -bridge <p>Specify one of the following as the way to identify a device:</p> <ul style="list-style-type: none"> - ip: IP address of a device - sysname: SysName name of SNMP that is set to the device - nickname: Device management name that is set for this software
16.0 or later	<p>The following can be specified as a device type:</p> <ul style="list-style-type: none"> - -all - -host - -storage - -library - -switch <p>If "-all" is specified as a device type, it is unnecessary to specify the way to identify a device. If a value other than "-all" is specified as the device type, specify either of the following as the way to specify a device:</p> <ul style="list-style-type: none"> - ip: IP address of a device - sysname: SysName name of SNMP that is set to the device



See

Refer to "Command References" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the command.

2.3.33 Changes Connection Method Between Storage Cruiser's Manager and Managed Switches

The communication method between the Storage Cruiser's manager and Fibre Channel switch has changed.

Version	Details
16.0 or earlier	Telnet communication is used.

Version	Details
16.1 or later	Telnet communication is used for Fibre Channel switches with Fabric OS v6.2 or earlier. SSH communication is used for Fibre Channel switches with Fabric OS v6.3 or later.

2.3.34 Response Time Displayed by Performance Management

The response time of volumes and RAID groups has been changed.

Version	Details
16.0 or earlier	The response time of volumes and RAID groups is a value influenced by I/O generated by operations of Advanced Copy.
16.1 or later	The response time of volumes and RAID groups is a value not influenced by I/O generated by operations of Advanced Copy. If Advanced Copy operates, it may be higher than values displayed on Version 16.0 or earlier.

2.3.35 Tiering Policy Import Command Name

The Tiering policy import command name has been changed.

Version	Details
15.2 to 15.3	The command name is "esfimporttierpolicy".
16.0 or later	The command name is "esfadm tierpolicy import".

2.3.36 Output Message IDs of Storage Cruiser

The IDs of messages output by Storage Cruiser have been changed.

Message ID	Version	Details
ssmgr3210	13.3 to 15.3	The ssmgr3210 is output.
	16.0 or later	The ssmgr3210 or ssmgr3400 is output.
ssmgr3219	13.3 to 15.3	The ssmgr3219 is output.
	16.0 or later	The ssmgr3219 or ssmgr3405 is output.
ssmgr3401	13.4 to 15.3	The ssmgr3401 is output.
	16.0 or later	The ssmgr3021, ssmgr3401, or ssmgr3402 is output.
ssmgr3450	14.0 to 15.3	The ssmgr3450 is output.
	16.0 or later	The ssmgr3450 or ssmgr3490 is output.
ssmgr7003	14.0 to 15.3	The ssmgr7003 is output.
	16.0 or later	The ssmgr7003 or swsag0187 is output.

2.3.37 Output Messages of Automated Storage Tiering

The messages output by Automated Storage Tiering have been changed.

Message ID	Version	Details
esast0107	15.3 or earlier	Illegal internal processing has been detected. Unable to use the service ({0}) from any remote clients.

Message ID	Version	Details
	16.0 or later	Invalid internal processing has been detected. Unable to use the service ({0}) from any remote clients.
esast0111	15.3 or earlier	Illegal internal processing has been detected. Unknown remote object ({3}) has been detected in communication between client and manager. The manager address is {0}:{1}/{2}.
	16.0 or later	Invalid internal processing has been detected. Unknown remote object ({3}) has been detected in communication between client and manager. The manager address is {0}:{1}/{2}.
esast0112	15.3 or earlier	Illegal internal processing has been detected on the manager. Unable to create the service ({0}).
	16.0 or later	Invalid internal processing has been detected on the manager. Unable to create the service ({0}).
esast0113	15.3 or earlier	Illegal internal processing has been detected: {0}
	16.0 or later	Invalid internal processing has been detected: {0}
esast0997	15.3 or earlier	Encoding string list for ({0}) is failed.
	16.0 or later	Encoding string for ({0}) failed.
esast1101	15.3 or earlier	Internal error. License information is not set.
	16.0 or later	Internal error occurred in license information settings.
esast1103	15.3 or earlier	The expiration date of the license ({0}) has passed.
	16.0 or later	Required license ({0}) to enable this function is expired.
esast2001	15.3 or earlier	Reading the policy datafile is failed.
	16.0	Loading tiering policy data file failed.
	16.1 or later	Loading Tiering policy data file failed.
esast2002	15.3 or earlier	Making backup of the policy datafile is failed.
	16.0	Making backup of tiering policy data file is failed.
	16.1 or later	Making backup of Tiering policy data file failed.
esast2003	15.3 or earlier	The policy data ({0}) was not able to be added to the policy datafile.
	16.0	Tiering policy ({0}) was not able to be added to tiering policy data file.
	16.1 or later	Tiering policy ({0}) was not able to be added to Tiering policy data file.
esast2004	15.3 or earlier	The policy data ({0}) was not able to be updated to the policy datafile.
	16.0	Tiering policy ({0}) was not able to be updated to tiering policy data file.
	16.1 or later	Tiering policy ({0}) was not able to be updated to Tiering policy data file.
esast2005	15.3 or earlier	The policy data ({0}) was not able to be removed to the policy datafile.
	16.0	Tiering policy ({0}) was not able to be removed to tiering policy data file.
	16.1 or later	Tiering policy ({0}) was not able to be removed from Tiering policy data file.
esast2006	15.3 or earlier	The policy data ({0}) is already existed.
	16.0 or later	Tiering policy ({0}) exists.
esast2007	15.3 or earlier	The policy data ({0}) does not exist.
	16.0 or later	Tiering policy ({0}) does not exist.
esast2008	15.3 or earlier	The Auto tier service ({0}) has already been started. policy name={1}
	16.0	The Automated Storage Tiering ({0}) has already been started. Policy Name={1}
	16.1 or later	Automated Storage Tiering ({0}) has already been started. Policy Name={1}

Message ID	Version	Details
esast2009	15.3 or earlier	The number of policy data is already the maximum numbers.
	16.0	The number of policy is already the maximum numbers.
	16.1 or later	The number of Tiering policies has reached maximum.
esast2010	15.3 or earlier	The policy data ({0}) has inaccurate the range of level. level={1}
	16.0	There is error in Data Range of Tier Level in tiering policy ({0}). Data Range of Tier Level={1}
	16.1 or later	There is error in Data Range of Layer in Tiering policy ({0}). Data Range of Layer={1}
esast2011	15.3 or earlier	The tier pool ({0}) used by policy data ({1}) is already existed.
	16.0	Tier pool ({0}) using tiering policy ({1}) exists.
	16.1 or later	Tier pool ({0}) using Tiering policy ({1}) exists.
esast2012	15.3 or earlier	The policy data ({0}) has inaccurate expire. type={1} expire={2}
	16.0	There is error in specified Automated Storage Tiering Time Limit in tiering policy ({0}). Evaluation Period(type)={1} Automated Storage Tiering Time Limit={2}
	16.1 or later	There is error in specified Automated Storage Tiering Time Limit in Tiering policy ({0}). Evaluation Period(type)={1} Automated Storage Tiering Time Limit={2}
esast2013	15.3 or earlier	The policy data ({0}) has inaccurate interval. type={1} interval={2}
	16.0	There is error in specified Evaluation Period in tiering policy ({0}). Evaluation Period(type)={1} Evaluation Period(interval)={2}
	16.1 or later	There is error in specified Evaluation Period in Tiering policy ({0}). Evaluation Period(type)={1} Evaluation Period(interval)={2}
esast2999	16.0 or earlier	PolicyFileService is internal error occurred.
	16.1 or later	Internal error occurred in PolicyFileService.
esast3001	15.3 or earlier	Reading the tier datafile ({0}) is failed.
	16.0	Loading tier pool data file ({0}) failed.
	16.1 or later	Loading Tier pool data file ({0}) failed.
esast3002	15.3 or earlier	Making backup of the tier datafile ({0}) is failed.
	16.0	Making backup of tier pool data file ({0}) is failed.
	16.1 or later	Making backup of Tier pool data file ({0}) failed.
esast3003	15.3 or earlier	The tier data ({0}) was not able to be added to the tier datafile.
	16.0	Tier pool ({0}) was not able to be added to tier pool data file.
	16.1 or later	Tier pool ({0}) was not able to be added to Tier pool data file.
esast3004	15.3 or earlier	The tier data ({0}) was not able to be updated to the tier datafile.
	16.0	Tier pool ({0}) was not able to be updated to tier pool data file.
	16.1 or later	Tier pool ({0}) was not able to be updated to Tier pool data file.
esast3005	15.3 or earlier	The tier data ({0}) was not able to be removed to the tier datafile.
	16.0	Tier pool ({0}) was not able to be removed to tier pool data file.
	16.1 or later	Tier pool ({0}) was not able to be removed from Tier pool data file.
esast3006	15.3 or earlier	The tier data ({0}) is already existed.
	16.0	Tier pool ({0}) is already existed.
	16.1 or later	Tier pool ({0}) already exists.

Message ID	Version	Details
esast3007	15.3 or earlier	The tier data ({0}) does not exist.
	16.0 or later	Tier pool ({0}) does not exist.
esast3012	15.3 or earlier	Group setting of Flexible Tier Sub Pool set to the Tier pool ({0}) is not corresponding to the level setting of policy data ({1}).
	16.0	Configuration of Sub Pool set to Tier pool ({0}) does not agree with level configuration of tiering policy ({1}).
	16.1 or later	Tiering policy ({1}) is not applicable to the number of sub-pools set to Tier pool ({0}).
esast3013	15.3 or earlier	The tier data ({0}) is not exist Flexible tier sub pool number ({1}).
	16.0 or later	FTSP Number ({1}) does not exist in Tier pool ({0}).
esast3014	15.3 or earlier	Ratio setting of FTV ({0}) is wrong.
	16.0 or later	FTV Quota Share setting ({0}) is wrong.
esast3015	15.3 or earlier	Ratio setting of FTV ({0}) is not corresponding to the Flexible tier sub pool setting of Tier pool ({1}).
	16.0	FTV Quota Share setting ({0}) is not corresponding to the sub pool setting of tier pool ({1}).
	16.1 or later	FTV Quota Share setting ({0}) is not corresponding to sub-pool setting of Tier pool ({1}).
esast3016	15.3 or earlier	FTV number(s) ({0}) does not exist.
	16.0 or later	FTV Number(s) ({0}) does not exist.
esast3017	16.0 or earlier	FTV Quota Share setting is not allowed in tier pool ({0}).
	16.1 or later	FTV Quota Share setting is not allowed in Tier pool ({0}).
esast3018	16.0 or earlier	The groups of tier pool ({0}) is not set at the {1} level.
	16.1 or later	The groups of Tier pool ({0}) are not set at the {1} level.
esast3020	16.0 or earlier	Tier pool ({0}) does not agree with tier pool ({1}) in the storage, in information.
	16.1 or later	ETERNUS SF information for Tier pool ({0}) is different from storage device information for Tier pool ({1}).
esast3100	16.0 or earlier	Import tier pool terminated normally.
	16.1 or later	Import Tier pool terminated normally.
esast3101	16.0 or earlier	Warning occurred in Import tier pool.({0}={1},{0}={1},...)
	16.1 or later	Warning occurred in Import Tier pool.({0}={1},{0}={1},...)
esast3102	16.0 or earlier	Error occurred with Import tier pool. ({0}={1},{0}={1},...)
	16.1 or later	Error occurred with Import Tier pool. ({0}={1},{0}={1},...)
esast4900	15.3 or earlier	The Automated storage tiering of specified Tier pool name ({0}) has already been started.
	16.0	The Automated storage tiering of specified Tier Pool Name ({0}) has already been started.
	16.1 or later	Automated Storage Tiering of specified Tier Pool Name ({0}) has already been started.
esast4901	15.3 or earlier	The pool name ({0}) which did not start was appointed. Please begin the Automated storage tiering.
	16.0	The Tier Pool Name ({0}) which did not start was appointed. Please begin the Automated storage tiering.
	16.1 or later	Tier pool whose Operating Status is not Start was specified. Start Automated Storage Tiering for the Tier pool ({0}).
esast4902	15.3 or earlier	The Automated storage tiering information related to Tier pool name ({0}) does not exist.

Message ID	Version	Details
	16.0	The Automated storage tiering information related to Tier Pool Name ({0}) does not exist.
	16.1 or later	Automated Storage Tiering information related to Tier Pool Name ({0}) does not exist.
esast4903	15.3 or earlier	Illegal start mode ({1}) was specified. Please confirm Tier pool definition ({0}).
	16.0 or later	Invalid Execution Mode ({1}) was specified.
esast4904	15.3 or earlier	Illegal start time ({1}) was specified. Please confirm Tier pool definition ({0}).
	16.0 or later	Invalid start time ({0}) was specified.
esast4905	15.3 or earlier	It failed in the acquisition of the definition that related to specified Tier pool name ({0}). Result({1})
	16.0 or later	Obtaining definition related to specified Tier Pool Name ({0}) failed. Result ({1})
esast4906	15.3 or earlier	The specified number of volume is not exists in a list of reallocation. The volume reallocation is discontinued. Tier pool name={0} volume number={1} evaluation date={2}
	16.0 or later	Specified FTV Number does not exist in relocated volume list. Discontinue volume relocation. Tier Pool Name={0} FTV Number={1} Evaluation Date={2}
esast4907	15.3 or earlier	The specified number of volume is not exists in a list of reallocation. The volume clear is discontinued. Tier pool name={0} volume number={1} evaluation date={2}
	16.0	Specified FTV Number does not exist in relocated volume list. Discontinue volume clear. Tier Pool Name={0} FTV Number={1} Evaluation Date={2}
	16.1 or later	Specified FTV Number does not exist in relocated volume list. Discontinue volume deletion. Tier Pool Name={0} FTV Number={1} Evaluation Date={2}
esast4999	16.0 or earlier	Automated storage tiering method failed. ({0}) CAUSE({1})
	16.1 or later	Automated Storage Tiering failed. ({0}) CAUSE({1})
esast5000	16.0 or earlier	Failed to collect the performance data of the device ({0}).
	16.1 or later	Failed to collect performance data of device ({0}).
esast5001	15.3 or earlier	Failed to extract the performance data of Tier Pool ({0}).
	16.0	Extracting performance data for tier pool ({0}) failed.
	16.1 or later	Extracting performance data for Tier pool ({0}) failed.
esast5002	15.3 or earlier	Failed to aggregate the performance data of Tier Pool ({0}).
	16.0	Aggregating performance data for tier pool ({0}) failed.
	16.1 or later	Aggregating performance data for Tier pool ({0}) failed.
esast5003	16.0 or earlier	Unable to find the performance data of Tier Pool ({0}).
	16.1 or later	Unable to find performance data of Tier pool ({0}).
esast5004	16.0 or earlier	Failed to delete all the performance data of Tier Pool ({0}).
	16.1 or later	Failed to delete all the performance data of Tier pool ({0}).
esast5050	16.0 or earlier	Failed to evaluate the performance data of Tier Pool ({0}).
	16.1 or later	Failed to evaluate performance data of Tier pool ({0}).
esast5051	15.3 or earlier	Failed to delete all the performance data of Tier Pool ({0}).
	16.0	Deleting all-tier performances information of tier pool ({0}) failed.
	16.1 or later	Deleting all-tier performance information of Tier pool ({0}) failed.
esast5052	16.0 or earlier	Failed to get the summary of evaluation of Tier Pool ({0}).

Message ID	Version	Details
	16.1 or later	Failed to get evaluation summary of Tier pool ({0}).
esast5053	16.0 or earlier	Failed to get the details of evaluation of Tier Pool ({0}).
	16.1 or later	Failed to get details of evaluation of Tier pool ({0}).
esast5054	15.3 or earlier	Failed to update the reallocate status of Tier Pool ({0}).
	16.0	Failed to update the relocation status of Tier Pool ({0}).
	16.1 or later	Failed to update relocation status of Tier pool ({0}).
esast5100	16.0 or earlier	Failed to create the history of tiers of Tier Pool ({0}).
	16.1 or later	Failed to create tier history of Tier pool ({0}).
esast5101	16.0 or earlier	Failed to delete the history of tiers of Tier Pool ({0}).
	16.1 or later	Failed to delete tier history of Tier pool ({0}).
esast5102	15.3 or earlier	Failed to get all the history of tiers of Tier Pool ({0}).
	16.0	Obtaining all-tier information histories of tier pool ({0}) failed.
	16.1 or later	Obtaining all-tier information history of Tier pool ({0}) failed.
esast5950	16.0 or earlier	Failed to initialize the performance management process.
	16.1 or later	Failed to initialize performance management process.
esast5951	15.3 or earlier	Inconsistency definition has occurred at Tier Pool ({0}).
	16.0	Definition inconsistency occurred at tier pool ({0}).
	16.1 or later	Definition inconsistency occurred at Tier pool ({0}).
escs02504	15.3 or earlier	Re-registration of tier policy failed because some tier policies already exist.
	16.0 or later	Re-registration of tiering policy failed because some tier policies already exist.
escs02505	15.3 or earlier	Tier policy does not exist in the definition file.
	16.0 or later	There was no policy in tiering policy definition.

2.3.38 Item Name of Tiering Policy

Name of items in Tiering policy of Automated Storage Tiering has been changed.

Name in Version 16.0	Name in Version 16.1 or Later
Configuration of Days to exclude from Evaluation	Configure Evaluation Excluded Day
Data Range of Tier Level	Data Range of Layer

2.3.39 Action Name of Tier Pool

Name of actions related to Tier pool of Automated Storage Tiering has been changed.

Name in Version 16.0	Name in Version 16.1 or Later
Create(One Tier)	Create(One Layer)
Modify Tier	Modify Layer

2.3.40 Item Name of Tier Pool

Name of items related to Tier pool of Automated Storage Tiering has been changed.

Name in Version 16.0	Name in Version 16.1 or Later
Number of Tiers	Number of Layers

Name in Version 15.3	Name in Version 16.0	Name in Version 16.1 or Later
CM	CM	Assigned CM
	Specify a CM	Specify Assigned CM
Assigned CM	Master CM	Assigned CM
	Specify a Master CM	Specify Assigned CM

Name in Version 15.3 or Earlier	Name in Version 16.0	Name in Version 16.1 or Later
Used Capacity	Usage Capacity	Used Capacity

2.3.41 Item Name of FTV

Name of an item in FTV of Automated Storage Tiering has been changed.

Name in Version 15.3 or Earlier	Name in Version 16.0	Name in Version 16.1 or Later
Used Capacity	Usage Capacity	Used Capacity

2.3.42 Display Contents in TFO Group List Screen for Storage Cluster Function

In the TFO group list screen of the Storage Cluster function, the item display and the order of the display have been changed.

Version	Details
16.1	The TFO group number is displayed in the TFO group list screen. The TFO group information is displayed in ascending order of the TFO group number.
16.2 or later	The TFO group number is not displayed in the TFO group list screen. The TFO group information is displayed in ascending order of the TFO group name.

2.3.43 Output Messages of Storage Cluster Function

Detailed messages regarding the operation history of the Storage Cluster function have been changed.

Operation	Version	Details
Manual Failover	16.1	Primary Storage=%s, Primary TFO Group Number=%s
	16.2 or later	Storage=%s, TFO Group Number=%s
Manual Failback	16.1	Secondary Storage=%s, Secondary TFO Group Number=%s
	16.2 or later	Storage=%s, TFO Group Number=%s
Force-Failover	16.1	Primary Storage=%s, Primary TFO Group Number=%s
	16.2 or later	Storage=%s, TFO Group Number=%s

2.3.44 Monitor Volume Range for Performance Management

The specification when "All" is selected for the range of the monitoring volume at the start of performance management has been changed.

Version	Details
15.0 to 16.1	Even if a volume has been created or deleted, that volume is not included as a target for performance management.
16.2 or later	By detecting the creation or deletion of a volume, that volume is included as a target for performance management.

2.3.45 Selectable RAID Type and Reliability When Using High-Capacity Disks

The selectable RAID type and reliability type when using a high-capacity disk (for example, 6 TB disk) in the Web Console have been changed.

Version	Details
16.1 or earlier	When creating a RAID group, all the RAID levels can be selected. When creating/expanding a Thin Provisioning Pool and a Tier pool, all reliability types can be selected.
16.2 or later	The RAID levels that can be selected when creating a RAID group are as follows: <ul style="list-style-type: none"> - RAID0 - RAID1 - RAID6 - RAID6-FR The reliability types can be selected when creating/expanding a Thin Provisioning Pool and a Tier pool are as follows: <ul style="list-style-type: none"> - Striping (RAID0) - Mirroring (RAID1) - High Reliability (RAID6) - High Reliability (RAID6-FR)

2.3.46 Recognition Methods for VM Guests

Recognition methods for VM guests have been changed.

Version	Details
13.4 to 16.1	<ul style="list-style-type: none"> - In case the VM guest is configured with VMFS When a new VM guest is created, and when a VM guest is moved between VM hosts using Storage vMotion or vSphere HA, a Reload Conf. operation is required on the destination VM host. - In case the VM guest is configured with a VMware Virtual Volume Not supported.
16.2 or later	<ul style="list-style-type: none"> - In case the VM guest is configured with VMFS When a new VM guest is created, and when a VM guest is moved between VM hosts using Storage vMotion or vSphere HA, a Reload Conf. operation is required on the destination VM host. - In case the VM guest is configured with a VMware Virtual Volume When a new VM guest is created, and when a VM guest is moved between VM hosts using Storage vMotion or vSphere HA, that VM guest is automatically recognized when powered on. At the same time, non-VMware Virtual Volumes VM guests that exist on the VM host are also automatically recognized.

2.3.47 Item Name of Automated QoS Function

Name of items related to Automated QoS function has been changed.

Name in Version 16.1	Name in Version 16.2 or Later
Automated QoS:Tier Control	Tune by Quota Share

2.3.48 Output Messages of Automated QoS Function

The output messages of the Automated QoS function have been changed.

Version	Details
16.1	The esqos0103 and esqos0270 messages are output.
16.2 or later	In place of the esqos0103 message, the esqos0104 message is output. In place of the esqos0270 message, the esqos0274 message is output.

2.3.49 Output Messages

The output messages of Storage Cruiser have been changed.

Message ID	Version	Details
ssmgr3411	16.1 or earlier	The volume of the unsupport is registered in specified RAID group ({0}).
	16.2 or later	An unsupported volume is registered on the specified RAID group ({0}).
ssmgr3417	16.1 or earlier	The type of specified volume ({0}) is a unsupport.
	16.2 or later	The type of the specified volume ({0}) is not supported.
ssmgr3421	16.1 or earlier	Connection AffinityGroup({0}) is a unsupport.
	16.2 or later	Connection AffinityGroup ({0}) is not supported.
ssmgr3450	16.1 or earlier	The specified device ({0}) is an unsupport Thin Provisioning.
	16.2 or later	The specified device ({0}) does not support Thin Provisioning.
ssmgr3458	16.1 or earlier	The specified port({0}) is a unsupport.
	16.2 or later	The specified port ({0}) is not supported.
ssmgr3552	16.1 or earlier	The specified REC buffer is an unsupport.
	16.2 or later	The specified REC buffer is not supported.
ssmgr3559	16.1 or earlier	CHAP setting is an unsupport.
	16.2 or later	CHAP setting is not supported.
ssmgr3561	16.1 or earlier	The specified device ({0}) is an unsupport Flexible Tier function.
	16.2 or later	The specified device ({0}) does not support Flexible Tier function.
ssmgr3616	16.1 to 16.2	The specified quota setting does not exist. Quota Setting=(NAS Volume No.= <i>volumeNumber</i> , Type= <i>type</i> , Name= <i>name</i>), ...
	16.3 or later	The specified quota setting does not exist.

2.3.50 Action Name for Enabling/Disabling Extreme Cache Function

In the Web Console, the action name, the radio button on the configuration screen, and ETERNUS SF system behavior for enabling/disabling the Extreme Cache function have been changed.

Incompatibility Item	Version	
	16.0 - 16.2	16.3 or Later
Action name	Configure	Configure/Update capacity
Radio button name on the configuration screen	Enable	Enable/Update capacity
ETERNUS SF system behavior	When the above radio button is checked, the ETERNUS SF system enables the Extreme Cache function.	When the above radio button is checked, the ETERNUS SF system enables the Extreme Cache function. In addition, the ETERNUS SF system updates the Extreme Cache capacity that was added to the ETERNUS Disk storage system.

2.3.51 Capacity Displayed for Automated Storage Tiering

To display capacities related to Automated Storage Tiering with the Web Console, the capacity display units of 1,024 TB or more have been changed.

Version	Details
16.3 or earlier	For example, 1,024 TB is displayed as "1024.00TB" with the terabyte unit value.
16.4 or later	For example, 1,024 TB is displayed as "1.00PB" with the petabyte unit value.

2.4 Incompatible Information of AdvancedCopy Manager

This section describes the changes from the previous version of AdvancedCopy Manager.

2.4.1 Registration Method for Remote ETERNUS Disk Storage System Using AdvancedCopy Manager Copy Control Module

In AdvancedCopy Manager Copy Control Module, the method for registering remote ETERNUS Disk storage system has been changed.

OS	Version	Details
Windows	14.0 or earlier	Register by specifying a nonexistent drive letter as an access path (*1)
	14.1 or later	Register by specifying the Box ID of ETERNUS Disk storage system
Solaris, Linux	14.1 or earlier	Register by specifying a nonexistent drive letter as an access path (*1)
	14.2 or later	Register by specifying the Box ID of ETERNUS Disk storage system

*1: The term "access path" is changed to "access volume" from Version 15.0.

2.4.2 Host Affinity Group List Display Command Name of AdvancedCopy Manager Copy Control Module

In AdvancedCopy Manager Copy Control Module, the name of the host affinity group list display command has been changed.

Version	Details
14.1 or earlier	acinq hag
14.2 or later	acinq hostag

2.4.3 Output Messages of AdvancedCopy Manager Copy Control Module

The messages output by AdvancedCopy Manager Copy Control Module have been changed.

Message ID	Version 14.1 or Earlier	Version 14.2 or Later
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>arrayName</i>	The specified disk array is already registered. disk array= <i>arrayName</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>copyPair</i>	The specified copy pair is already registered. copy group= <i>copyGroup</i> , pair= <i>copyPair</i>
ccm3004	An invalid pair is specified. pair= <i>copyPair</i> , detail= <i>detail</i>	An invalid copy pair was specified. pair= <i>copyPair</i> , detail= <i>detail</i>
ccm4001	The disk array does not exist. disk array= <i>arrayName</i>	The specified disk array does not exist. disk array= <i>arrayName</i>
ccm4002	The disk array does not exist. disk array= <i>boxID</i>	The specified disk array does not exist. disk array= <i>boxID</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>copyPair</i>	The specified copy pair was not found. copy group= <i>copyGroup</i> , pair= <i>copyPair</i>
ccm4006	The logical volume is not found. logical volume= <i>volumeName</i>	The specified logical volume was not found. logical volume= <i>volumeName</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>deviceName</i>	An invalid device was specified. device= <i>deviceName</i>

2.4.4 Name of Term Used with AdvancedCopy Manager Copy Control Module

The name of the logical volume used to access the ETERNUS Disk storage system via SAN has been changed.

Version	Details
14.2 or earlier	Access path
15.0 or later	Access volume

2.4.5 Supports of GUI Client

The GUI client has been replaced with the Web Console.

Version	Details
14.2 or earlier	When operating the AdvancedCopy Manager function with a GUI, the operation is performed from the AdvancedCopy Manager GUI client installed on the PC.
15.0 or later	When operating the AdvancedCopy Manager function with a GUI, the operation is performed from a web browser.



See

Refer to the *ETERNUS SF Web Console Guide* for information on the usable web browsers and how to use the Web Console.

2.4.6 Changes for Supported Storage Devices

The following storage devices are no longer supported.

Version	Details
15.0 or later	ETERNUS4000 models 100 ETERNUS3000 (all models) ETERNUS6000 (all models) ETERNUS GR series
16.0 or later	ETERNUS2000 (all models) ETERNUS4000 (all models) ETERNUS8000 (all models)
16.4 or later	ETERNUS DX80/DX90



See

Refer to "Supported Devices" in the *ETERNUS SF Installation and Setup Guide* for information on the devices that can be managed by this version of AdvancedCopy Manager.

2.4.7 Changes for Supported Operating Systems

The following operating systems are no longer supported.

Version	Details
15.0 or later	<ul style="list-style-type: none"> - AdvancedCopy Manager's manager <ul style="list-style-type: none"> Windows Server 2003, Standard Edition (SP1) Windows Server 2003, Enterprise Edition (SP1) Windows Server 2003 R2, Standard Edition (non-SP) Windows Server 2003 R2, Enterprise Edition (non-SP) - AdvancedCopy Manager's agent <ul style="list-style-type: none"> Windows Server 2008 for Itanium-Based Systems (non-SP and SP2) Windows Server 2003, Standard Edition (SP1) Windows Server 2003, Standard x64 Edition (SP1) Windows Server 2003, Enterprise Edition (non-SP) Windows Server 2003, Enterprise x64 Edition (non-SP) Windows Server 2003, Enterprise Edition for Itanium-based Systems (non-SP and SP2) Windows Server 2003 R2, Standard Edition (non-SP)

Version	Details
	<p>Windows Server 2003 R2, Standard x64 Edition (non-SP) Windows Server 2003 R2, Enterprise Edition (non-SP) Windows Server 2003 R2, Enterprise x64 Edition (non-SP) Solaris 8 Operating System Red Hat Enterprise Linux 5 (for Intel Itanium) Red Hat Enterprise Linux AS (v.4 for Itanium)</p> <p>- AdvancedCopy Manager Copy Control Module</p> <p>Windows Server 2008 for Itanium-Based Systems (non-SP and SP2) Windows Server 2003, Standard Edition (SP1) Windows Server 2003, Standard x64 Edition (SP1) Windows Server 2003, Enterprise Edition (non-SP) Windows Server 2003, Enterprise x64 Edition (non-SP) Windows Server 2003, Enterprise Edition for Itanium-based Systems (non-SP and SP2) Windows Server 2003 R2, Standard Edition (non-SP) Windows Server 2003 R2, Enterprise Edition (non-SP) Windows Server 2003 R2, Standard x64 Edition (non-SP) Windows Server 2003 R2, Enterprise x64 Edition (non-SP)</p>
16.0 or later	<p>- AdvancedCopy Manager's manager</p> <p>Windows Server 2003, Standard Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2008 Standard without Hyper-V (32-bit) Windows Server 2008 Enterprise without Hyper-V (32-bit) Windows Server 2008 Datacenter without Hyper-V (32-bit) Windows Server 2008 Standard SP2 without Hyper-V (32-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (32-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (32-bit) Windows Server 2008 Standard (32-bit) Windows Server 2008 Enterprise (32-bit) Windows Server 2008 Datacenter (32-bit) Windows Server 2008 Standard SP2 (32-bit) Windows Server 2008 Enterprise SP2 (32-bit) Windows Server 2008 Datacenter SP2 (32-bit) Solaris 9 Operating System Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 6 (for x86)</p> <p>- AdvancedCopy Manager's agent</p> <p>HP-UX 11.0 AIX 5L 5.1 AIX 5L 5.2 AIX 5L 5.3</p> <p>- AdvancedCopy Manager Copy Control Module</p> <p>Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Standard x64 Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2003 R2, Enterprise x64 Edition SP2 Windows Server 2003, Standard Edition SP2 Windows Server 2003, Standard x64 Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003, Enterprise x64 Edition SP2 Windows Server 2008 Standard without Hyper-V (32-bit)</p>

Version	Details
	Windows Server 2008 Enterprise without Hyper-V (32-bit) Windows Server 2008 Datacenter without Hyper-V (32-bit) Windows Server 2008 Standard SP2 without Hyper-V (32-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (32-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (32-bit) Windows Server 2008 Standard (32-bit) Windows Server 2008 Enterprise (32-bit) Windows Server 2008 Datacenter (32-bit) Windows Server 2008 Standard SP2 (32-bit) Windows Server 2008 Enterprise SP2 (32-bit) Windows Server 2008 Datacenter SP2 (32-bit) Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 6 (for x86)
16.2 or later	- AdvancedCopy Manager's agent Red Hat Enterprise Linux AS (v.4 for x86) Red Hat Enterprise Linux AS (v.4 for EM64T) Red Hat Enterprise Linux ES (v.4 for x86) Red Hat Enterprise Linux ES (v.4 for EM64T)
16.3 or later	- AdvancedCopy Manager's agent Windows Server 2003, Standard Edition SP2 Windows Server 2003, Standard x64 Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003, Enterprise x64 Edition SP2 Windows Server 2003 R2, Standard Edition SP2 Windows Server 2003 R2, Standard x64 Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2003 R2, Enterprise x64 Edition SP2
16.4 or later	- AdvancedCopy Manager's agent HP-UX 11i v1 HP-UX 11i v2(PA-RISC) HP-UX 11i v2(Itanium)

If AdvancedCopy Manager is installed in the above operating systems, the upgrade to this version cannot be performed. If you wish to use AdvancedCopy Manager of this version, it is necessary to install it newly in the operating systems supported by AdvancedCopy Manager.



See

Refer to the following sections in the *ETERNUS SF Installation and Setup Guide* for the operating systems supported by this version of AdvancedCopy Manager:

- "Operating Environment of ETERNUS SF Manager"
- "Operating Environment of AdvancedCopy Manager's Agent"
- "Operating Environment of AdvancedCopy Manager CCM"

2.4.8 Changes for Supported Web Browsers

The following web browsers are no longer supported.

Version	Details
16.0 or later	Firefox 3.6 Firefox ESR 10
16.4 or later	Internet Explorer 8



See

Refer to "Supported Web Browsers" in the *ETERNUS SF Web Console Guide* for the version of the supported web browsers.

2.4.9 Changes for Supported Agent Version

Connection to the following AdvancedCopy Manager's agents is no longer supported.

Version	Details
15.0 or later	Softek AdvancedCopy Manager's agent (all versions)
16.0 or later	ETERNUS SF AdvancedCopy Manager's agent Version 13.x



See

Refer to "Combining ETERNUS SF Agent and ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for supported manager and agent combinations.

2.4.10 Changes for Supported Software

The following software is no longer supported.

Version	Details
16.0 or later	SQL Server 2000
16.1 or later	Exchange Server 2003
16.4 or later	SQL Server 2005 SQL Server 2005 SP1, SP2, SP3, SP4



See

Refer to "Operating Environment of AdvancedCopy Manager" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on the software supported by AdvancedCopy Manager.

2.4.11 Default Installation Path of Programs (for Windows)

The default install path for programs that include manager functions has been changed.

Version	Details
14.2 or earlier	C:\Win32app\AdvancedCopyManager
15.0 or later	C:\ETERNUS_SF\ACM

Example

When having installed a program to the default installation location, the full path of the stgcmmodnode command is as follows:

- For Version 14.2 or earlier

```
C:\Win32app\AdvancedCopyManager\bin\stgcmmodnode
```

- For Version 15.0 or later

```
C:\ETERNUS_SF\ACM\bin\stgcmmodnode
```

2.4.12 Installation Destination Directory of Program (for Solaris, Linux)

The installation destination directory specification for the ETERNUS SF Manager and AdvancedCopy Manager Copy Control Module has been changed.

Installation Destination Directory	Version 14.2 or Earlier	Version 15.0 or Later
Program install directory (Installation destination directory of packages)	Specification is required. The default is /opt.	Cannot be specified. The /opt is a fixed directory.
Fixed configuration directory (Installation destination directory of environment setting files)	Specification is required. The default is /etc/opt.	Cannot be specified. The /etc/opt is a fixed directory.
Modifying configuration directory (Installation destination directory of files to be modified; log file, temporary file, etc.)	Specification is required. The default is /var/opt.	Cannot be specified. The /var/opt is a fixed directory.

2.4.13 Command Preview

Command preview is no longer supported.

Version	Details
14.2 or earlier	The command preview allows checking the available task operations (command options) prior to execution.
15.0 or later	There is no command preview.

See

Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on the commands.

2.4.14 Stgmgrinfobkup Command Processing at -t Option Specification

The following changes have been made when the AuthData is specified to the -t option argument of the stgmgrinfobkup command.

Version	Details
14.2 or earlier	The command backs up the authentication management file.
15.0 or later	The command terminates abnormally because of the syntax error.

Information

After the change, when using the policy file settings and executing the stgmgrinfobkup command, even if the key name [AuthData] is at "Yes", the authentication management file is not backed up.

2.4.15 Output Information of Stgenvdisp Command

The information displayed on the Management Server has changed.

Version	Details
14.2 or earlier	Displays "Authentication feature" and "IP address for GUI".
15.0 or later	Does not display "Authentication feature" and "IP address for GUI".

2.4.16 Swstbackup Command Processing (for Windows)

For Windows, the swstbackup command processing under the following conditions has been changed:

- The -Xflush option is not specified.
- The BufferFlushOnly parameter is not described in the transaction volume locking specification file for backups, or when the transaction volume locking specification file for backups does not exist.

Version	Details
14.2 or earlier	Locks the transaction volume.
15.0 or later	Flushes the file system buffer for the transaction volume.

Information

For Windows, the relation between the -Xflush option of the swstbackup command and the transaction volume locking specification file for backups is as follows.

Version	-Xflush Option	If BufferFlushOnly Value Is On	If BufferFlushOnly Value Is Off	If BufferFlushOnly Parameter Is Not Described	If Transaction Volume Locking Specification File for Backups Does Not Exist
14.2 or earlier	Not specify	Flush	Lock	Lock	Lock
	Specify	Flush	Flush	Flush	Flush
15.0 or later	Not specify	Flush	Lock	Flush	Flush
	Specify	Flush	Flush	Flush	Flush

Lock: Locks the transaction volume.

Flush: Flushes the file system buffer for the transaction volume.

2.4.17 Swsrpmake Command and Swsrpcancel Command Processing (for Windows)

For Windows, the swsrpmake command processing and swsrpcancel command processing under the following conditions have been changed:

- The -Xflush option is not specified.
- The BufferFlushOnly parameter is not described in the copy source volume locking specification file, or when the copy source volume locking specification file does not exist.

Version	Details
14.2 or earlier	Locks the copy source volume.
15.0 or later	Flushes the file system buffer for the copy source volume.

Information

For Windows, the relation between the -Xflush option of the swsrpmake/swsrpcancel commands and the copy source volume locking specification file is as follows.

Version	-Xflush Option	If BufferFlushOnly Value Is On	If BufferFlushOnly Value Is Off	If BufferFlushOnly Parameter Is Not Described	If Copy Source Volume Locking Specification File Does Not Exist
14.2 or earlier	Not specify	Flush	Lock	Lock	Lock
	Specify	Flush	Flush	Flush	Flush
15.0 or later	Not specify	Flush	Lock	Flush	Flush
	Specify	Flush	Flush	Flush	Flush

Lock: Locks the copy source volume.

Flush: Flushes the file system buffer for the copy source volume.

Note

When using the server-to-server replication and AdvancedCopy Manager installed in the Management Server (where the replication source volume exists) is Version 14.2 or earlier, the processing reverts to those of Version 14.2 or earlier.

2.4.18 Environment Setup/Deletion Methods for PRIMECLUSTER (for Linux)

The methods for environment setup/deletion to PRIMECLUSTER for Linux have been changed.

Version	Details
14.2 or earlier	Environment setup and deletion are performed with the following commands. <ul style="list-style-type: none"> - stgclset_lxprm command - stgclunset_lxprm command
15.0 or later	The above two commands are not supported. Instead, environment setup and deletion are performed by the Linux/HP-UX version cluster setup and un-setup procedures.

2.4.19 Troubleshooting Information Collection Command Name and Path Name

The name and path name of the troubleshooting information collection command for the AdvancedCopy Manager's manager have been changed.

Version	Details
14.2 or earlier	<ul style="list-style-type: none"> - For Windows <i>installDir\bin\acmcapture (*1)</i> - For Solaris or Linux <i>/opt/FJJSwstf/bin/acmcapture</i>
15.0 or later	<ul style="list-style-type: none"> - For Windows <i>installDir\Common\bin\esfsnap (*2)</i> - For Solaris or Linux

Version	Details
	/opt/FJSVesfcm/bin/esfsnap

*1: The *installDir* is "Program Directory" specified at the AdvancedCopy Manager's manager installation.

*2: The *installDir* is "Program Directory" specified at the ETERNUS SF Manager installation.

The name and path name of the troubleshooting information collection command for the AdvancedCopy Manager Copy Control Module have been changed.

Version	Details
14.2 or earlier	<ul style="list-style-type: none"> - For Windows <i>installDir</i>\bin\acmcapture (*1) - For Solaris or Linux <i>/opt/FJSVccm/bin/acmcapture</i>
15.0 or later	<ul style="list-style-type: none"> - For Windows <i>installDir</i>\Common\bin\esfsnap (*2) - For Solaris or Linux <i>/opt/FJSVesfcm/bin/esfsnap</i>

*1: The *installDir* is "Program Directory" specified at the AdvancedCopy Manager Copy Control Module installation.

*2: The *installDir* is "Program Directory" specified at the ETERNUS SF Manager installation.

2.4.20 Swsrpmake Command Processing on Combining Cascade Copy and Concurrent OPC

The swsrpmake command processing under the following conditions has been changed:

- A volume used by cascade copy has been specified as a copy source.
- The -Xconcur-opc option has been specified.

Version	Details
15.0	The sequence of data updates is not preserved across multiple volumes.
15.1 or later	The sequence of data updates is preserved across multiple volumes.



See

Refer to "Notes on Combining Cascade Copy and Concurrent OPC in Operation" in "Notes on Snapshot High-speed Backup" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for details.

2.4.21 Acopc Start Command and Acsnap Start Command Processing

The acopc start command processing and acsnap start command processing under the following conditions have been changed:

- A volume used by cascade copy has been specified as a copy source.
- The -concur option has been specified.

Version	Details
15.0	The sequence of data updates is not preserved across multiple volumes.

Version	Details
15.1 or later	The sequence of data updates is preserved across multiple volumes.



Refer to "Notes on Combining Cascade Copy and Concurrent OPC in Operation" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

2.4.22 Environment Setup/Deletion Methods for Clustered Systems (for Solaris, HP-UX)

The methods for setting and deleting environments for the following clustered systems have been changed:

- For Solaris
 - SafeCLUSTER and PRIMECLUSTER
 - VERITAS Cluster Server
 - Sun Cluster
- For HP-UX
 - MC/ServiceGuard (A.11.17 or earlier)
 - VERITAS Cluster Server

Version	Details
15.0 or earlier	The following commands serve to set and delete environments for clustered systems: <ul style="list-style-type: none"> - stgclset_safe, stgclset_vcs, stgclset_sun, stgclset_mcs, stgclset_hpvc - stgclunset_safe, stgclunset_vcs, stgclunset_sun, stgclunset_mcs, stgclunset_hpvc
15.1 or later	Above commands are not supported. Refer to "Customization for Solaris/Linux/HP-UX Clustered System" and "Deletion of Cluster Environment for Solaris/Linux/HP-UX Clustered System" in the <i>ETERNUS SF Cluster Environment Setup Guide</i> to set and delete environments for clustered systems.

2.4.23 AdvancedCopy Manager Copy Control Module Customization Procedure

The procedure of "Customization for AdvancedCopy Manager CCM" in the *ETERNUS SF Cluster Environment Setup Guide* has been changed.

Version	Details
15.0	In the ".install.sys" file, modification of the value for "stxs_etcdir=" is required.
15.1 or later	In the ".install.sys" file, modification of the value for "stxs_etcdir=" is not required.

2.4.24 Copy Progress Rate of QuickOPC

The information on the copying progress rate of QuickOPC, which is displayed when executing below commands, has been changed:

- AdvancedCopy Manager commands
 - For all platforms
 - **Execute** column of the swstbackstat command
 - **Execute** column of the swsthstdisp command

- **Execute** column of the swstexecstat command
- **Execute** column of the swsttrkstat command
- **Execute** column of the swsrpstat command
- For Windows only
 - **Execute** column of the swsrpshadowadm_exchange command
 - **Execute** column of the swsrpvq advcopy query command
- AdvancedCopy Manager Copy Control Module command
 - **Progress** column of the acopc query command

Version	Details
15.0 or earlier	If you write data onto a copy source volume while physical copying of QuickOPC is in progress, the displayed progress rate does not reach 100% after completing physical copying.
15.1 or later	Excluding the following storage devices, if you write data onto a copy source volume while physical copying of QuickOPC is in progress, a progress rate of 100% is displayed after completing physical copying: <ul style="list-style-type: none"> - ETERNUS DX60/DX80/DX90 - ETERNUS DX400 series - ETERNUS DX8000 series - ETERNUS DX60 S2 - ETERNUS DX80 S2/DX90 S2 (Firmware version is earlier than V10L30) - ETERNUS DX400 S2 series (Firmware version is earlier than V10L30) - ETERNUS DX8000 S2 series (Firmware version is earlier than V10L30) - ETERNUS2000, ETERNUS4000, ETERNUS8000

2.4.25 Information to Be Displayed If Hardware Error, etc. Occurs

In the following commands, the information to be displayed if a hardware error, etc. occurs has been changed:

- The **Status** column of the swstbackstat command
- The **Status** column of the swstrestore command
- The **Status** column of the swsthistdisp command
- The **Status** column of the swstsyncstat command
- The **Execute** column of the swstexecstat command
- The **Status** column of the swsttrkstat command

Version	Details
15.1 or earlier	If a hardware error, etc. occurs, an error message is displayed.
15.2 or later	If a hardware error, etc. occurs, "?????" is displayed.



See

Refer to "Troubleshooting: Hardware Error During Backup" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for details.

2.4.26 Automatic Configuration of Maintenance Mode of MSCS or WSFC

In a clustered system environment using MSCS or WSFC, actions for when one disk holds one partition or when copy is performed on a per LUN basis have been changed.

Version	Details
16.0 or earlier	The maintenance mode of physical disk resources is not automatically configured.
16.1 or later	The maintenance mode of physical disk resources is automatically configured.

However, if either one of the following conditions is met, the maintenance mode is not automatically configured:

- The maintenance mode of physical disk resources has been configured in advance.
- "ClusterResourceMaint=off" is described in the volume lock operation specification file.

Refer to "Notes on Backup in Clustered System" or "Notes on Replication in Clustered System" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for details.

2.4.27 Database Backup/Restore Method

The backup/restore method of AdvancedCopy Manager database has been changed.

Version	Details
16.0 or earlier	<ul style="list-style-type: none">- Backup Use "DB Setup Tool" for Windows environment or the stgddbbackup command for Solaris/Linux environment to perform backup.- Restore Use "DB Setup Tool" for Windows environment or the stgdbrcv command for Solaris/Linux environment to perform restore.
16.1 or later	<ul style="list-style-type: none">- Backup Perform backup in the steps described in "Backup of Common Control and AdvancedCopy Manager Repository" in the <i>ETERNUS SF AdvancedCopy Manager Operation Guide</i>.- Restore Perform restore in the steps described in "Restore of Common Control and AdvancedCopy Manager Repository" in the <i>ETERNUS SF AdvancedCopy Manager Operation Guide</i>.

2.4.28 Database Save/Recovery Method

The save/recovery method of AdvancedCopy Manager database is no longer supported.

Version	Details
16.0 or earlier	<ul style="list-style-type: none">- Save Use "DB Setup Tool" for Windows environment or the stgdbdmp command for Solaris/Linux environment to perform save.- Recovery Use "DB Setup Tool" for Windows environment or the stgdbrcv command for Solaris/Linux environment to perform recovery.
16.1 or later	The AdvancedCopy Manager database save/recovery method is not provided.

2.4.29 Target of Management Information Package Backup of AdvancedCopy Manager

The target of management information package backup of AdvancedCopy Manager has been changed.

Version	Details
16.0 or earlier	The AdvancedCopy Manager repository is included.
16.1 or later	The AdvancedCopy Manager repository is not included. After executing the stgmgrinfobkup command, the steps in "Restore of Common Control and AdvancedCopy Manager Repository" in the <i>ETERNUS SF AdvancedCopy Manager Operation Guide</i> must be performed.

2.4.30 Commands/Services/Daemons Related to AdvancedCopy Manager Database

The commands, services, and daemons related to AdvancedCopy Manager database are no longer supported.

For Windows

Version	Details
16.0 or earlier	The following tool, services, and commands are provided: <ul style="list-style-type: none"> - DB Setup Tool - AdvancedCopy Manager GUI Service service - SymfoWARE RDA RDBSWSTF service - SymfoWARE RDB RDBSWSTF service - stgdbdmp (Database save command) - stgdbloginf (Repository update area busy rate check command) - stguserset (Repository access user change command)
16.1 or later	The above tool, services, and commands are not provided.

For Solaris or Linux

Version	Details
16.0 or earlier	The following commands and daemons are provided: <ul style="list-style-type: none"> - stgdbdmp (Database save command) - stgdbrcv (Database recovery command) - stgdbbackup (Database backup command) - stgdbrestore (Database restoration command) - stgdbset (Database integrated setup command) - stgdbunset (Database integrated unsetup command) - stgdbloginf (Repository update area busy rate check command) - stgdbcom (RDB daemon start/stop command) - stgrmicom (RMI daemon start/stop command) - stguserset (Repository access user change command) - RDB daemon

Version	Details
	- RMI daemon
16.1 or later	The above commands and daemons are not provided.

2.4.31 Items Displayed by Stgenvdisp Command

The items displayed by the stgenvdisp command have been changed.

For Windows

Version	Details
16.0 or earlier	The following items are displayed: <ul style="list-style-type: none"> - Repository user - DB log file - DB dictionary file - Repository database - Database size - Remote access - Exclusive control - Repository
16.1 or later	The above items are not displayed.

For Solaris

Version	Details
16.0 or earlier	The following items are displayed: <ul style="list-style-type: none"> - Repository user - DB file - RDB dictionary - RDB log file - Database space - Remote access - Exclusive control - Repository - Code
16.1 or later	The above items are not displayed.

For Linux

Version	Details
16.0 or earlier	The following items are displayed: <ul style="list-style-type: none"> - Repository user

Version	Details
	<ul style="list-style-type: none"> - DB file - RDB dictionary - RDB log file - Database space - Database size - Remote access - Exclusive control - Code
16.1 or later	The above items are not displayed.

2.4.32 Meaning of -d Option of Stgrepcnv Command

The meaning of the -d option of the stgrepcnv command has been changed.

Version	Details
16.0 or earlier	Specify a directory that stores the migration target repository data with an absolute path.
16.1 or later	Specify a directory that stores the migration target repository data of Version 16.0 or earlier with an absolute path, or specify the migration target repository data file of Version 16.1 or later with an absolute path.

2.4.33 Meaning of -b Option of Stgforcedelsrv Command

The meaning of the -b option of the stgforcedelsrv command has been changed.

Version	Details
16.0 or earlier	Specify a directory which has a backup of the database with a full path.
16.1 or later	Specify a file which has a backup of the database with a full path.

2.4.34 Name of NAS Backup Volume and Copy Group Created by Setting of NAS Backup

The name of NAS backup volume and copy group created by the "Set NAS Backup" (creation of NAS backup volume) operation has been changed.

NAS Backup Volume Name

Version	Details	
	Name	Naming Rule
16.0	<i>nasVolumeName\$bakN</i>	" <i>nasVolumeName</i> " is a name of NAS volume. "N" is set automatically by the sequential number from 0. When the length of whole characters exceeds 16 characters, the end of the " <i>nasVolumeName</i> " is deleted so that the length of whole characters may become 16 characters.
16.1 or later	<i>nasVolumeName\$bak_N</i>	" <i>nasVolumeName</i> " is a name of NAS volume. "N" is a sequential number from 0. The number of digits varies.

Copy Group Name

Version	Details	
	Name	Naming Rule
16.0	NAS_QuickOPC_N	"N" is set automatically by the sequential number from 0.
16.1	NAS_QuickOPC_nasVolumeName_N	"N" is a sequential number from 0. The number of digits varies.
16.2 or later	NAS_QuickOPC_nasVolumeName_N	"N" is a sequential number from 0. The number of digits varies. Characters other than those listed below in <i>nasVolumeName</i> are replaced with hash (#): - One-byte alphanumeric character, minus (-), underscore (_), hash (#), period (.), plus (+)

2.5 Incompatible Information of Common for All Products

This section describes the changes from the previous version of common for all products.

2.5.1 Count Method in Extended Copy Sessions and Default Filter on Session List Screen

On the Advanced Copy Overview screen of the Web Console, the counting method for the number of copy sessions in the **Session** and **Local Copy Session Count** columns has been changed.

Also, on the session list screen, the filter item for Copy Type that is selected by default when opening the screen has been changed.

Version	Details
15.0	<ul style="list-style-type: none"> - The Extended Copy sessions are included in the Sessions and Local Copy Session Count columns. - On the session list screen, "All" is selected as the filter item for Copy Type by default when opening the screen.
15.1 or later	<ul style="list-style-type: none"> - The Extended Copy sessions are not included in the Sessions and Local Copy Session Count columns. - On the session list screen, "All Local or REC" is selected as the filter item for Copy Type by default when opening the screen.

Information

How to Display the Advanced Copy Overview Screen

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system name.
3. On the Category pane, click **Advanced Copy**.

How to Display the Session List Screen

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system name.
3. On the Category pane, click **Advanced Copy**.
The items of the Category pane change into the items concerning Advanced Copy.
4. On the Category pane, click **Copy Sessions**.

2.5.2 Setting Method and Minimum Value for Copy Table Size

On the Advanced Copy Configuration Wizard screen of Web Console, the method for specifying the custom Copy Table Size and the minimum value to be set in the custom Copy Table Size are changed.

In addition, on the Remote Copy Configuration wizard screen, the minimum value to be set in the Copy Table Size is changed.

Version	Details
15.0	The custom Copy Table Size can be specified by a pull-down list. The minimum value that can be set is 0.
15.1 or later	The custom Copy Table Size can be specified by a spin button or direct input. The minimum value that can be set is 8.

Information

How to Display the Advanced Copy Configuration Wizard Screen

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system name.
3. On the Category pane, click **Advanced Copy**.
The items of the Category pane change into the items concerning Advanced Copy.
4. On the Category pane, click **Configuration**.
5. On the Action pane, click **Advanced Copy** under **Wizard**.

How to Display the Remote Copy Configuration Wizard Screen

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system name.
3. On the Category pane, click **Advanced Copy**.
The items of the Category pane change into the items concerning Advanced Copy.
4. On the Category pane, click **REC Path** or **REC Buffer**.
5. On the Action pane, click **Remote Copy Conf.** under **Wizard**.

2.5.3 Screen Refresh Interval and Display/Input Unit of Web Console

The screen refresh interval of Web Console and its display/input unit have been changed.

Version	Details
15.1 or earlier	- The shortest screen refresh interval is 1 minute. - Display/input unit of the screen refresh interval is "minute".
15.2 or later	- The shortest screen refresh interval is 30 seconds. - Display/input unit of the screen refresh interval is "second".

2.5.4 Help Button Design and Online Help Display Procedures of Web Console

For the Web Console, the design of Help button in the menu area and online help display procedures have been changed.

Version	Details
15.1 or earlier	- The "Help" link to display the online help exists in the menu area. - To display the online help, click "?" icon or the "Help" link in the menu area.

Version	Details
15.2 to 15.3	<ul style="list-style-type: none"> - The "Help" link to display the online help does not exist in the menu area. - To display the online help, click "?" icon in the menu area, and click Help displayed in drop-down list.

2.5.5 Changes Communication Port Default Value

In Express and AdvancedCopy Manager Copy Control Module, the port number communicating with storage devices by using SSH has been changed.

Version	Details
15.3 or earlier	The port number to be used is 50002/tcp.
16.0 or later	The port number to be used is 32002/tcp.



See

Refer to "Storage Devices and Interface Settings" in "Supported Devices" in the *ETERNUS SF Installation and Setup Guide* for information on how to communicate with storage devices in this version.

2.5.6 Sanma.conf Configuration Checking for Device Registration

The **Use existing settings from file: sanma.conf** checkbox when the following devices are registered has been deleted:

- ETERNUS Disk storage systems
- Fibre Channel switches (Storage Cruiser only)

Version	Details
15.3 or earlier	The checkbox is displayed.
16.0 or later	The checkbox is not displayed.

2.5.7 Customizing Configuration File

The parameters that are able to be customized with the sanma.conf file have been changed.

Version	Details
15.3 or earlier	<p>The following parameters can be customized with the sanma.conf file:</p> <ul style="list-style-type: none"> - AUTODISCOVER_SUBNET - SNMP_COMMUNITY_NAME_FOR_IP - SNMP_COMMUNITY_NAME_FOR_AUTODISCOVER - LOG_CYCLE (Storage Cruiser only) - LOG_MAX_SIZE (Storage Cruiser only) - SNMP_TH_LOG_COUNT (Storage Cruiser only) - SNMP_TH_LOG_LIMIT (Storage Cruiser only)
16.0 or later	<p>The above-mentioned parameters cannot be customized with the sanma.conf file. Customize the Storage Cruiser log file settings with LOG_COUNT and LOG_LIMIT parameters of the ssmgr.conf file.</p>



See

Refer to "Customization" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the customizing the configuration file.

2.5.8 Operations for Host Response

In the Web Console, operations related to host response (full-listed view, detailed view, add, change, delete) are no longer supported.

Version	Details
15.3 or earlier	The following operations related to host response can be performed with the Web Console: <ul style="list-style-type: none"> - Full-listed view / Detailed view of host response - Add / Change / Delete host response - Detailed view of host response, by clicking on the displayed link in the Host Response column of the access path full-listed view screen
16.0 or later	The above operations related to host response cannot be performed with the Web Console.

2.5.9 Changes Character Strings in Performance Chart Window

The character strings displayed in the **Series** column in the Performance Chart window of ETERNUS Disk storage systems and switches have been changed.

Performance Chart Window of ETERNUS Disk storage systems

Version 15.3 or Earlier	Version 16.0 or Later
Read IOPS Read Data Transfer Throughput Read Response Time Read Cache Hit Rate	Read
Sum of Read IOPS Sum of Read Data Transfer Throughput Sum of Read Response Time Sum of Read Cache Hit Rate	Sum of Read
Write IOPS Write Data Transfer Throughput Write Response Time Write Cache Hit Rate	Write
Sum of Write IOPS Sum of Write Data Transfer Throughput Sum of Write Response Time Sum of Writed Cache Hit Rate	Sum of Write
Pre-fetch Cache Hit Rate	Pre-fetch
Sum of Pre-fetch Cache Hit Rate	Sum of Pre-fetch

Performance Chart Window of Switches

Version 15.3 or Earlier	Version 16.0 or Later
Transfer Throughput of Send Data	Send Data
Transfer Throughput of Receive Data	Receive Data
Sum of Transfer Throughput of Send Data	Sum of Send Data
Sum of Transfer Throughput of Receive Data	Sum of Receive Data

Version 15.3 or Earlier	Version 16.0 or Later
Number of CRC Errors	Number of Errors
Sum of Number of CRC Errors	Sum of Number of Errors



2.5.10 Online Manual in DVD-ROM Media

The online manual included in the DVD-ROM media has been changed.

Version	Details
15.3 or earlier	The manuals included in the DVD-ROM media are provided in both PDF and HTML format. A PDF portfolio which has combined the online manuals of Express, Storage Cruiser, and AdvancedCopy Manager is provided (only for Version 15.0 or later).
16.0 or later	The manuals included in the DVD-ROM media are only available in PDF format. However, as in the past, the manuals are available in HTML format online at the following our company's manual publication website. http://www.fujitsu.com/global/support/software/manual/ A PDF portfolio is no longer provided. For a text search crossing multiple manuals, use the features of the Adobe(R) Reader(R) listed at the following URL of Adobe Systems Incorporated. http://helpx.adobe.com/acrobat.html

2.5.11 Online Help Feature

In the Web Console, the online help is no longer provided.

Version	Details
15.3 or earlier	In the drop down list displayed by clicking  in the menu area, Help is displayed. By clicking Help , the online help is displayed.
16.0 or later	The Help entry of the drop down list displayed by clicking  in the menu area was changed to Manual . By clicking Manual , the manual index screen in HTML format is displayed.

2.5.12 Changes Configuration File Path for Port Number

The path name of the configuration file to be edited for changing the port number has been changed.

Version	Details
15.3 or earlier	<code>installDir\Common\sys\tomcat\webapps\esfv15\WEB-INF\config\database.yml</code>
16.0 or later	<code>installDir\Common\sys\tomcat\webapps\esf\WEB-INF\config\database.yml</code>

*1: The `installDir` is "Program Directory" specified at the ETERNUS SF Manager installation.

2.5.13 Name of Commands Related to Configuration Import

The name of the following commands has been changed:

- Configuration import command
- Configuration import status display command

Version	Details
15.0 to 15.3	The configuration import command name is "esfimportdevconf". The configuration import status display command name is "esfimportdisplay".
16.0 or later	The configuration import command name is "esfadm devconf import". The configuration import status display command name is "esfadm devconf importstatus".

2.5.14 Holding of Checks Placed in Table Checkboxes and Table Radio Buttons

In the Web Console, the operation of table checkboxes and table radio buttons has been changed.

Version	Details
16.0 or earlier	When operating the table (*1) that a checkbox or a radio button is checked, the check turns off. Therefore, checks of records that are not displayed on screen due to table operations are not processed.
16.1 or later	When operating the table (*1) that a checkbox or a radio button is checked, the check is held. Therefore, checks of records that are not displayed on screen due to table operations are also processed.

*1: Refers to the following operations:

- Click **Filter** or **Clear** in **Filter Setting**.
- Click the links (<<, <, >, >>) for the displayed page in **Page Setting**.
- Click **Go** in **Page Setting**.
- Change the pull-down menu in **Display xxx records** of **Displayed Record Setting**.
- Click on the column of the table (sort the table).

2.5.15 Displayed Strings for CA Type Information

In the Web Console, strings displayed in **Type** column of CA in the Controller Enclosure screen for ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3, ETERNUS DX200F with FC16G-CA have been changed.

Version	Details
16.0	"16GFC-2ports" or "16GFC-4ports" is displayed.
16.1 or later	"FC-2ports" or "FC-4ports" is displayed.

2.5.16 Category Pane Related to NAS Management Operation in Web Console

In the Web Console, the contents of Category pane related to operations under the NAS management page (*1) have been changed.

Operations	Version	
	16.0	16.1 or Later
Configure Authentication Server	NAS Interface	Environment Setting
Set NAS Backup (Creation of NAS backup volume)	Shared Folder	Backup Management
Backup of NAS Volume		
Restore to NAS Volume		
Mount Backup Destination		
Unmount Backup Destination		

*1: The page is displayed by the following procedures:

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system.
3. On the Category pane, click **NAS Management**.

2.5.17 Change of Input Condition for Shared Folder Name

In the Web Console, the input conditions for shared folders that are configured in the Create Shared Folder screen of the NAS management has been changed.

Version	Details
16.1 or earlier	<p>The input conditions are as follows:</p> <ul style="list-style-type: none"> - 1 to 250 alphanumeric characters (excluding blank spaces, and \/: * ? " < > = , ;) - Setting character strings with "\$bak" as the suffix is prohibited.
16.2 or later	<p>The input conditions are as follows:</p> <ul style="list-style-type: none"> - 1 to 76 alphanumeric characters (excluding blank spaces, and \/: * ? " < > = , ; [] % +) - The following names are prohibited regardless of case sensitivity: ".snap", "global", "homes", "printers", "ipc\$", "." (one dot character), and ".." (two dot characters) - Setting character strings with "\$bak" as the suffix is prohibited.

2.5.18 Change of Web Console Dashboard

The screen that is displayed after logging in to the Web Console has been changed to the new Dashboard. Refer to "Web Console Screen Layout" and "Dashboard Operations" in the *ETERNUS SF Web Console Guide* for details.

In addition, the title of the **Main** tab screen that was provided until Version 16.2 has been changed from "Dashboard" to "Overview". You can also use this Overview screen in Version 16.3 or later.

Information

After a new installation of Version 16.3 or an upgrade from Version 16.2 or earlier, the new Dashboard is displayed when logging in to the Web Console.

You can also configure the Overview screen to be displayed instead of the new Dashboard when logging in to the Web Console. Refer to "Home Screen Settings" in the *ETERNUS SF Web Console Guide* for details.

2.5.19 Change of Column Name on Web Console Various Log Screens

The column name of the following screens for the various logs has been changed:

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

Column Name in Version 16.2 or Earlier	Column Name in Version 16.3 or Later
Type	Level
Device	Target

2.5.20 Change of Action Name for Record Count Preference on Web Console

The message of action name for record count preference on the Web Console has been changed.

Version	Details
16.1 to 16.2	Record Count Preference
16.3 or later	Display Preference

2.5.21 Displayed Contents of NAS Management Operation on Web Console

In the Web Console, the contents of Action pane related to operations under the NAS management page (*1) have been changed.

Version	Details
16.0 to 16.2	Modify
16.3 or later	Modify Basic Setting Modify Access Setting

*1: The page is displayed by the following procedures:

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system.
3. On the Category pane, click **NAS Management**.



See

Refer to "Change Shared Folder" in the *ETERNUS SF Web Console Guide* for changeable items in each action.

In the Web Console, the name of columns related to capacity under the NAS management page have been changed.

Column Name in Version 16.0 to 16.2	Column Name in Version 16.3 or Later
Total Size	Total Capacity
Pool Total Size	Pool Total Capacity
Total Free Size	Total Free Space
Pool Total Free Size	Pool Total Free Space

In the Web Console, the contents of Main pane and Action pane related to operations under the Quota management page (*2) have been changed.

Version	Details	
	Tabs in Main Pane	Content of Action Pane
16.0 to 16.2	The following two tabs: - Quota Setting - Log	The following actions under Quota Setting : - Add - Delete - Modify
16.3 or later	The following three tabs:	The following actions under Quota Setting (User/Group) and Quota Setting (Shared Folder) :

Version	Details	
	Tabs in Main Pane	Content of Action Pane
	<ul style="list-style-type: none"> - User/Group - Shared Folder - Log 	<ul style="list-style-type: none"> - Add - Delete - Modify

*2: The page is displayed by the following procedures:

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system.
3. On the Category pane, click **NAS Management**.
The items of the Category pane change into the items concerning the NAS Management.
4. On the Category pane, click **Quota Management**.

In the Web Console, the contents of Action pane related to operations under the NAS Volume Backup management page (*3) have been changed.

Version	Details
16.0 to 16.2	Snapshot
16.3 or later	Automatic Snapshot

*3: The page is displayed by the following procedures:

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system.
3. On the Category pane, click **NAS Management**.
The items of the Category pane change into the items concerning the NAS Management.
4. On the Category pane, click **Backup Management**.

The displayed name on the following wizard screens for the snapshot of NAS management have been changed:

- Create Shared Folder
- Set Snapshot
- Start Snapshot
- Stop Snapshot

Version	Details
16.0 to 16.2	Snapshot
16.3 or later	Automatic Snapshot

2.5.22 Displayed Contents Related to AntiVirus Function of Web Console

Because the support of the antivirus function was stopped, the display content related to the antivirus function of the Web Console was changed as follows.

NAS Management Screen (*1)

Version	Details
16.2 to 16.3	Anti-Virus is displayed in the Category pane.
16.4 or later	Anti-Virus is not displayed in the Category pane.

*1: The screen is displayed by the following procedures:

1. On the global navigation tab, click **Storage**.
2. On the Main pane, click the target ETERNUS Disk storage system.
3. On the Category pane, click **NAS Management**.

Configuration Dialog Box for Logs Panel in Dashboard (*2)

Version	Details
16.3	The NAS antivirus log item is displayed in the default filter settings.
16.4 or later	The NAS antivirus log item is not displayed in the default filter settings.

*2: A dialog box that is displayed by clicking **Modify** in the common menu of the Logs panel.

Chapter 3 Program Fix List

In this version, the following issues/problems that occurred in the previous version have been fixed or improved.

No.	Version Problem Reported	Problem Report Number	Issue/Problem	Product Name		
				EXP	SC	ACM
1	13.0	PH09824	The collection of the performance information of the managed ETERNUS Disk storage systems may be stopped. (For Express, this problem occurs in Version 14.1 or later.)	Yes	Yes	-
2	14.2	PH10778	If 1,025 or more iSCSI hosts are registered in the ETERNUS Disk storage system, a device registration and a configuration reload may fail.	-	Yes	-
3		PH10787	For the Web Console, if you specify two or more for Number of Volumes to create volumes, the volume creation may fail.	Yes	Yes	-
4	15.0B	PH10001	The commands of the backup management function or the replication management function may output unrelated information.	-	-	Yes
5	15.2	PH08509	In a replication operation, despite the settings in the copy source volume locking specification file, the copy source volume may not be locked.	-	-	Yes
6	16.0	PH10940	If the Status Update operation for Automated Storage Tiering is performed, a message of different action may be displayed in the Detail column on the Operation History screen.	-	Yes	-
7	16.1	PH08619	Upgrading the Management Server may fail.	Yes	Yes	Yes
8		PH10002	Based on whether a pipeline is specified for the stgxfwcmsetdev command, the behavior of the command may differ.	-	-	Yes
9		PH10470	If a NAS backup setting of the existing NAS backup volume specification is performed in the Web console, executing a restore and a NAS backup mount may not be available.	Yes	Yes	Yes
10	16.2	PH08372	In an environment using VMware vSphere Virtual Volumes, virtual machines may not start after being restored from a Clone backup.	-	-	Yes
11		PH09274	In an environment using VMware vSphere Virtual Volumes, a virtual machine backup or a Single item restore may terminate abnormally with the vmlink00052 message.	-	-	Yes
12		PH09419	The following unnecessary warning message is output once a day to the event log of the Web Console and the system log of the operating system. esflm10000 The number of CMs mounted on the storage device exceeds the number of CMs supported by the license.	-	Yes	Yes
13		PH09825	The collection of the performance information of the managed devices (ETERNUS Disk storage systems, switches) may be stopped.	Yes	Yes	-
14		PH10006	In an environment using VMware vSphere Virtual Volumes, performing a virtual machine backup may output the escs11002 message by mistake.	-	-	Yes

No.	Version Problem Reported	Problem Report Number	Issue/Problem	Product Name		
				EXP	SC	ACM
15		PH10504	If the VMware vSphere Virtual Volumes function is used, the VVOL Type may be displayed as "Unknown" on the Web Console.	-	Yes	-
16		PH10557	If the VMware vSphere Virtual Volumes function and vMotion are used, the server status of the VM host may be displayed as "Warning" on the Web Console.	-	Yes	-
17		PH10796	If Automated Storage Tiering fails to evaluate the access status data, the status of the storage device is displayed as "Error".	-	Yes	-
18		PH10970	In a Storage Cluster environment, the Storage Cluster Continuous Copy function may not be available after Automatic Failover.	-	-	Yes
19	16.3	PH08329	The ETERNUS DX S3 series whose firmware version is V10L50/V10L51/V10L52 can be used.	Yes	Yes	Yes
20		PH08432	Brocade7840 Extension Switch can be managed as a support level "A" device.	-	Yes	-
21		PH08676	Even if the ETERNUS SF SNMP Trap monitoring daemon is booted, it may not be started.	Yes	Yes	-
22		PH08964	In Dashboard of the Web Console, data other than for the latest generation is not displayed in the FTRP/FTV capacity graphs.	-	Yes	-
23		PH09059	Web Console can be used in Safari 8 (iOS version), Safari 9 (iOS version), and Chrome 47 (Android version).	Yes	Yes	Yes
24		PH09090	For the ETERNUS DX S3 series, encryption mode "AES-256" can be set and displayed from this product.	Yes	Yes	-
25		PH09097	PRIMERGY BX Fibre Channel Switch 16Gbit/s 18/8(Brocade6545) can be managed as a support level "A" device.	-	Yes	-
26		PH09390	Performing a replication for the GDS volume may cause the copy destination data to become inconsistent.	-	-	Yes
27		PH09412	If the Web Console is used with a tablet, after the screen rotates, the cursor may be displayed outside of the input area.	Yes	Yes	Yes
28		PH09435	The screens related to VVOL and the Create Access Path screen of the Web Console are improved.	Yes	Yes	Yes
29		PH09437	In an environment using Automated Storage Tiering, even if the Tier pools in the ETERNUS DX S3 series (excluding DX60 S3) do not have about 10 % free space, it is improved so that the access status data can be evaluated/relocated.	-	Yes	-
30		PH09556	The ETERNUS DX200F whose firmware version is from V10L30 to V10L50 can be used.	Yes	Yes	Yes
31		PH09779	The ETERNUS DX100 S3/DX200 S3, DX500 S3/DX600 S3 whose firmware version is V10L53 can be used.	Yes	Yes	Yes
32		PH09889	This product can work together with FUJITSU Storage ETERNUS SF MA 8.5.	-	Yes	-
33		PH09939	The swsrpmake / swsrpstartsync / swsrpcancel command may output the swsrp0645 message or the swsrp0740 message and terminate abnormally.	-	-	Yes
34		PH10722	The stgmgrinfobkup command may output the swstf3022 message and terminate abnormally.	-	-	Yes

No.	Version Problem Reported	Problem Report Number	Issue/Problem	Product Name		
				EXP	SC	ACM
35		PH10926	If you perform the screen transition from Dashboard to Detail View when a panel on which information is being updated exists in Dashboard, the setting information of the panel area in the state to delete the panel may be saved.	Yes	Yes	Yes

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