ETERNUS SF

FUJITSU

ETERNUS SF Storage Cruiser V15.3

Quick Reference

Preface

Purpose

This manual describes the pre-installation requirements, installation procedure, configuration procedure, as well as the first use of ETERNUS SF Storage Cruiser. ETERNUS SF Storage Cruiser is part of the Storage Management Software ETERNUS SF products (hereafter referred to as "ETERNUS SF series"):

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

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

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

Intended readers

This manual is intended for people planning Storage Cruiser installation or installing Storage Cruiser for the first time. A basic knowledge of clustered systems and server virtualization is advised to fully understand this manual.

In the case of upgrade from a previous version to the latest version, refer to the *ETERNUS SF Migration Guide*.

Organization

This manual is composed as follows:

Chapter 1 Overview of Storage Cruiser

    This chapter is an overview of Storage Cruiser.

Chapter 2 System Design before Installation

    This chapter explains the installation requirements for Storage Cruiser.

Chapter 3 Installation and Setup

    This chapter explains how to install and setup Storage Cruiser.

Chapter 4 Configuration of Operating Environment

    This chapter explains how to configure the Storage Cruiser operating environment.

Chapter 5 Start using Storage Cruiser

    This chapter explains how to start using Storage Cruiser.

Notation

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

Operating systems

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

Formal name	Abbreviation	
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)		
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(R) XP Professional Edition Microsoft(R) Windows(R) XP Home Edition	Windows XP	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7	
Windows(R) 8 Windows(R) 8 Pro	Windows 8	
Solaris(TM) 9 Operating System	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)	RHEL-AS4	Linux
Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)	RHEL-ES4	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T	SUSE Linux Enterprise Server 11	
HP-UX 11.0 HP-UX 11i HP-UX 11i v2 HP-UX 11i v3	HP-UX	
AIX 5L(TM) V5.1 AIX 5L(TM) V5.2 AIX 5L(TM) V5.3 AIX(R) V6.1 AIX(R) V7.1	AIX	

Formal name	Abbreviation	
VMware(R) Infrastructure 3 Foundation VMware(R) Infrastructure 3 Standard VMware(R) Infrastructure 3 Enterprise	VMware Infrastructure 3	VMware
VMware vSphere(R) 4 Essentials Kit VMware vSphere(R) 4 Essentials Plus Kit VMware vSphere(R) 4 Standard Edition(TM) VMware vSphere(R) 4 Standard Plus Data Recovery VMware vSphere(R) 4 Advanced Edition(TM) VMware vSphere(R) 4 Enterprise Edition(TM) VMware vSphere(R) 4 Enterprise Plus Edition(TM)	VMware vSphere 4	
VMware vSphere(R) 5 Essentials Kit VMware vSphere(R) 5 Essentials Plus Kit VMware vSphere(R) 5 Standard Edition(TM) VMware vSphere(R) 5 Standard Plus Data Recovery VMware vSphere(R) 5 Enterprise Edition(TM) VMware vSphere(R) 5 Enterprise Plus Edition(TM)	VMware vSphere 5	

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

Related products with Fujitsu Storage System ETERNUS and Storage Management Software ETERNUS SF

Formal name	Abbreviation			
ETERNUS DX60/DX60 S2 ETERNUS DX80/DX80 S2 ETERNUS DX90/DX90 S2	-		ETERNUS DX series	ETERNUS Disk storage system
ETERNUS DX410 ETERNUS DX440	ETERNUS DX400 series	ETERNUS DX400/DX400 S2 series		
ETERNUS DX410 S2 ETERNUS DX440 S2	ETERNUS DX400 S2 series			
ETERNUS DX8100 ETERNUS DX8400 ETERNUS DX8700	ETERNUS DX8000 series	ETERNUS DX8000/DX8000 S2 series		
ETERNUS DX8100 S2 ETERNUS DX8700 S2	ETERNUS DX8000 S2 series			
ETERNUS2000 ETERNUS4000 ETERNUS8000	-			
Web GUI of ETERNUS DX series	ETERNUS Web GUI			
ETERNUSmgr				
ETERNUS LT20/LT20 S2 ETERNUS LT40/LT40 S2 ETERNUS LT60/LT60 S2 ETERNUS LT200 ETERNUS LT210 ETERNUS LT220 ETERNUS LT230 ETERNUS LT250 ETERNUS LT270/LT270 S2	ETERNUS Tape library			

Software products

Formal name	Abbreviation
Microsoft(R) Internet Explorer(R)	Internet Explorer
Mozilla(R) Firefox(R)	Firefox
Microsoft(R) Cluster Service	MSCS
Microsoft(R) Windows Server(R) Failover Clustering	WSFC
Microsoft(R) Exchange Server	Exchange Server
Microsoft(R) SQL Server(TM)	SQL Server
PRIMECLUSTER Global Disk Services	GDS
PRIMECLUSTER Global File Services	GFS
Symfoware Server Enterprise Extended Edition Symfoware Server Enterprise Edition	Symfoware
VMware(R) ESX(R)	VMware ESX
VMware(R) ESXi(TM)	VMware ESXi
VMware(R) vCenter(TM) Server	VMware vCenter Server or vCenter Server

Manuals

Formal name	Abbreviation
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Release Notes	ETERNUS SF Release Notes
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Installation and Setup Guide	ETERNUS SF Installation and Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Migration Guide	ETERNUS SF Migration Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Web Console Guide	ETERNUS SF Web Console Guide
ETERNUS SF Express / ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module	ETERNUS SF Operation Guide for Copy Control Module
ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Cluster Environment Setup Guide	ETERNUS SF Cluster Environment Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Messages	ETERNUS SF Messages
ETERNUS SF Express / ETERNUS SF Storage Cruiser Event Guide	ETERNUS SF Event Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Glossary	ETERNUS SF Glossary

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Notes

Copyright

Update history

Content of update	Updated section	Revision
Added Oracle Solaris 11, AIX V6.1 and AIX V7.1 in the operating systems.	Notation in Preface	3
Added AIX as the supported OS of Storage Cruiser's agent.	1.2	
Added Windows Server 2012 and Windows 8 in the operating systems.	Notation in Preface	4
Modified section titles to be referenced.	4.4	
Modified a section title to be referenced.	4.4	4.1

Content of update	Updated section	Revision
Added new manuals provided from this revision.	Manual organization and reading suggestions in Preface	5

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 unique for each product. The following manuals are available: - Express Quick Reference - Storage Cruiser Quick Reference - AdvancedCopy Manager Quick Reference
	Release Notes	Yes	Yes	Yes	This manual is common for all products.
	Overview	-	-	Yes	This manual is unique for each product.
During installation	Installation and Setup Guide	Yes	Yes	Yes	This manual is common for all products.
	Cluster Environment Setup Guide	-	Yes	Yes	This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	Yes	Yes	Yes	This manual is common for all products.
During operation	Operation Guide	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: - Express Operation Guide - Storage Cruiser Operation Guide - Storage Cruiser Operation Guide for Optimization Option - 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 for Exchange Server Operation Guide
	Operation Guide for Copy Control Module	Yes	-	Yes	This manual is common for Express and AdvancedCopy Manager.
	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.

When to read	Related manuals (abbreviated)	Related products (*1)			Explanation
		EXP	SC	ACM	
	Glossary	Yes	Yes	Yes	This manual is common for all products.

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

How to read manuals

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

Purpose	Related products (*1)	Manual	Main contents	How to read
Acquiring a product overview and basic operation knowledge	EXP	- Express Quick Reference	- Product overview - Installation decision - Overview of the necessary tasks from installation to first use	Please read if you want to acquire a fundamental knowledge of the product and its operation in order to decide to install it or not.
	SC	- Storage Cruiser Quick Reference		
	ACM	- AdvancedCopy Manager Quick Reference		
		- AdvancedCopy Manager Overview	- Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system	
Confirming the updated contents	common	- ETERNUS SF Release Notes	- New function overview - Incompatibilities with previous version - Fixed bugs	Please read if you want to know the updated contents from a previous version and if you perform the upgrade.
Deciding if a version upgrade is required	common	- ETERNUS SF Migration Guide	- Notes and cautions about version upgrade - Version upgrade procedure	Please read if you want to upgrade from a previous version.
Installing and correctly operating the product Setting up operating environment depending on purpose	common	- ETERNUS SF Installation and Setup Guide	- Operating environment - Installation procedure - Setup procedure - Uninstallation procedure	Please read if you want to install and setup the product.
	SC, ACM	- ETERNUS SF Cluster Environment Setup Guide	- Supported cluster software - Installation procedure for a clustered system - Setup procedure for a clustered system - Uninstallation procedure for a clustered system	Please read if you want to install and setup the product on a clustered system.
Administration and operation of	EXP	- Express Operation Guide	- Starting and stopping the software	Please read if you want to start or shutdown the

Purpose	Related products (*1)	Manual	Main contents	How to read
the installed system			- Device monitoring - Data copy inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance	system, monitor the operation status, do backup/restore operations, etc.
	SC	- Storage Cruiser Operation Guide	- Starting and stopping the software - Device monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference	
		- Storage Cruiser Operation Guide for Optimization Option	- Operating environment construction - Operating status monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference	
	EXP, ACM	- ETERNUS SF Operation Guide for Copy Control Module	- Starting and stopping the software	
	ACM	- 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)	- 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 for Exchange Server Operation Guide	- Restoring the Exchange Server database using the Restore Wizard	
	common	- ETERNUS SF Web Console Guide	- Operating environment - Screen layout description	Please read if you want to understand the ETERNUS SF Web Console.

Purpose	Related products (*1)	Manual	Main contents	How to read
Dealing with messages issued by the software	common	- ETERNUS SF Messages	- Messages and their explanations - Parameter (variable information) description - System action - Countermeasures	Please read if you want a practical way of investigating and dealing with messages issued by the software.
Dealing with events issued by the software	EXP, SC	- ETERNUS SF Event Guide	- Phenomenon of event - Countermeasures	Please read if you need to find a practical way of investigating and dealing with events.
Researching the meaning of specific terms related to the products and other important terms	common	- ETERNUS SF Glossary	- Product specific terminology explanation - Explanation of important terminology appearing in the manual - Synonyms and related terms - Proper form of abbreviated terms	Please read if you want to learn the meaning of important terms, product specific terms or abbreviations used in the manuals.

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

Contents

Chapter 1 Overview of Storage Cruiser

This chapter is an overview of Storage Cruiser.

1.1 Function overview

Storage Cruiser, so as to support the stable operation of the storage system environment, provides the following functions:

- Configuration management

  This displays the physical connection status between devices onto the ETERNUS SF Web Console.
  This is convenient for obtaining a grasp on the access points for each device's parts (for example, the fibre channel switch ports).

  ETERNUS SF Web Console allows Storage Cruiser operation directly from a Web browser.
  In this manual, ETERNUS SF Web Console will be referred hereafter as "Web Console".

- Correlation management

  This automatically acquires from within the storage device's disks configuration information for physical paths, related server file systems, and multipath, and correlates this information, displaying it to the Web Console.
  The configuration elements are correlated and displayed on one screen, so it is convenient for obtaining a grasp of the entire configuration.

- Fault management

  This function reads faults having occurred with the device and displays the relevant information in an easy-to-understand format to the Web Console.
  It supports early identification of the faulty part and its range of impact, as well as early recovery from the fault.

- Performance management

  This function displays the performance information (for management) for the fibre channel switch and ETERNUS Disk storage system to the Web Console in the form of a graph.
  Through continuous collection of information, it is easy to obtain a grasp of such things as the operation status and load status from the past.

  If a threshold value for performance information is set up on Storage Cruiser, an alarm will be issued when a performance value error has been detected.
  This function is useful for identifying the location and cause of bottlenecks and removing the source of the problem so that the storage system can be operated under an optimal environment.

See
. . . .
Refer to "Overview" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the functions provided by Storage Cruiser.
. . . .

Storage Cruiser visualizes the ETERNUS Disk storage system's power consumption and implements a reduction to power consumption for storage operation. Also, during operation of thin provisioning, Storage Cruiser supports virtual storage operation through monitoring capacity.

1.2 Product structure

Storage Cruiser is made of the following program.

Table 1.1 Storage Cruiser software components and supported OS

No.	Program name	Function overview	Supported operating systems (A=Available, N/A=Not Available)				
			Windows	Solaris	Linux	HP-UX	AIX
1	ETERNUS SF Manager	Manages the storage system	A	A	A	N/A	N/A
2	Storage Cruiser's agent	Monitors the Managed Server	A	A	A	A	A

In this manual, the server where ETERNUS SF Manager is installed is referred as the "Management Server", and a server managed by the Management Server is referred as "Managed Server".

P Point
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After installation of ETERNUS SF Manager, if ETERNUS SF Manager is set up as the Storage Cruiser's manager, it is possible to use Storage Cruiser.

Refer to "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the version level of the supported operating systems.
. . . .

1.3 Supported hardware and middleware

The following hardware and middleware can be managed with Storage Cruiser:

Hardware

Table 1.2 Supported hardware

Type	Typical devices
Storage device	ETERNUS DX series NetApp FAS Series
Tape library	ETERNUS LT series
Fibre channel switch	ETERNUS SN200 series Brocade Fibre Channel switch Cisco MDS McDATA
Converged Switch	PRIMERGY BX Ethernet Fabric Switch
Others	VMware ESXi 3.5 or later VMware vSphere 4 or later

See
. . . .
Refer to "Supported devices" in the *ETERNUS SF Installation and Setup Guide* for information on the hardware can be managed.
. . . .

Middleware

- File system

- Multi path driver

1.4 Operating environment models

Storage Cruiser can manage multiple storage devices, tape libraries, fibre channel switches and servers.
Also, in addition to physical environments, Storage Cruiser is also compatible with server virtualized environments.

Also, it is possible to manage the Managed Server regardless of whether or not the Storage Cruiser's agent has been installed.

It is possible to operate Storage Cruiser with a system environment as depicted below.

Figure 1.1 Operation Configuration for Storage Cruiser
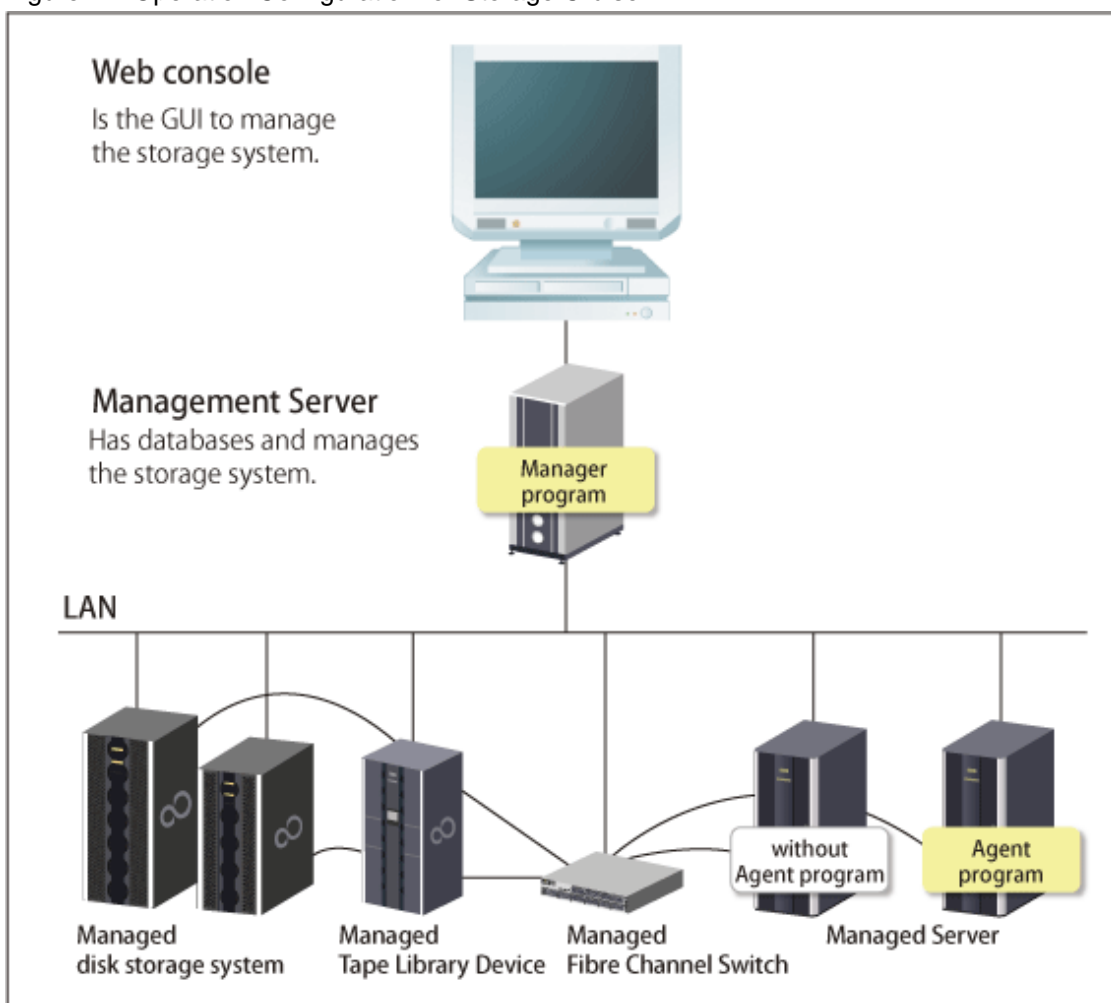
Installation to a clustered system

- Installation of the Storage Cruiser's manager

  To increase the availability of the Storage Cruiser's manager, make the system redundancy by installing the Storage Cruiser's manager to the clustered system.
  Also, note that this product does not support configurations of managing a single operating system with multiple Storage Cruiser's managers (multiple Management Servers environment).

- Installation of the Storage Cruiser's agent

  This product monitors the status of each node of which the clustered system is comprised. If installing the Storage Cruiser's agent to a clustered system, install to all nodes of which the clustered system is comprised.
  If performing device registration for each node of which the clustered system is comprised, for the node's IP address, designate the physical IP address allocated to each node, not the clustered system's logical IP address.

See
. . . .
Refer to the *ETERNUS SF Cluster Environment Setup Guide* for the Installation procedures to a clustered system.
. . . .

Chapter 2 System Design before Installation

This chapter explains the system design required before the Storage Cruiser installation.

Before reading this chapter, check the cautions and limitations mentioned in the software guide.

2.1 Choosing Management Server

Storage Cruiser's manager has to process requests from the Web Console as well as various events and data acquisition coming from the managed hardware. To avoid interferences from other software or insufficient physical resources and ensure smooth operations, it is recommended to install Storage Cruiser's manager on its own dedicated server.

If a dedicated server cannot be secured, the Management Server should be chosen according to the following requirements:

Impact on business applications

On a server running business applications (hereafter described as "business server"), Storage Cruiser's manager operations will likely have an impact on other applications performance. If the candidate server is a mission critical server running financial, distribution or public utilities applications, the decision to install Storage Cruiser's manager must be evaluated with extra caution.

Impact on other guest OS (in case of a virtual server environment)

In a virtual server environment, the physical server resources (CPU, memory, and network) are shared by multiple guest OS. Therefore, the operations of a guest OS have an impact on the other guest OS performance. Before installing Storage Cruiser's manager on a guest OS, usage of physical resources and role of other guest OS must be evaluated carefully.

Incompatible software

Storage Cruiser's manager cannot run on the same server concurrently to certain other software (hereafter described as "incompatible software"). A server with no incompatible software must be selected.

See

Refer to "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the incompatible software.

2.2 Selecting the agent installation

Storage Cruiser provides the following two types for server monitoring models.

- Monitoring without the Storage Cruiser's agent installed

- Monitoring with the Storage Cruiser's agent installed

Please refer to the following selection criteria and choose the monitoring condition accordingly.

Monitoring model	Selection Criteria

Monitoring without agent installed (agent-less monitoring)	- If the OS installed to the Managed Server is not supported by the Storage Cruiser's agent.
	- The HBA built into the Managed Server is not supported by the Storage Cruiser's agent.
	- If the Storage Cruiser's agent cannot be installed on the Managed Server.
	  For example, if installation of applications is not permitted on the Managed Server outside a restricted set of applications, or if an incompatible software application is already installed on the server.
	- If you want to reduce the maintenance tasks on the Managed Server.
	  For example, if you want to avoid having to apply patches on the software.

Monitoring model	Selection Criteria

	- If using Storage Cruiser under the following environments.
	
	   - VMware Infrastructure 3 Version 3.5 or later
	
	   - VMware vSphere 4 or later
	
	   - VMware ESXi 3.5 or later
	
	Since direct connections are made with VMware ESX or VMware ESXi, and the VM host and VM guest information is displayed, installation of the Storage Cruiser's agent is not necessary.

Monitoring with agent installed (agent-used monitoring)	- If you want to use some of the functions available when the Storage Cruiser's agent is installed. Access path settings, status monitoring, and fault monitoring, etc.

See

- Refer to "Support levels" in the *ETERNUS SF Storage Cruiser Operation Guide* for the difference in functions between agent-less monitoring and agent-used monitoring.

- Refer to "Operating environment of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide* for information on the incompatible software for the Storage Cruiser's agent.

2.3 Collecting information required for installation

When Storage Cruiser is installed, the following information items are required:

Required information	Server necessary for information collection

Information for installation destination server
 	
  - OS type and version level
 	
  - IP address
 	
  - Cluster configuration information
	- Server to which ETERNUS SF Manager is to be installed
	
	- Server to which Storage Cruiser's agent is to be installed

Disk space needed for installation	- Server to which ETERNUS SF Manager is to be installed - Server to which Storage Cruiser's agent is to be installed
Port numbers availability for operation	- Server to which ETERNUS SF Manager is to be installed - Server to which Storage Cruiser's agent is to be installed
Disk space of the database needed for operation	- Server to which ETERNUS SF Manager is to be installed
Whether or not performance management is being done	- Server to which ETERNUS SF Manager is to be installed
Required disk space and memory needed for operation	- Server to which ETERNUS SF Manager is to be installed - Server to which Storage Cruiser's agent is to be installed
Software license for the use of Storage Cruiser	Not information necessary for individual server units Please prepare the license for the device to be managed.

See

Refer to the following sections in the *ETERNUS SF Installation and Setup Guide* for the information required for installation.

- "Operating environment of ETERNUS SF Manager"

- "Operating environment of Storage Cruiser's agent"

- "License Management"

Chapter 3 Installation and Setup

This chapter explains the installation and setup procedures of Storage Cruiser.

In the case of upgrade from a previous version to the latest version, refer to the *ETERNUS SF Migration Guide*.

3.1 Installation of ETERNUS SF Manager

The ETERNUS SF Manager must be installed to use Storage Cruiser.
The overview of the installation procedure of ETERNUS SF Manager is shown below.

1. Check if the target server satisfies the hardware and software requirements for the ETERNUS SF Manager installation.

   ### 📇 See
   ···
   Refer to "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on each condition.
   ···

2. Install the ETERNUS SF Manager.

   ### 📇 See
   ···
   Refer to "Installation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the installation procedure.
   ···

📇 See
···
Refer to the *ETERNUS SF Cluster Environment Setup Guide* for the installation procedures to a clustered system.
···

3.2 Setup of ETERNUS SF Manager

The overview of the procedure for setting up the ETERNUS SF Manager as the Storage Cruiser's manager is shown below.
Refer to "Setup of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the setup procedure.

1. Create and register a user account that will be using Storage Cruiser.

   The possible operations by the user are dependent on the level of permissions the user account is given. The following table describes the differences:

ESF Admin Role	OS administrator privilege	
	Yes	No
Yes	Operations are possible from the Web. Console and the command line.	Operations are possible only from the Web Console.
No	Operations are possible only from the command line.	Operations are neither possible from the Web Console nor from the command line.

   ### 🅿 Point
   ···
   - On systems using Single Sign-on, a created user account should be registered in the corresponding account authentication system so that the user can login to the Management Server.

For example, on the Windows environment, if the Management Server belongs to an Active Directory domain, the user must be added to the Active Directory domain.

- Commands can be executed only by users with OS administrator privileges or users belonging to the OS administrators group.

$\cdots$

2. Set up the firewall.

   The firewall must be set up so that the remote PC where the Web Console will be used can connect to the Management Server.

3. Launch the Web Console, and then check that the user registered by step 1 can login to the Management Server from the Web Console.

See

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

Point

From the "Chapter 4 Configuration of Operating Environment" chapter on, the described tasks are supposed to be performed from the Web Console. Before proceeding, it is therefore important to check that Storage Cruiser can actually be operated from the Web Console.

4. A Storage Cruiser license must be registered for each of the ETERNUS Disk storage systems managed in Storage Cruiser.

Point

There are two ways of registering a license, from the Web Console or from the command line.
However, use the command line interface to register a license in this time.

License registration from the Web Console is possible only for ETERNUS Disk storage systems already managed in Storage Cruiser. Registration for the ETERNUS Disk storage systems not yet managed in Storage Cruiser is possible from the command line.

Registration from the Web Console becomes possible after "4.2 Registering device".

See

Refer to "License Management" in the *ETERNUS SF Installation and Setup Guide* for information on the license and registering procedure.

3.3 Installation of Storage Cruiser's agent

The overview of the installation procedure of Storage Cruiser's agent is shown below.

Point

It is not necessary to install the Storage Cruiser's agent under the following environments.

- VMware Infrastructure 3 Version 3.5 or later

- VMware vSphere 4 or later

- VMware ESXi 3.5 or later

1. Check if the target server satisfies the hardware and software requirements for the Storage Cruiser's agent installation.

📑 See
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Refer to "Operating environment of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide* for information on each condition.
· ·

2. Install the Storage Cruiser's agent.

📑 See
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Refer to "Installation of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide* for information on the installation procedure.
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3.4 Setup of Storage Cruiser's agent

For the setup of the Storage Cruiser's agent, it is necessary to set up such things as the port numbers to be used and the SNIA HBA API library.

The items and procedures necessary for setup vary according to OS. Refer to the part detailing one's OS in "Setup of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide*.

Chapter 4 Configuration of Operating Environment

This chapter explains how to configure the Storage Cruiser operating environment.

4.1 Setting up to manage devices

Perform the necessary setup for the devices to be monitored/managed by Storage Cruiser.

Setting up to the server

So that Storage Cruiser can manage the HBA built into the Managed Server to which the Storage Cruiser's agent has been installed, install the SNIA HBA API library that HBA vendor distributes.

Refer to the *SNIA HBA API Library Installation Guide* at the following URL for the installation method for the HBA API library.

```
http://www.fujitsu.com/global/services/computing/storage/eternus/documentation/
```

Setting up to the fibre channel switch

So that Storage Cruiser can manage the fibre channel switch device, first, perform setup to the fibre channel switch.

Refer to "Fibre Channel Switch" in "Environment Configuration" in the *ETERNUS SF Storage Cruiser Operation Guide* for items and procedures pertaining to setup.

Setting up to ETERNUS Disk storage system

So that Storage Cruiser can manage the ETERNUS Disk storage system, first, perform setup to ETERNUS Disk storage system.

Refer to "Disk Array" in "Environment Configuration" in the *ETERNUS SF Storage Cruiser Operation Guide* for items and procedures pertaining to setup.

Setting up to the network attached storage

So that Storage Cruiser can manage the NetApp FAS Series, first, perform setup to NetApp FAS Series.

Refer to "NetApp FAS Series and V-Series Network Disk Storage system" in "Environment Configuration" in the *ETERNUS SF Storage Cruiser Operation Guide* for items and procedures pertaining to setup.

Setting up to the tape library

So that Storage Cruiser can manage the tape library device, first, perform setup to the tape library.

Refer to "Tape Library Devices" in "Environment Configuration" in the *ETERNUS SF Storage Cruiser Operation Guide* for items and procedures pertaining to setup.

4.2 Registering device

For the managing of devices with Storage Cruiser, register the managed devices to Storage Cruiser.

 See
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Refer to "Registering device" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedure.
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4.3 Registering license

If the ETERNUS Disk storage system just registered in Storage Cruiser does not have a Storage Cruiser license, register the Storage Cruiser license for it.

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The license registration can be performed either from the Web Console or from the command line.

Refer to "License Management" in the *ETERNUS SF Installation and Setup Guide* for information on the license and registering procedure.
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4.4 Checking the SNMP Trap reception

The purpose of the SNMP Trap test is to check that events generated by the storage devices are properly displayed in Storage Cruiser.

See
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Refer to the following sections in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedures:

- "swtraptest (SNMP Trap test for Fibre Channel switch)"

- "grtraptest (SNMP Trap test for ETERNUS Disk storage system)"
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If the system is operated in a state where events cannot be displayed, problems will not be detected or detected too late and create a possibility that the system will not work properly. It is therefore important to check that the events generated by the storage devices are properly displayed.
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4.5 Backing up the setup information

The Storage Cruiser's manager setting information should be backed up to prevent its loss in case of a failure of the Management Server.

See
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Refer to "Backup of Manager" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedures.
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Chapter 5 Start using Storage Cruiser

This chapter explains how to start using Storage Cruiser.

5.1 Performance monitoring

Performance monitoring of the fibre channel switch and ETERNUS Disk storage system is possible with Storage Cruiser.
Performance monitoring can be performed by selecting a storage device previously registered in "4.2 Registering device".

 See
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Refer to "Performance Management" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedure.
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5.2 Energy-saving operation for storage device by using Eco-mode

Storage Cruiser can achieve the energy-saving operation by using the Eco-mode function of ETERNUS Disk storage system.

For Eco-mode, there is "storage device Eco-mode" and "RAID Group Eco-mode". One can set each Eco-mode ON or OFF separately, so it is possible to achieve a meticulously energy-saving operation.

 See
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Refer to "How to control the Eco-mode" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedure.
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5.3 Storage capacity virtualization operation by using Thin Provisioning

Storage Cruiser can achieve the storage capacity virtualization operation by using the Thin Provisioning function of ETERNUS Disk storage system.

There are two methods to start the Thin Provisioning operation for the ETERNUS Disk storage systems:

 - By registering ETERNUS Disk storage systems where Thin Provisioning is enabled

 - By updating the system information on the Web Console after the Thin Provisioning is enabled on an already registered ETERNUS Disk storage system

 See
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Refer to "Thin Provisioning management" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the procedures.
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