

# ETERNUS SF Storage Cruiser 14.0



## User's Guide for Virtual Storage Conductor

Windows/Solaris/Linux

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# Preface

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## Purpose

This manual explains the functions and usage of Virtual Storage Conductor, which is one of components of ETERNUS SF Storage Cruiser (hereinafter "ESC").

ETERNUS SF is an integrated storage system management software series provided by Fujitsu.

## Target readers

This manual is intended for system administrators who install, set up, operate, and maintain Virtual Storage Conductor of ETERNUS SF Storage Cruiser.

It is assumed that readers of this manual will have a basic understanding of how to set up the servers and storage being installed, and of the network that is required to configure the system.

## Organization

This manual is composed as follows.

### [Chapter 1 Overview of Virtual Storage Conductor](#)

Explains the virtual storage function provided by Virtual Storage Conductor.

### [Chapter 2 Operation Design](#)

Explains how to design Virtual Storage Conductor for operation.

### [Chapter 3 Building an Environment](#)

Explains how to set up the environment for operating Virtual Storage Conductor.

### [Chapter 4 Startup and Settings](#)

Explains how to start up Virtual Storage Conductor.

### [Chapter 5 Operations](#)

Explains how to operate Virtual Storage Conductor using GUI.

### [Chapter 6 Maintenance](#)

Explains how to maintain Virtual Storage Conductor.

### [Appendix A Window Explanation and Menu List](#)

Describes the windows of GUI and its display content.

### [Appendix B Admin Server Commands](#)

Describes the operation commands of Virtual Storage Conductor that can be entered from the admin server.

### [Appendix C Commands for Virtualization Switch](#)

Describes the commands that can be entered from a virtualization switch.

### [Appendix D Limit Values](#)

Describes the limit values of Virtual Storage Conductor.

### [Appendix E Error Messages](#)

Explains the meaning of each message output by Virtual Storage Conductor and the action to be taken.

### [Glossary](#)

Defines the terms associated with Virtual Storage Conductor.

## Notational conventions

- This manual omits trademarks and registered trademarks of the following product name.

Solaris(TM) 8 Operating System

Solaris(TM) 9 Operating System

Solaris(TM) 10 Operating System

Red Hat(R) Enterprise Linux(R) AS v.3, Red Hat(R) Enterprise Linux(R) ES v.3

Red Hat(R) Enterprise Linux(R) AS 3.9, Red Hat(R) Enterprise Linux(R) ES 3.9

Red Hat(R) Enterprise Linux(R) AS v.4, Red Hat(R) Enterprise Linux(R) ES v.4

Red Hat(R) Enterprise Linux(R) AS 4.5, Red Hat(R) Enterprise Linux(R) ES 4.5

Red Hat(R) Enterprise Linux(R) AS 4.6, Red Hat(R) Enterprise Linux(R) ES 4.6

Red Hat(R) Enterprise Linux(R) AS 4.7, Red Hat(R) Enterprise Linux(R) ES 4.7

Red Hat(R) Enterprise Linux(R) 5

Red Hat(R) Enterprise Linux(R) 5.1

Red Hat(R) Enterprise Linux(R) 5.2

Red Hat(R) Enterprise Linux(R) 5.3

SUSE(TM) Linux Enterprise Server 9 for EM64T

VMware(R) Infrastructure 3 Foundation

VMware(R) Infrastructure 3 Standard

VMware(R) Infrastructure 3 Enterprise

Microsoft(R) Windows(R) 2000 Server

Microsoft(R) Windows(R) 2000 Advanced Server

Microsoft(R) Windows(R) 2000 Professional

Microsoft(R) Windows(R) XP Professional

Microsoft(R) Windows(R) XP Home Edition

Microsoft(R) Windows Vista(R) Home Basic

Microsoft(R) Windows Vista(R) Home Premium

Microsoft(R) Windows Vista(R) Business

Microsoft(R) Windows Vista(R) Enterprise

Microsoft(R) Windows Vista(R) Ultimate

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, Enterprise Edition for Itanium-based Systems

Microsoft(R) Windows Server(R) 2003, Datacenter Edition for Itanium-based Systems

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

Microsoft(R) Windows Server(R) 2008 Standard

Microsoft(R) Windows Server(R) 2008 Enterprise

Microsoft(R) Windows Server(R) 2008 Datacenter

Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM)

Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM)

Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM)

Microsoft(R) Windows Server(R) 2008 for Itanium-based Systems

- The Solaris(TM) Operating System is described as "Solaris OS".
- The Manager and Agent of Virtual Storage Conductor are described as follows.

Type	Platform	Notation
Manager	Solaris OS	"[Solaris OS] Manager" or "Solaris OS edition"
	Linux	"[Linux OS] Manager" or "Linux edition"
	Windows operating system	"[Windows] Manager" or "Windows edition"
Agent	Solaris OS	"[Solaris OS] Agent" or "Solaris OS edition"

Type	Platform	Notation
	Linux (Note)	"[Linux OS] Agent" or "Linux edition"
	Windows operating system	"[Windows] Agent" or "Windows edition"
	HP-UX	"HP-UX Agent" or " HP-UX edition"
	VMware	"VMware Agent" or "VMware edition"

Note: Includes SUSE Linux Enterprise Server 9 for EM64T.

- Referenced items, menu names, button names, etc. are described as follows.

Type	Notation
Referenced items in this manual	Its title is enclosed in " ".
Referenced items in other manual	Its title is enclosed in " ".
Menu names	Its name is enclosed in [ ]. The order in which menu items are selected is indicated in the form [ ] - [ ]. The ellipses ("...") in menu names, indicating settings and operation window startup, are not displayed.
Tab names	Its name is enclosed in " ".
Button names	Its name is enclosed in < >.
Character strings and values that need to be emphasized	Its strings are enclosed in " ".
Variable parts	It is indicated by using <i>italic</i> text.

## Abbreviations

A product or products might be described by the abbreviation as follows.

Product name	Notation
Solaris 8 Operating System	Solaris 8 OS
Solaris 9 Operating System	Solaris 9 OS
Solaris 10 Operating System	Solaris 10 OS
Windows 2000 Server Windows 2000 Advanced Server Windows 2000 Professional	When referring to these products as a group, "Windows 2000" will be indicated.
Windows XP Professional Windows XP Home Edition	When referring to these products as a group, "Windows XP" will be indicated.
Windows Vista Home Basic Windows Vista Home Premium Windows Vista Business Windows Vista Enterprise Windows Vista Ultimate	When referring to these products as a group, "Windows Vista" will be indicated.
Windows Server 2003, Standard Edition Windows Server 2003, Enterprise Edition Windows 2003 Datacenter	When referring to these products as a group, "Windows Server 2003" will be indicated.
Windows 2008 Standard Windows 2008 Enterprise Windows 2008 Datacenter	When referring to these products as a group, "Windows Server 2008" will be indicated.

Product name	Notation
Red Hat Enterprise Linux AS (v.2.1 for x86)	RHEL-AS2.1(x86)
Red Hat Enterprise Linux ES (v.2.1 for x86)	RHEL-ES2.1(x86)
Red Hat Enterprise Linux AS (v.3 for x86)	RHEL-AS3(x86)
Red Hat Enterprise Linux ES (v.3 for x86)	RHEL-ES3(x86)
Red Hat Enterprise Linux AS (3.9 for x86)	RHEL-AS3.9(x86)
Red Hat Enterprise Linux ES (3.9 for x86)	RHEL-ES3.9(x86)
Red Hat Enterprise Linux AS (v.4 for x86)	RHEL-AS4(x86)
Red Hat Enterprise Linux AS (v.4 for EM64T)	RHEL-AS4(EM64T)
Red Hat Enterprise Linux AS (v.4 for Itanium)	RHEL-AS4(IPF)
Red Hat Enterprise Linux ES (v.4 for x86)	RHEL-ES4(x86)
Red Hat Enterprise Linux ES (v.4 for EM64T)	RHEL-ES4(EM64T)
Red Hat Enterprise Linux AS (4.5 for x86)	RHEL-AS4.5(x86)
Red Hat Enterprise Linux AS (4.5 for EM64T)	RHEL-AS4.5(EM64T)
Red Hat Enterprise Linux AS (4.5 for Itanium)	RHEL-AS4.5(IPF)
Red Hat Enterprise Linux ES (4.5 for x86)	RHEL-ES4.5(x86)
Red Hat Enterprise Linux ES (4.5 for EM64T)	RHEL-ES4.5(EM64T)
Red Hat Enterprise Linux AS (4.6 for x86)	RHEL-AS4.6(x86)
Red Hat Enterprise Linux AS (4.6 for EM64T)	RHEL-AS4.6(EM64T)
Red Hat Enterprise Linux AS (4.6 for Itanium)	RHEL-AS4.6(IPF)
Red Hat Enterprise Linux ES (4.6 for x86)	RHEL-ES4.6(x86)
Red Hat Enterprise Linux ES (4.6 for EM64T)	RHEL-ES4.6(EM64T)
Red Hat Enterprise Linux AS (4.7 for x86)	RHEL-AS4.7(x86)
Red Hat Enterprise Linux AS (4.7 for EM64T)	RHEL-AS4.7(EM64T)
Red Hat Enterprise Linux AS (4.7 for Itanium)	RHEL-AS4.7(IPF)
Red Hat Enterprise Linux ES (4.7 for x86)	RHEL-ES4.7(x86)
Red Hat Enterprise Linux ES (4.7 for EM64T)	RHEL-ES4.7(EM64T)
Red Hat Enterprise Linux 5 (for x86)	RHEL5(x86)
Red Hat Enterprise Linux 5 (for Intel64)	RHEL5(Intel64)
Red Hat Enterprise Linux 5 (for Intel Itanium)	RHEL5(IPF)
Red Hat Enterprise Linux 5.1 (for x86)	RHEL5.1(x86)
Red Hat Enterprise Linux 5.1 (for Intel64)	RHEL5.1(Intel64)
Red Hat Enterprise Linux 5.1 (for Intel Itanium)	RHEL5.1(IPF)
Red Hat Enterprise Linux 5.2 (for x86)	RHEL5.2(x86)
Red Hat Enterprise Linux 5.2 (for Intel64)	RHEL5.2(Intel64)
Red Hat Enterprise Linux 5.2 (for Intel Itanium)	RHEL5.2(IPF)
Red Hat Enterprise Linux 5.3 (for x86)	RHEL5.3(x86)
Red Hat Enterprise Linux 5.3 (for Intel64)	RHEL5.3(Intel64)
VMware Infrastructure 3 Foundation VMware Infrastructure 3 Standard VMware Infrastructure 3 Enterprise	When referring to these products as a group, " VMware " will be indicated.

Product name	Notation
Softek Storage Cruiser	SSC
ETERNUS SF AdvancedCopy Manager	ACM

## Description of this software and notation of this manual

This software and its manual have been developed based on Softek Storage Cruiser (SSC) and Systemwalker Resource Coordinator Storage manager. Output messages or windows may therefore contain references to "Softek Storage Cruiser" or "SSC", "Systemwalker Resource Coordinator" or "Resource Coordinator" accordingly.

## Related manuals

The following manuals are provided with ESC. Please refer to these manuals as required.

- ETERNUS SF Storage Cruiser Installation Guide  
Explains the configuration procedure.
- ETERNUS SF Storage Cruiser User's Guide  
Contains a product description, explanations of functions, and methods of operation and maintenance.
- ETERNUS SF Storage Cruiser Message Guide  
Explains the messages displayed by storage resource manager.
- ETERNUS SF Storage Cruiser Event Guide  
Explains the messages displayed by storage resource manager regarding hardware status.
- ETERNUS SF Storage Cruiser User's Guide for Virtual Storage Conductor (This manual)  
Explains the functions and methods of operating Virtual Storage Conductor.

## ETERNUS SF homepage

The latest technical information can be seen on the ETERNUS SF homepage (<http://www.fujitsu.com/global/services/computing/storage/software/>).

At first, reference to the ETERNUS SF homepage is recommended.

## eclipse.org homepage

Technical information for Eclipse and FAQ are given out on the eclipse.org homepage (<http://www.eclipse.org/>). For Eclipse, first of all, it is recommended to refer to the eclipse.org homepage.

## Related documentation

Please refer to the following documentation as required.

- ETERNUS VS900 Model 300 Virtualization Switch User's Guide  
Explains how to install and set up the ETERNUS VS900 Model 300 Virtualization Switch.
- ETERNUS SN200 Model 540 Fibre Channel Switch Handling Guide, Virtualization Blade Edition  
Explains how to install and set up the ETERNUS SN200 Model 540 Fibre channel Switch Virtualization Blade.

- ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System Build Procedure  
Explains the various setting processes of the ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and the VS900 Model 300 Virtualization Switch when building a system.
- ETERNUS VS900, SN200 series Fabric OS Administrator's Guide Supporting Fabric OS v5.3.x  
Explains the operations that the administrator can perform for the ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and the VS900 Model 300 Virtualization Switch.
- ETERNUS VS900, SN200 series Fabric OS Command Reference Manual Supporting Fabric OS v5.3.x  
Explains the commands provided by the ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and the VS900 Model 300 Virtualization Switch.
- ETERNUS VS900 Model 200 Virtualization Switch User's Guide  
Explains how to install and set up the ETERNUS VS900 Model 200 Virtualization Switch.
- ETERNUS VS900 Model 200 Virtualization Switch XPath OS Reference Manual  
Explains all commands provided for the ETERNUS VS900 Model 200 Virtualization Switch.
- ETERNUS VS900 Model 200 System Build Procedure  
Explains the various setting processes of the ETERNUS VS900 Model 200 Virtualization Switch when building a system.
- ETERNUS VS900 Model 200 Virtualization Switch Zoning User's Guide  
Explains the setup process of zoning for the ETERNUS VS900 Model 200 Virtualization Switch.
- ETERNUSmgr User Guide Settings/Maintenance  
Explains the setup process of the ETERNUS series disk array unit.
- GRmgr User Guide Settings/Maintenance  
Explains the setup process of the GR series disk array unit.

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# Chapter 1 Overview of Virtual Storage Conductor

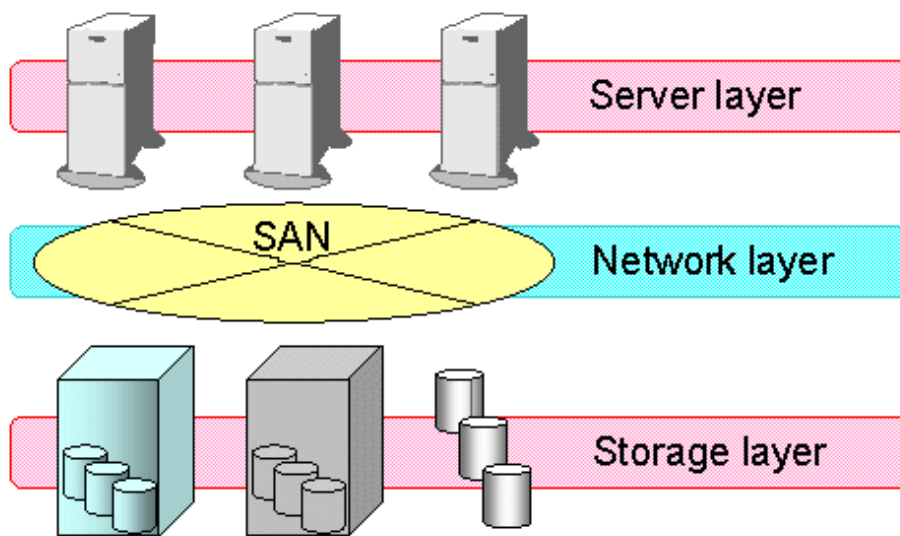
## 1.1 Virtual Storage

There must be a volume to store data that the applications read for processing. To allocate a volume to a transaction server, it is necessary to create the required disk space from a disk unit. Therefore, a storage administrator estimates the disk size required for each transaction server and creates a logical unit according to the estimation.

Virtual Storage is a function that enables the creation of a volume with any disk size, independently of the attributes (e.g., size, RAID group) of logical units created on a disk unit.

In a Storage Area Network (SAN) environment, the Virtual Storage function is provided through the following three layers.

Figure 1.1 Layers in which Virtual Storage is realized



### Server layer

The server layer provides an application with virtual storage by operating virtual storage software on the transaction server where the application runs.

### Network layer

The network layer places a special server dedicated for the virtual storage function between the transaction server where an application runs and a disk unit. This special server provides a logical unit allocated from the disk unit to the transaction server as virtual storage.

### Storage layer

The storage layer provides a disk unit as a logical unit that does not depend on the RAID group function or the hard disk drive size.

## 1.2 Virtual Storage Conductor

Virtual Storage Conductor (hereinafter called "VSC") is basic volume management software that provides the virtual storage function on a Fibre Channel switch located in the network layer.

### 1.2.1 Purpose of providing VSC

In the current storage system, a Fibre Channel switch is an essential element in the SAN configuration.

VSC provides the Fibre Channel switch located at the center of a storage system with the virtual storage function that covers the entire storage system.

## 1.2.2 Objectives of VSC

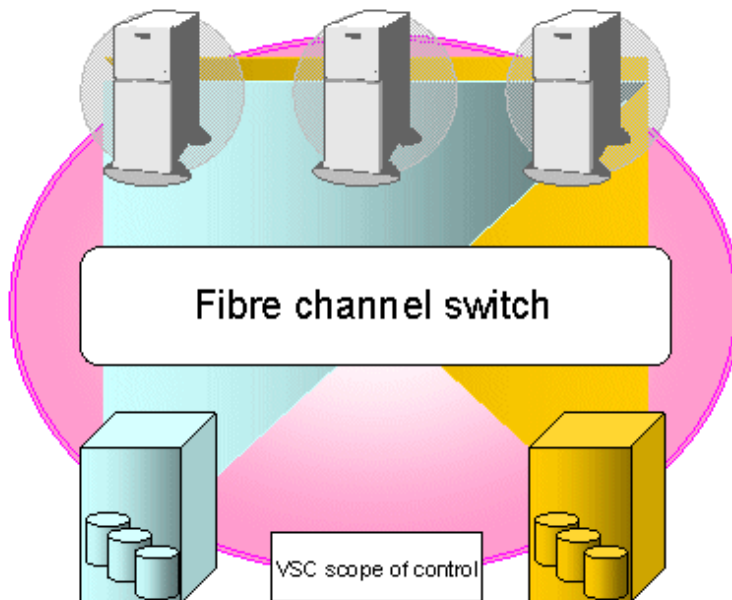
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Many customers now use products that realize some kind of a virtual storage function, mainly in the server and storage layers. However, operating such a virtual storage function poses the problems described below. VSC is intended to solve these problems and facilitate storage operation for customers.

- Extensive storage resources management

The server layer can only be used to manage disks (connected to a transaction server) that represent only a small percentage of all storage resources. The storage layer can also be used to manage only its own internal enclosure. Conversely, a Fibre Channel switch can be used for a larger scope of management than the server and storage layers because the entire storage system (fabric) can be placed under control.

Figure 1.2 Comparison of scopes of storage resources management



- Reducing the burden of storage operation

To use the virtual storage function of the server layer, a special software product must be installed on the transaction server, followed by various settings being made. Naturally, this procedure must be repeated for every transaction server, thus requiring considerable total work time. Moreover, the procedure for allocating a volume to a transaction server takes a workload to manipulate the relationship between the storage and multiple transaction servers, because the storage accepts requests initiated by transaction servers.

With VSC, the logical units allocated from a disk unit may be uniform in terms of size. Since VSC manages all such units, you only need to set all the destinations to the Fibre Channel switch.

## 1.3 VSC Configuration

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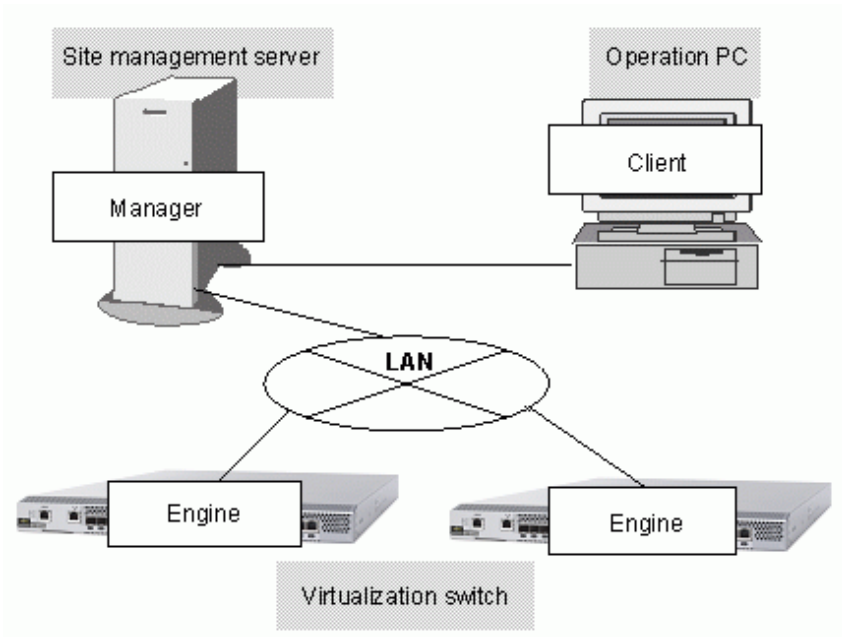
A Fibre Channel switch with the storage virtualization function (hereinafter called "virtualization switch") is required for using VSC. ESC provides the storage virtualization function by controlling the storage virtualization function engine (hereinafter called "engine") that runs on the virtualization switch.

VSC Manager performs configuration management to form the foundation of the virtual storage function, and handles and supplies processing requests made on the client (GUI) to the engine that runs on the target virtualization switch.

VSC admin client runs on the admin client unit to provide an operation interface related to virtual storage.

The engine, running on a virtualization switch, processes various requests for the virtual disk according to instructions from the Manager. It also controls server access of the virtual disk. However, engine operation has no impact on performance, because it does not interfere with regular read/write data streams.

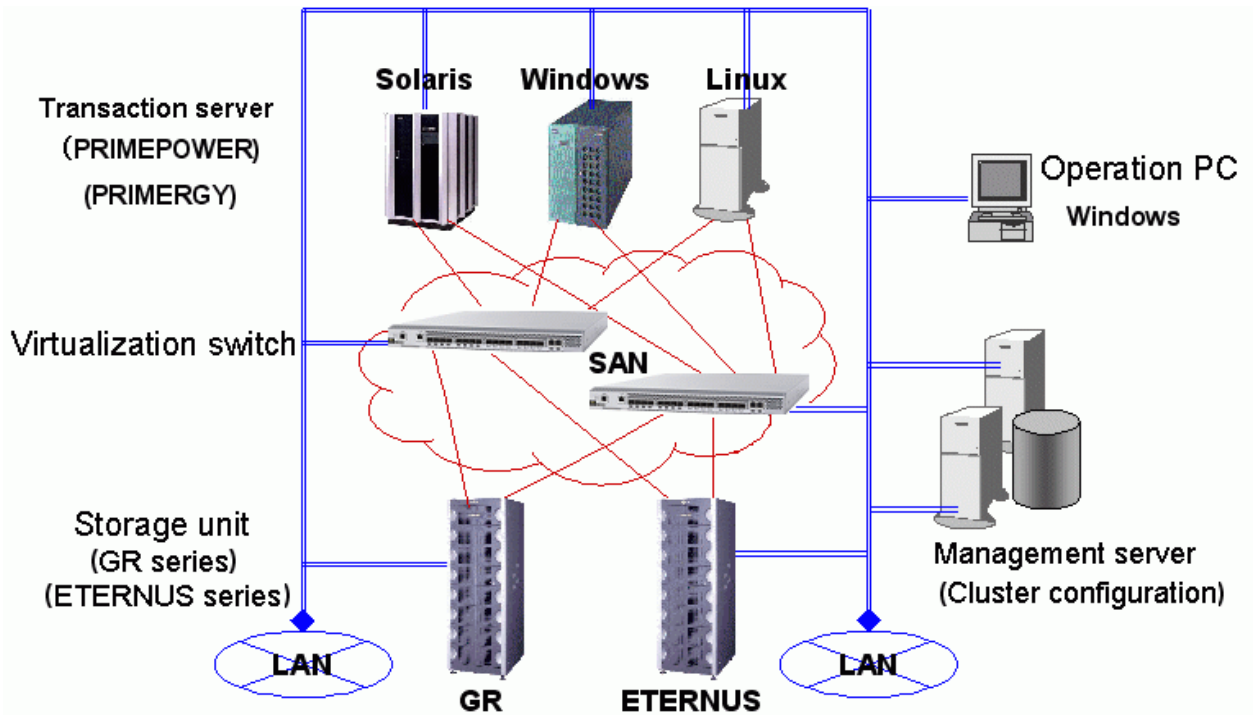
Figure 1.3 VSC configuration



## 1.4 Supported Environments

This section describes the hardware and software environments required to use VSC, as well as the environments supported.

Figure 1.4 System configuration





## 1.4.1 Supported hardware

Table 1.1 Required hardware

Type	VSC-related program	Product name	Required quantity	Other
Virtualization switch	Engine	ETERNUS VS900 Model 200	2 units (redundant configuration) x n sets	-
		ETERNUS VS900 Model 300	2 units (redundant configuration) x n sets	-
		Virtualization blade for mounting in ETERNUS SN200 Model 540	2 units (redundant configuration) x n sets	-
Admin server	Storage Resource Manager (Manager)	PRIMEPOWER/Fujitsu S series	1 or 2 units	Refer to the ETERNUS SF Storage Cruiser Installation Guide, for the unit requirements.
		PRIMERGY		
		PRIMEQUEST		
Admin client	Storage Resource Manager (Client)	FM-V, other company's product	1 unit	

Table 1.2 Supported server node HBA

Product name	OS	HBA	Revision number
PRIMEPOWER	Solaris 8	PW008FC2	Driver: FUJITSU PCI Fibre Channel 3.0 or later
		PW008FC3	Driver: FUJITSU PCI Fibre Channel 3.0 or later
	Solaris 9	PW008FC2	Driver: FUJITSU PCI Fibre Channel 3.0 or later
		PW008FC3	Driver: FUJITSU PCI Fibre Channel 3.0 or later
	Solaris 10	PW008FC2	Driver: FUJITSU PCI Fibre Channel 3.0 or later
		PW008FC3	Driver: FUJITSU PCI Fibre Channel 3.0 or later
SPARC Enterprise	Solaris 10	SE0X7F11F	Driver: FUJITSU PCI Fibre Channel 4.0 or later
		SE0X7F12F	Driver: FUJITSU PCI Fibre Channel 4.0 or later
PRIMERGY	Windows 2003	PG-FC202	
	Windows 2008	PG-FC202	
	RHEL4	PG-FC107	
		PG-FC202	
RHEL5	PG-FC202		
PRIMERGY(BX600)	Windows 2003	PG-FCD201	
	Windows 2008	PG-FCD201	
	RHEL4	PG-FCD201	
	RHEL5	PG-FCD201	
	VMware ESX 3.5	PG-FCD201	
PRIMEQUEST	Windows 2003	MC-08FC11	
		MC-08FC41	
	RHEL4	MC-08FC11	
	RHEL5	MC-08FC41	

Table 1.3 Supported disk storage systems

Model name	Revision number	Remarks
ETERNUS8000 (all models)	All revision numbers	-
ETERNUS4000 (all models)	All revision numbers	-
ETERNUS2000 (all models)	V10L11-0000 later	-
ETERNUS6000 (all models)	V20L57 or later	-
ETERNUS3000 model 50	All revision numbers	Dual-controller type
ETERNUS3000 models 300, 500 and 700	V10L24 or later	-
ETERNUS3000 models 80, 100, 200, 400 and 600	V10L66 or later	-
ETERNUS GR710	V10L22 or later	Additional controller required
ETERNUS GR720	V11L31 or later	Two or more host interfaces required
ETERNUS GR730	V11L31 or later	-
ETERNUS GR740, GR820, GR840	V03L83 or later	-

## 1.4.2 Supported software

Table 1.4 Supported OS of admin servers

Platform	Product name	Remarks
Solaris OS	Solaris 8 OS Solaris 9 OS Solaris 10 OS (global zone only)	-
Linux	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64)	-
	Red Hat Enterprise Linux 5 (for Intel Itanium)	Operation server is only PRIMEQUEST.
	Red Hat Enterprise Linux 5.1 (for x86) Red Hat Enterprise Linux 5.1 (for Intel64)	-
	Red Hat Enterprise Linux 5.1 (for Intel Itanium)	Operation server is only PRIMEQUEST.
	Red Hat Enterprise Linux 5.2 (for x86) Red Hat Enterprise Linux 5.2 (for Intel64)	
	Red Hat Enterprise Linux 5.2 (for Intel Itanium)	Operation server is only PRIMEQUEST.
	Red Hat Enterprise Linux 5.3 (for x86) Red Hat Enterprise Linux 5.3 (for Intel64)	
	Red Hat Enterprise Linux 5.3 (for Intel Itanium)	Operation server is only PRIMEQUEST.
Windows	Windows Server 2008 Standard Windows Server 2008 Enterprise Windows Server 2008 Datacenter	The Server Core installation option is not supported.
	Windows Server 2003 R2, Standard Edition Windows Server 2003 R2, Enterprise Edition	includes SP2
	Windows Server 2003, Standard Edition Windows Server 2003, Enterprise Edition	includes SP1, SP2
	Windows 2000 Server (SP1 or later version) Windows 2000 Advanced Server (SP1 or later version) Windows 2000 Professional (SP1 or later version)	-

Table 1.5 Supported OS of server nodes (transaction servers that use the virtual storage function)

Platform	Product name	Remarks
Solaris OS	Solaris 2.6 OS Solaris 7 OS Solaris 8 OS Solaris 9 OS Solaris 10 OS (global zone only)	-
Windows	Windows 2000 Server Windows 2000 Advanced Server Windows 2000 Professional (SP4 or later version) Windows Server 2003, Standard Edition Windows Server 2003, Enterprise Edition Windows Server 2008 Standard Windows Server 2008 Enterprise Windows Server 2008 Datacenter	Itanium Architecture is not supported.
Linux	Red Hat Enterprise Linux AS (v.3 for x86) Red Hat Enterprise Linux ES (v.3 for x86) Red Hat Enterprise Linux 5.1 (for x86) Red Hat Enterprise Linux 5.1 (for Intel64)	Itanium Architecture is not supported.

Table 1.6 Server node middleware

Platform	Product name	Version
Solaris OS	GR Multipath Driver for Solaris OE	1.0.6 + patch 912651-13 or later
	ETERNUS SF AdvancedCopy Manager	13.0 or later
Windows	ETERNUS Multipath Driver for Windows (for use with Windows Server 2003)	V2.0L11 or later
	GR Multipath Driver for Windows (for use with Windows 2000)	V1.0L14 or later
	ETERNUS SF AdvancedCopy Manager	13.0 or later
Linux	GR Multipath Driver for Linux	V1.0L04 + T00704-04 (patch07) or later
	ETERNUS SF AdvancedCopy Manager	13.0 or later

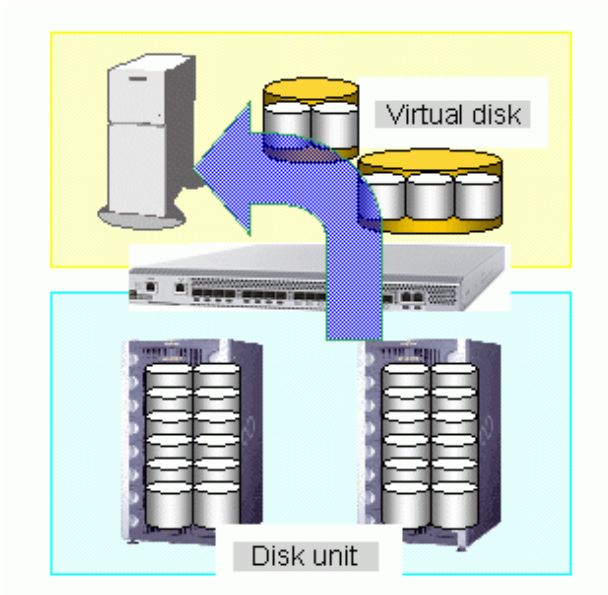
## 1.5 Outline of VSC Functions

VSC provides flexible storage operations and comprehensive data service in a SAN environment through the following functions:

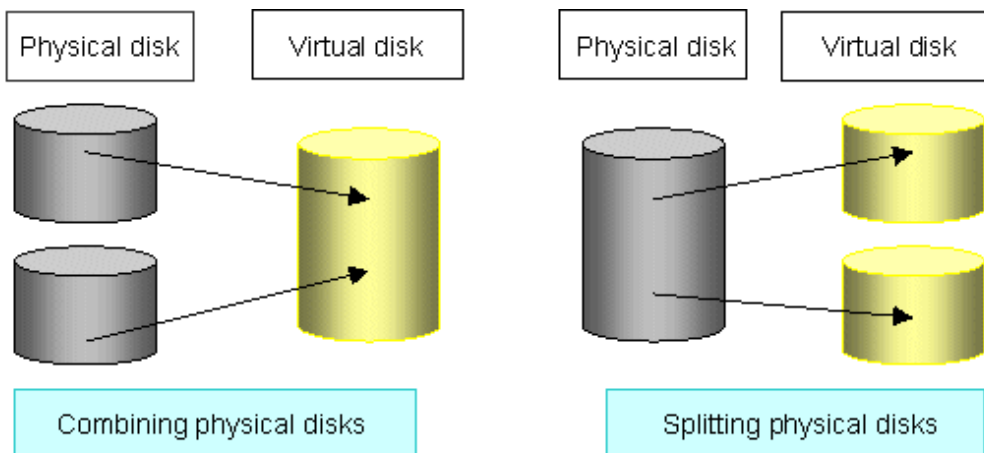
- Virtual disk function
- Server-free data service function

### 1.5.1 Virtual disk function

It is now common practice to estimate the data size recognized by the transaction server to recognize, use, and create its volume, and accordingly allocate a logical unit (LUN) from the disk unit. VSC provides a virtual disk function that allows you to create a volume of a size independent of the logical unit (LUN) size. In other words, this function weakens the physical relationship between a transaction server and disk unit, and makes it possible to provide a volume of the desired size at the desired time for the transaction server.



- You can combine more than one physical disk to create one virtual disk.
- You can split one physical disk to create more than one virtual disk.



You can also expand the size of a virtual disk itself.

You can create virtual disks in batch processing while retaining existing data required by users. For more information, refer to "[5.1.8 Batch conversion](#)".

## 1.5.2 Server-free data service function

VSC provides the server-free data service function, which copies data using the resources of the virtualization switch without using the resources (CPU and memory) of the transaction server. Originally, the resources of a transaction server should be consumed by an application that processes data, but not by such secondary tasks as backup and maintenance. The use of this function allows you to use transaction server capabilities more effectively.

This service provides the following functions:

- Migration function
- Replication function

### 1.5.2.1 Migration function

The migration function moves data in a physical disk to another physical disk or virtual disk. This function can be used to migrate data to a new disk unit or remove a physical disk that is causing a performance bottleneck.

You do not need to change the disk information (WWNs and disk numbers) recognized by the transaction server. Instead, VSC automatically changes the information of physical disks that make up a virtual disk(s).

After copying data to a destination physical disk, there are two options: allowing VSC to automatically switch the physical disks or having the user manually switch the disks. When migration is activated in a mode that retains no backup disk, VSC automatically switches the physical disks (using an automatic switching function). When migration is activated in a mode that retains a backup disk, the user must manually switch the physical disks.

When choosing not to use the automatic switching function, the user must issue an instruction to switch the physical disks. This instruction, to switch the physical disks, is called a migration completion instruction. Upon receiving a migration completion instruction from the user, VSC writes the data passed from an application to both the migration source and destination physical disks in order to maintain synchronization between both disks. Therefore, be sure to issue a migration completion instruction at the appropriate time to avoid adversely affecting virtualization switch capability.

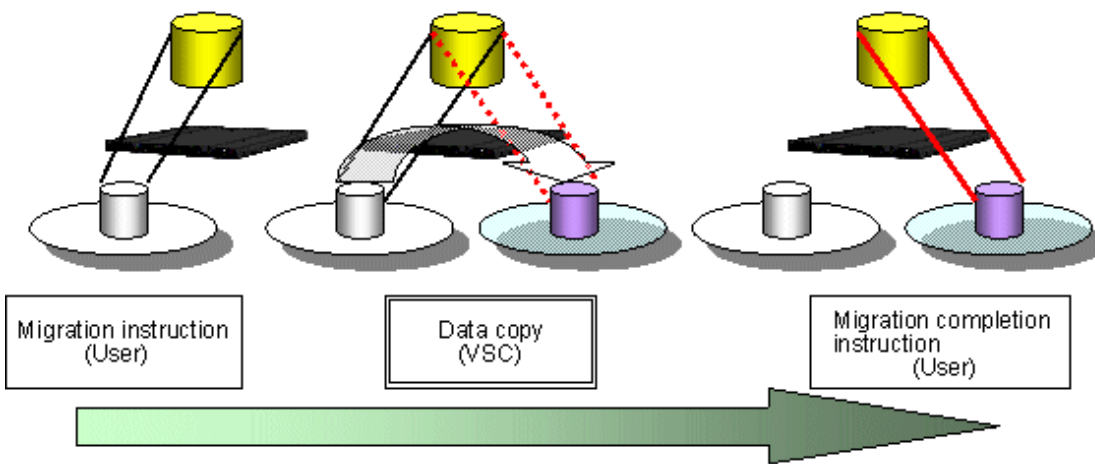


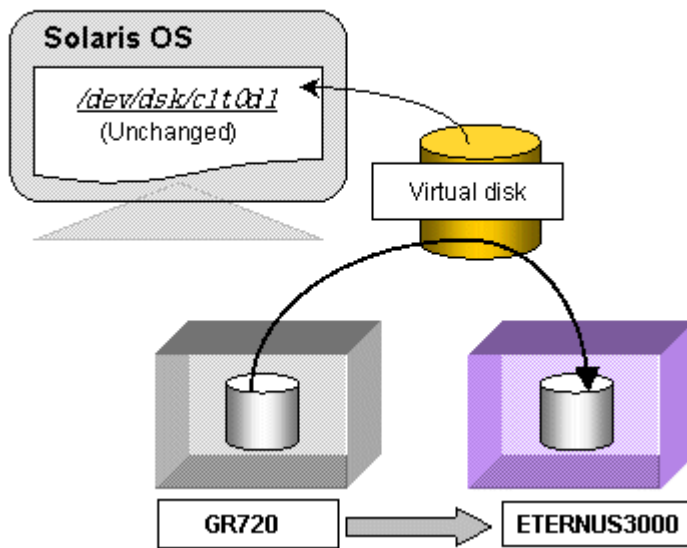
Table 1.7 Access to virtual disks during migration

Target	Status	Access enabled?	Remarks
Source physical disk	Copying	Yes	-
	Synchronization maintained	Yes	-
	Switching complete	-	-
Destination physical disk	Copying	-	-
	Synchronization maintained	-	Execute a write request on the virtualization switch to maintain synchronization.
	Switching complete	Yes	-

VSC provides migration operation with the following characteristics:

- Migration with non-stop server operation

Generally, an application or the system must be restarted when a transaction server uses the destination disk. With a virtual disk, however, the transaction server only recognizes the information on the virtual configuration, while VSC keeps track of all information on the physical configuration of the virtual disk (such as physical disk information). Therefore, the transaction server need not recognize any change made to the connected disk. Even if a change is made to the migration destination physical disk, you can continue using the disk without having to stop the system or application.



- Saving the data of the migration source

Migration is generally intended to upgrade a disk unit (or renew a device for storing data) so that you will no longer need the physical disk that was used before migration. Once migration is performed, significant changes are made to the system environment, such as installation of a new disk unit that may possibly cause unexpected trouble. Therefore, you must save the information before migration and keep it ready for reuse in order to prepare for quick recovery.

Since VSC continues to retain the backup disk until the user issues an instruction to delete it, promptly delete the disk after issuing a migration completion instruction.

### Note

In migration to hold migration backup disk (hereinafter called "backup disk"), if you want to ensure data consistency stored on backup disks, it is required to write data cached on the application server to the backup disks before migration cutover to ensure the consistency.

Note that if you do not directly specify a destination physical disk, VSC automatically chooses a physical disk for you. Therefore, you must manually create a virtual storage pool using only the destination physical disk.

Moreover, the virtualization switch that performs copy processing must retain access paths to both the migration source and destination physical disks.

When VSC accepts a migration instruction, it returns a session ID to you. Use the session ID for a migration completion instruction or migration cancellation instruction.

## 1.5.2.2 Replication function

The replication function creates a copy of a virtual disk. This function can be used to build a new transaction or make a backup copy of a virtual disk.

You must issue instructions to start and end a replication process. VSC writes data passed from an application to both the migration source and destination virtual disks in order to maintain synchronization between both disks.

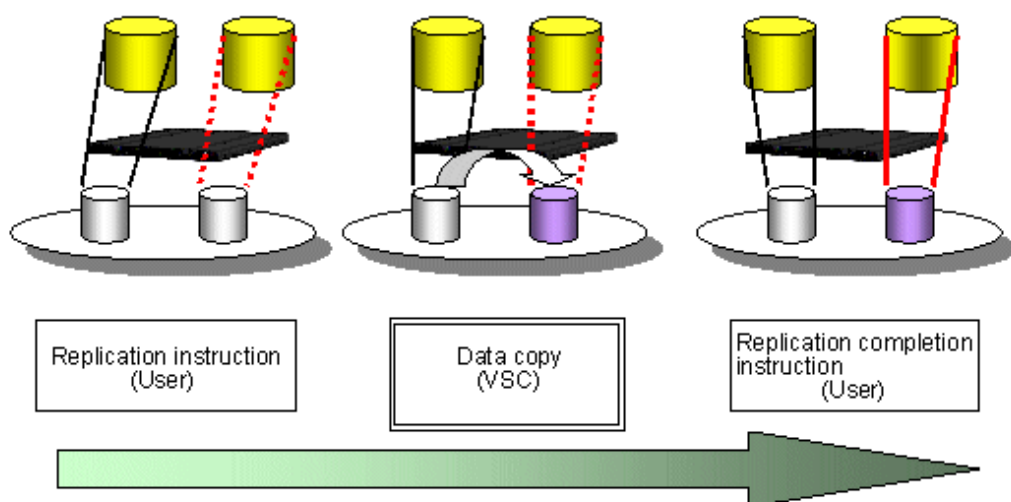


Table 1.8 Access to virtual disks during replication

Target	Status	Access enabled?	Remarks
Source virtual disk	Copying	Yes	-
	Synchronization maintained	Yes	-
	Switching complete	Yes	-
Destination virtual disk	Copying	No	An access error occurs.
	Synchronization maintained	No	An access error occurs. Execute a write request on the virtualization switch to maintain synchronization.
	Switching complete	Yes	-

Replication is executable by the startrep command from the operations management server or using the ETERNUS SF AdvancedCopy Manager.

The replication executed with the ETERNUS SF AdvancedCopy Manager includes a function to suspend and resume copy. However, note that the replication executed by the commands from the operations management server does not include the function to suspend and resume copy.

- For replications performed using the startrep command on the operations management server
  - a. There are no functions for suspending or resuming copies.
  - b. The copy security function cannot be used.
- For replications performed using ETERNUS SF AdvancedCopy Manager
  - a. There are functions for suspending and resuming copies.
  - b. The copy security function can be used.

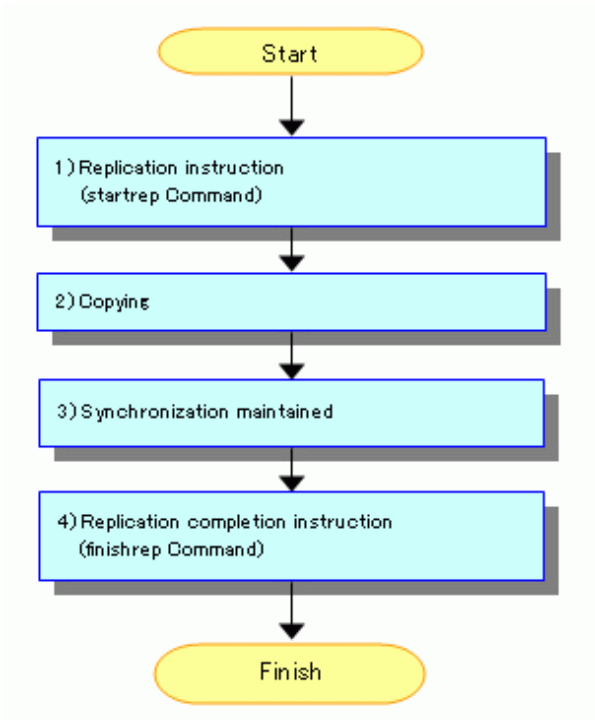
Refer to “3.4.3 Copy security function” for more information about copy security.

 See

- For replications using the ETERNUS SF AdvancedCopy Manager, refer to "ETERNUS SF AdvancedCopy Manager Operator's Guide".

- For details of commands from the operations management server, refer to "[Appendix B Admin Server Commands](#)".

The following are descriptions of a flow of replications from start through end using the commands from the operations management server.



1. Replication start directions (startrep command)

Use the startrep command from the operations management server to start replication.

 **Information**

Information required for replication directions includes the name of a replication-source virtual disk and the name of a replication-destination virtual disk.

2. During copy

Data on its source virtual disk is being copied to its destination virtual disk. If you want to abort replication, use the cancelrep command from the operations management server.

3. Equivalency maintain status

This is a status that the same data is written on its source virtual disk and on its destination virtual disk. If you want to abort replication, use the cancelrep command from the operations management server.

4. Replication finish directions (finishrep command)

Using the finishrep command from the operations management server, cancel the equivalency maintain status of the source virtual disk and the destination virtual disk to finish replication.

 **Note**

An access error occurs if the destination virtual disk is accessed during replication. Make sure that the transaction server does not access the virtual disk during use of the replication function.



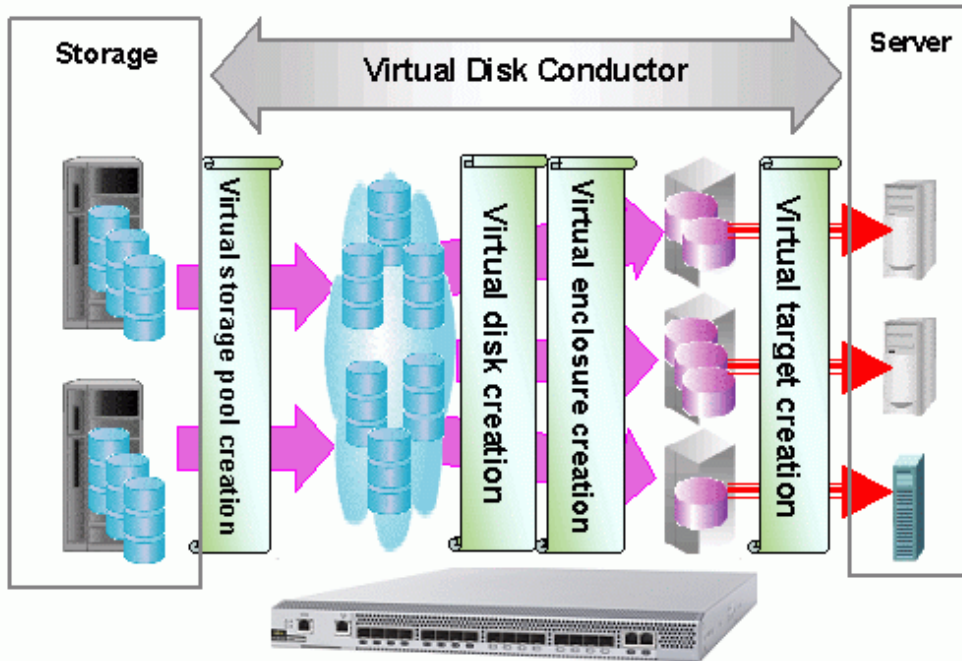
# Chapter 2 Operation Design

This chapter describes the operation design for Virtual Storage Conductor.

## 2.1 Resources for Configuring Virtual Disks

This section describes the Virtual Storage Conductor resources required to create and use a virtual disk.

Figure 2.1 Relationship between virtual disk resources



### 2.1.1 Virtual storage pool

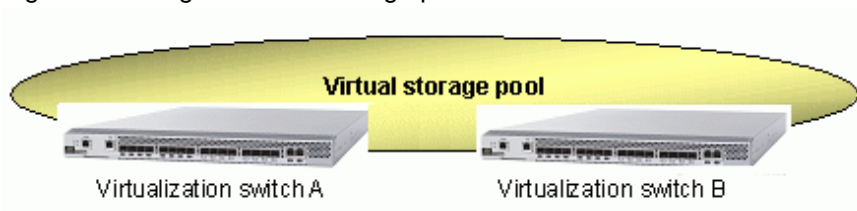
The virtual storage pool serves as a container in which required resources (physical disks) for creating a virtual disk are collected. Creating a virtual storage pool enables a clear separation between physical disks for the virtual world and those for conventional operation in the real world.

The virtual storage pool is one of the most important components of virtual storage operation.

Virtual Storage Conductor (VSC) determines the appropriate range of control regarding the virtual storage pool for each virtualization switch. Therefore, when creating a virtual storage pool, it is necessary to clearly define the relationship between the virtual storage pool and its controlling virtualization switch.

The virtualization switch for controlling a virtual storage pool must have a redundant configuration.

Figure 2.2 Range of virtual storage pool control



A virtual disk is created from physical disks that are registered in the virtual storage pool. Thus, we recommend that you create a virtual storage pool that is appropriate for each arbitrary purpose. Examples of such purpose types are as follows:

- For each storage
- For each RAID group
- For each transaction group

You can delete any virtual storage pool that will no longer be used. However, you cannot delete a virtual storage pool that has a physical disk in it. You must release all registered physical disks from the virtual storage pool before deleting the virtual storage pool itself.

## 2.1.2 Physical disk

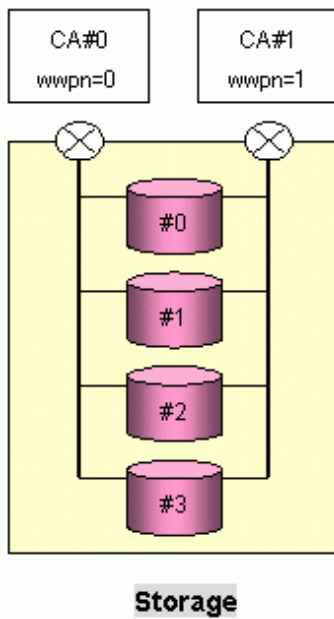
The physical disk is a logical unit (LUN) that is assigned by storage unit. LUN is a storage medium that actually stores data and is one of the components of a virtual disk.

The physical disk must be registered in an arbitrary virtual storage pool.

Before registering a physical disk with the virtual storage pool, check whether any transaction server is using the physical disk for any other purpose. Once a physical disk is registered, it remains available only as a virtual disk.

If a physical disk is accessible from multiple channel adapters (CA), WWPNs assigned to all accessible CAs along with a logical unit number (host LUN) are required for registering it.

Figure 2.3 Registration information of the physical disk



For the storage shown above, two CAs can access each physical disk. Thus, when you register one physical disk, you will need two items of CA (WWPN) information and the corresponding host LUN information.

You can release any physical disk that will no longer be used from the virtual storage pool. However, if a physical disk is a component of a virtual disk, you cannot release that physical disk from the virtual storage pool. A physical disk released from the virtual storage pool can be connected to the transaction server and can be used as before.

## 2.1.3 Virtual enclosure

Physical disks, that do not configure a virtual disk, are enclosed by a physical enclosure such as the ETERNUS6000 or ETERNUS3000. As same as those disks, setting up a framework to integrate virtual disks into logical groups enables easier virtual disk operation.

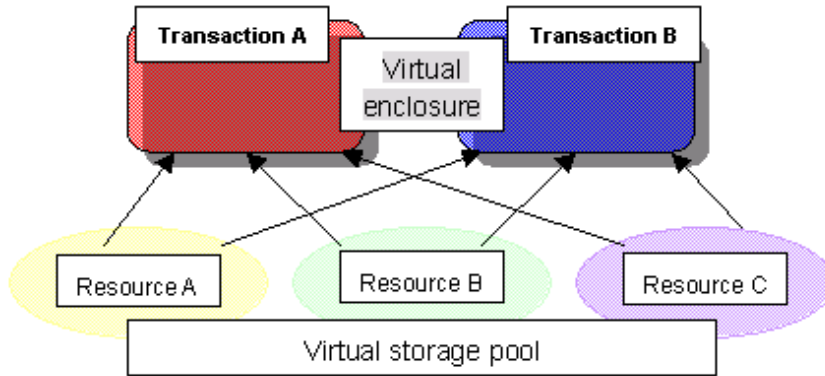
The virtual enclosure is a logical framework to integrate virtual disks.

You can register virtual disks created from different virtual storage pools to the virtual enclosure.

You can also create multiple virtual enclosures according to the operational purposes of each system.

While the virtual storage pool is grouped by resource (physical disks), the virtual enclosure is grouped by transaction.

Figure 2.4 Concept of virtual enclosure classification



You will need information about the virtualization switch for controlling the virtual disks to be enclosed when creating the virtual enclosure. If you need a multi-path configuration for the virtual disks, specify as many virtualization switches as required by the paths.

You can delete any virtual enclosure that will no longer be used. However, you cannot delete the virtual enclosure while it has a registered virtual target. You must delete all virtual disks and virtual targets before deleting the virtual enclosure.

## 2.1.4 Virtual target

You should use WWPN to connect the storage and transaction server via the FC interface. Since the virtual disk may consist of multiple storages, you cannot use the WWPN that is actually retained by the CA.

Therefore, you can use the corresponding virtual target for such a WWPN to connect the virtual disk and transaction server under the VSC system.

The virtual target is information independent of the WWPN in storage. Therefore, it does not affect the transaction server once it is connected to the transaction server with a virtual target, even when new storage is added. As long as you do not delete the virtual target, you can use the same virtual target to continue virtual disk operation.

You can use the virtual target attached to a virtual enclosure as an access path to the virtual disk.

Although the virtual target is actually a WWPN, you need not specify a complex number for the WWPN when creating a virtual target. You may specify any name that is easy to manage. VSC automatically generates and manages FC protocol-based WWPNs with the virtual target names.

The WWPN assigned from VSC to the virtual target name becomes necessary information when the transaction server connects to a virtual disk.

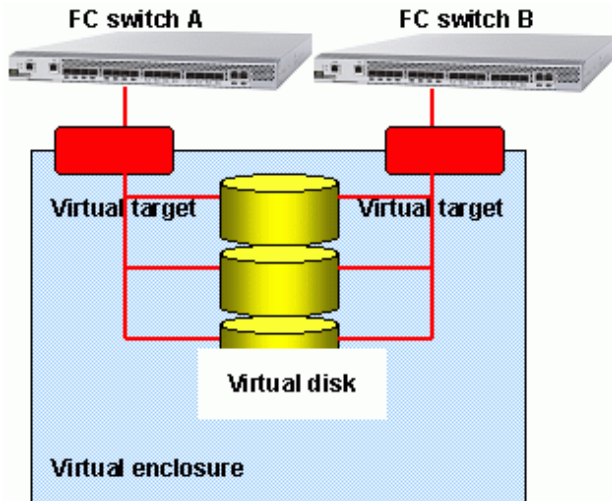
### Information

When creating virtual targets, you need the names of the virtual enclosure (for registering virtual targets) and the virtualization switch for connecting the virtual targets and access path. The name of the virtualization switch that you specify at this time will be the same as that already registered to the virtual enclosure.

### Note

Since a virtual target is not allowed to have multiple access paths, the virtualization switch specified can only have one name. Note that when you use a multi-path configuration for the virtual disk, you need multiple virtual targets as well.

Figure 2.5 Relationship between virtual targets and resources



You can delete any virtual target that will no longer be used. However, you cannot delete the virtual target that has an attached virtual disk. Therefore, you must remove all virtual disks from the virtual target before deleting the virtual target.

I\_T\_L nexus (path to LUN) with respect to one virtual target being 256, if multiple hosts are allocated to one virtual target, the other host could fail in login due to insufficient I\_T\_L nexus. When using multiple hosts, it is recommended to allocate a virtual target to each host.

## 2.1.5 Virtual disk

The virtual disk is an independent logical volume containing physical attributes and information about physical disks. In other words, users can always create a disk with any desired capacity to be assigned to the transaction server without having to consider the capacity and device type of the physical disks.

You do not need any specific transaction for connecting a virtual disk to the transaction server. You can connect a physical disk and the transaction server using the same procedure as for connecting a virtual disk and the transaction server.

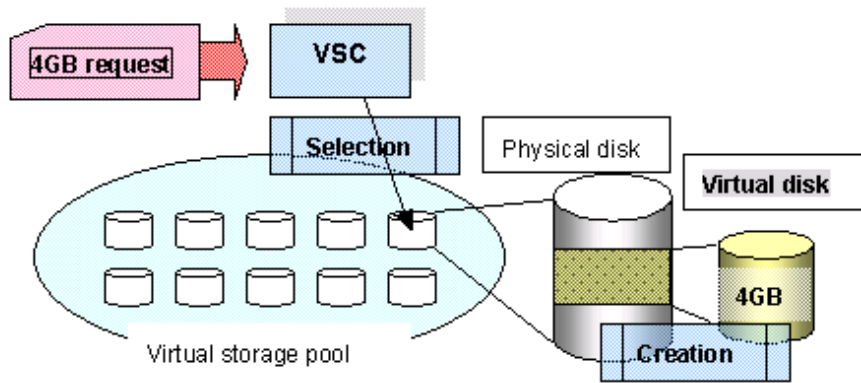
You can create a virtual disk from the physical disks registered in one virtual storage pool, which is the same as creating a physical disk (logical unit) from storage. However, you cannot create a virtual disk across multiple virtual storage pools.

There are two methods of creating a virtual disk: allowing VSC to automatically select the physical disk that constitutes a virtual disk or having the user manually select the physical disk.

### Automatic selection of the physical disk

When you choose to allow VSC to automatically select the physical disk, specify the virtual storage pool name and virtual disk capacity. Then, VSC automatically selects the appropriate physical disk for the required capacity from the specified virtual storage pool to create a virtual disk.

Figure 2.6 VSC-Automatic selection of physical disks

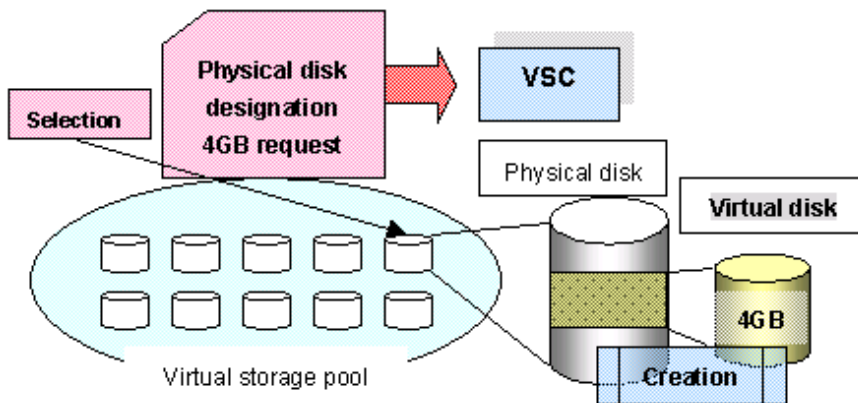


### Designation of the physical disk

When the user creates the physical disk, specify the virtual storage pool name, physical disk name, and virtual disk capacity.

Then, VSC checks whether the target physical disk exists in the specified virtual storage pool and whether there is sufficient space for the required capacity before creating a virtual disk. Since the user can only specify one physical disk, a virtual disk whose capacity exceeds that of the physical disk cannot be created.

Figure 2.7 Designation of the physical disk



### Information

When assigning the physical area for the virtual disk from the physical disk, consider and create a physically contiguous area as one extension for the virtual disk. If VSC cannot assign a contiguous area for the requested capacity, divide the physical area into multiple extents to create a virtual disk.

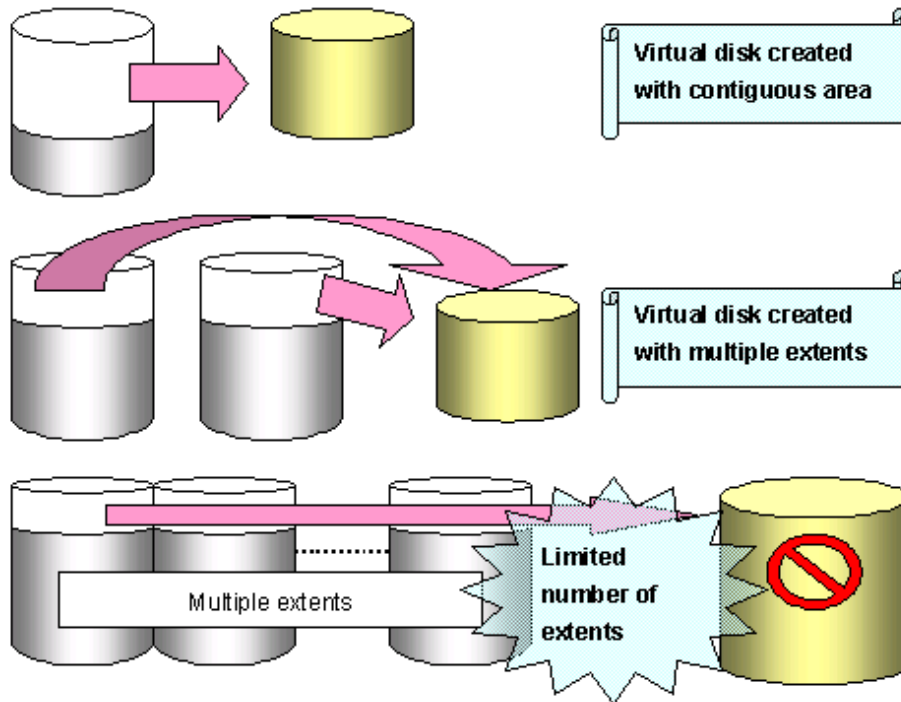
You can delete any virtual disk that will no longer be used and save the physical space used by the virtual disk as free space for a new virtual disk.

VSC integrates and manages any unused space before or after the space to be freed as one extent.

### Note

Note that there is a maximum limited number of extents that VSC can control for one virtual disk. If the physical area is fragmented by repeatedly creating and deleting virtual disks with various capacities during long-term system operation, creating a virtual disk with a required capacity may not be possible even when overall free space in the virtual storage pool is sufficient. In such case, register a new physical disk in the virtual storage pool in a way that the free space will not be fragmented.

Figure 2.8 Permissible extents of a virtual disk



Any error that occurs during virtual disk access is reported to the transaction server as a common I/O error. Thus, no special action is required for virtual disk access.

You can create a virtual disk across multiple physical disks and storages. However, since the reliability of such a virtual disk depends on that of said physical devices, we recommend that you use physical disks of the same device type or RAID group.

The encryption attribute of the virtual disk created with both encrypted and non-encrypted physical disks is non-encryption.

Similarly, the "disk type" for virtual disks that have been created using a mix of online and nearline disks will be "nearline".

## 2.1.6 Copy security group

ETERNUS SF AdvancedCopy Manager copies can only be performed between virtual disks in the same virtual enclosure.

A "copy security group" is a group of virtual enclosures that are subject to ETERNUS SF AdvancedCopy Manager copy security.

Refer to "[3.4.3 Copy security function](#)" for more information about copy security.

## 2.2 Designing Storage

This section describes how to design storage when operating Virtual Storage Conductor.

### 2.2.1 Guidelines for physical disk capacities

In Virtual Storage Conductor, the unit that divides one RAID group into arbitrary capacities is called a "physical disk". When the system does not use Virtual Storage Conductor, the physical disk becomes the corresponding logical unit (LUN) recognized by the transaction server.

Administrators can freely set the physical disk capacity when using Virtual Storage Conductor. However, we recommend that you determine the physical disk capacity according to the following guidelines:

- For a relatively large-capacity volume (virtual disk)

When the transaction server uses relatively large-capacity volumes (virtual disks), be sure to increase the physical disk capacity (such as using one physical disk as one RAID group) as well.

Although it is possible to create a large-capacity virtual disk by combining multiple physical disks, increased physical disk capacity reduces the number of physical disks and enables easier management.

- For a relatively small-capacity volume (virtual disk)

When the transaction server uses many small-capacity volumes (virtual disks), be sure to decrease the physical disk capacity as well.

Although it is possible to create a small-capacity virtual disk from part of one physical disk, decreased physical disk capacity results in simpler correspondence between the virtual disk and physical disk, and enables easier management.

## 2.2.2 RAID group of physical disks

---

When physical disks are configured as the virtual disk, RAID group attributes assigned to the physical disks remain valid. In other words, the related attributes regarding virtual disk reliability and performance largely depend on the RAID group. Thus, it is necessary to plan how to use the virtual disk in advance.

Setting up a virtual storage pool for each RAID group makes it easier to recognize virtual disks when creating the disks for each purpose of use.

Guidelines for the RAID group for each purpose of virtual disk use are as follows:

- Virtual disk for files or databases directly used by the transaction server  
RAID1+0 (with value placed on reliability and performance)
- Virtual disk for log files used indirectly  
RAID1 (with value placed on reliability)
- Virtual disk for backup or temporary use  
RAID5 (with value placed on access load balancing)

### 2.2.2.1 Notes on assigned CM

When storage has an assigned a controller module (CM), you must determine the CM as the access path for each RAID group in order to balance the controller load. You can also consider the access path from the transaction server to determine the assigned CM. However, the copy function of the virtualization switch performs data copy processing between the connected ports of the switch and storage. Thus, if the CM in the storage connected to the virtualization switch does not assigned, the access performance of the transaction server via the assigned CM may be adversely affected.

## 2.2.3 Physical disks you want to virtualize

---

It is necessary to set zoning between the virtualization switch and storage for physical disks you want to have virtualized.

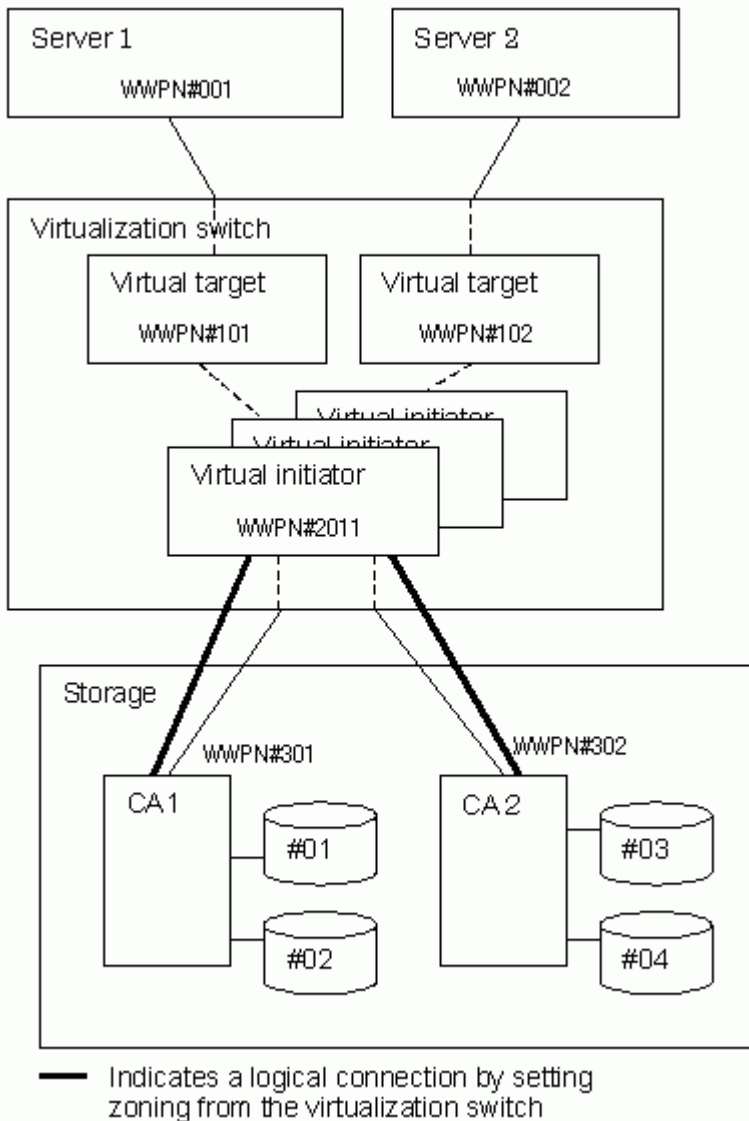
### Setting zoning between the virtualization switch and storage

It is necessary to protect physical disks you want to have virtualized by making them only accessible from Virtual Storage Conductor, so that the transaction server cannot directly access the disks. Thus, you should set zoning between the virtualization switch and storage (channel adapter).

Each virtualization switch has multiple mechanisms (called virtual initiators) used to exchange data with the storage. The virtual initiator logically corresponds to the host bus adapter (HBA) of the transaction server with WWPN attached. You may use the WWPN of the virtual initiator to set zoning between the virtualization switch and storage.

- To have all physical disks virtualized under one channel adapter (CA):

Use the virtualization switch function to set zoning between the virtualization switch and the channel adapter (CA) concerned.



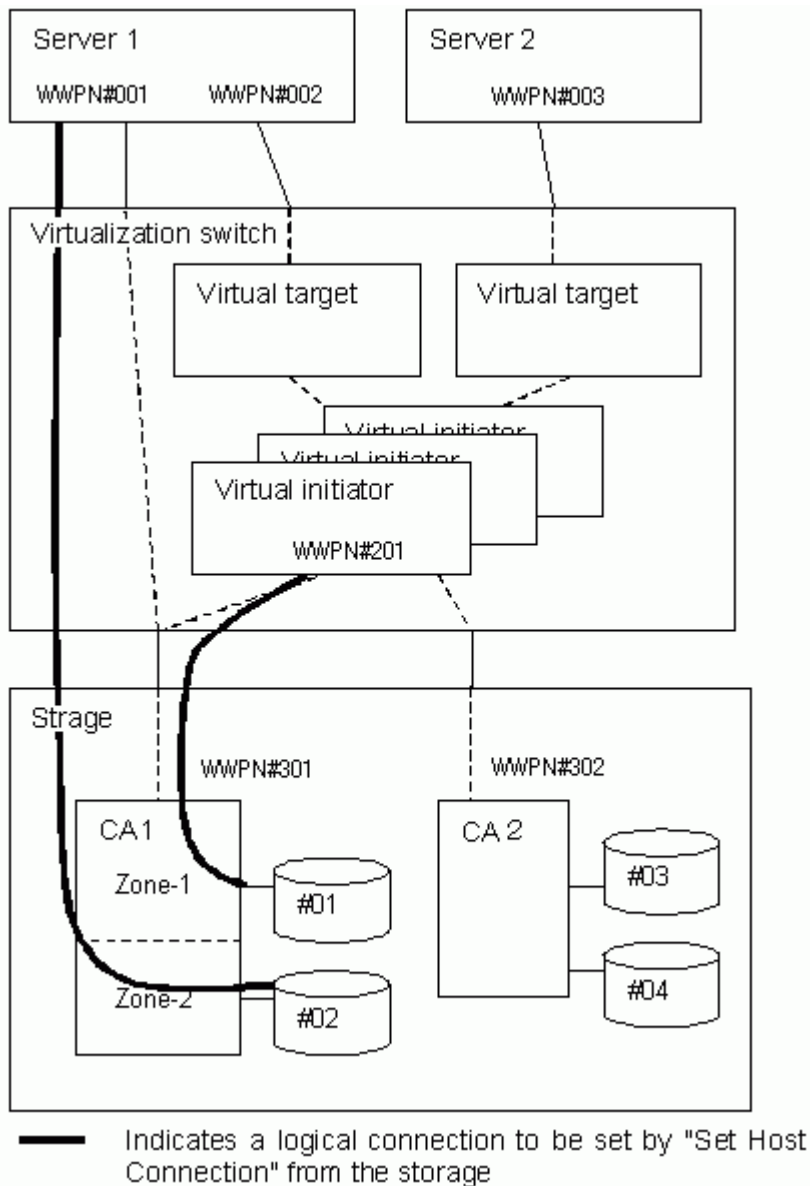
- To virtualize certain physical disks but not others under one channel adapter (CA):

Consider the virtualization switch as one server for the sake of convenience.

Classify the physical disks into groups for virtualizing and assigning to each transaction server. Then, assign each classified group of physical disks to each transaction server using "Set Host Connection" of the storage.

Since it is not possible to set all virtual initiators in "Set Host Connection" of storage in the ETERNUS3000 M50 and GR710, set the physical disks to be virtualized and those not to be virtualized separately under each channel adapter (CA).

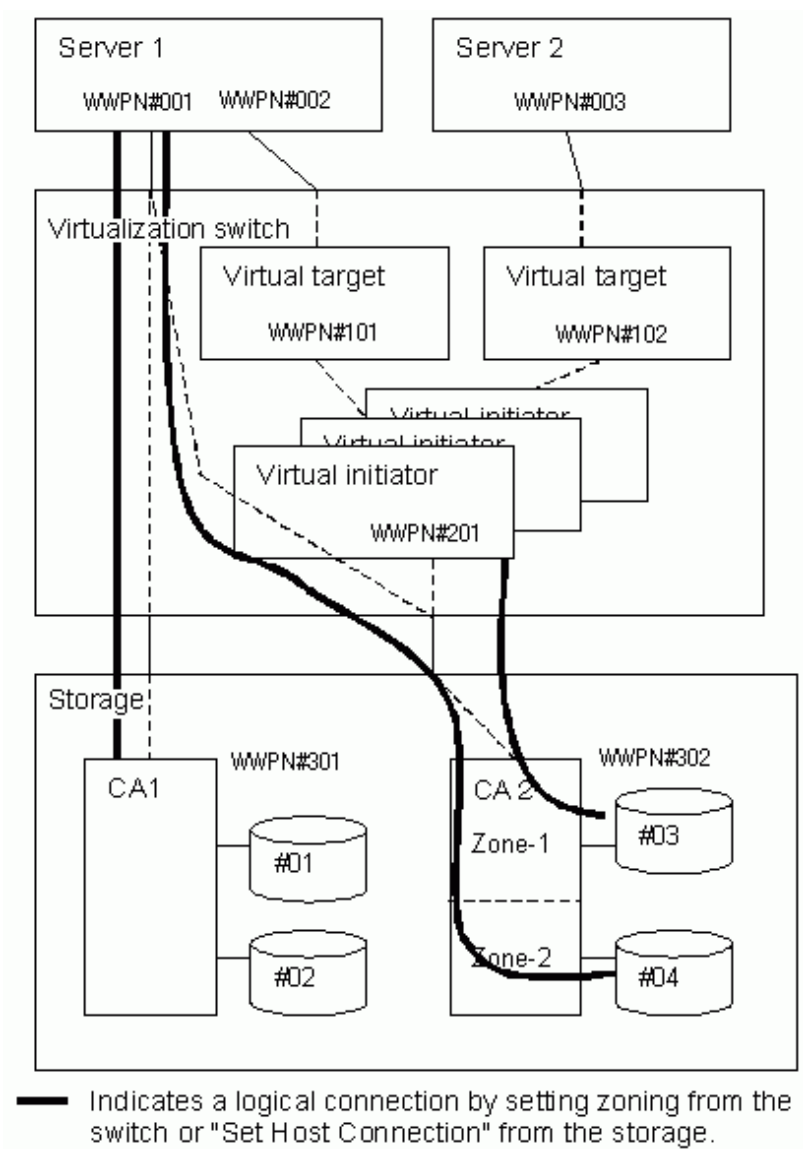




## 2.2.4 Physical disks you do not want to virtualize

When you do not want to have the physical disks under one channel adapter (CA) virtualized, assign the disks to the normal transaction servers.

When there are physical disks you want to virtualize and some that you don't want to virtualize less than one channel adapter (CA), perform "Set Host Connection" according to the procedure shown above.



## 2.2.5 Physical disks that you cannot virtualize

You cannot virtualize the types of physical disks described below.

Thus, set these disks according to the same procedure as previously described in "Physical disks you do not want to virtualize".

- Storage destination disk for the composition data file of Virtual Storage Conductor

The admin server holds composition data for Virtual Storage Conductor. Should the composition data for virtual storage in a virtualization switch be lost due to replacement or virtualization switch failure, the composition data of virtual storage in the virtualization switch is restored from the composition data on the admin server.

Note that should the admin server become disabled due to failure, for example, the composition data on the server will also be lost. Thus, Fujitsu recommends that you save the composition data in storage other than the admin server. Keep in mind that the composition data cannot be stored on the disk you want to virtualize.

- System disk for the transaction server

You cannot virtualize the system disk for the transaction server.

- Logical unit pool for direct backup

You cannot use a virtual disk as the logical unit pool for direct backup of the ETERNUS SP series.

## 2.3 Designing Virtualization Switches

---

This section describes the installation configuration of virtualization switches and how to design these switches when using virtual disks.

### 2.3.1 Configuration of connections to storages and servers

---

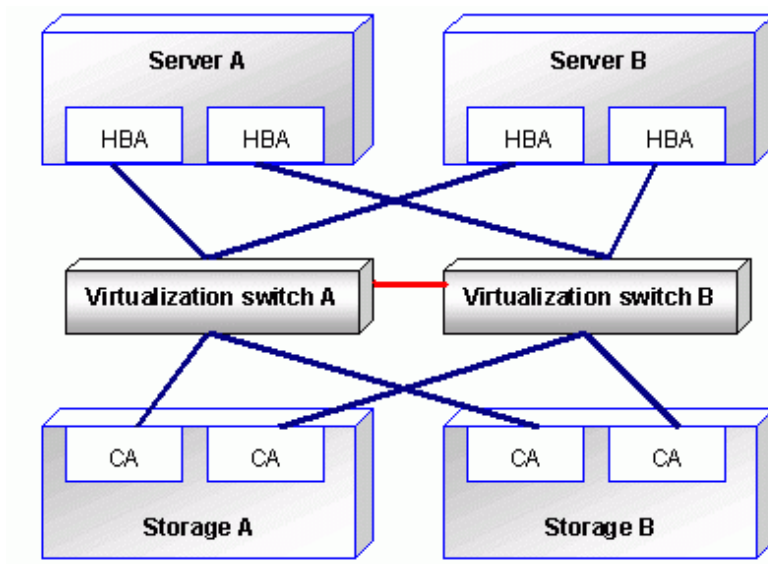
Be sure to use redundant configurations when designing the virtualization switches that connect disk devices and transaction servers, in order to ensure the reliability of access paths.

- For VS900 Model 200

Use cascade connections between virtualization switches in redundant configurations.

- For VS900 Model 300, Virtualization Blade

There is no need to use cascade connections between virtualization switches.



See

For details of the cascade connection for virtualization switches, refer to the "ETERNUS VS900 Model 200 System Build Procedure".

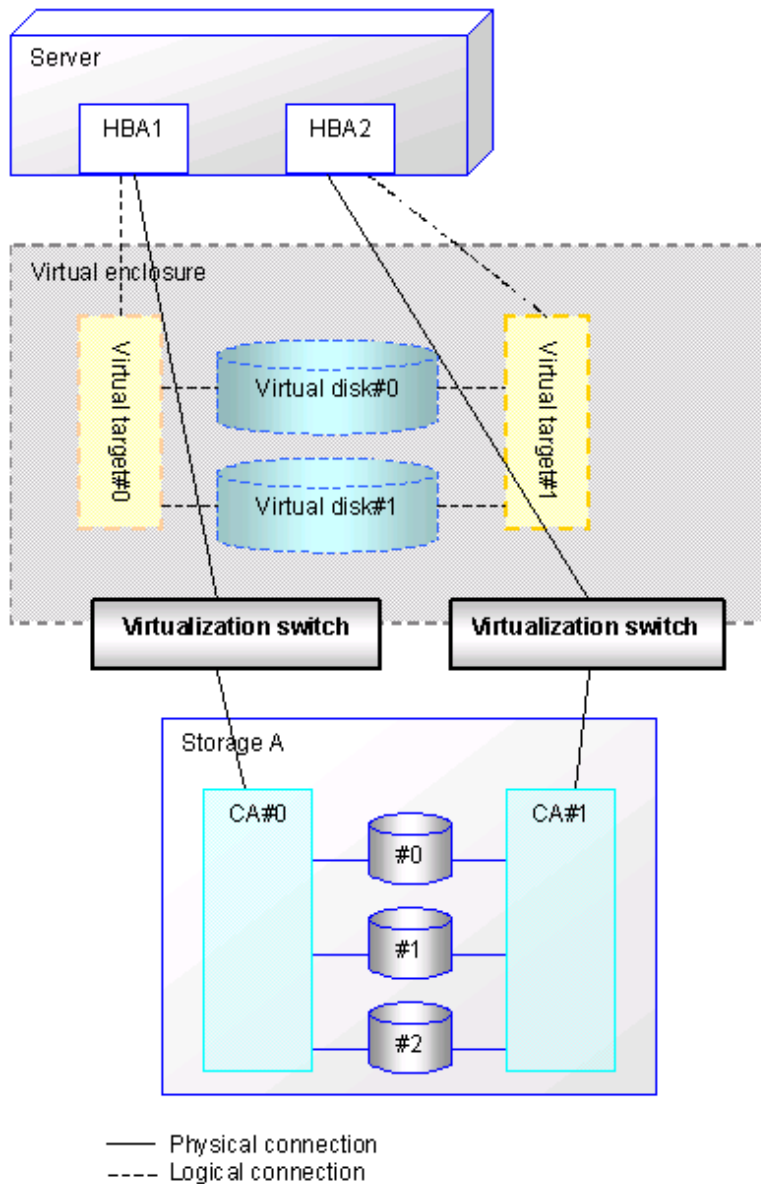
### 2.3.2 Multi-path configuration of virtual disks

---

Accessing a virtual disk enables physical disk access via the physical connection route.

Should such physical connection routes fail, access to the physical disk is disabled and results in a virtual disk access error.

Thus, you may add a physical connection route to continue access to the physical disk by using another normal connection route, even if one connection route fails.



## 2.4 Designing Physical Resources

Virtualization switches and storages connected to the virtualization switches are managed as physical resources of ESC.

## Chapter 3 Building an Environment

This chapter describes how to build an environment required for starting virtual storage operation.

### 3.1 [Solaris OS/Linux OS]Setting Up the Operation Admin Server

This section describes how to build a cluster environment, modify system configuration files for nodes, and create a configuration data file.

#### 3.1.1 Building a cluster environment for the admin server

When you want to incorporate the admin server into a cluster configuration, build a cluster environment as described in "Appendix A High-availability admin servers" in the ETERNUS SF Storage Cruiser Installation Guide.

This step is not required, however, when the admin server is in a single-node configuration. Follow the procedure described in "3.1.2 Environmental settings for each node" below.

#### 3.1.2 Environmental settings for each node

This section describes the environmental settings required for each admin server.

##### 3.1.2.1 Modifying system configuration files

Communication between an admin server and a virtualization switch is performed using the Transmission Control Protocol (TCP) of Internet Protocol (IP). Therefore, you must modify the following system configuration files:

- /etc/hosts
- /etc/services

##### **/etc/hosts file**

Register the host name and IP address of Ethernet port for virtualization control of a virtualization switch in the /etc/hosts file.

A virtualization switch must have a host name beginning with "vsce" as the first four characters. This character string should be followed by a number from 1 to 128 in ascending order.

For a virtualization switch in a redundant LAN configuration, enter a representative IP address of Ethernet port for virtualization control specified for the virtualization switch.



##### **Example**

##### **Example of coding in the /etc/hosts file**

The following shows an example of coding in the /etc/hosts file for virtualization switches with IP addresses 192.168.1.2 and 192.168.1.3.

```
192.168.1.2    vsce1                # VS900 Model 300 No.1
192.168.1.3    vsce2                # VS900 Model 300 No.2
```

## /etc/services file

In the /etc/services file, register a service name and a port number.

Register the following two services:

Service name	Port number	protocol
ssvscme	7420	tcp udp

The service name cannot be changed.

Port number 7420 can be changed if already used for another service. When doing so, change the port number specified in "VSCE\_PORT" in the configuration data file and that for the virtualization switch. Specify a unique port number in the entire system of servers and peripheral devices.



### Example

#### Example of coding in the /etc/services file

The following shows an example of coding in the /etc/services file.

```
ssvscme      7420/tcp      # VSC Manager - VSC Engine(TCP)
ssvscme      7420/udp      # VSC Manager - VSC Engine(UDP)
```

## 3.1.2.2 Creating a configuration data file

Note that "/etc/opt/FJSVssmgr/current/FJSVssvsc.ini" is the configuration data file.

Also note that "/opt/FJSVssmgr/lib/sample/vsc/FJSVssvsc.ini.sample" contains samples of configuration data files.

```
#
# All Rights Reserved, Copyright (c) Fujitsu Ltd. 2004
#
# Storage Software Virtual Storage Conductor
#
# FJSVssvsc.ini: configuration file
#
#####

LOG_LEVEL=4

COPY_HISTORY_ROTATE_NUMBER=2
```

If no configuration data file is created, the default values are assumed specified for all settings in the system.

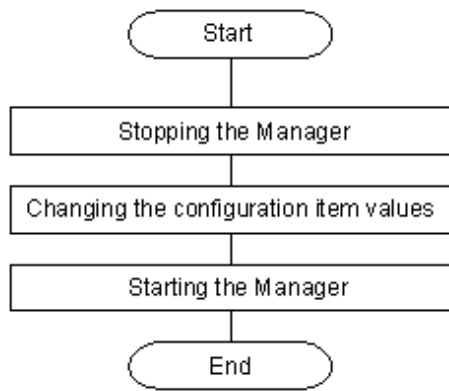


### Note

#### Modifying a configuration data file

A configuration data file cannot be modified while the Manager is running. Be sure to stop the Manager before modifying the configuration data file.

You can modify a configuration data file as follows:



## Coding format

Coding of a configuration data file is shown as follows:

- Enter one item per line. You cannot enter one item extending beyond one line or place more than one item on a line.
- A line that begins with "#" in the first column is handled as a comment line.
- Do not insert any character (such as a blank) between an item name and "=", or between "=" and a setting value.

## Configuration items

The following table indicates the configuration item in a configuration data file.

Table 3.1 List of configuration items

Item	Item name	Outline of setting this item	Omission of item
LOG_LEVEL	Log level	Specifies the output level of a message.	Possible
COPY_HISTORY_ROTATE_NUMBER	Number of generations in the copy history	Specifies the number of generations retained in the copy history log file.	Possible

### LOG\_LEVEL

Specify the error type of messages to be output.

Messages are output via syslogd(1M). Therefore, the settings in /etc/syslog.conf determine whether messages are actually output and to what file messages are output. For information on how to make settings in /etc/syslog.conf, see syslog.conf(4).

If this item is omitted, messages with error type "ERR" are output.

Format

```
LOG_LEVEL={1 | 2 | 3 | 4}
```

Description of operands

- 1: Outputs messages for error type "ERR".
- 2: Outputs messages for error types "ERR" and "WARNING".
- 3: Outputs messages for error types "ERR", "WARNING", "NOTICE" and "INFO".
- 4: Outputs messages for error types "ERR", "WARNING", "NOTICE", "INFO" and "DEBUG".

## COPY\_HISTORY\_ROTATE\_NUMBER

Specifies the number of generations retained in the copy history log file.

The default number of generations is 2.

Format

```
COPY_HISTORY_ROTATE_NUMBER={2|3|4|5}
```

Description of operands

Specify a value ranging from 2 to 5.

### 3.1.2.3 Creating a commit script

When you perform an operation on VSC Manager to modify the configuration information of virtual storage, VSC Manager executes a program or script to create a backup or copy of the virtual storage configuration information. This program or script is called a "Commit Script".

If the virtual storage configuration information is lost due for some reason, no virtual disk can be supplied to a transaction server. Even in case of such unexpected trouble, you must restore the virtual storage configuration information to resume operation. A commit script is intended to create a backup or copy of the virtual storage configuration information in case of any unexpected trouble.

Create a commit script in "/etc/opt/FJSVssmgr/current/VscCommitScript" and give it an execution right.

Note that "/opt/FJSVssmgr/lib/sample/vsc/VscCommitScript.sample" contains samples of commit scripts.

#### Commit script sample

```
#!/bin/sh
#
# All Rights Reserved, Copyright (c) Fujitsu Ltd. 2004
#
# Storage Software Virtual Storage Conductor
#
# CommitScript Sample
#
#####
CURRENT_DIR=/var/opt/FJSVssmgr/current
BKUP_DIR=/var/opt/FJSVssmgr/current/vsclog/VSCCOMPOSE_BAK
COMPOSE_DIR=vsccompose

if [ ! -d $BKUP_DIR ]; then
    mkdir -p $BKUP_DIR
fi
if [ $? -eq 0 ]; then
    cd $CURRENT_DIR
    tar cf $BKUP_DIR/compose.BAK.tar ./COMPOSE_DIR
    if [ $? -eq 0 ]; then
        echo "Backup Complete."
        exit 0
    fi
fi
echo "Backup failed."
exit 1
```

#### Notes

- The configuration information of VSC Manager is stored in the "/var/opt/FJSVssmgr/current/vsccompose/" directory. Backup all directories and files in this directory. When you restore the configuration information, restore directories and files in the same configuration as when backed up.



- Note that a commit script may cause a delay in the processing time of VSC Manager depending on its coding, because the script always starts up whenever the resource status of virtual storage changes.
- Do not change the coding in "/opt/FJSVssmgr/lib/sample/vsc/VscCommitScript.sample".

### Precautions on use

- If you do not make a commit script, message "ssvsc0906" is output and no commit script is executed. Therefore, no backup or copy of the virtual storage configuration information is created. Moreover, the virtual storage configuration information cannot be restored if lost for some reason.
- If a commit script terminates abnormally for some reason, message "ssvsc0905", "ssvsc0907", or "ssvsc0908" is output. Take action as instructed by these messages and re-execute the commit script.

## 3.2 [Windows]Setting Up the Operation Admin Server

---

This section describes how to build a cluster environment, modify system configuration files for nodes, and create a configuration data file.

### 3.2.1 Building a cluster environment for the admin server

---

When you want to incorporate the admin server into a cluster configuration, build a cluster environment as described in "Appendix A High-availability admin servers" in the ETERNUS SF Storage Cruiser Installation Guide.

This step is not required, however, when the admin server is in a single-node configuration. Follow the procedure described in "3.2.2 Environmental settings for each node" below.

### 3.2.2 Environmental settings for each node

---

This section describes the environmental settings required for each admin server.

#### 3.2.2.1 Modifying system configuration files

Communication between an admin server and a virtualization switch is performed using the Transmission Control Protocol (TCP) of Internet Protocol (IP). Therefore, you must modify the following system configuration files:

- %SystemRoot%\system32\drivers\etc\hosts
- %SystemRoot%\system32\drivers\etc\services

#### **%SystemRoot%\system32\drivers\etc\hosts file**

Register the host name and IP address of Ethernet port for virtualization switch control of a virtualization switch in the %SystemRoot%\system32\drivers\etc\hosts file.

A virtualization switch must have a host name beginning with "vsce" as the first four characters. This character string should be followed by a number from 1 to 128 in ascending order.

For a virtualization switch in a redundant LAN configuration, enter a representative IP address of Ethernet port for virtualization switch control specified for the virtualization switch.

## Example

### Example of coding in the %SystemRoot%\system32\drivers\etc\hosts file

The following shows an example of coding in the %SystemRoot%\system32\drivers\etc\hosts file for virtualization switches with IP addresses 192.168.1.2 and 192.168.1.3.

```
192.168.1.2    vsce1                # VS900 Model 300 No.1
192.168.1.3    vsce2                # VS900 Model 300 No.2
```

### %SystemRoot%\system32\drivers\etc\services file

In the %SystemRoot%\system32\drivers\etc\services file, register a service name and a port number.

Register the following two services:

Service name	Port number	protocol
ssvscme	7420	tcp udp

The service name cannot be changed.

Port number 7420 can be changed if already used for another service. When doing so, change the port number specified in "VSCE\_PORT" in the configuration data file and that for the virtualization switch. Specify a unique port number in the entire system of servers and peripheral devices.

## Example

### Example of coding in the %SystemRoot%\system32\drivers\etc\services file

The following shows an example of coding in the %SystemRoot%\system32\drivers\etc\services file.

```
ssvscme      7420/tcp          # VSC Manager - VSC Engine(TCP)
ssvscme      7420/udp          # VSC Manager - VSC Engine(UDP)
```

## 3.2.2.2 Creating a configuration data file

Note that "\$ENV\_DIR\Manager\etc\opt\FJSVssmgr\current\FJSVssvsc.ini" is the configuration data file. (\$ENV\_DIR means "Environment Directory" specified at the Manager installation.)

Also note that "\$ENV\_DIR\Manager\opt\FJSVssmgr\lib\sample\vsc\FJSVssvsc.ini.sample" contains samples of configuration data files.

```
#
# All Rights Reserved, Copyright (c) Fujitsu Ltd. 2004
#
# Storage Software Virtual Storage Conductor
#
# FJSVssvsc.ini: configuration file
#
#####

LOG_LEVEL=4

COPY_HISTORY_ROTATE_NUMBER=2
```

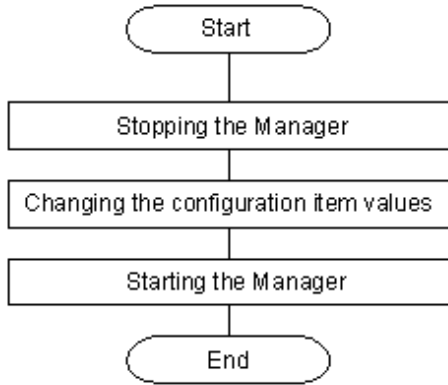
If no configuration data file is created, the default values are assumed specified for all settings in the system.



### Modifying a configuration data file

A configuration data file cannot be modified while the Manager is running. Be sure to stop the Manager before modifying the configuration data file.

You can modify a configuration data file as follows:



### Coding format

Coding of a configuration data file is shown as follows:

- Enter one item per line. You cannot enter one item extending beyond one line or place more than one item on a line.
- A line that begins with "#" in the first column is handled as a comment line.
- Do not insert any character (such as a blank) between an item name and "=", or between "=" and a setting value.

### Configuration items

The following table indicates the configuration item in a configuration data file.

Table 3.2 List of configuration items

Item	Item name	Outline of setting this item	Omission of item
LOG_LEVEL	Log level	Specifies the output level of a message.	Possible
COPY_HISTORY_ROTATE_NUMBER	Number of generations in the copy history	Specifies the number of generations retained in the copy history log file.	Possible

#### LOG\_LEVEL

Specify the error type of messages to be output.

Messages are output via syslogd(1M). Therefore, the settings in eventlog determine whether messages are actually output and to what file messages are output. For information on how to make settings in eventlog, see syslog.conf(4).

If this item is omitted, messages with error type "ERR" are output.

Format

LOG\_LEVEL={1 | 2 | 3 | 4}

### Description of operands

- 1: Outputs messages for error type "ERR".
- 2: Outputs messages for error types "ERR" and "WARNING".
- 3: Outputs messages for error types "ERR", "WARNING", "NOTICE" and "INFO".
- 4: Outputs messages for error types "ERR", "WARNING", "NOTICE", "INFO" and "DEBUG".

### COPY\_HISTORY\_ROTATE\_NUMBER

Specifies the number of generations retained in the copy history log file.

The default number of generations is 2.

#### Format

COPY\_HISTORY\_ROTATE\_NUMBER={2|3|4|5}

### Description of operands

Specify a value ranging from 2 to 5.

## 3.2.2.3 Creating a commit script

When you perform an operation on VSC Manager to modify the configuration information of virtual storage, VSC Manager executes a program or script to create a backup or copy of the virtual storage configuration information. This program or script is called a "Commit Script".

If the virtual storage configuration information is lost due for some reason, no virtual disk can be supplied to a transaction server. Even in case of such unexpected trouble, you must restore the virtual storage configuration information to resume operation. A commit script is intended to create a backup or copy of the virtual storage configuration information in case of any unexpected trouble.

Create a commit script in "\$ENV\_DIR\Manager\etc\opt\FJSVssmgr\current\VscCommitScript.bat" and give it an execution right.

Note that "\$INS\_DIR\Manager\opt\FJSVssmgr\lib\sample\vsc\VscCommitScript.bat.sample" contains samples of commit scripts.

### Information

- \$INS\_DIR means "Program Directory" specified at the Manager installation.
- \$ENV\_DIR means "Environment Directory" specified at the Manager installation.
- \$TMP\_DIR means "Work Directory" specified at the Manager installation.

### Commit script sample

```
@echo off
rem #
rem # All Rights Reserved, Copyright (c) Fujitsu Ltd. 2006-2009
rem #
rem # Storage Software Virtual Storage Conductor
rem #
rem # CommitScript Sample
rem #
rem #####
setlocal

set VARDIR=$TMP_DIR\Manager
if not exist "%VARDIR%" goto fail
set CURRENT_DIR=%VARDIR%\var\opt\FJSVssmgr\current
set BKUP_DIR=vscllog\VSCCOMPOSE_BAK
set COMPOSE_DIR=vsccompose
```

```

set /a listflag=0
set /a delflag=0
set /a copyflag=0

cd "%CURRENT_DIR%"

:: backup check
if not exist "%BKUP_DIR%" mkdir "%BKUP_DIR%"
if errorlevel 1 goto fail

if not exist "%BKUP_DIR%\*.repository" goto allbackup

:: commitlist check
set COMMITLIST_DIR=commitlist
set INSERT_UPDATE_FILE=%COMMITLIST_DIR%\addlist.vsc
set DELETE_FILE=%COMMITLIST_DIR%\deletelist.vsc

if not exist "%COMMITLIST_DIR%" goto allbackup
if not exist "%COMMITLIST_DIR%\*.vsc" goto allbackup

if exist "%INSERT_UPDATE_FILE%" (for %%F in ( %INSERT_UPDATE_FILE% ) do if not %%~zF==0 set /a
listflag = 1 && set /a copyflag = 1)
if exist "%DELETE_FILE%" (for %%F in ( %DELETE_FILE% ) do if not %%~zF==0 set /a listflag = 1 && set /
a delflag = 1)

if %listflag% == 0 (goto allbackup) else goto diffbackup

:allbackup
if exist "%BKUP_DIR%\*.repository" del "%BKUP_DIR%\*.repository"
copy /y "%COMPOSE_DIR%\*.repository" "%BKUP_DIR%" > nul
if errorlevel 1 goto fail
if errorlevel 0 goto success

:diffbackup
if %delflag% == 1 (for /f "tokens=* delims=" %%F in ( %DELETE_FILE% ) do ((del "%BKUP_DIR%\%%F") &
(if exist "%BKUP_DIR%\%%F" goto allbackup)))
if %copyflag% == 1 (for /f "tokens=* delims=" %%F in ( %INSERT_UPDATE_FILE% ) do ((copy /y
"%COMPOSE_DIR%\%%F" "%BKUP_DIR%" > nul) & (if errorlevel 1 goto allbackup)))

:success
if exist "%INSERT_UPDATE_FILE%" (del "%INSERT_UPDATE_FILE%")
if exist "%DELETE_FILE%" (del "%DELETE_FILE%")
echo "Backup Complete."
exit 0

:fail
echo "Backup failed."
exit 1

```

## Notes

- The configuration information of VSC Manager is stored in the "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vscompose" directory.  
Backup all directories and files in this directory. When you restore the configuration information, restore directories and files in the same configuration as when backed up.
- Note that a commit script may cause a delay in the processing time of VSC Manager depending on its coding, because the script always starts up whenever the resource status of virtual storage changes.
- Do not change the coding in "\$INS\_DIR\Manager\opt\FJSVssmgr\lib\sample\vsc\VscCommitScript.bat.sample".

## Precautions on use

- If you do not make a commit script, message "ssvsc0906" is output and no commit script is executed. Therefore, no backup or copy of the virtual storage configuration information is created. Moreover, the virtual storage configuration information cannot be restored if lost for some reason.
- If a commit script terminates abnormally for some reason, message "ssvsc0905", "ssvsc0907", or "ssvsc0908" is output. Take action as instructed by these messages and re-execute the commit script.

## 3.3 Setting Up a Virtualization Switch

---

You need not install any software on a virtualization switch because the engine program that controls the virtual storage function on the virtualization switch is already updated at shipment. However, you must setup the information used for communication between admin servers and virtualization switches.

### 3.3.1 Setting the IP address of a virtualization switch

---

For details on the IP address settings for VS900 Model 200 and the commands to be used, refer to the "ETERNUS VS900 Model 200 Virtualization Switch User's Guide" and the "ETERNUS VS900 Model 200 Virtualization Switch XPath OS Reference Manual".

For details on the IP address settings for VS900 Model 300 and Virtualization Blade, and the commands to be used, refer to the "ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System System Build Procedure" and the "ETERNUS VS900, SN200 series Fabric OS Command Reference Manual Supporting Fabric OS v5.3.x".

### 3.3.2 Setting the management information of a virtualization switch

---

Set the information required by the admin server to manage a virtualization switch and the information of a remote virtualization switch in a redundant configuration. Use the vscefieldset command to set this information.

This section describes the items of information to be set.

- Virtualization switch number

Enter the virtualization switch number of a virtualization switch that is managed by the admin server. This must be a unique number in the admin server's range of management.

The numeric value (1 to 128) entered and prefixed with "vsce" forms the communication host name to be used. For example, enter "1" to establish a communication host name of "vsce1".

- Shared ID of a virtualization switch

Assuming virtualization switches in a redundant configuration as one group, assign an identifier for the entire group.

For example, when placing two virtualization switches in a redundant configuration, set 1 for the local virtualization switch and 2 for the remote virtualization switch.

- IP address of a virtualization switch

This is an IP address of Ethernet port for virtualization switch control for communication with the admin server or between virtualization switches in a redundant configuration. Set a representative IP address of Ethernet port for virtualization switch control of the virtualization switch.

- Number of remote virtualization switches in a redundant configuration

Enter the number of virtualization switches in a redundant configuration minus one, which accounts for the local virtualization switch.

When two virtualization switches are in a redundant configuration, enter 1 because there is only one remote virtualization switch.

- Number of admin servers

Enter the number of admin servers that manage virtualization switches.

However, enter 1 for admin servers in a cluster configuration.

- IP address of an admin server

Set the IP address of an admin server that manages a virtualization switch.

When admin servers are in a cluster configuration, set the take-over IP address.



For a detailed explanation of setting the management information of a virtualization switch and the commands to be used, refer to the "ETERNUS VS900 Model 200 System Build Procedure".

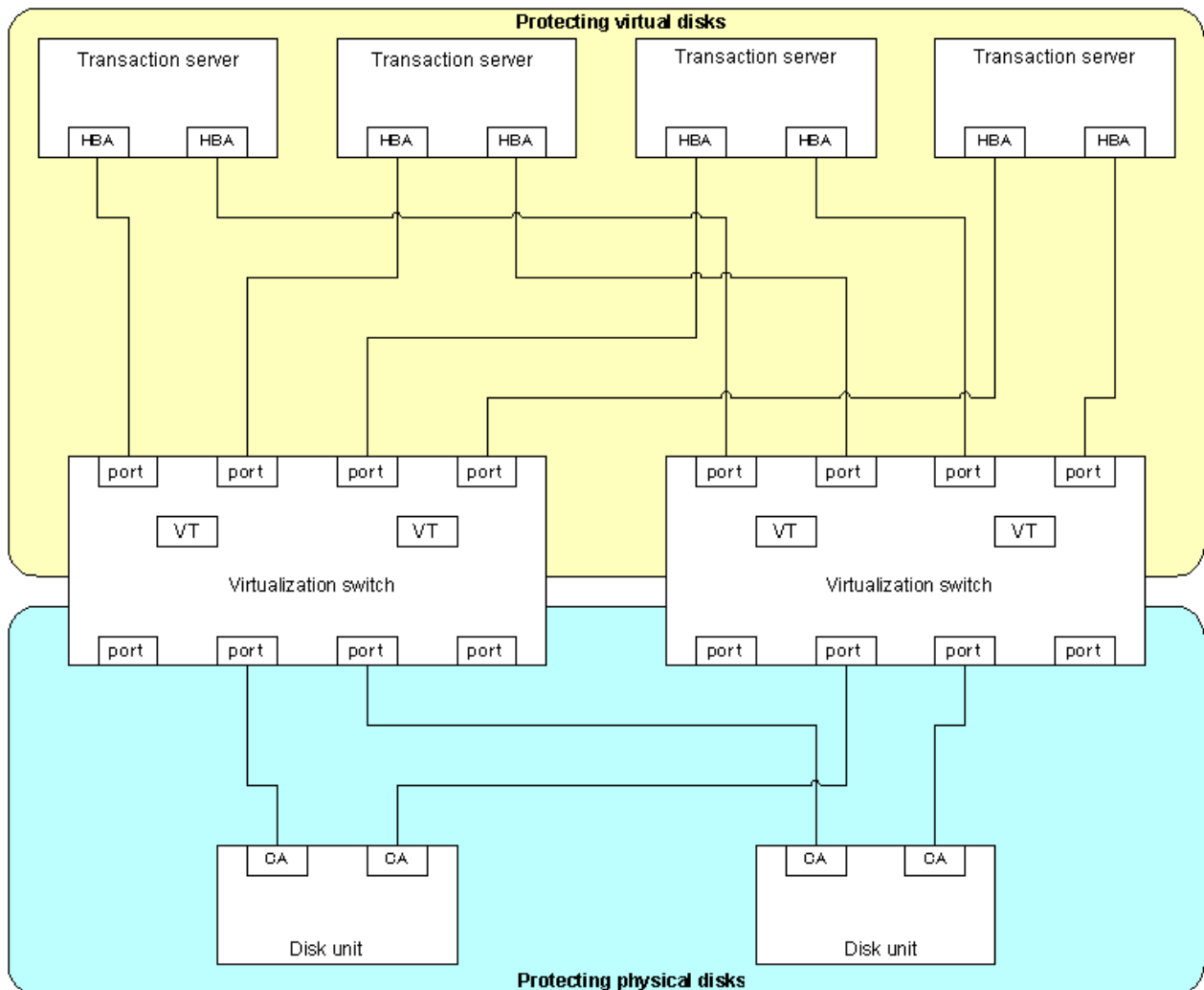
For details on the management information settings for VS900 Model 300 and Virtualization Blade, and the commands to be used, refer to the "ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System Build Procedure".

### 3.4 Security Settings

Place the physical disks in the storage device under the control of a virtualization switch to ensure safe virtual storage operations.

In a virtual storage environment, you must make security settings for both the physical and virtual disks.

Figure 3.1 Disk protection in a virtual storage environment



### 3.4.1 Protecting physical disks

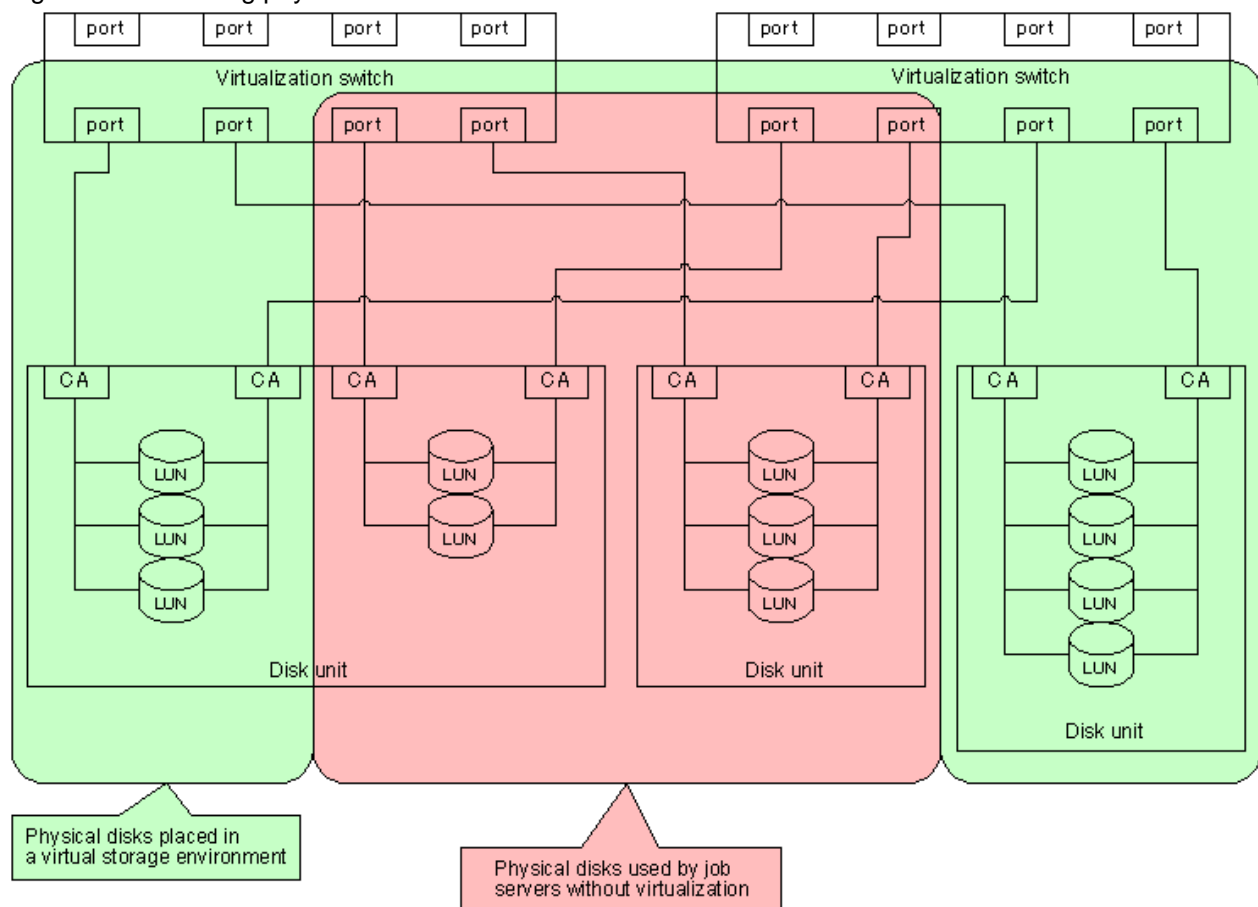
As shown in "Figure 3.2 Protecting physical disks" protect the physical disks that constitute virtual disks against direct access by transaction servers by mistake.

This section describes the protection procedure using ETERNUSmgr of the "ETERNUS3000 model 500". Depending on your model, the screens and operation procedures for ETERNUSmgr or GRmgr may vary. Refer to the "ETERNUSmgr User Guide -Settings/Maintenance-" and "GRmgr User Guide -Settings/Maintenance-" of your model.



- "ETERNUSmgr User Guide -Settings/Maintenance-"
- "GRmgr User Guide -Settings/Maintenance-"

Figure 3.2 Protecting physical disks



You can protect physical disks in the following two ways:

- [3.4.1.1 Using the zoning function of a virtualization switch](#)
- [3.4.1.2 Using the host table settings mode of ETERNUS and GR](#)

#### 3.4.1.1 Using the zoning function of a virtualization switch

Use the zoning function of a virtualization switch to protect physical disks in a virtual storage environment against access from transaction servers.

Register with the zone the WWPN of the CA for the disk device connected to the virtualization switch and the virtual initiator for the virtualization switch.





For information on creating zones, refer to the "ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System Build Procedure" or the "ETERNUS VS900 Model 200 Virtualization Switch Zoning User's Guide".

### Finding the virtual initiator of each port of a virtualization switch

You can find the virtual initiator (World Wide Name) of each port of a virtualization switch by using the Maintenance Menu of the Virtual Storage Window. Select a virtualization switch shown in the window and click the <Detailed Information> button of the "Initiator" table.

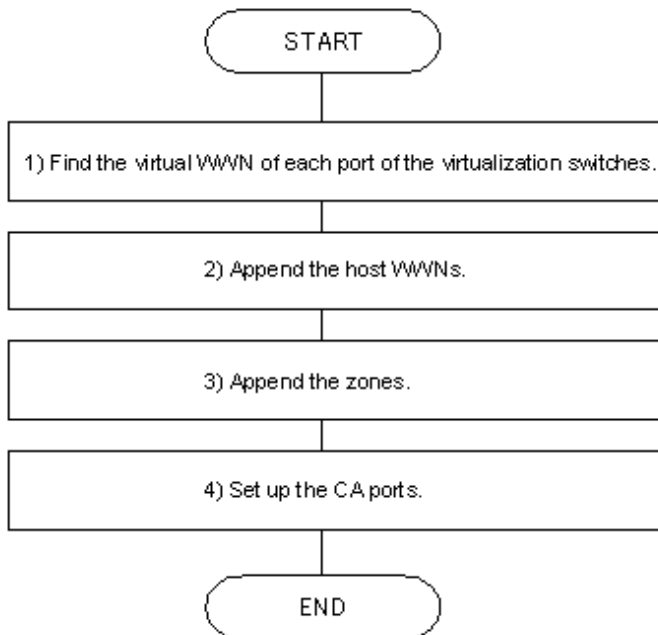
### 3.4.1.2 Using the host table settings mode of ETERNUS and GR

Use "Host Table Settings Mode" of "Host Interface Management" of ETERNUS and GR to protect physical disks in a virtual storage environment against access from transaction servers.



There are some devices (such as ETERNUS3000 model 50 and GR710) for which the WWPNS of servers that can be registered using "Set hosts for which to permit connection" are not sufficient for the ports of virtualization switches. This procedure cannot be used for such devices. In such cases, use the procedure described in "3.4.1.1 Using the zoning function of a virtualization switch".

You can make the setting using "host table settings mode" as follows:



### Finding the virtual initiator of each port of a virtualization switch

You can find the virtual initiator (World Wide Name) of each port of a virtualization switch by using the Maintenance Menu of the Virtual Storage Window. Select a virtualization switch shown in the window and click the <Detailed Information> button of the "Initiator" table.

### Appending a host world wide name

On ETERNUSmgr, select "Setting RAID/Setting Host Menu" - "Host Interface Management" - "Append/Delete Host WorldWide Name(s)" to open the [Append/Delete Host WorldWide Name(s)] window.

Append the virtual initiator of each port of a virtualization switch that has been found (as described in " Finding the virtual initiator of each port of a virtualization switch") as the World Wide Name of a server that can be connected to the CA.

Append the virtual initiators of all ports (i.e., virtual initiators from Ports 0 to 15).

### Appending zones

On ETERNUSmgr, select "Setting RAID/Setting Host Menu" - "Host Interface Management" - "Append/Delete Zone(s)" to open the [Append/Delete Zone(s)] window.

You can create zones for a virtual storage environment.

### Setting the CA port

On ETERNUSmgr, select "Setting RAID/Setting Host Menu" - "Host Interface Management" - "Set CA Port" to open the [Set CA Port] window.

The connection to a virtualization switch is always a fabric connection. Therefore, set the CA port to FC-CA mode.

Open the [Set FC-CA Details] window and click [Fabric Connection] - [Host Table Settings Mode].

Click [Append/Delete Authorized Host(s)] to open the "Append/Delete Authorized Host(s)" window.

In the [Append/Delete Host WorldWide Name(s)] window, select the virtual initiator of each port of the appended virtualization switch, and then click the <Append> button.

## 3.4.2 Protecting virtual disks

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Protect the virtual disks created against direct access from irrelevant transaction servers.

Use the zoning function of a virtualization switch to protect virtual disks.

### Using the zoning function of a virtualization switch

Use the zoning function of a virtualization switch to protect virtual disks against direct access from irrelevant transaction servers.

Create a zone between the WWNs of a virtual target and host bus adapter (HBA) installed on a transaction server.

To find the WWN of a virtual target, select "Configuration Information Tree (Virtual Enclosure)" - "Virtual Target".

## 3.4.3 Copy security function

---

The copy security function makes it possible to perform ETERNUS SF AdvancedCopy Manager copies between virtual disks in the same virtual enclosure.

By grouping virtual enclosures, copies can be performed between only virtual disks in virtual enclosures in the same group.

A group of virtual enclosures that are subject to ETERNUS SF AdvancedCopy Manager copy security are referred to as a "copy security group".



### Note

.....

The copy security function can only be used with ETERNUS SF AdvancedCopy Manager copies.

This function does not apply to the VSC migration function or the VSC replication function.

.....

The copy security function is explained below using the example in the following figure.

There are four virtual enclosures: Virtual Enclosure A, Virtual Enclosure B, Virtual Enclosure C and Virtual Enclosure D.

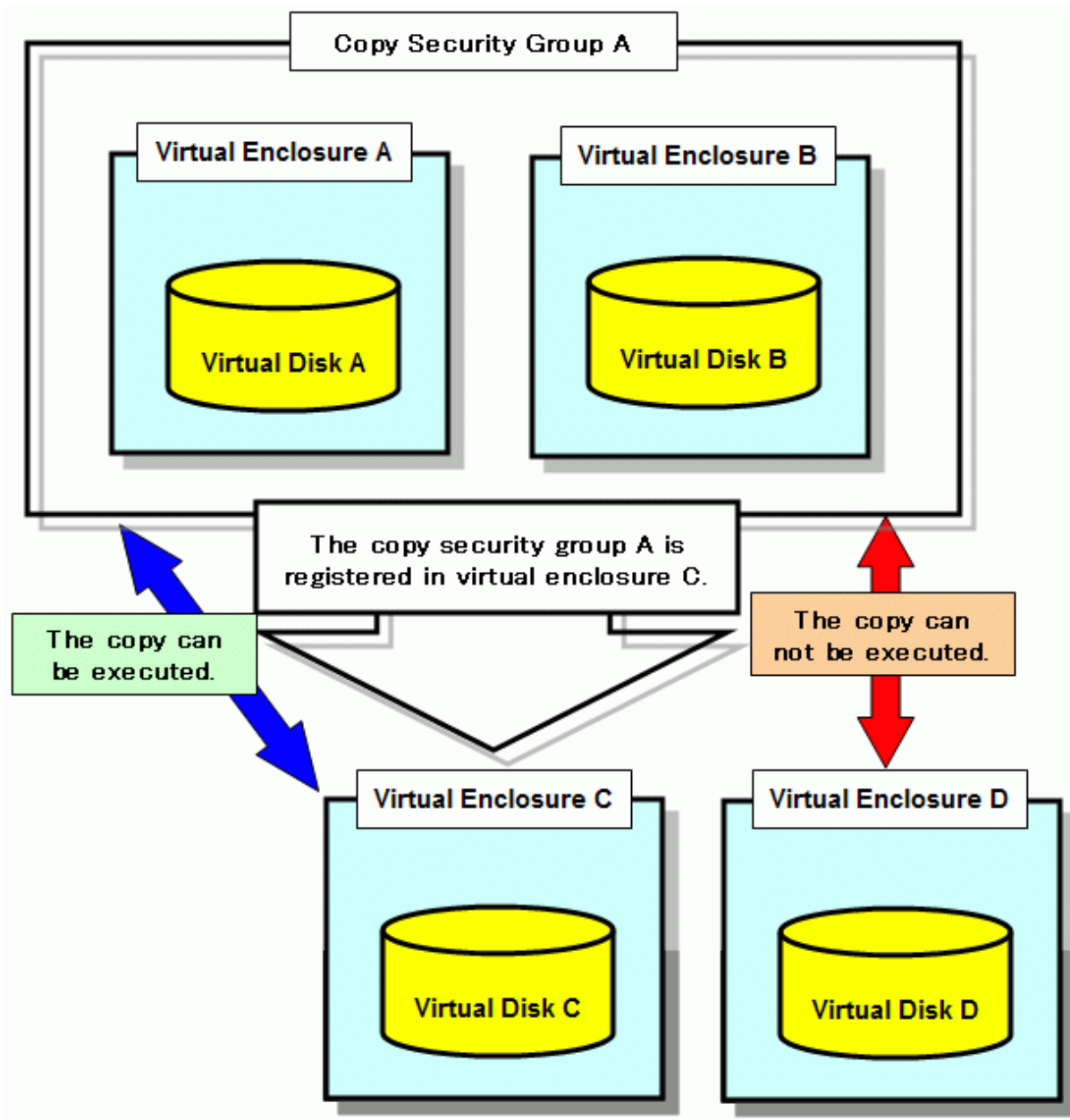
There are virtual disks in each virtual enclosure.

Virtual Enclosure A and Virtual Enclosure B have been registered with Copy Security Group A.

Copy Security Group A has been registered with Virtual Enclosure C.

Copies can be made between Virtual Disk A and Virtual Disk B (which are in Virtual Enclosure A and Virtual Enclosure B respectively, which are both registered in Copy Security Group A) and Virtual Disk C in Virtual Enclosure C.

However, copies cannot be made between Virtual Disk A and Virtual Disk B (which are in Virtual Enclosure A and Virtual Enclosure B respectively, which are both registered in Copy Security Group A)" and Virtual Disk D in Virtual Enclosure D.



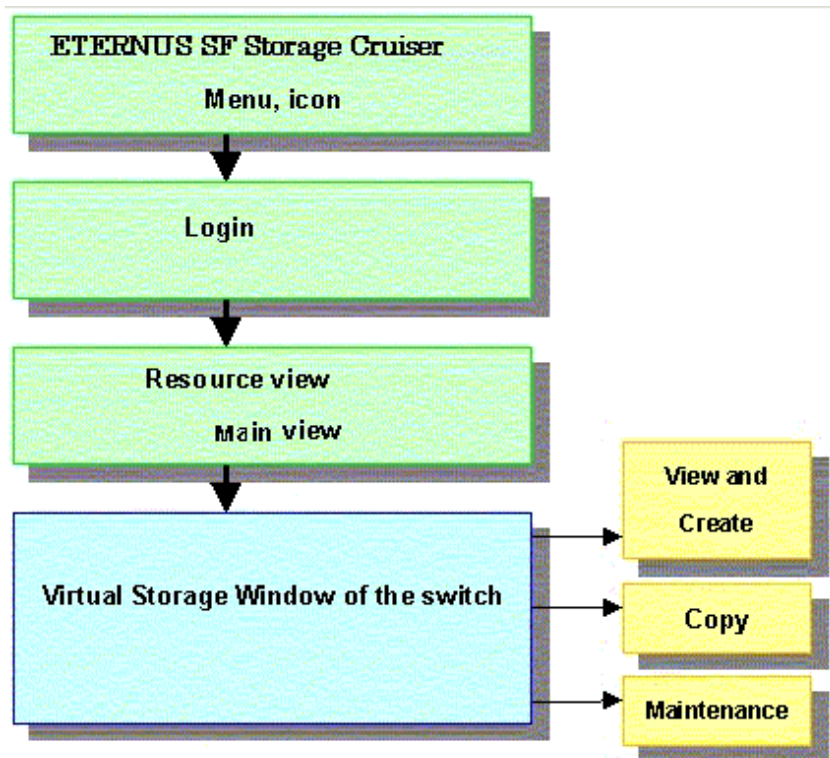
# Chapter 4 Startup and Settings

This chapter describes how to start up the Virtual Storage Window and register virtualization switches.

## 4.1 Starting and Closing the Virtual Storage Window

### 4.1.1 Starting the Virtual Storage Window

The starting procedure for the Virtual Storage Window has the following transition:



 See

See "A.2 Explanation of the Windows under "View and Create"" for an explanation of the "View and Create" window.

See "A.3 Explanation of Windows under "Copy"" for an explanation of the "Copy" window.

See "A.4 Explanation of Windows under "Maintenance"" for an explanation of the "Maintenance" window.

### 4.1.2 Closing the Virtual Storage Window

Select [File] - [Exit] in the Virtual Storage Window to close the Virtual Storage Window.

## 4.2 Setting and Starting the SMI Agent

You must start up the SMI agent before registering a ETERNUS VS900 Model 200 virtualization switch as a resource for ESC.

It is not necessary to start an SMI agent when registering a VS900 Model 300 and Virtualization Blade as an ESC resource.

### Note

If the configuration (RAID group, capacity, etc.) of a physical disk on the disk device has been changed after starting the SMI Agent, the SMI Agent should be re-started.

### See

For details on how to install and start up the SMI agent, refer to "4.2 Fibre Channel Switch" in the ETENUS SF Storage Cruiser User's Guide.

## 4.3 Registering Virtualization Switches

Register virtualization switches as ESC resources.

Register virtualization switches as storage nodes in the resource view.

- Registering a VS900 Model 200
  1. 1. Open the [Storage Search] dialog box from the ESC resource management window.
  2. 2. Enter the following information in the [Storage Search] dialog box.

Start the "Storage Search" dialog in the resource view of ESC.

Enter the following information in the "Storage Search" dialog.

Item name	Input value
IP address	IP address of the server on which the SMI agent is active
Search type	Select "SMIS switch"
NameSpace	"root/brocade1"
Login account	Login account of the server on which the SMI agent is active
Login password	Password of the login account.
Port Number	Number of the port connected to the SMI agent.

- Registering a VS900 Model 300, ETERNUS SN200 Model 540 (virtualization blade already in-built)
  1. 1. Open the [Storage Search] dialog box from the ESC resource view.
  2. 2. Enter the following information in the [Storage Search] dialog box.

Open the [Storage Search] dialog box from the ESC resource view.

Enter the following information in the [Storage Search] dialog box.

Item name	Input value
IP address	IP address of Ethernet port for switch control of the VS900 Model 300, ETERNUS SN200 Model 540 (virtualization blade already in-built).
Search type	Auto-detect

1. When the search completes, add a device.
2. Refer to "5.2.2 Adding a device (changing from the violet icon state to the registered state)" in the ETERNUS SF Storage Cruiser User's Guide for more information about adding storage devices.



.....  
For details on how to register virtualization switches, refer to the "ETERNUS SF Storage Cruiser User's Guide", section "Startup and Setting" > "Registering device".  
.....

## 4.4 Registering a Storage Device

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Register the storage device used for the virtual storage function as an ESC resource.

Register a storage device in the basic domain on the resource management screen as follows:

1. Detect a storage device as follows.
  - Select [File] - [Detect SAN devices] - [Detect devices in subnet], or
  - Select [File] - [Detect SAN devices] - [Detect single unit].
2. Select a storage device from those detected, then select [File] - [Register] - [Register SAN devices] to register the storage device.



.....  
For details of the storage device registration procedure, refer to "5.2 Creating/Registering device" in the ETERNUS SF Storage Cruiser User's Guide.  
.....

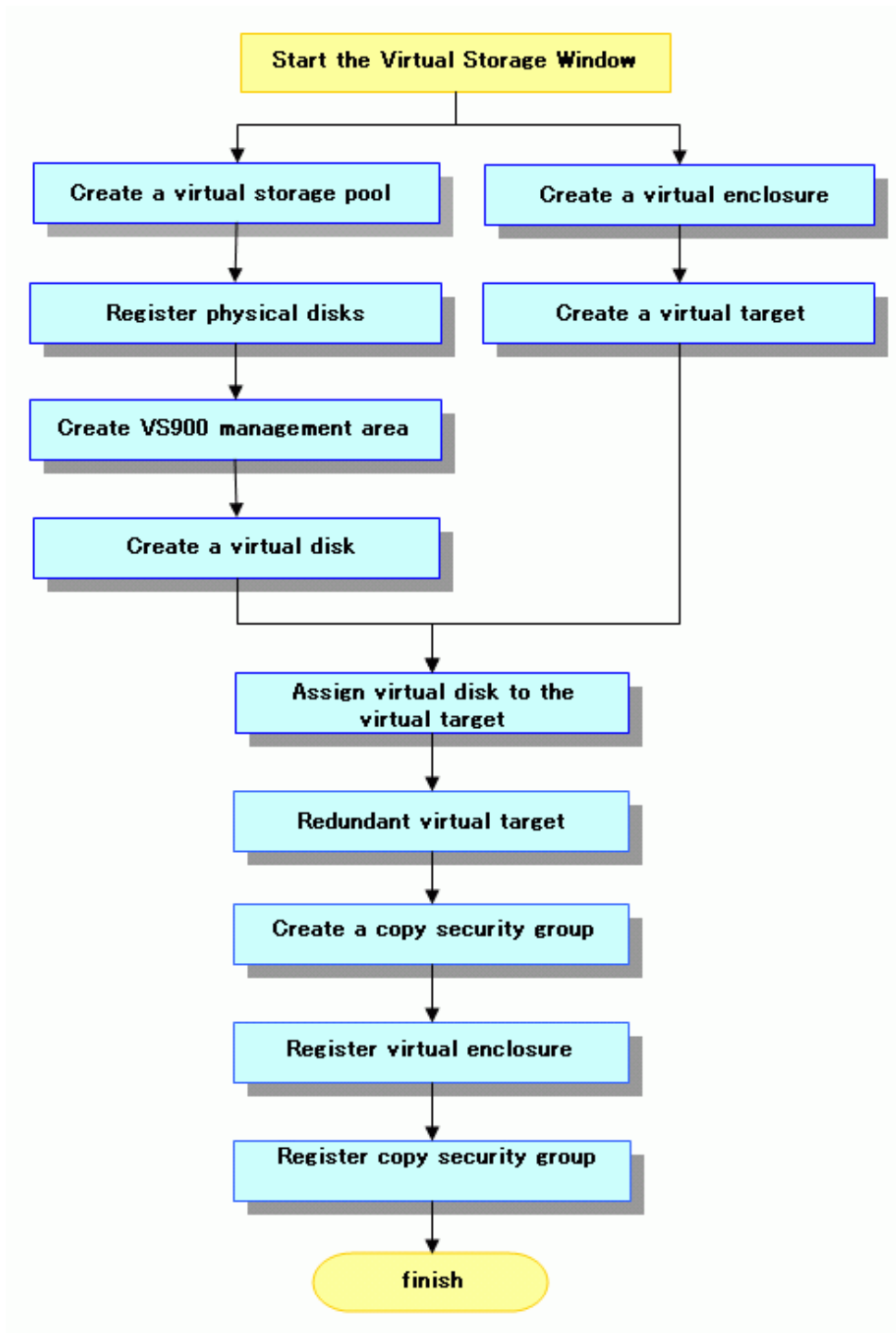
# Chapter 5 Operations

This chapter describes how to operate the Virtual Storage Window.

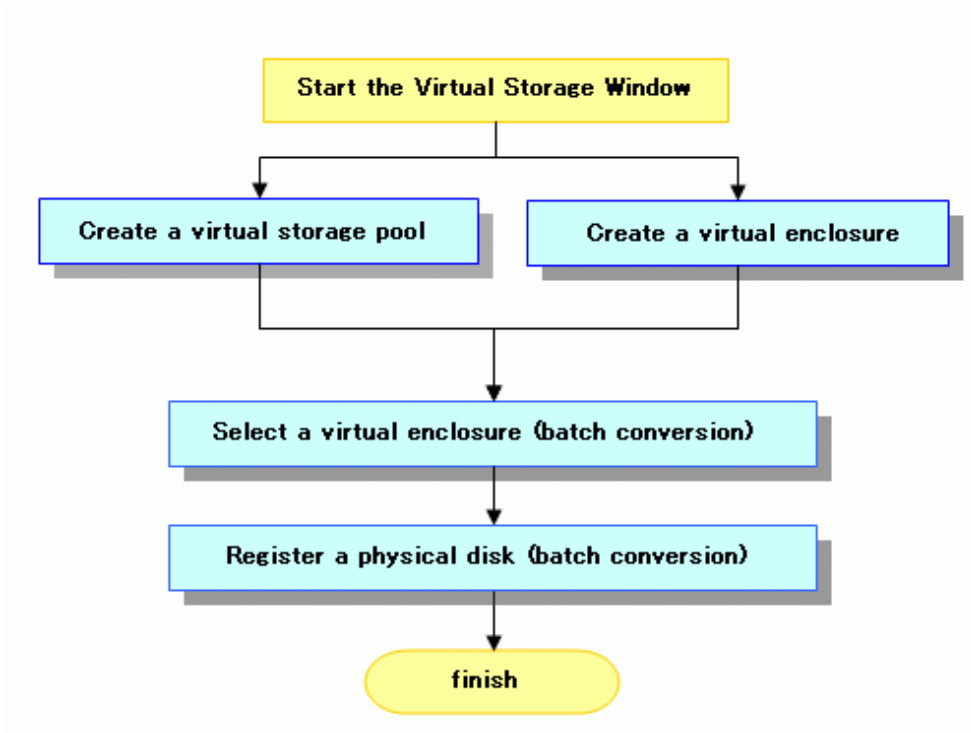
## 5.1 Creating a Virtual Disk

This section describes the procedure for setting up an environment to use virtual disks from the transaction server.

The overall flow for creating a virtual disk is as follows:



The general flow of creating a virtual disk in batch conversion is as follows:



See

Refer to "A.2 Explanation of the Windows under "View and Create"" for details of each window of the Virtual Storage Window.



Note

To create virtual disks while retaining existing data required by users, be sure to use batch conversion. For more information, refer to "5.1.8 Batch conversion".

Existing data may be damaged by creating a virtual disk without using batch conversion.

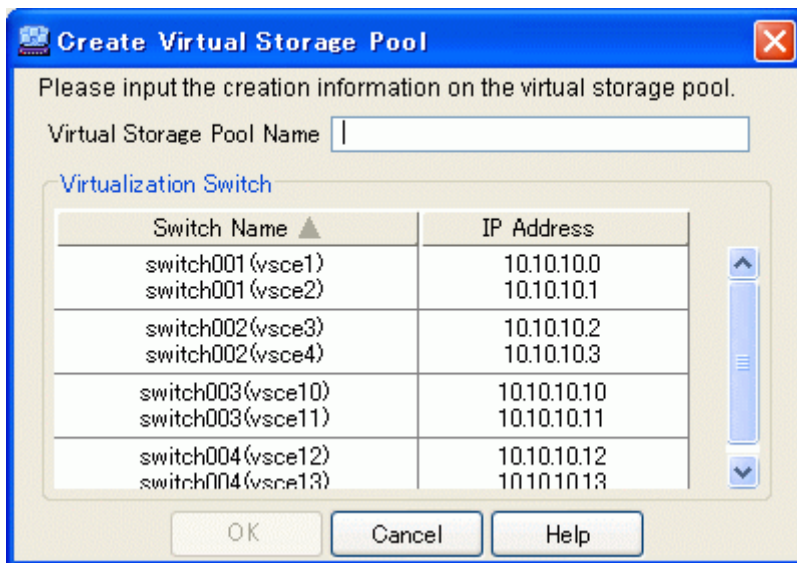
## 5.1.1 Creating a virtual storage pool

Create the necessary virtual storage pool for storing resources and creating a virtual disk as described below.

1. Start up the "Create Virtual Storage Pool" dialog box as follows:
  - Select "Virtual Storage Pool" in the Composition Data tree area and click the <Create Virtual Storage Pool> button, or
  - Select "Virtual Storage Pool" in the Composition Data tree area and then [Operations] - [Virtual Storage Pool] - [Create], or
  - Right-click on "Virtual Storage Pool" in the Composition Data tree area and select [Create Virtual Storage Pool].



- The "Create Virtual Storage Pool" dialog box then appears.



- Enter the following information on the "Create Virtual Storage Pool" dialog box:

Virtual Storage Pool Name (required)

Enter a string consisting of 1 to 26 alphanumeric characters.

Virtualization Switch group (selection required)

The dialog box shows each pair of virtualization switches in a redundant configuration as a virtualization switch group. Select the virtualization switch group that you want to associate with the virtual storage pool. Physical disks under the virtualization switch group selected are recognized as physical disks that can be registered in the virtual storage pool.

You can only select one virtualization switch group.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as "*virtualization switch name (host name)*".

- Click the <OK> button.
- After a virtual storage pool is created, the "Create Virtual Storage Pool" message dialog box shows the results. Click the <Close> button.
- Check the "View and Create" window and confirm that the virtual storage pool was created.

A virtual storage pool is now successfully created.

## 5.1.2 Registering physical disks

You can register physical disks in the virtual storage pool in any of the following ranges:

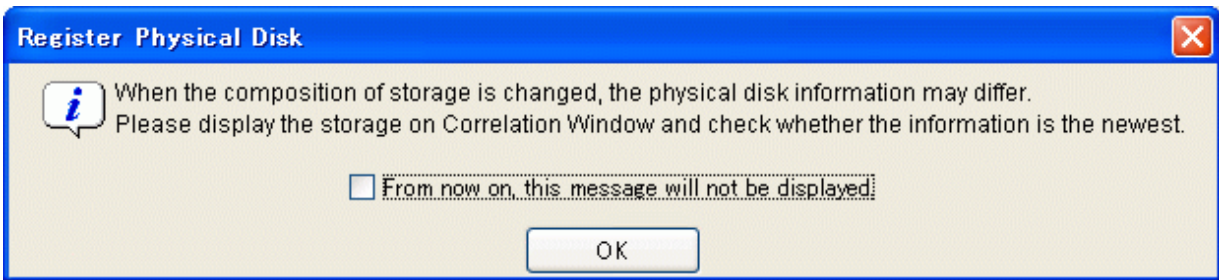
- Register all physical disks under a given storage.
- Register physical disks in the range of AffinityGroup (Zoning).
- Register individual physical disks.

### Note

If the disk configuration has been modified, the physical disk information may be different.

Before registering physical disks, look at the disk device information in the window used for relationship management and confirm that the latest device information is displayed.

The following confirmation dialog box opens when [Register Physical Disk] is selected.



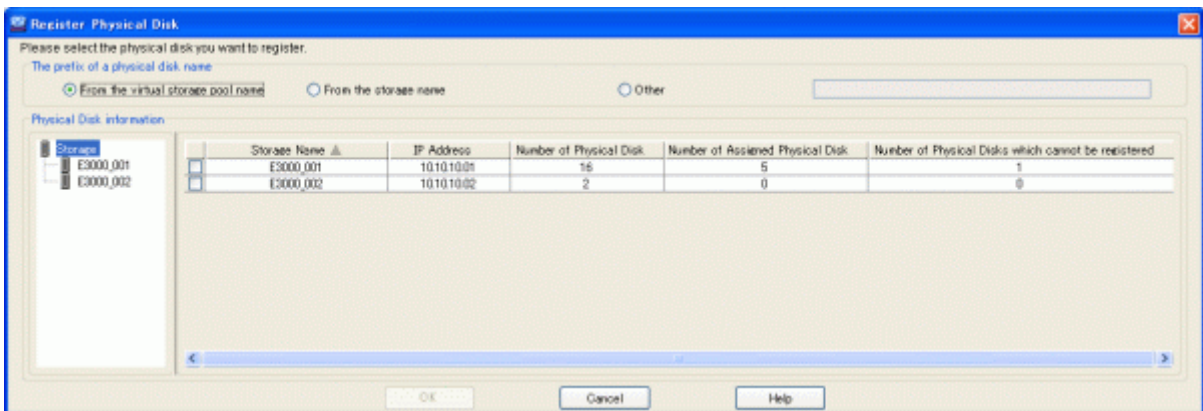
To hide this message, select the appropriate check box and click the <OK> button.

### Information

The user cannot assign a name to a physical disk. A name is automatically assigned to a physical disk when it is registered.

## 5.1.2.1 Registering all physical disks under a storage

1. Start up the "Register Physical Disk" dialog box as follows:
  - Select the virtual storage pool to register physical disks from the Composition Data tree area and click the <Register Physical Disk> button, or
  - Select the virtual storage pool to register physical disks and then [Operations] - [Physical Disk] - [Register], or
  - Right-click on the virtual storage pool to register physical disks and select [Register Physical Disk].
2. The "Register Physical Disk" dialog box then appears.
3. Select a prefix for the physical disk name. The created physical disk name is as follows:
  - If you select "From the virtual storage pool name", the physical disk name will be virtual-storage-pool-name + R + additional-number.
  - If you select "From the storage name", the physical disk name will be storage-name + R + additional-number.
  - If you select "Other", the physical disk name will be entered-characters (any string consisting of 1 to 26 single-byte alphanumeric characters) + R + additional-number.
4. The physical disk selection table lists the names of storage.



The information displayed is as follows:

#### Storage Name

Name of the disk device where physical disks are located

#### IP Address

IP address for the disk device name

#### Number of Physical Disk

The number of physical disks that can be registered + number of physical disks registered + number of physical disks that cannot be registered

#### Number of Assigned Physical Disk

Number of physical disks registered for the virtual storage pool

#### Number of Physical Disk which cannot be registered

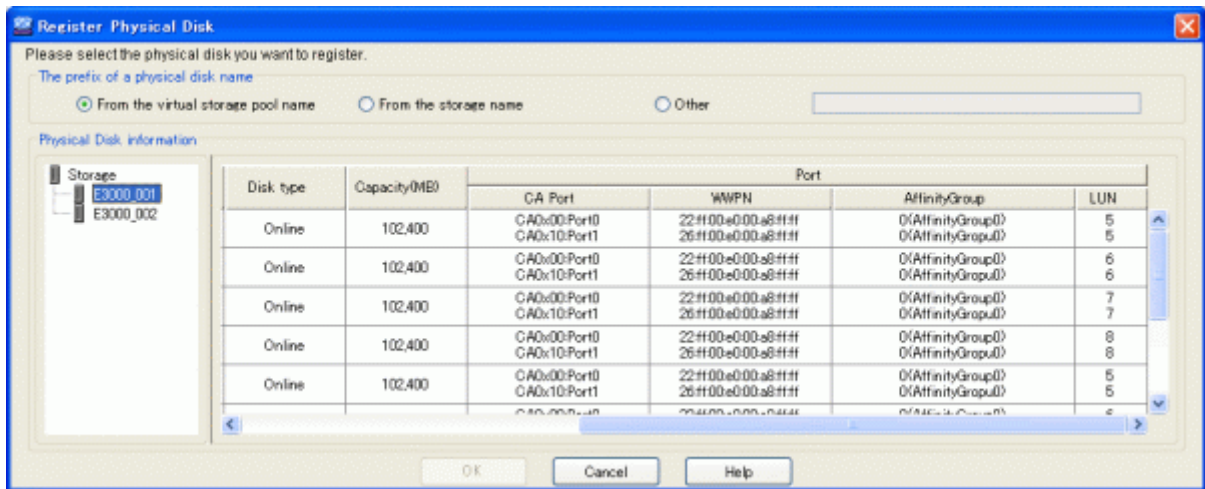
Number of physical disks that cannot be registered for the virtual storage pool (displayed only when there are physical disks that cannot be registered for the storage device)

5. Select a storage name (or storage names) from the table and click the <OK> button. You cannot select a storage name if none of the physical disks in the storage device can be registered.
6. After the physical disks are registered, the "Register Physical Disk" message dialog box shows the results. Confirm that the physical disks have been successfully registered, then click the <Close> button.
7. Check the "View and Create" window and confirm that the physical disks are registered in the virtual storage pool.  
All physical disks under the storage are now successfully registered in the virtual storage pool.

### 5.1.2.2 Registering the physical disks in the range of AffinityGroup (Zoning)

1. Start up the "Register Physical Disk" dialog box as follows:
  - Select the virtual storage pool to register physical disks from the Composition Data tree area and click the <Register Physical Disk> button, or
  - Select the virtual storage pool to register physical disks and then [Operations] - [Physical Disk] - [Register], or
  - Right-click on the virtual storage pool to register physical disks and select [Register Physical Disk].
2. The "Register Physical Disk" dialog box then appears.
3. Select a prefix for the physical disk name. The created physical disk name is as follows:
  - If you select "From the virtual storage pool name", the physical disk name will be virtual-storage-pool-name + R + additional-number.
  - If you select "From the storage name", the physical disk name will be storage-name + R + additional-number.
  - If you select "Other", the physical disk name will be entered-characters (any string consisting of 1 to 26 single-byte alphanumeric characters) + R + additional-number.
4. Select a storage name from the physical disk composition data tree area.

- The physical disk selection table lists the physical disks set for said storage. Sort the physical disks by AffinityGroup. Select all physical disks of AffinityGroup and click the <OK> button.

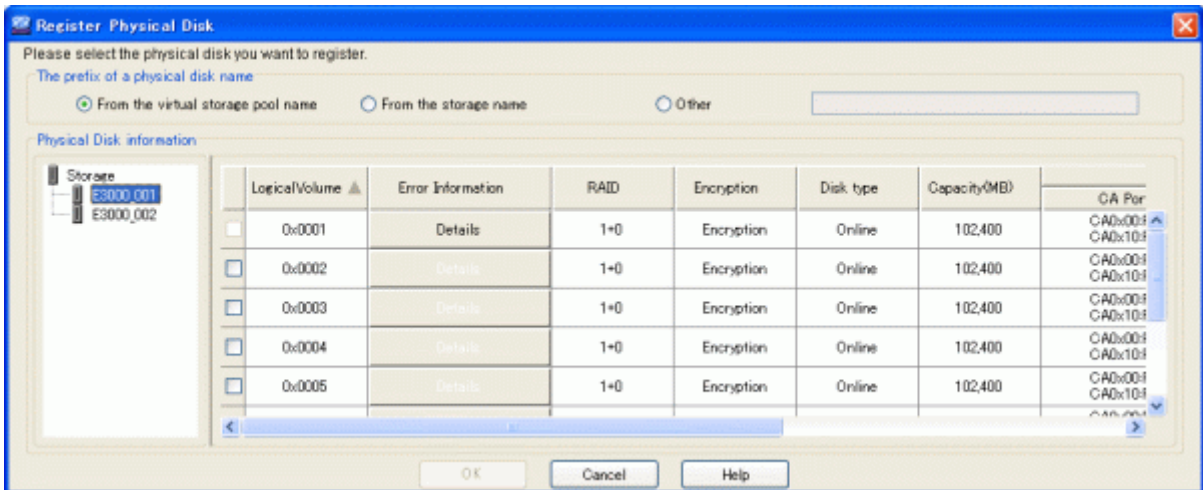


- After the physical disks are registered, the "Register Physical Disk" message dialog box shows the results. Click the <Close> button.
- Check the "View and Create" window, then confirm that the physical disks are registered in the virtual storage pool.  
All physical disks in the range of AffinityGroup (Zoning) are now successfully registered in the virtual storage pool.

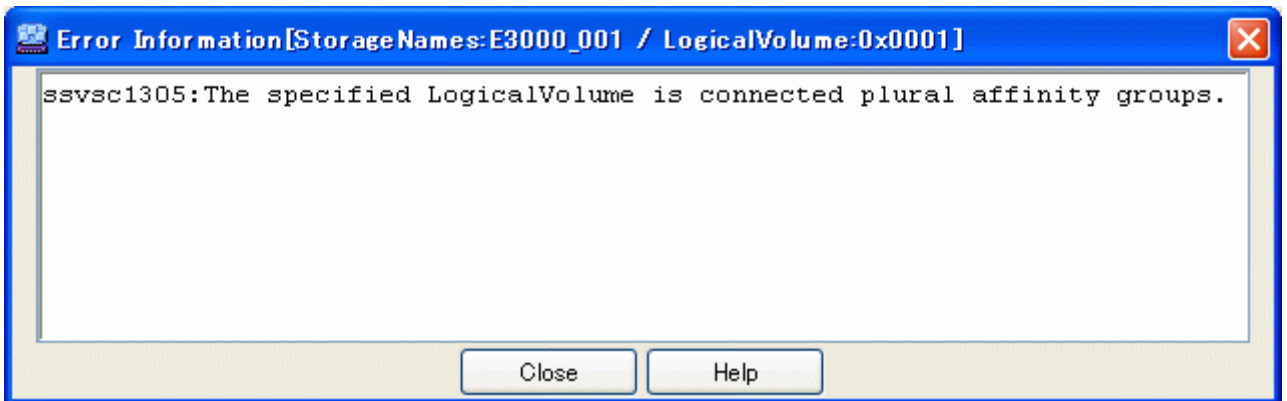
### 5.1.2.3 Registering individual physical disks

- Start up the "Register Physical Disk" dialog box as follows:
  - Select the virtual storage pool to register physical disks from the Composition Data tree area and click the <Register Physical Disk> button, or
  - Select the virtual storage pool to register physical disks and then [Operations] - [Physical Disk] - [Register], or
  - Right-click on the virtual storage pool to register physical disks and select [Register Physical Disk].
- The "Register Physical Disk" dialog box then appears.
- Select a prefix for the physical disk name. The created physical disk name is as follows:
  - If you select "From the virtual storage pool name", the physical disk name will be virtual-storage-pool-name + R + additional-number.
  - If you select "From the storage name", the physical disk name will be storage-name + R + additional-number.
  - If you select "Other", the physical disk name will be entered-characters (any string consisting of 1 to 26 single-byte alphanumeric characters) + R + additional-number.
- Select a storage name from the physical disk composition data tree area.

5. The physical disk selection table lists the physical disks set for said storage.



You cannot select physical disks that cannot be registered. Click on the <Details Information> button and check the message ID displayed in the error details information dialog box to identify why the disk cannot be registered. For details, refer to "[Appendix E Error Messages](#)".



6. Select a physical disk (or physical disks) and click the <OK> button.
7. After the physical disks are registered, the "Register Physical Disk" message dialog box shows the results. Click the <Close> button.
8. Check the "View and Create" window, then confirm that the physical disks are registered in the virtual storage pool.

All physical disks are now successfully registered in the virtual storage pool.

### 5.1.3 Creating a virtual disk

You can create a virtual disk in the virtual storage pool as follows:

When a virtual disk is created, the VTOC of the physical disks that configure the virtual disk must be initialized.

- Create a virtual disk automatically, or
- Create a virtual disk while checking the physical disks that configure the virtual disk, or
- Select (manually) the physical disks that configure the virtual disk.



#### Note

If there is no VS900 management area, the replication suspend/resume function of ETERNUS SF AdvancedCopy Manager cannot be used.

Before creating a virtual disk, check the "VS900 Management Area (Create)" dialog box and confirm that a VS900 management area has been allocated.

If there is no VS900 management area, the following confirmation dialog box appears.

For details of VS900 management areas, refer to "5.1.9 VS900 management area".



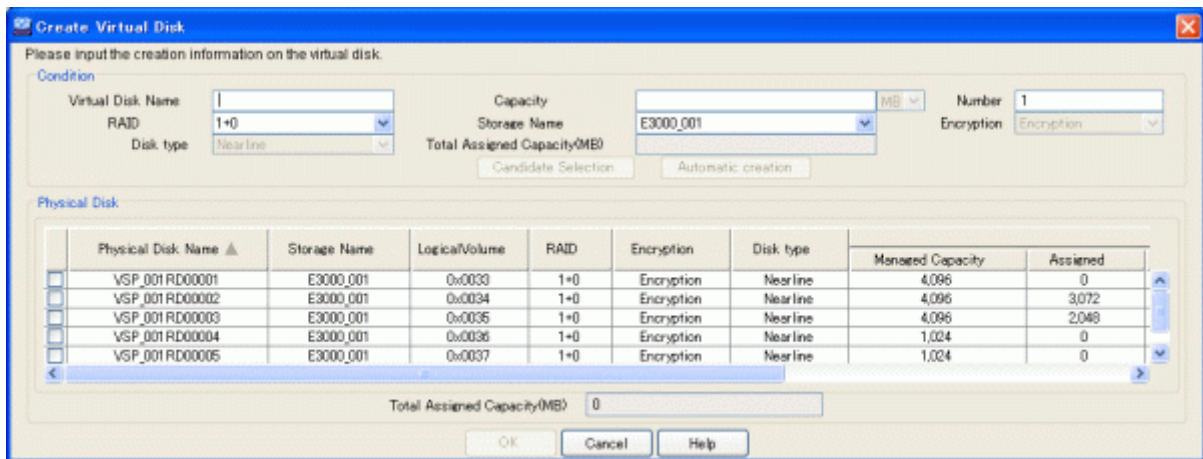
### 5.1.3.1 Creating the virtual disk automatically

A virtual disk can be created automatically based on the status information you have entered as described below.

1. Start up the "Create Virtual Disk" dialog box as follows:

- Select the virtual storage pool to create a virtual disk from the Composition Data tree area and click the <Create Virtual Disk> button, or
- Select the virtual storage pool to create a virtual disk and then [Operations] - [Virtual Disk] - [Create], or
- Right-click on the virtual storage pool to create a virtual disk and select [Create Virtual Disk].

2. The "Create Virtual Disk" dialog box then appears.



3. Enter the status information necessary to create a virtual disk.

#### Virtual Disk Name (required)

Enter a string consisting of 1 to 32 alphanumeric characters.

However, if 2 or a greater number is entered for the quantity, no virtual disk name needs to be specified. In this instance, the name of the virtual disk created automatically will be "virtual storage pool name + V + an additional number".

#### Capacity (required)

Enter the capacity (numeric value) of the virtual disk you want to create.

Select the unit from the [MB] (default)/[GB] pull-down menu.

#### Number (required)

Specify a number ranging from 1 to 4096 as the number of virtual disks to be created.

However, if 2 or a greater number is entered for the quantity, no virtual disk name needs to be specified.

#### RAID (selective)

Select the RAID level of the physical disk that constitutes the virtual disk from the pull-down menu.

The pull-down menu lists [No specification](default)/[1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

#### Storage Name (selective)

When multiple physical disks constitute the virtual disk, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed.

#### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but the encryption attribute that cannot be selected for the physical disk is not displayed.

#### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk will be displayed.

4. Click the <Automatic creation> button.
5. After a virtual disk is created, the "Create Virtual Disk" message dialog box shows the results. Click the <Close> button.
6. Check the "View and Create" window, then confirm that the virtual disk was created.

All virtual disks are now successfully created.

### 5.1.3.2 Creating a virtual disk while checking the physical disk constituting the virtual disk

The user can create a virtual disk while checking information of the physical disk selected automatically based on the status information entered as described below.

1. Start up the "Create Virtual Disk" dialog box as follows:
  - Select the virtual storage pool to create a virtual disk from the Composition Data tree area and click the <Create Virtual Disk> button, or
  - Select the virtual storage pool to create a virtual disk and then [Operations] - [Virtual Disk] - [Create], or
  - Right-click on the virtual storage pool to create a virtual disk and select [Create Virtual Disk].
2. The "Create Virtual Disk" dialog box then appears.
3. Enter the following status information necessary for creating a virtual disk.

#### Virtual Disk Name (required)

Enter a string consisting of 1 to 32 alphanumeric characters.

#### Capacity (required)

Enter the capacity (numeric value) of the virtual disk you want to create.

Select the unit from the [MB] (default)/[GB] pull-down menu.



### Number (required)

Enter the number of virtual disks to be created. "Candidate Selection" is fixed to 1.

### RAID (selective)

Select the RAID level of the physical disk that constitutes the virtual disk from the pull-down menu.

The pull-down menu lists [No specification](default)/ [1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

### Storage Name (selective)

When multiple physical disks constitute the virtual disk, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed. Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu. Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but an encryption attribute that cannot be selected for the physical disk is not displayed.

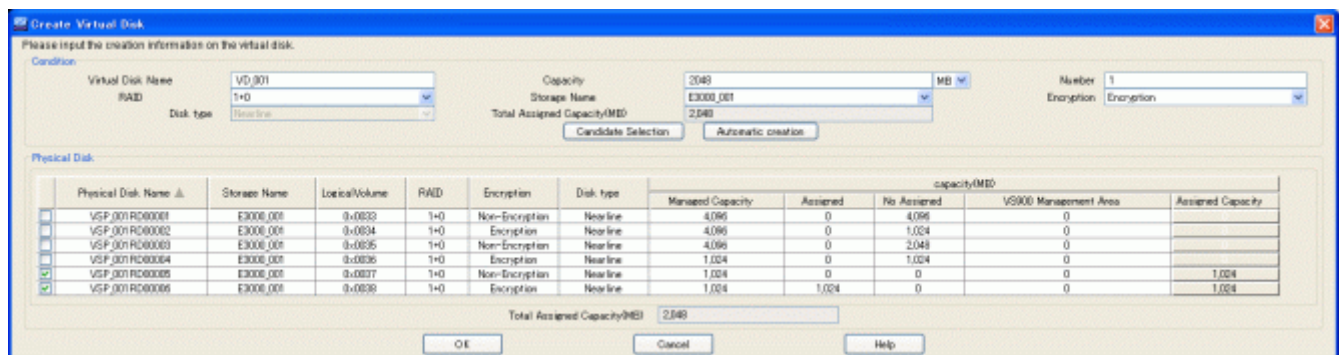
### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk are displayed.

4. Click the <Candidate Selection> button.

5. The "Create Virtual Disk" dialog shows the automatically selected physical disks with their checkboxes checked.



If you want to create a virtual disk with the automatically selected physical disk:

1. Click the <OK> button.

If you want to create a virtual disk with physical disks other than the automatically selected one:

1. Remove the check mark from the automatically selected physical disk.
2. Select and check the physical disk you want to constitute the virtual disk.
3. Click the <OK> button.

If you want to change the assigned capacity of the automatically selected physical disk:

1. Click the <Assigned Capacity> button for the physical disk whose quota capacity you want to change.
2. The "Assigned Capacity" dialog box then appears.
3. Enter the changed quota capacity.



### Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB].

1. Click the <OK> button in the "Assigned Capacity" dialog box.
  2. Click the <OK> button in the "Create Virtual Disk" dialog box.
  6. After a virtual disk is created, the "Create Virtual Disk" message dialog box shows the results. Click the <Close> button.
  7. Check the "View and Create" window, then confirm that the virtual disk was created
- All virtual disks are now successfully created.

### 5.1.3.3 When the user selects the physical disks to constitute a virtual disk

The user selects and creates all physical disks to constitute a virtual disk as described below.



#### Note

The number of virtual disks that can be created from the physical disks selected by the user is fixed at 1.

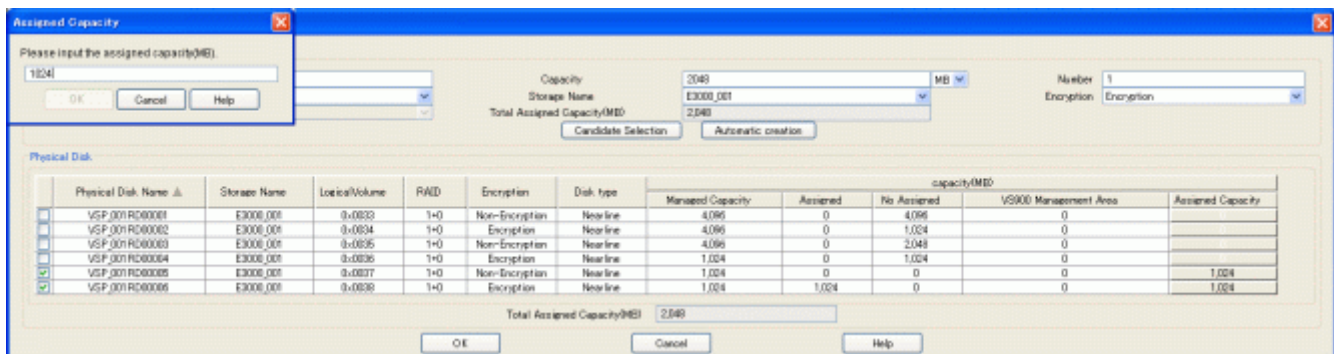
1. Start up the "Create Virtual Disk" dialog box as follows:
  - Select the virtual storage pool to create a virtual disk from the Composition Data tree area and click the <Create Virtual Disk> button, or
  - Select the virtual storage pool to create a virtual disk and then [Operations] - [Virtual Disk] - [Create], or
  - Right-click on the virtual storage pool to create a virtual disk and select [Create Virtual Disk].
2. The "Create Virtual Disk" dialog box then appears.
3. Enter the following status information necessary for creating a virtual disk.

**Virtual Disk Name (required)**

Enter a string consisting of 1 to 32 alphanumeric characters.

**Number (required)**

Enter the number of virtual disks to be created. In this case, it is always 1.
4. Select and check the physical disk in which you want to constitute the virtual disk.
5. Click the <Assigned Capacity> button for the physical disk selected.
6. The "Assigned Capacity" dialog box then appears.
7. Enter the capacity assigned to the virtual disk.



### Assigned Capacity (required)

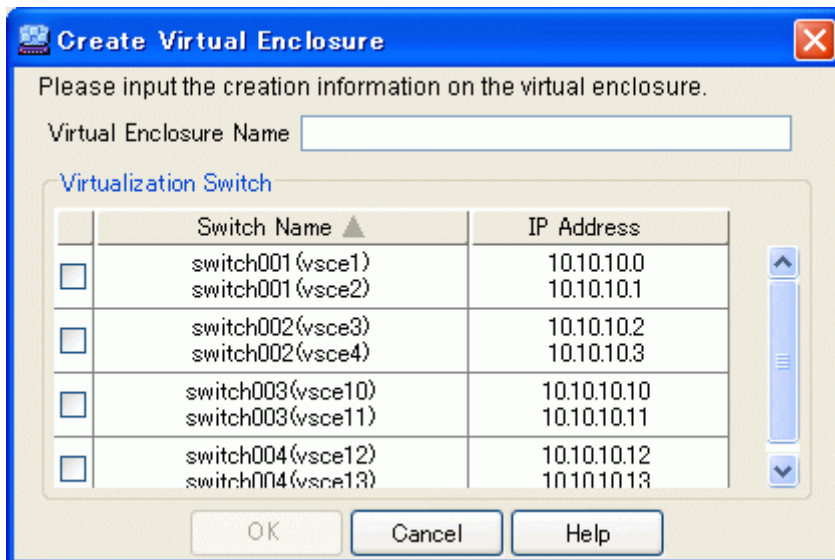
Enter the capacity assigned from the physical disk selected to the virtual disk in [MB]. Note that checking the physical disk sets non-assigned capacity as the quota capacity. Removing the check mark from the physical disk sets the quota capacity to 0.

8. Click the <OK> button in the "Assigned Capacity" dialog box.
  9. Click the <OK> button in the "Create Virtual Disk" dialog box.
  10. After a virtual disk is created, the "Create Virtual Disk" message dialog box shows the results. Click the <Close> button.
  11. Check the "View and Create" window and confirm that the virtual disk was created.
- All virtual disks are now successfully created.

## 5.1.4 Creating a virtual enclosure

You can create a virtual enclosure in which to register virtual disks as described below.

1. Start up the "Create Virtual Enclosure" dialog box as follows:
  - Select "Virtual Enclosure" in the Composition Data tree area and click the <Create Virtual Enclosure> button, or
  - Select "Virtual Enclosure" in the Composition Data tree area and then [Operations] - [Virtual Enclosure] - [Create], or
  - Right-click on "Virtual Enclosure" in the Composition Data tree area and select [Create Virtual Enclosure].
2. The "Create Virtual Enclosure" dialog box then appears.



3. Enter the following status information in the "Create Virtual Enclosure" dialog box.
 

Virtual Enclosure Name (required)

Enter a string consisting of 1 to 32 alphanumeric characters.

Virtualization Switch group (selection required)

Each pair of virtualization switches constituting a redundant configuration is displayed as a virtualization switch group. Select the virtualization switch group to be associated with the virtual enclosure.

You can select multiple virtualization switch groups.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " *virtualization switch name (host name)* ".
  4. Click the <OK> button.
  5. After a virtual enclosure is created, the "Create Virtual Enclosure" message dialog box shows the results. Click the <Close> button.
  6. Check the "View and Create" window and confirm that the virtual enclosure was created.
- All virtual enclosures are now successfully created.

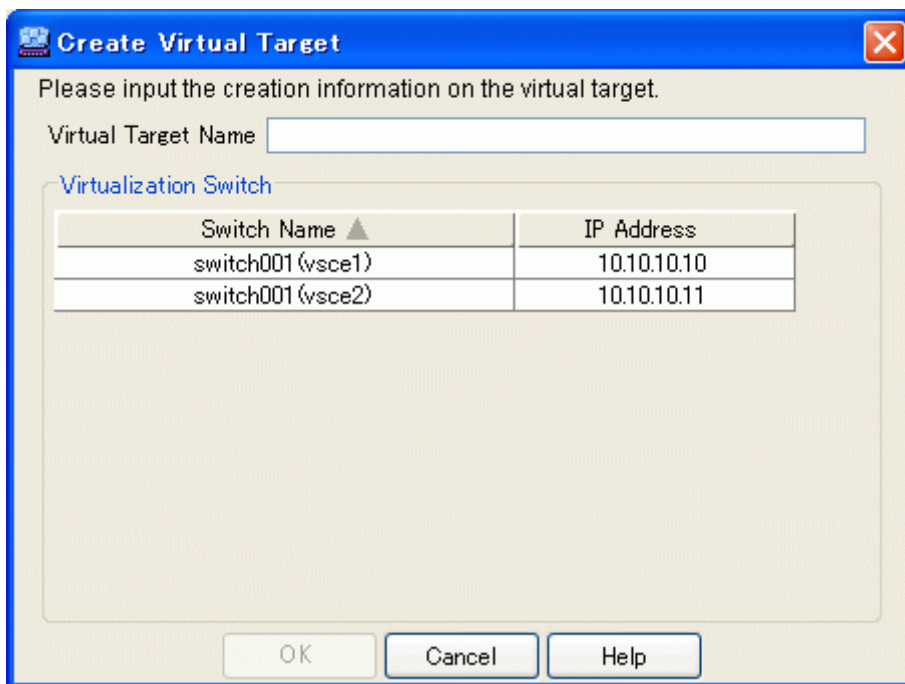
## Note

Do not create virtual enclosures that include a mix of virtualization switch groups made up of VS900 Model 200s and virtualization switch groups made up of VS900 Model 300s or virtualization blades, otherwise the virtual storage management function will not run correctly.

### 5.1.5 Creating a virtual target

You can create a virtual target as an access path that connects the transaction server and virtual disk as described below.

1. Start up the "Create Virtual Target" dialog box as follows:
  - Select "Virtual Enclosure" in the Composition Data tree area and click the <Create Virtual Target> button, or
  - Select "Virtual Enclosure" in the Composition Data tree area and then [Operations] - [Virtual Target] - [Create], or
  - Right-click on "Virtual Enclosure" in the Composition Data tree area and select [Create Virtual Target].
2. The "Create Virtual Target" dialog box then appears.



3. Enter the following status information in the "Create Virtual Target" dialog box.

#### Virtual Target Name (required)

Enter a string consisting of 1 to 32 alphanumeric characters.

The virtual target name entered in this dialog box is necessary for Virtual Storage Conductor management, and the dialog box is not meant for entering the WWPN. The WWPN required for virtual disk access by the transaction server is automatically assigned when a virtual target is created.

#### Virtualization Switch (selection required)

Select the virtualization switch (you can only select one) as an access path to the virtual disk.

Only one virtualization switch is assigned to the virtual target.

Create virtual targets for each of the virtualization switches associated with the virtual enclosure.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as "*virtualization switch name (host name)*".

4. Create as many virtual targets as there are virtualization switches associated with the virtual enclosure. Click the <OK> button.
5. After a virtual target is created, the "Create Virtual Target" message dialog box shows the results. Click the <Close> button.

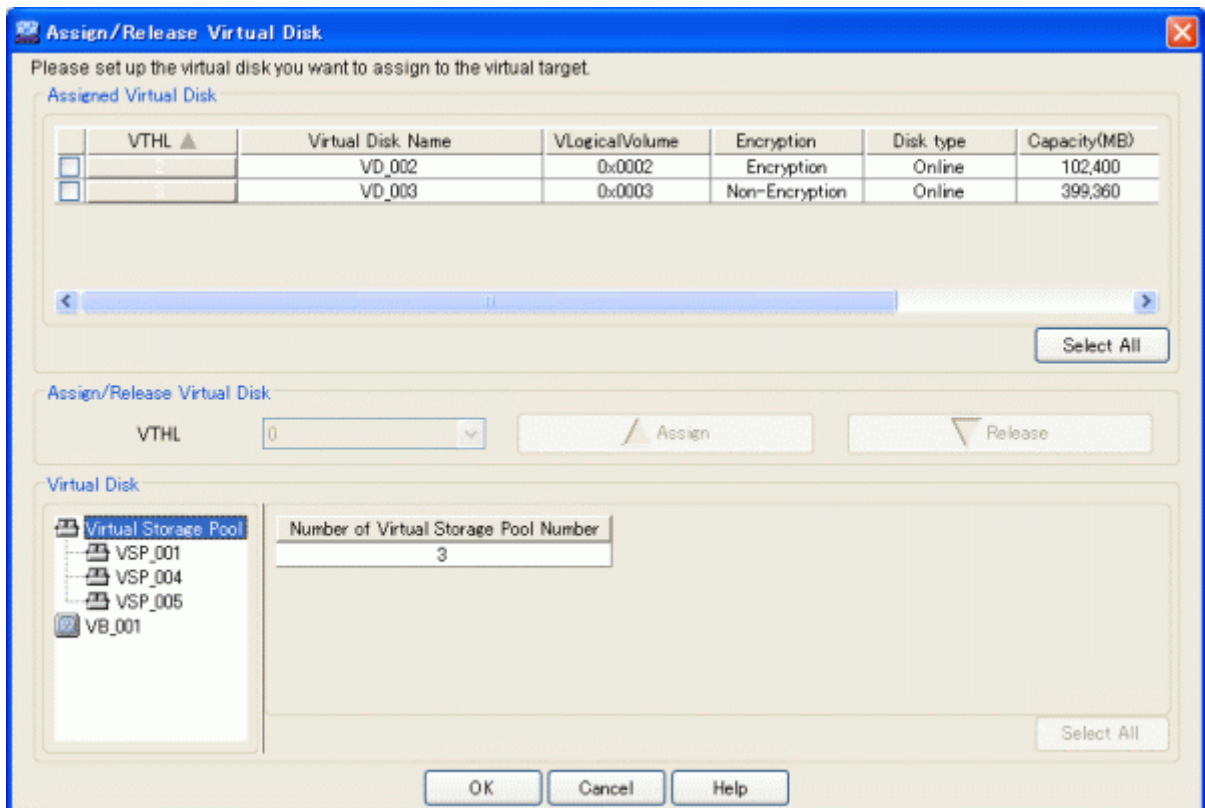
6. Check the "View and Create" window and confirm that the virtual target was created.

All virtual targets are now successfully created.

## 5.1.6 Assigning virtual disks to the virtual target

A virtual disk is assigned under the virtual target as described below. This enables the transaction server to access the virtual disk.

1. Open the "Assign/Release Virtual Disk" dialog box in one of the following methods:
  - From the Composition Data tree area, select the virtual target to which you want to assign a virtual disk and click the <Assign/Release Virtual Disk> button, or
  - Select the virtual target to which you want to assign a virtual disk, then select [Operation] - [Virtual Disk] - [Assign/Release], or
  - Right-click the virtual target to which you want to assign a virtual disk, then select [Assign/Release Virtual Disk].
2. The "Assign/Release Virtual Disk" dialog box then appears.



3. Do the following in the "Assign/Release Virtual Disk" dialog box.
  1. Select the virtual storage pool where the virtual disk you want to assign to the virtual target is registered from the "Virtual Disk" table.
  2. The "Virtual Disk" table lists the virtual disks registered in the selected virtual storage pool.
  3. Select a virtual disk (or virtual disks) you want to assign to the virtual target.
  4. Select the number you want to assign the virtual disk from the "VTHL" pull-down menu of the "Virtual Disk" table.
  5. Click the <Assign> button.
  6. The "Assigned Virtual Disk" table lists information of the assigned virtual disk.
 

You can select all virtual disks by clicking the <Select All> button.

If all virtual disks are selected, you can clear the selections of all virtual disks using the <Clear> button.

7. Click the <OK> button in the "Assign/Release Virtual Disk" dialog box.
4. The "Assign Virtual Disk" confirmation dialog then appears. Click the <OK> button.
5. The "Assign /Release Virtual Disk" dialog displays the result of assigning a virtual disk to the virtual target. Click the <Close> button.
6. Confirm on the display and the creation screen that the virtual disk has been assigned to the virtual target.

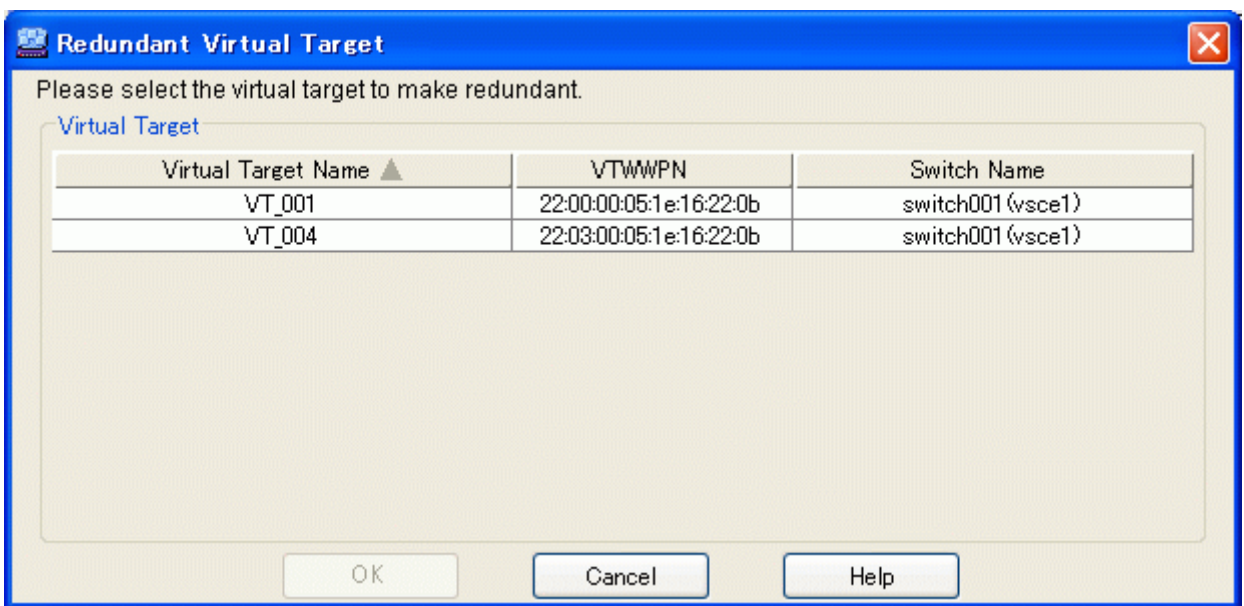
### Note

If the number of SCSI command queues of the virtual target exceeds the number of SCSI command queues of a single CA, a confirmation dialog box appears with the message "ssgui4414: The number of virtual targets of SCSI command cues exceeds the limitation value of CA. Is processing continued?". If you click the <OK> button, disk read or write performance may deteriorate.

## 5.1.7 Redundant virtual target

The access path to a virtual disk must be in a multi-path configuration. Thus, you must copy information from a virtual target (to which a virtual disk is already assigned) to any other virtual target and add the same information to both virtual targets.

1. Start up the "Copy Virtual Target" dialog box as follows:
  - Select from the Composition Data tree area the copy source virtual target and then [Operations] - [Virtual Target] - [Redundant], or
  - Right-click on the copy source virtual target and select [Redundant Virtual Target].
2. The "Redundant Virtual Target" dialog box then appears.



3. Select the following status information from the "Redundant Virtual Target" dialog box.
 

Virtual Target Name (selection required)

Select a copy destination virtual target (you can only select one).

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " *virtualization switch name (host name)* ".
4. Click the <OK> button in the "Redundant Virtual Target" dialog box.
5. The "Redundant Virtual Target" confirmation dialog then appears. Click the <OK> button.

6. The "Redundant Virtual Target" dialog displays the virtual target copy result. Click the <Close> button.
7. Confirm on the display and the creation screen that the virtual target has been copied to the virtual target.  
The virtual target will now be copied.

### Note

- No virtual disk shall be assigned to the copy destination virtual target.
- If the number of SCSI command queues of the virtual target exceeds the number of SCSI command queues of a single CA, a confirmation dialog box appears with the message "[ssgui4414](#): The number of virtual targets of SCSI command cues exceeds the limitation value of CA. Is processing continued?". If you click the <OK> button, disk read or write performance may deteriorate.

## 5.1.8 Batch conversion

---

Batch conversion is a function that enables a transition from a physical environment to a virtual environment in a procedure with fewer steps.

The following operations must be performed prior to batch conversion:

- Creating a virtual storage pool
- Creating a virtual enclosure

The following operations are automatically executed:

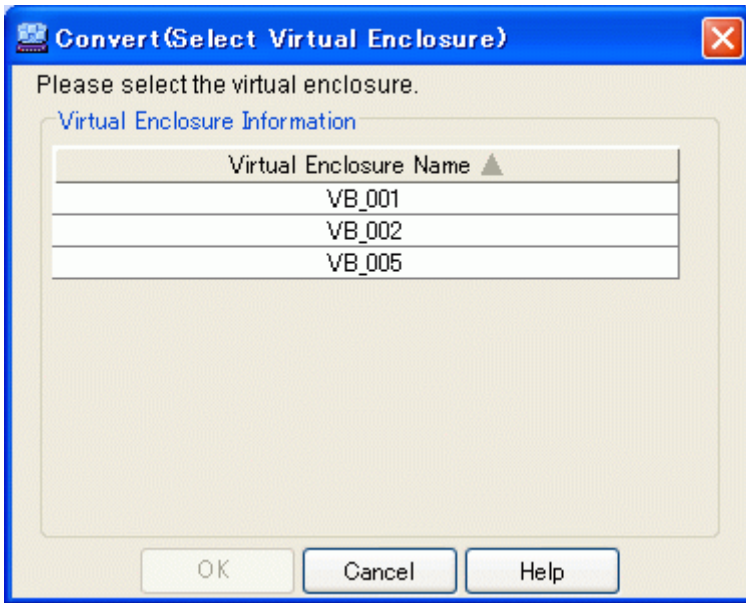
- Registering a physical disk
- Creating virtual disks
- Creating a virtual target
- Assigning the virtual disks to the virtual target

1. Open the "Convert" dialog box using one of the following methods:

- From the Composition Data tree area, select the virtual storage pool in which you want to register a physical disk and click the <Convert> button, or
- Select the virtual storage pool in which you want to register a physical disk, then select [Operation] - [Convert], or
- Right-click the virtual storage pool in which you want to register a physical disk and select [Convert].



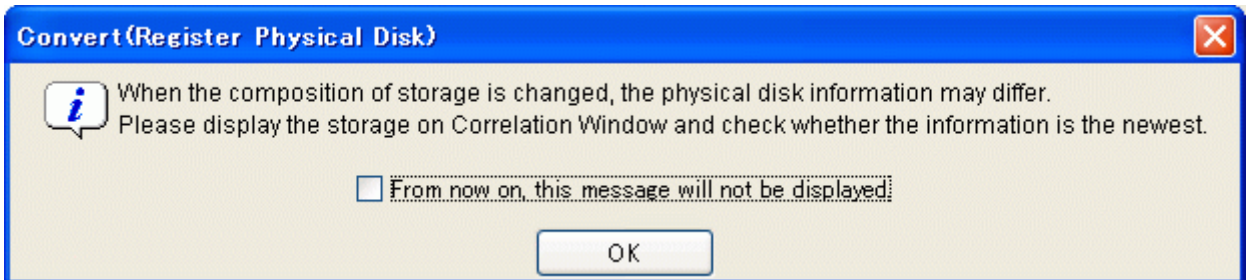
2. The "Convert (Select Virtual Enclosure)" dialog box appears.



3. Select the virtual enclosure in which you want to create a virtual target.

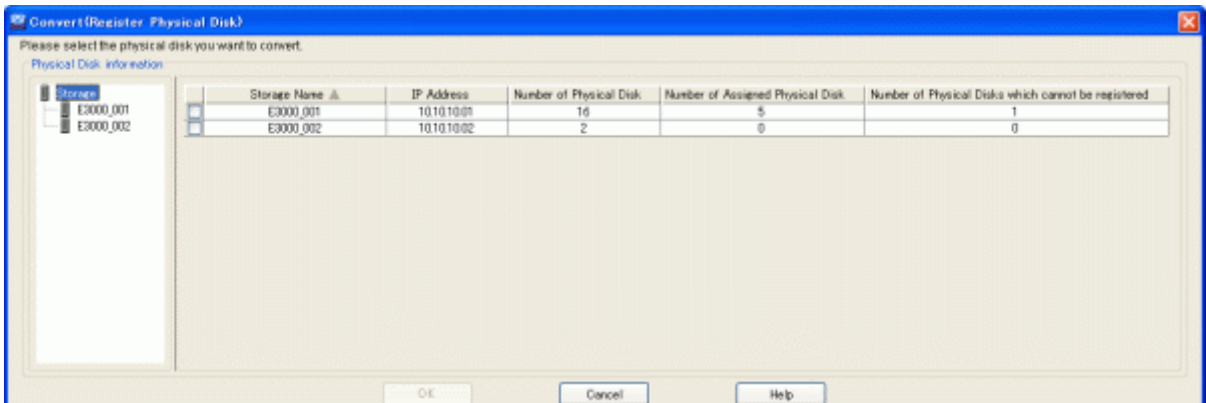
4. Click the <OK> button in the "Convert(Select Virtual Enclosure)" dialog box.

5. Before registering the disk, display the related management window of the disk unit and confirm that the disk unit information has been updated. Select physical disk registration. The following confirmation dialog box appears.



If you do not want this message to be displayed again, select the check box and click the <OK> button.

6. The "Convert (Register Physical Disk)" dialog box appears. For details of the settings, refer to "5.1.2 Registering physical disks".



7. The "Batch Conversion" confirmation dialog box appears. Click the <OK> button.

8. The "Batch Conversion" dialog box shows the batch conversion results. Click the <Close> button and confirm that the disk has been successfully registered.

The above operations create virtual disks from the physical disk registered in the specified virtual storage pool, create a virtual target in the specified virtual enclosure, and assign the virtual disks to the virtual target.

- "Virtual-storage-pool-name + R + sequence-number" is the name assigned to the created physical disk.
- "Virtual-storage-pool-name + V + sequence-number" is the name assigned to each created virtual disk.
- "CA + CA-port-WWPN (16 digits) + sequence-number-of-virtual-enclosure (4 digits) + sequence-number (5 digits)" is the name assigned to the created virtual target.



## Note

If one CA of a storage unit has multiple Affinity groups, only the physical disks in one of the Affinity groups can be subject to batch conversion.

If you have performed batch conversion in an incorrect host mode, contact your Fujitsu systems engineer (SE) and perform batch conversion again as follows:

1. Unassign virtual disks from the virtual target.
2. Delete the virtual target.
3. Delete the unassigned virtual disks.
4. Release the physical disk that constitutes the virtual disk from the virtual storage pool.
5. Perform batch conversion again.

## 5.1.9 VS900 management area

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To use the replication suspend/resume function of ETERNUS SF AdvancedCopy Manager, a VS900 management area must be created in advance.

At least one VS900 management area must be created for each switch group.

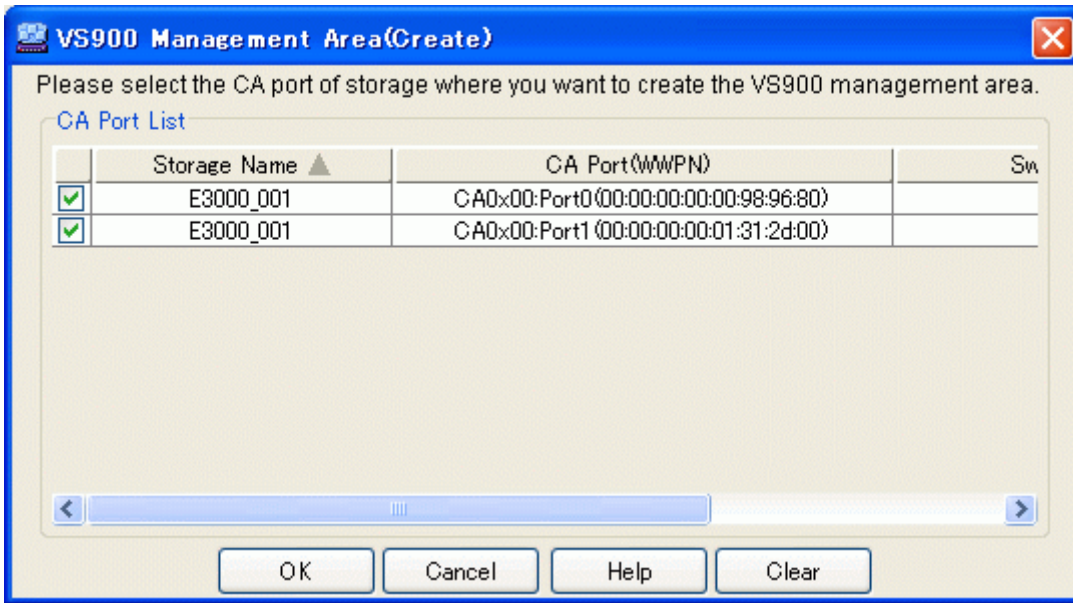
This section explains how to create a VS900 management area and how to display VS900 management area information.

### 5.1.9.1 Creating a VS900 management area

1. Open the "VS900 Management Area(Create)" dialog box.
  - Select "Virtual Storage Pool" from the Composition Data tree area and then select [Operation] - [VS900 Management Area] - [Create].



2. The "VS900 Management Area (Create)" dialog box appears.

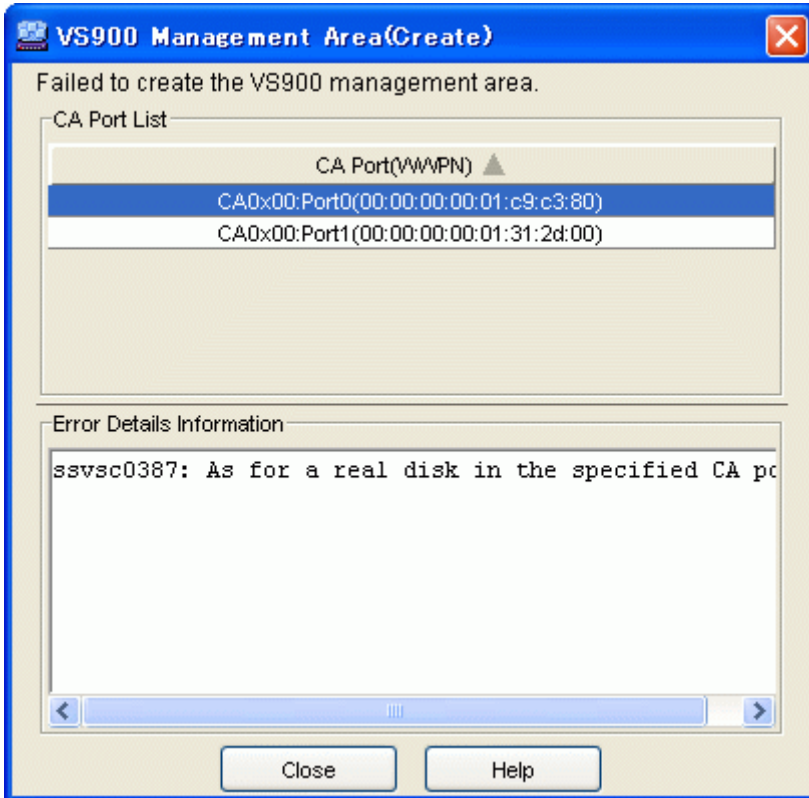


3. CA ports are listed. Select one or more CA ports for which you want to create a VS900 management area, then click the <OK> button.

- You can select all CA ports by clicking the <Select All> button. If all CA ports are selected, you can clear the selections of all CA ports by clicking the <Clear> button.
- For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as "*virtualization switch name (host name)*".

4. When a VS900 management area has been successfully created, the "VS900 Management Area (Create)" dialog box appears.

If a VS900 management area has not been successfully created, the "VS900 Management Area (Create)" error dialog box appears. Select the displayed CA port to see detailed error information for that VS900 management area. Check the cause of the failure in creating the VS900 management area and click the <Close> button.



A VS900 management area has now been created.

### 5.1.9.2 Displaying a VS900 management area

1. Open the "Display VS900 Management Area" dialog box.
  - Select "Virtual Storage Pool" from the Composition Data tree area and then select [Operation] - [VS900 Management Area] - [Display].
2. The "VS900 Management Area (View)" dialog box appears, listing VS900 management areas.

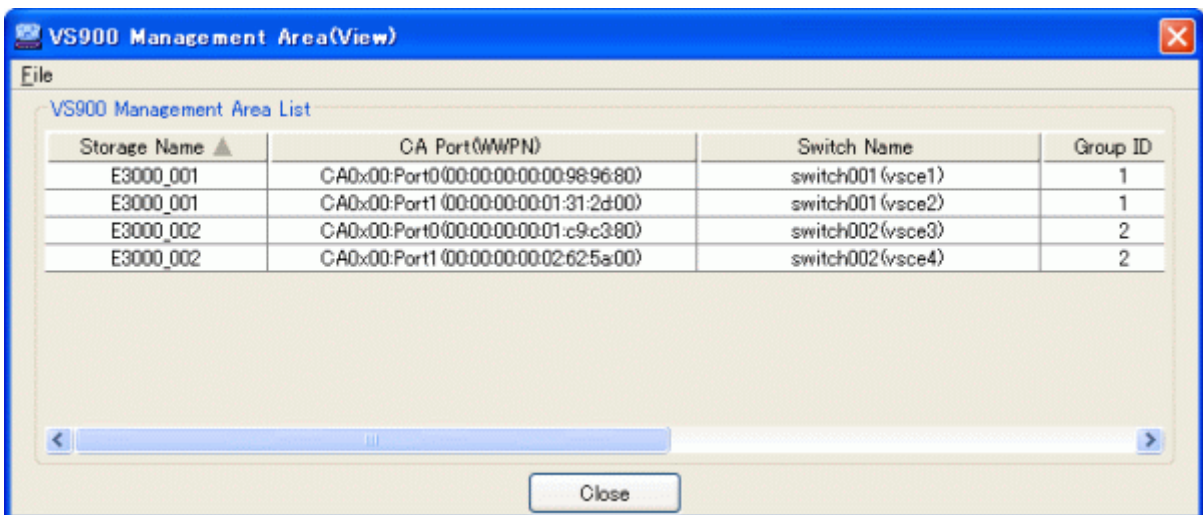


Table 5.1 Information displayed in the "VS900 Management Area (View)" dialog box

Item	Description	Remarks
Storage Name	Name of a storage unit	

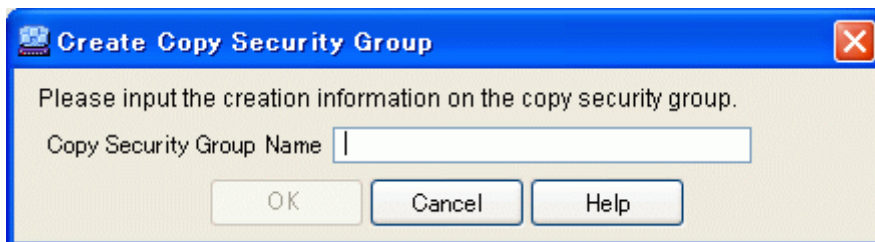
Item	Description	Remarks
Product ID	Product ID of a disk unit	Hidden by default
Serial Number	Serial number of a disk unit	Hidden by default
CA Port (WWPN)	CA port of a storage unit (WWPN)	
Switch Name	Name of the virtualization switch connected to the CA port of a storage unit For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " <i>virtualization switch name (host name)</i> ".	
Group ID	Group ID of the virtualization switch connected to the CA port of a storage unit	
Logical Volume	Internal disk unit number of a physical disk on which a VS900 management area has been created	
Physical Disk Name	Name of a physical disk on which a VS900 management area has been created	
Capacity (MB)	Capacity of a VS900 management area	

## 5.1.10 Creating a copy security group

Certain virtual enclosures are grouped so that ETERNUS SF AdvancedCopy Manager copies can be performed between only virtual disks in these virtual enclosures.

To group virtual enclosures, a copy security group must be created.

1. Start the [Create Copy Security Group] dialog box using either of the following methods:
  - Right-click on the root node for copy security groups in the Composition Data tree area, and then select [Create Copy Security Group].
  - Select the root node for copy security groups in the Composition Data tree area, and then select [Operation] - [Copy Security Group] - [Create] .
2. The [Create Copy Security Group] dialog box is displayed.



3. Enter the following items in the [Create Copy Security Group] dialog box.

Copy Security Group Name (Required)

Enter an arbitrary string consisting of 1 to 26 alphanumeric characters.
4. Click the [OK] button.
5. The result of creating the copy security group is displayed in the [Create Copy Security Group] message dialog box. Click the [Close] button.
6. Check that the copy security group has been created in the "View and Create" window.

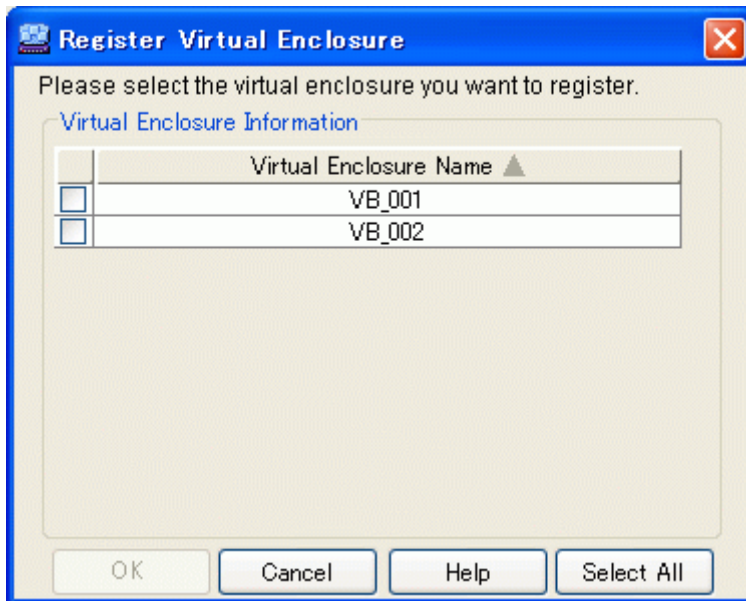
This completes the procedure for creating copy security groups.

## 5.1.11 Registering virtual enclosures with copy security groups

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This section explains how to register virtual enclosures with copy security groups.

1. Start the [Register Virtual Enclosure] dialog box using either of the following methods:
  - Right-click on the copy security group (where the virtual enclosure is to be registered) in the Composition Data tree area, and then select [Register Virtual Enclosure].
  - Select the copy security group (where the virtual enclosure is to be registered) in the Composition Data tree area, and then select [Operation] - [Copy Security Group] - [Register Virtual Enclosure].
2. The [Register Virtual Enclosure] dialog box is displayed.



3. Select the following items in the [Register Virtual Enclosure] dialog box.  
Virtual Enclosure Information (Required)  
Select the virtual enclosures to be registered with the copy security group. (More than one virtual enclosure can be selected.)
4. Click the [OK] button.
5. The results of registering the virtual enclosures the copy security group are displayed in the [Register Virtual Enclosure] message dialog box. Click the [Close] button.
6. Use the "View and Create" window to check that the specified virtual enclosures have been registered with the copy security group.  
This completes the procedure for registering virtual enclosures with copy security groups.

## 5.1.12 Registering copy security groups with virtual enclosures

---

This section explains how to register copy security groups with virtual enclosures.

1. Start the [Register Copy Security Group] dialog box using either of the following methods:
  - Right-click on the virtual enclosure (where the copy security groups are to be registered) in the Composition Data area tree, and then select [Register Copy Security Group].
  - Select the virtual enclosure (where the copy security groups are to be registered) in the Composition Data area tree, and then select [Operation] - [Virtual Enclosure] - [Register Copy Security Group].

2. The [Register Copy Security Group] dialog box is displayed.



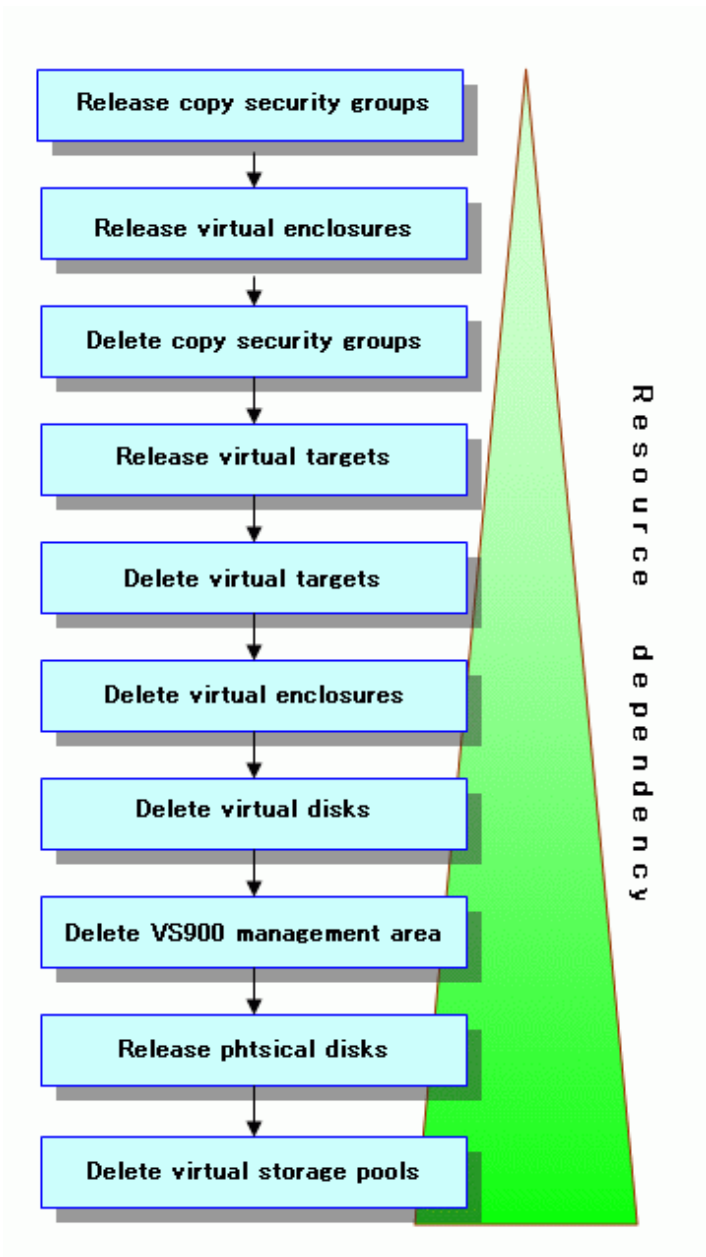
3. Select the following items in the [Register Copy Security Group] dialog box.  
Copy Security Group Information (Required)  
Select the copy security groups to be registered with the virtual enclosure. (Multiple copy security groups can be selected.)
4. Click the [OK] button.
5. The results of registering the copy security groups with the virtual enclosure are displayed in the [Register Copy Security Group] message dialog box. Click the [Close] button.
6. Use the "View and Create" window to check that the specified copy security groups have been registered with the virtual enclosure.  
This completes the procedure for registering copy security groups with virtual enclosures.

## 5.2 Deleting Resources

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Each resource created is managed as composition data. You need the gradual elimination of dependencies managed by the composition data to delete a resource.

The following shows the procedure for deleting each resource. You must delete prerequisite resources before deleting a target resource.



 **Point**

.....  
 Confirm that the transaction server is not using the target resources before deleting said resources.  
 .....

## 5.2.1 Releasing virtual targets

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You must release the assigned physical disks from the virtual target as described below.

1. Activate the "Assign/Release Virtual Disk" dialog using one of the following methods:
  - Select the virtual target assigned with the virtual disk from the Composition Data tree area, then click the <Assign/Release Virtual Disk> button, or
  - Select the virtual target assigned with the virtual disk, then click [Operations] - [Virtual Disk] - [Assign/Release], or
  - Right-click the virtual target assigned with the virtual disk, then click "Assign/Release Virtual Disk".

2. The "Assign/Release Virtual Disk" dialog box then appears.
3. Perform the following in the "Assign/Release Virtual Disk" dialog box.
  1. Select the virtual disk(s) that you want to release from the selection in the "Virtual Disk Assignment Information" table.
  2. Select the <▽Release> button.
    - All virtual disks can be selected by clicking the <Select All> button.
    - When all the virtual disks are selected, they can be released by clicking the <Clear> button.
  3. The "Virtual Disk Information" table then displays the list of virtual disks released.
  4. Click the <OK> button on the "Assign/Release Virtual Disk" dialog box.
4. The "Assign/Release Virtual Disk" confirmation dialog then appears. Click the <OK> button.
5. The "Assign/Release Virtual Disk" dialog displays the result of releasing the virtual disks from the virtual target. Click the <Close> button.
6. Confirm on the display and the creation screen that the virtual disks have been released from the virtual target.
 

All virtual disks are now successfully released from the virtual target.

## 5.2.2 Deleting virtual targets

---

This section explains how to delete virtual targets.

### 5.2.2.1 Deleting virtual targets individually

Select and delete a virtual target.

#### Point

.....

Delete all virtual targets registered to a virtual enclosure before deleting its virtual enclosure.

To delete a virtual target, first delete the zoning associated with it.

If the virtual target has been deleted without deleting its associated zoning, delete the zoning associated with the deleted virtual target by referring to "6.3.6 Zoning editing of a Fibre Channel switch" in the *User's Guide*.

.....

1. Start up the "Delete Virtual Target" dialog box as follows:
  - Select from the Composition Data tree area the virtual target you want to delete and then [Operations] - [Virtual Target] - [Delete], or
  - Right-click on a virtual target to which no virtual disk is assigned and select [Delete Virtual Target].

#### Information

.....

When any virtual disk is assigned to the virtual target, you cannot select [Delete] on the [Operations] - [Virtual Target] menu or right-click on [Delete Virtual Target].

.....

2. The "Delete Virtual Target" confirmation dialog box then appears. Click the <OK> button.
3. The "Delete Virtual Target" message dialog displays the virtual target deletion result. Click the <Close> button.
4. Confirm on the display and the creation screen that the virtual target has been deleted.
 

All virtual targets are now successfully deleted.



## 5.2.2.2 Deleting multiple virtual targets simultaneously

Proceed as follows to delete multiple virtual targets simultaneously.

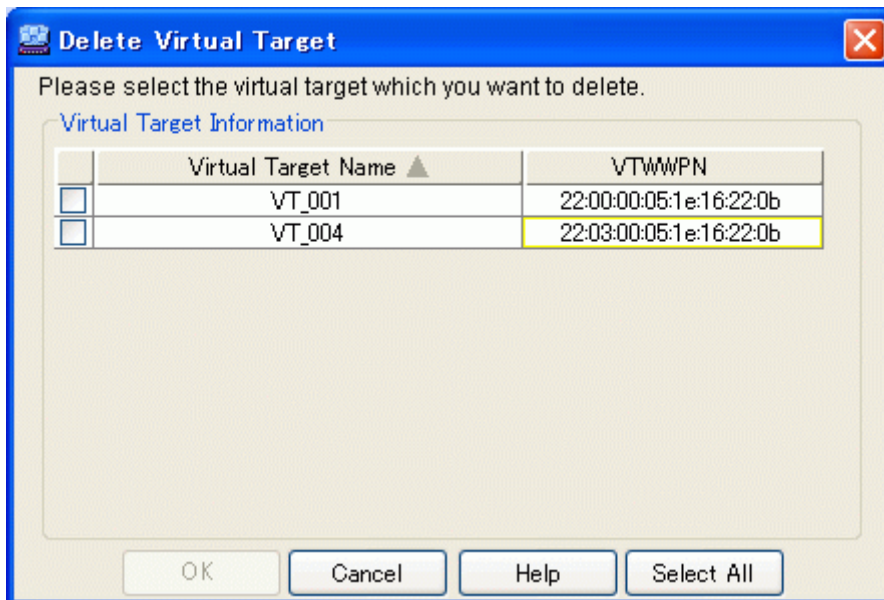
### Point

To delete a virtual enclosure, delete in advance all virtual targets registered in the virtual enclosure.

To delete a virtual target, first delete the zoning associated with it.

If the virtual target has been deleted without deleting its associated zoning, delete the zoning associated with the deleted virtual target by referring to "6.3.6 Zoning editing of a Fibre Channel switch" in the *User's Guide*.

1. Open the "Delete Virtual Target" dialog box by using one of the following methods:
  - Select the virtual enclosure containing the virtual targets you want to delete, then select [Operate] - [Virtual Target] - [Delete], or
  - Right-click on the virtual enclosure containing the virtual targets you want to delete, then select [Delete Virtual Target].
2. The "Delete Virtual Target" dialog box is displayed.



### Information

If any virtual disk is allocated on the virtual target, the virtual target is not displayed in the "Delete Virtual Target" dialog box.

3. Select the virtual target or targets you want to delete, and click the <OK> button.
  - You can select all virtual targets by clicking the <Select All> button. If all virtual targets are selected, you can deselect all virtual targets by clicking the <Clear> button.
4. The "Delete Virtual Target" confirmation dialog box is displayed. Click the <OK> button.
5. The "Delete Virtual Target" message dialog displays the virtual target deletion result. Click the <Close> button.
6. Confirm on the display and the creation screen that the virtual target has been deleted. All virtual targets are now successfully deleted.



## 5.2.3 Deleting virtual enclosures

---

This section explains how to delete a virtual enclosure.

### Note

You cannot delete virtual enclosure, if any copy security group is registered with the virtual enclosure, or the virtual disclosure to be deleted is register with any copy security group .

### 5.2.3.1 Deleting virtual enclosures individually

Select and delete virtual enclosures as described below.

1. Start up the "Delete Virtual Enclosure" dialog box is as follows:
  - Select from the Composition Data tree area the virtual enclosure you want to delete and then [Operations] - [Virtual Enclosure] - [Delete], or
  - Right-click on a virtual enclosure to which no virtual target is assigned and select [Delete Virtual Enclosure].

### Information

When any virtual target is registered to the virtual enclosure, you cannot select [Delete] on the [Operations] - [Virtual Enclosure] menu or right-click on [Delete Virtual Enclosure].

2. The "Delete Virtual Enclosure" confirmation dialog then appears. Click the <OK> button.
3. The "Delete Virtual Enclosure" message dialog displays the virtual enclosure deletion result. Click the <Close> button.
4. Confirm on the display and the creation screen that the virtual enclosure has been deleted.

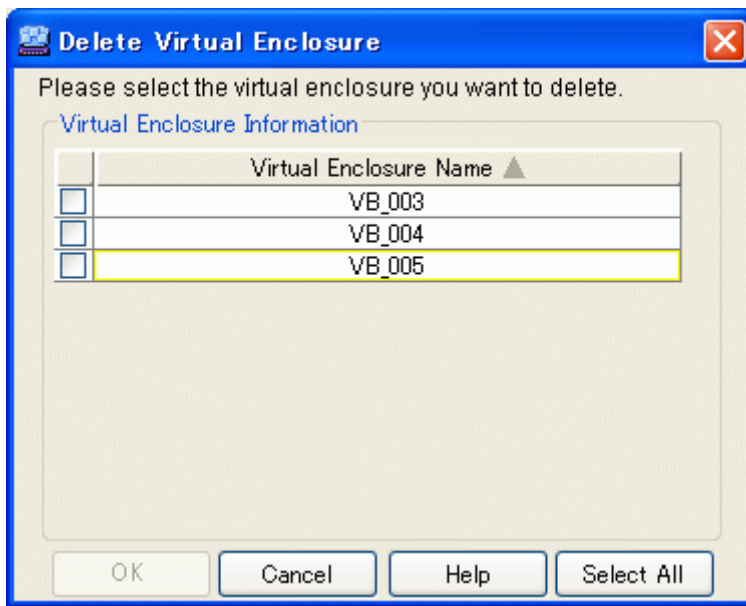
All virtual enclosures are now successfully deleted.

### 5.2.3.2 Deleting multiple virtual enclosures simultaneously

To delete multiple virtual enclosures, take action as described below.

1. Open the "Delete Virtual Enclosure" dialog box by using one of the following methods:
  - Select "Virtual Enclosure" in the Composition Data tree area, then select [Operation] - [Virtual Enclosure] - [Delete], or
  - Right-click on "Virtual Enclosure" in the Composition Data tree area, then select [Delete Virtual Enclosure].

2. The "Delete Virtual Enclosure" dialog box is displayed.



### Information

If any virtual target is registered in the virtual enclosure, the virtual enclosure is not displayed in the "Delete Virtual Enclosure" dialog box.

3. Select the virtual enclosure or enclosures you want to delete, and click the <OK> button.
  - You can select all virtual enclosures by clicking the <Select All> button. If all virtual enclosures are selected, you can deselect all virtual enclosures by clicking the <Clear> button.
4. The "Delete Virtual Enclosure" confirmation dialog box is displayed. Click the <OK> button.
5. The "Delete Virtual Enclosure" message dialog displays the virtual enclosure deletion result. Click the <Close> button.
6. Confirm on the display and the creation screen that the virtual enclosure has been deleted.

All virtual enclosures have now been successfully deleted.

## 5.2.4 Deleting virtual disks

This section explains how to delete virtual disks.

### 5.2.4.1 Deleting virtual disks individually

Select and delete a virtual disk as described below. You can use any physical disk constituting a virtual disk for another virtual disk or release it from the virtual storage pool.

### Note

You cannot delete virtual disks displayed under a virtual enclosure in the Composition Data tree area.

1. Start up the "Delete Virtual Disk" dialog box as follows:
  - Select from the Composition Data tree area the virtual disk you want to delete in the virtual storage pool and then [Operations]
  - [Virtual Disk] - [Delete], or

- Right-click on a virtual disk you want to delete in the virtual storage pool and select [Delete Virtual Disk].
2. The "Delete Virtual Disk" confirmation dialog then appears. Click the <OK> button.
  3. The "Delete Virtual Disk" message dialog displays the virtual disk deletion result. Click the <Close> button.
  4. Confirm on the display and the creation screen that the virtual disk has been deleted.
- All virtual disks are now successfully deleted.

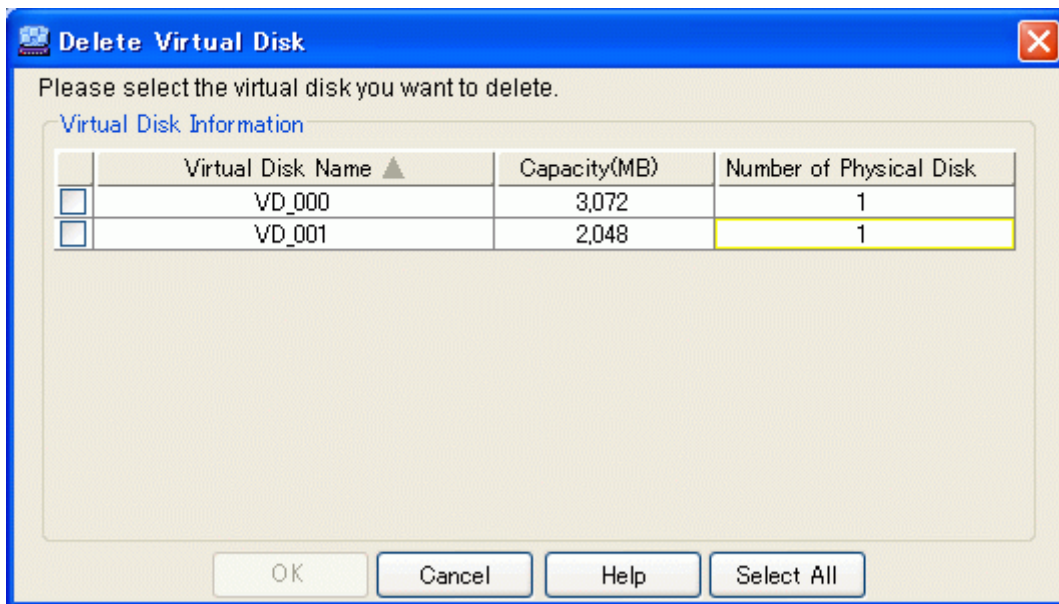
### 5.2.4.2 Deleting multiple virtual disks simultaneously

Proceed as follows to delete multiple virtual disks simultaneously. The physical disks constituting virtual disks can be used for other virtual disks or can be released from the virtual storage pool.

#### Note

You cannot delete virtual disks displayed under a virtual enclosure in the Composition Data tree area.

1. Open the "Delete Virtual Disk" dialog box by using one of the following methods:
  - Select from the Composition Data tree area the virtual storage pool, then select [Operate] - [Virtual Disk] - [Delete], or
  - Right-click on the virtual storage pool that contains the virtual disks you want to delete, then select [Delete Virtual Disk].
2. The "Delete Virtual Disk" dialog box appears.



3. Select the virtual disk or disks you want to delete, and click the <OK> button.
    - You can select all virtual disks by clicking the <Select All> button. If all virtual disks are selected, you can deselect all virtual disks by clicking the <Clear> button.
  4. The "Delete Virtual Disk" confirmation dialog box is displayed. Click the <OK> button.
  5. The "Delete Virtual Disk" message dialog displays the virtual disk deletion result. Click the <Close> button.
  6. Confirm on the display and the creation screen that the virtual disk has been deleted.
- All virtual disks have now been successfully deleted.

## 5.2.5 Releasing physical disks

This section explains how to release physical disks.

### 5.2.5.1 Releasing physical disks in units of storage devices

You can release physical disks from the virtual storage pool as described below.

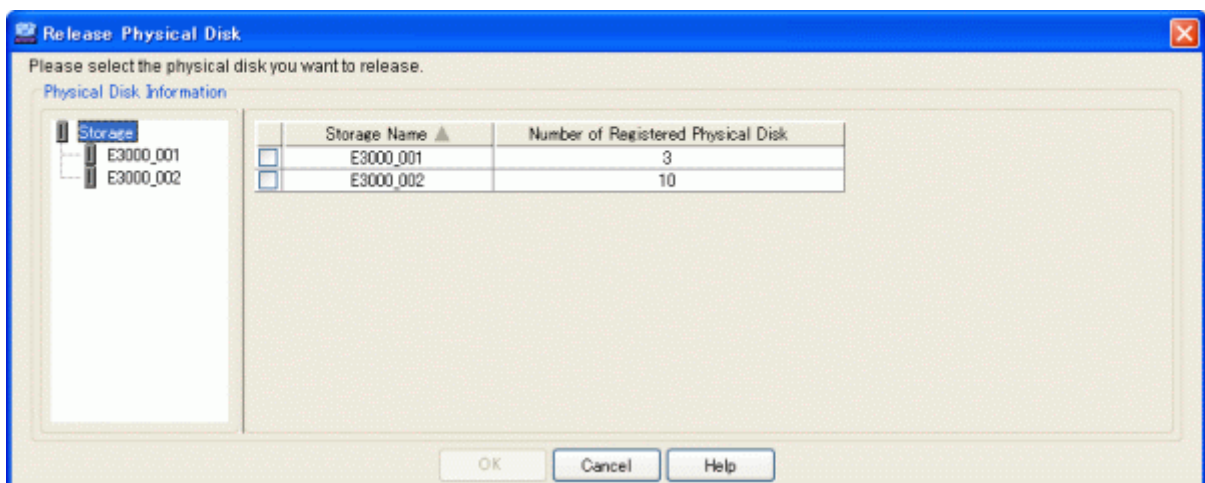
#### Point

Release all physical disks registered to a virtual storage pool before deleting a virtual storage pool.

#### Note

The physical disk cannot be released if the VS900 management area has been created on it. To release the physical disk, delete the VS900 management area first.

1. Start up the "Release Physical Disk" dialog box as follows:
  - Select from the Composition Data tree area the virtual storage pool in which the physical disk to be released is registered and then [Operations] - [Physical Disk] - [Release], or
  - Right-click on the virtual storage pool and select [Release Physical Disk].
2. The "Release Physical Disk" dialog box then appears.
3. The storage devices that can be deleted are listed in the physical disk selection table.



4. Select a physical disk (or physical disks) to be released and click the <OK> button.
5. The "Release Physical Disk" confirmation dialog then appears. Click the <OK> button.
6. The "Release Physical Disk" message dialog displays the result of releasing the physical disk. Click the <Close> button.
7. Confirm on the display and the creation screen that the physical disk has been released.  
All physical disks are now successfully released from the virtual storage pool.

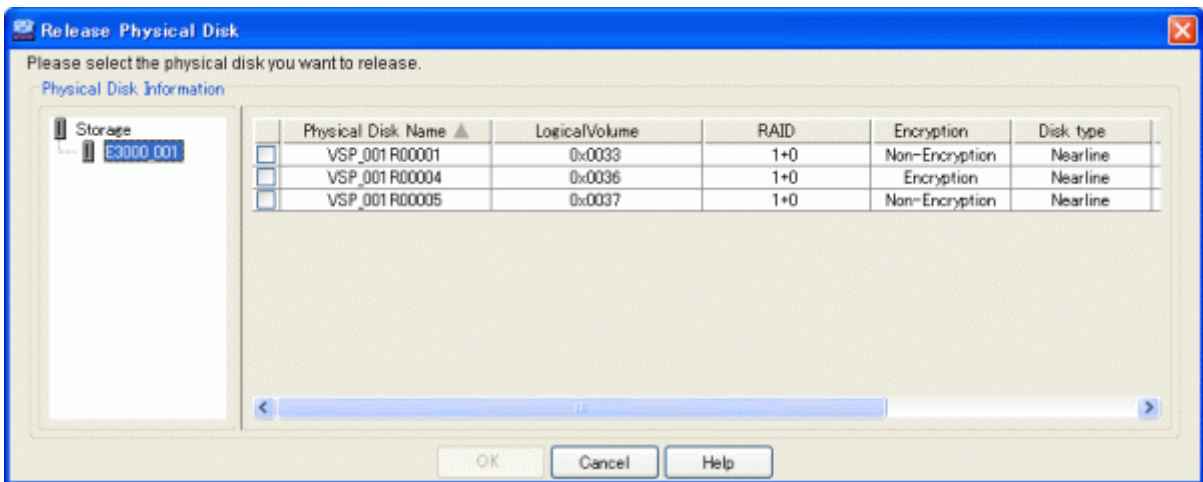
### 5.2.5.2 Releasing physical disks individually

Proceed as follows to release physical disks from the virtual storage pool.

## Point

To delete a virtual storage pool, delete in advance all physical disks registered in the virtual storage pool.

1. Open the "Release Physical Disk" dialog box by using one of the following methods:
  - Select from the Composition Data tree area the virtual storage pool in which the physical disk you want to release is registered, then select [Operate] - [Physical Disk] - [Release], or
  - Right-click on the virtual storage pool, then select [Release Physical Disk].
2. The "Release Physical Disk" dialog box is displayed.
3. The storage devices that can be deleted are listed in the physical disk selection table.
4. Select the storage device from which you want to delete a physical disk.



5. Select the physical disk (or disks) you want to release, and click the <OK> button.
6. The "Release Physical Disk" confirmation dialog box is displayed. Click the <OK> button.
7. The "Release Physical Disk" message dialog displays the result of releasing the physical disk. Click the <Close> button.
8. Confirm on the display and the creation screen that the physical disk has been released.  
The physical disk is now successfully released from the virtual storage pool.

## 5.2.6 Deleting virtual storage pools

This section explains how to delete a virtual storage pool.

### 5.2.6.1 Deleting virtual storage pools individually

Select and delete virtual storage pools as described below.

1. Start up the "Delete Virtual Storage Pool" dialog box is as follows:
  - Select from the Composition Data tree area the virtual storage pool you want to delete and then [Operations] - [Virtual Storage Pool] - [Delete], or
  - Right-click on the virtual storage pool and select [Delete Virtual Storage Pool].

## Information

When any resource is registered in the virtual storage pool, you cannot select [Delete] on the [Operations] - [Virtual Storage Pool] menu or right-click on [Delete Virtual Storage Pool].

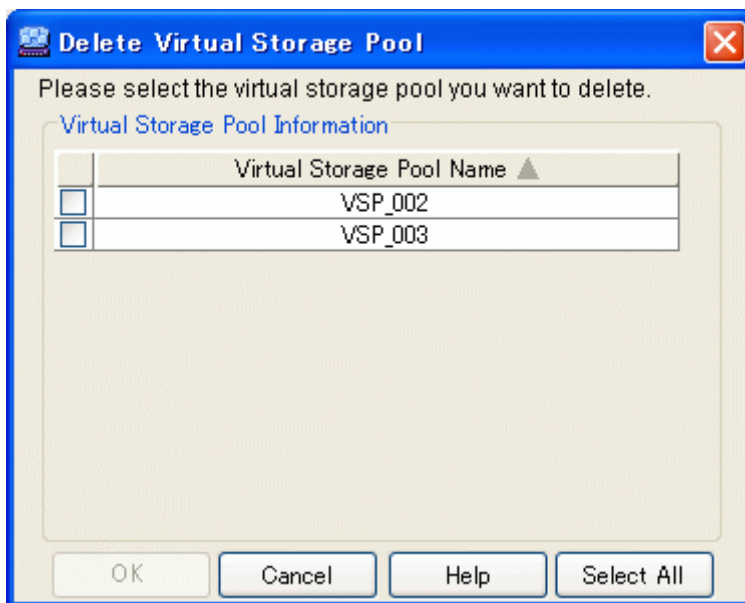
2. The "Delete Virtual Storage Pool" confirmation dialog then appears. Click the <OK> button.
3. The "Delete Virtual Storage Pool" message dialog displays the result of deleting the virtual storage pool. Click the <Close> button.
4. Confirm on the display and the creation screen that the virtual storage pool has been deleted.

All virtual storage pools are now successfully deleted.

### 5.2.6.2 Deleting multiple virtual storage pools simultaneously

Proceed as follows to delete multiple virtual storage pools simultaneously.

1. Open the "Delete Virtual Storage Pool" dialog box by using one of the following methods:
  - Select "Virtual Storage Pool" in the Composition Data tree area, then select [Operation] - [Virtual Storage Pool] - [Delete], or
  - Right-click on "Virtual Storage Pool" in the Composition Data tree area, then select [Delete Virtual Storage Pool].
2. The "Delete Virtual Storage Pool" dialog box is displayed.



## Information

If any resource is registered in the virtual storage pool, the virtual storage pool is not displayed in the "Delete Virtual Storage Pool" dialog box.

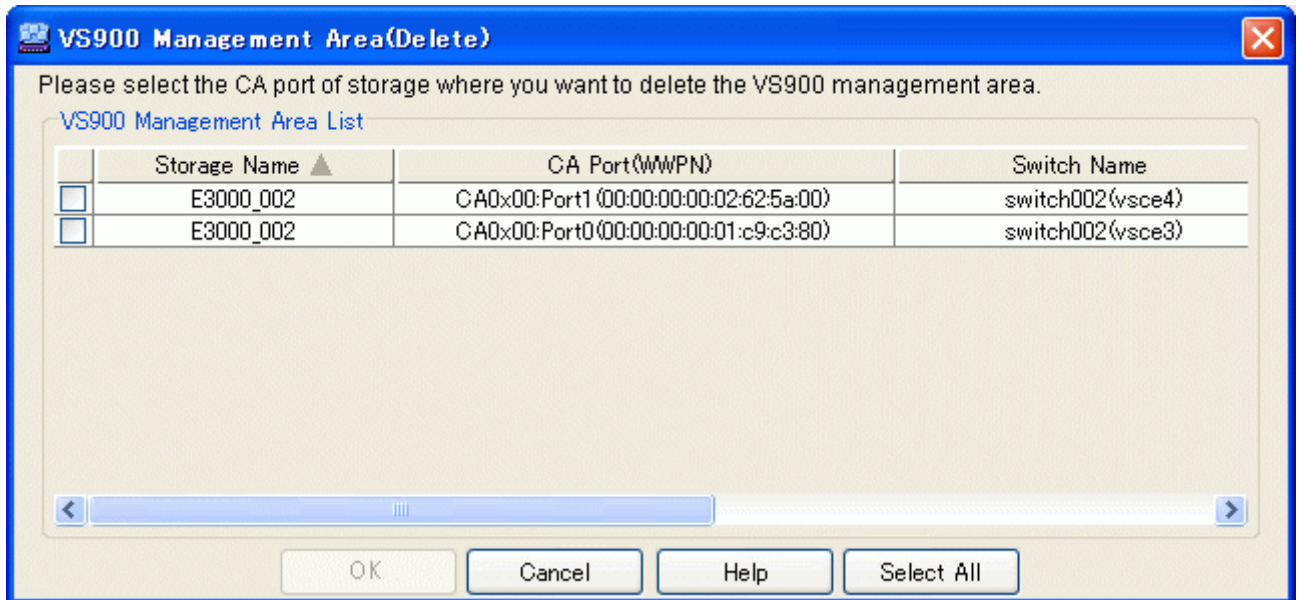
3. Select the virtual storage pool or pools you want to delete, and click the <OK> button.
  - You can select all virtual storage pools by clicking the <Select All> button. If all virtual storage pools are selected, you can deselect all virtual storage pools by clicking the <Clear> button.
4. The "Delete Virtual Storage Pool" confirmation dialog box is displayed. Click the <OK> button.
5. The "Delete Virtual Storage Pool" message dialog displays the result of deleting the virtual storage pool. Click the <Close> button.
6. Confirm on the display and the creation screen that the virtual storage pool has been deleted.

All virtual storage pools have now been successfully deleted.

## 5.2.7 Deleting VS900 management area

This section explains how to delete the VS900 management area.

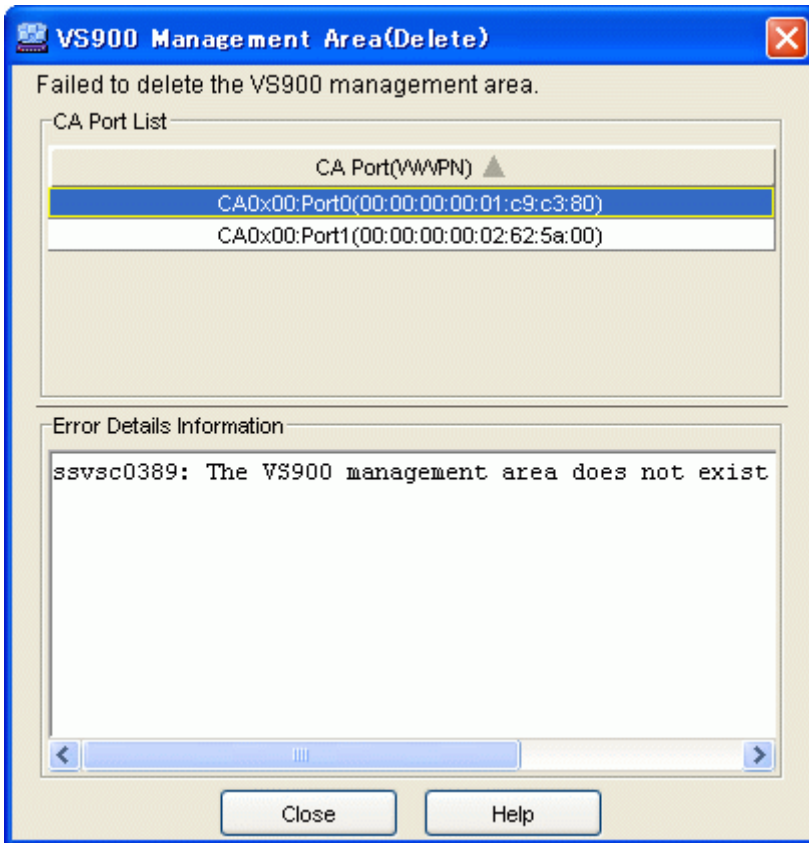
1. Start the "VS900 Management Area (Delete)" dialog box.
  - Click the "Virtual Storage Pool" in the Composition Data tree area, and click [Operations] - [VS900 management area] - [Delete].
2. The "VS900 Management Area (Delete)" dialog box then appears.



3. The VS900 management area list then appears. Select the VS900 management area (or management areas) you want to delete and click the <OK> button.
  - All VS900 management areas are selected by clicking the <Select All> button. When all the VS900 management areas are selected, the selection can be cancelled by clicking the <Clear> button.
  - For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as "*virtualization switch name (host name)*".
4. When the VS900 management areas are deleted successfully, the "VS900 Management Area (Delete)" message dialog is displayed.  
When the VS900 management areas were not deleted successfully, the "VS900 Management Area (Delete)" error dialog box is



displayed. The detailed error information for the VS900 management area that failed to be deleted can be referenced by selecting the CA port displayed. Confirm the cause of the failure to delete the VS900 management area, then click the <Close> button.



The VS900 management areas are now deleted.

## 5.2.8 Releasing copy security groups from virtual enclosures

This section explains how to release copy security groups from virtual enclosures.

### Point

When releasing copy security groups from a virtual enclosure, make sure that ETERNUS SF AdvancedCopy Manager copies are not being performed on the virtual disks in the virtual enclosure registered with the copy security groups.

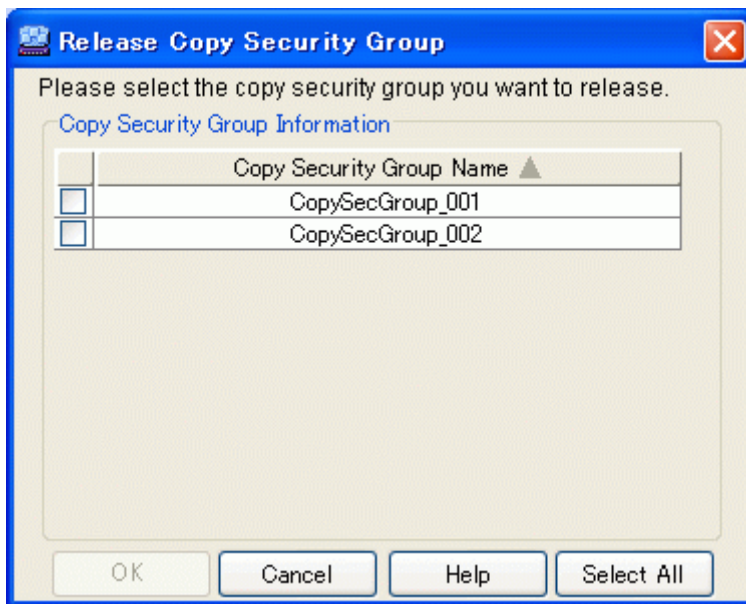
### Note

Copy security groups cannot be released from the virtual enclosure if ETERNUS SF AdvancedCopy Manager copies are being performed on the virtual disks in the virtual enclosure registered with the copy security groups. Release the copy security groups from the virtual enclosure after the copies have finished.

1. Open the [Release Copy Security Group] dialog box using either of the following methods:
  - Right-click on the virtual enclosure (where the copy security groups are to be released) in the Composition Data tree area, and then select [Release Copy Security Group].
  - Select the virtual enclosure (where the copy security groups are to be released) in the Composition Data tree area, and then select [Operation] - [Virtual Enclosure] - [Release Copy Security Group].



2. The [Release Copy Security Group] dialog box is displayed.



3. Select the copy security group or groups you want to release, and click the [OK] button.
  - You can select all copy security groups by clicking the [Select All] button. If all copy security groups are selected, you can deselect all copy security groups by clicking the [Clear] button.
4. The [Release Copy Security Group] confirmation dialog box is displayed. Click the [OK] button.
5. The results of releasing the copy security groups from the virtual enclosure are displayed in the [Release Copy Security Group] message dialog box. Click the [Close] button.
6. Use the "View and Create" window to check that the specified copy security groups have been released from the virtual enclosure.  
This completes the procedure for releasing copy security groups from virtual enclosures.

## 5.2.9 Releasing virtual enclosures from copy security groups

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This section explains how to release virtual enclosures from copy security groups.

### Point

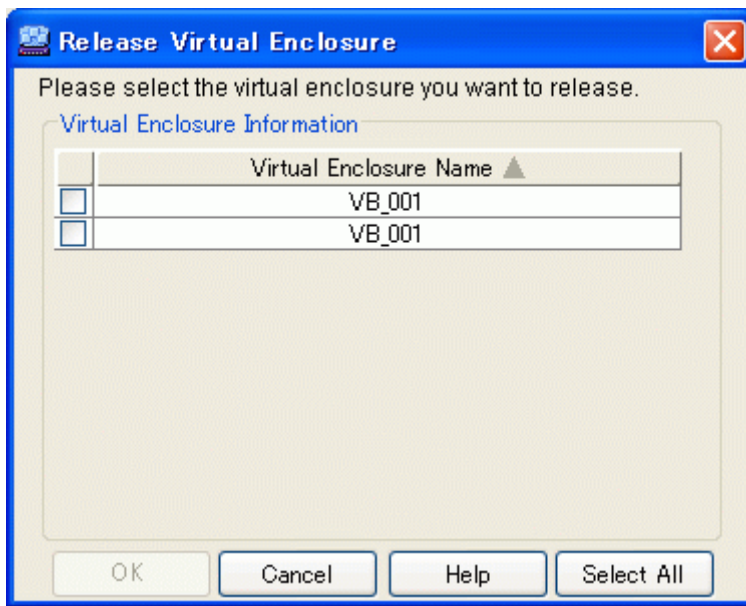
When releasing virtual enclosures from a copy security group, make sure that ETERNUS SF AdvancedCopy Manager copies are not being performed on the virtual disks in the virtual enclosures to be released.

### Note

Virtual enclosures cannot be released from the copy security group if ETERNUS SF AdvancedCopy Manager copies are being performed on the virtual disks in the virtual enclosures to be released. Release the virtual enclosures from the copy security group after the copies have finished.

1. Open the [Release Virtual Enclosure] dialog box using either of the following methods:
  - Right-click on the copy security group (where the virtual enclosures are to be released) in the Composition Data tree area, and then select [Release Virtual Enclosure].
  - Select the copy security group (where the virtual enclosures are to be released) in the Composition Data tree area, and then select [Operation] - [Copy Security Group] - [Release Virtual Enclosure].

2. The [Release Virtual Enclosure] dialog box is displayed.



3. Select the virtual enclosure or enclosures you want to release, and click the [OK] button.
  - You can select all virtual enclosures by clicking the [Select All] button. If all virtual enclosures are selected, you can deselect all virtual enclosures by clicking the [Clear] button.
4. The [Release Virtual Enclosure] confirmation dialog box is displayed. Click the [OK] button.
5. The results of releasing the virtual enclosures from the copy security group are displayed in the [Release Virtual Enclosure] message dialog box. Click the [Close] button.
6. Use the "View and Create" window to check that the virtual enclosures have been released from the specified copy security group.

This completes the procedure for releasing virtual enclosures from copy security groups.

## 5.2.10 Deleting copy security groups

---

This section explains how to delete copy security groups.

### 5.2.10.1 Deleting individual copy security groups

This section explains how to select and delete individual copy security groups.

#### Point

- Before deleting copy security groups, make sure there are no virtual enclosures registered with the copy security groups to be deleted.
- Also, make sure that the copy security groups to be deleted are not registered with any virtual enclosures.

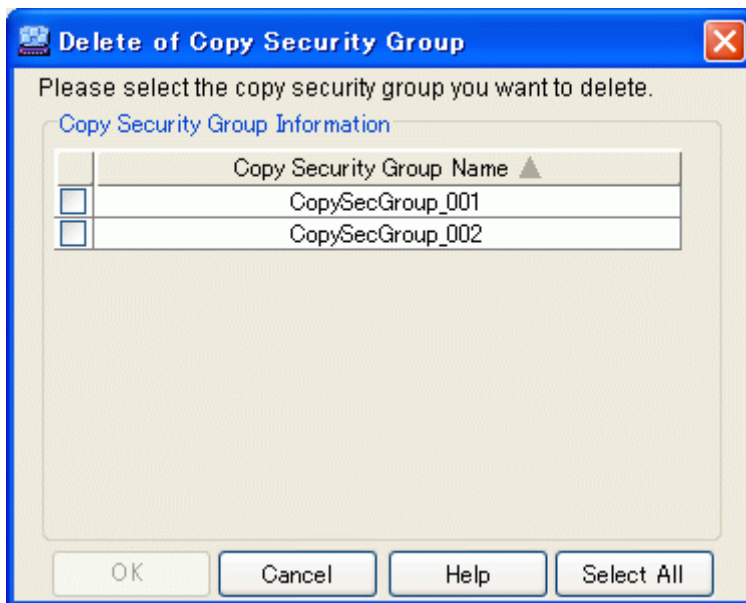
1. Open the [Delete Copy Security Group] dialog box using either of the following methods:
  - Right-click on the copy security group to be deleted in the Composition Data tree area, and then select [Delete Copy Security Group].
  - Select the copy security group to be deleted in the Composition Data tree area, and then select [Operation] - [Copy Security Group] - [Delete].
2. The [Delete Copy Security Group] confirmation dialog box is displayed. Click the [OK] button.

3. The results of deleting the copy security group are displayed in the [Delete Copy Security Group] message dialog box. Click the [Close] button.
4. Use the "View and Create" window to check that the copy security group has been deleted.  
This completes the procedure for deleting copy security groups.

## 5.2.10.2 Deleting multiple copy security groups

This section explains how to delete multiple copy security groups.

1. Open the [Delete of Copy Security Group] dialog box using either of the following methods:
  - Right-click on the root node for copy security group to be deleted in the Composition Data tree area, and then select [Delete Copy Security Group].
  - Select the root node for copy security group to be deleted in the Composition Data tree area, and then select [Operation] - [Copy Security Group] - [Delete].
2. The [Delete of Copy Security Group] dialog box is displayed.



### Information

Copy security groups where virtual enclosures have been registered are not displayed in the [Copy Security Group information] section of the [Delete of Copy Security Group] dialog box.

3. Select the copy security groups to be deleted (multiple copy security groups can be selected) and then click the [OK] button.
  - Clicking the [Select All] button selects all of the copy security groups.  
If all of the copy security groups have been selected, then clicking the [Clear] button deselects all of the copy security groups.
4. The [Delete Copy Security Group] confirmation dialog box is displayed. Click the [OK] button.
5. The results of deleting the copy security group are displayed in the [Delete Copy Security Group] message dialog box. Click the [Close] button.
6. Use the "View and Create" window to check that the copy security group has been deleted.  
This completes the procedure for deleting copy security groups.

## 5.3 Changing the Resource Status

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This section describes how to change the status of a created resource.

### 5.3.1 Adding capacity to the virtual disk

---

You can add capacity to the virtual disk used on the transaction server as described below.

You can add capacity to the virtual disk as follows:

- Add capacity automatically to the virtual disk, or
- Add capacity while checking the physical disk from which to slice capacity, or
- Select (manually) the physical disk from which to slice capacity.



.....

If the number of SCSI command queues of the virtual target exceeds the number of SCSI command queues of a single CA, a confirmation dialog box appears with the message "[ssgui4414](#): The number of virtual targets of SCSI command cues exceeds the limitation value of CA. Is processing continued?". If you click the <OK> button, disk read or write performance may deteriorate.

.....

#### 5.3.1.1 Adding capacity automatically to the virtual disk

The physical disk on which you want to slice capacity can be selected automatically to expand virtual disk capacity as described below.

1. Start up the "Add Capacity" dialog box as follows:
  - Select from the Composition Data tree area the virtual disk to which you want to add capacity and click the <Add Capacity> button, or
  - Select the virtual disk and then [Operations] - [Virtual Disk] - [Add Capacity], or
  - Right-click on a virtual disk under the virtual enclosure and select [Add Capacity].
2. The "Add Capacity" dialog box then appears.
3. Enter the status information for the physical disk on which you want to slice capacity.

##### Capacity (required)

Enter the capacity (numeric value) you want to add to the virtual disk.

Select the unit from the [MB] (default)/[GB] pull-down menu.

##### RAID (selective)

Select the RAID level of the physical disk on which you want to slice capacity from the pull-down menu.

The pull-down menu lists [No specification](default)/ [1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

##### Storage Name (selective)

When there are multiple physical disks on which you want to slice capacity, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed.

##### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but an encryption attribute that cannot be selected for the physical disk is not displayed.

#### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk are displayed.

4. Select the <Automatic creation> button.
5. The "Add Capacity" confirmation dialog then appears. Click the <OK> button.
6. The "Add Capacity" dialog displays the result of adding capacity to the virtual disk. Select the <Close> button.
7. Confirm on the display and the creation screen that capacity has been added to the virtual disk.

Capacity is now successfully added to the virtual disk.

### 5.3.1.2 Adding capacity while checking the physical disk on which you want to slice capacity

The user can add capacity to the virtual disk while checking information of the physical disk selected automatically based on the information entered.

1. Start up the "Add Capacity" dialog box is as follows:
  - Select from the Composition Data tree area the virtual disk to which you want to add capacity and click the <Add Capacity> button, or
  - Select the virtual disk and then [Operations] - [Virtual Disk] - [Add Capacity], or
  - Right-click on a virtual disk under the virtual enclosure and select [Add Capacity].
2. The "Add Capacity" dialog box then appears.
3. Enter the following status information necessary for the physical disk on which you want to slice capacity.

#### Capacity (required)

Enter the capacity (numeric value) you want to add to the virtual disk.

Select the unit from the [MB] (default)/[GB] pull-down menu.

#### RAID (selective)

Select the RAID level of the physical disk on which you want to slice from the pull-down menu.

The pull-down menu lists [No specification](default)/ [1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

#### Storage Name (selective)

When there are multiple physical disks on which you want to slice capacity, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed.

#### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but an encryption attribute that cannot be selected for the physical disk is not displayed.

#### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk are displayed.

4. Click the <Candidate Selection> button.
5. The "Add Capacity" dialog box shows the automatically selected physical disk with its checkbox checked.

If you want to add capacity using the automatically selected physical disk:

1. Click the <OK> button.

If you want to add capacity using physical disks other than the automatically selected one:

1. Remove the check mark from the automatically selected physical disk.
2. Select and check the physical disk on which you want to slice capacity.
3. Click the <Assigned Capacity> button.
4. The "Assigned Capacity" dialog box then appears.
5. Enter the changed quota capacity.

#### Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB].

1. Click the <OK> button in the "Assigned Capacity" dialog box.
2. Click the <OK> button in the "Add Capacity" dialog box.

If you want to change the assigned capacity of the automatically selected physical disk:

1. Click the <Assigned Capacity> button for the physical disk whose quota capacity you want to change.
2. The "Assigned Capacity" dialog box then appears.
3. Enter the changed quota capacity.

#### Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB].

1. Click the <OK> button in the "Assigned Capacity" dialog box.
2. Click the <OK> button in the "Add Capacity" dialog box.

6. The "Add Capacity" confirmation dialog box then appears. Click the <OK> button.
7. The "Add Capacity" message dialog displays the result of adding capacity to the virtual disk. Select the <Close> button.
8. Confirm on the display and the creation screen that capacity has been added to the virtual disk.

Capacity is now successfully added to the virtual disk.

### 5.3.1.3 When the user selects the physical disk to slice capacity

The user can select all physical disks on which to slice capacity for adding capacity to the virtual disk.



#### Note

You cannot add capacity while the virtual disk is in migration or replication.

Moreover, you cannot add capacity to any virtual disk displayed under a virtual storage pool in the Composition Data tree area.

1. Start up the "Add Capacity" dialog box is as follows:
  - Select from the Composition Data tree area the virtual disk to which you want to add capacity and click the <Add Capacity> button, or
  - Select the virtual disk and then [Operations] - [Virtual Disk] - [Add Capacity], or
  - Right-click on a virtual disk under the virtual enclosure and select [Add Capacity].
2. The "Add Capacity" dialog box then appears.
3. Select and check the physical disk on which you want to slice capacity.
4. Click the <Assigned Capacity> button for the physical disk selected.
5. The "Assigned Capacity" dialog box then appears.
 

Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB]. Note that checking the physical disk sets non-assigned capacity as the quota capacity. Removing the physical disk sets the quota capacity to 0.
7. Click the <OK> button in the "Assigned Capacity" dialog box.
8. Click the <OK> button in the "Add Capacity" dialog box.
9. The "Add Capacity" confirmation dialog box then appears. Click the <OK> button.
10. The "Add Capacity" dialog displays the result of adding capacity to the virtual disk. Select the <Close> button.
11. Confirm on the display and the creation screen that capacity has been added to the virtual disk.
 

Capacity is now successfully added to the virtual disk.

## 5.3.2 Changing VTHL

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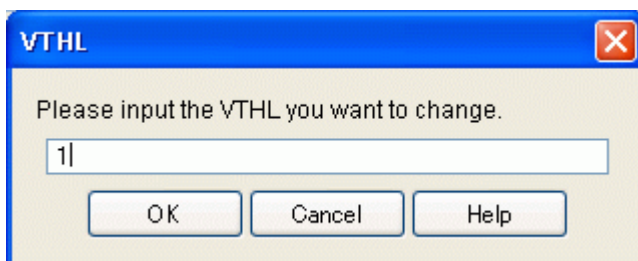
The user can select and change VTHL of the assignment information for a virtual disk as follows:



### Note

You cannot change VTHL while assigning a virtual disk to multiple virtual targets. Release the virtual disk from all virtual targets before assigning it to a virtual target.

1. Click the check box to select the virtual disk of VTHL to be changed in the "Virtual Disk Assignment Information" table in the "Assign/Release Virtual Disk" dialog box. Click the <VTHL> button.
2. The "VTHL" dialog box then appears.



3. Enter the VTHL you want to change as follows:
 

VTHL (required)

Enter the VTHL you want to assign to the virtual disk selected.
4. Click the <OK> button in the "VTHL" dialog box.

5. Click the <OK> button of the "Assign/Release Virtual Disk" dialog box.
6. The "Assign/Release Virtual Disk" confirmation dialog then appears. Click the <OK> button.
7. The "Assign/Release Virtual Disk" message dialog displays the result of assigning the virtual disks. Click the <Close> button.
8. Confirm on the display and the creation screen that the virtual disks have been assigned.  
VTHL is now successfully changed.

### 5.3.3 Changing the resource name

---

You must carefully enter the name when creating a resource because you cannot change it in virtual storage.

To change the name, first delete the resource you created, and then create a new one with the new desired name.

### 5.3.4 Changing the maximum number of copy sessions

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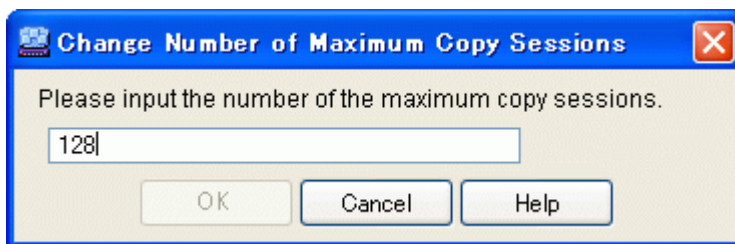
This section explains how to change the maximum number of copy sessions for a virtual enclosure.



#### Note

It is not possible to change the maximum number of copy sessions to a value lower than the number of copy sessions that are currently in progress.

1. Open the [Change Number of Maximum Copy Sessions] dialog box using either of the following methods.
  - Right-click on the virtual enclosure to be changed in the Composition Data tree area, and then select [Change Number of Maximum Copy Sessions].
  - Select the virtual enclosure to be changed in the Composition Data tree area, and then select [Virtual Enclosure] - [Change Number of Maximum Copy Sessions] from the [Operations] menu.
2. The [Change Number of Maximum Copy Sessions] dialog box is displayed.



3. Enter the maximum number of copy sessions.
4. Click the [OK] button.
5. The [Change Number of Maximum Copy Sessions] confirmation dialog then appears. Click the [OK] button.
6. The result of changing the maximum number of copy sessions is displayed in the [Change Number of Maximum Copy Sessions] message dialog box. Click the [Close] button.
7. Use the "View and Create" window to check that the maximum number of copy sessions for the specified virtual enclosure has changed.

This completes the procedure for changing the maximum number of copy sessions for a virtual enclosure.



## 5.4 Migration

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You can move physical disks constituting a virtual disk to other physical disks. This section describes the procedure for selecting the migration destination physical disk and starting migration processing. Refer to "A.3 Explanation of Windows under "Copy"" for details of migration processing.

You can select the migration destination physical disk during virtual disk migration as follows:

- Select the migration destination physical disk automatically, or
- Select the migration destination physical disk while checking the physical disk, or
- Select (manually) the migration destination physical disk.



.....

If the number of SCSI command queues of the virtual target exceeds the number of SCSI command queues of a single CA, a confirmation dialog box appears with the message "ssgui4414: The number of virtual targets of SCSI command cues exceeds the limitation value of CA. Is processing continued?". If you click the <OK> button, disk read or write performance may deteriorate.

.....

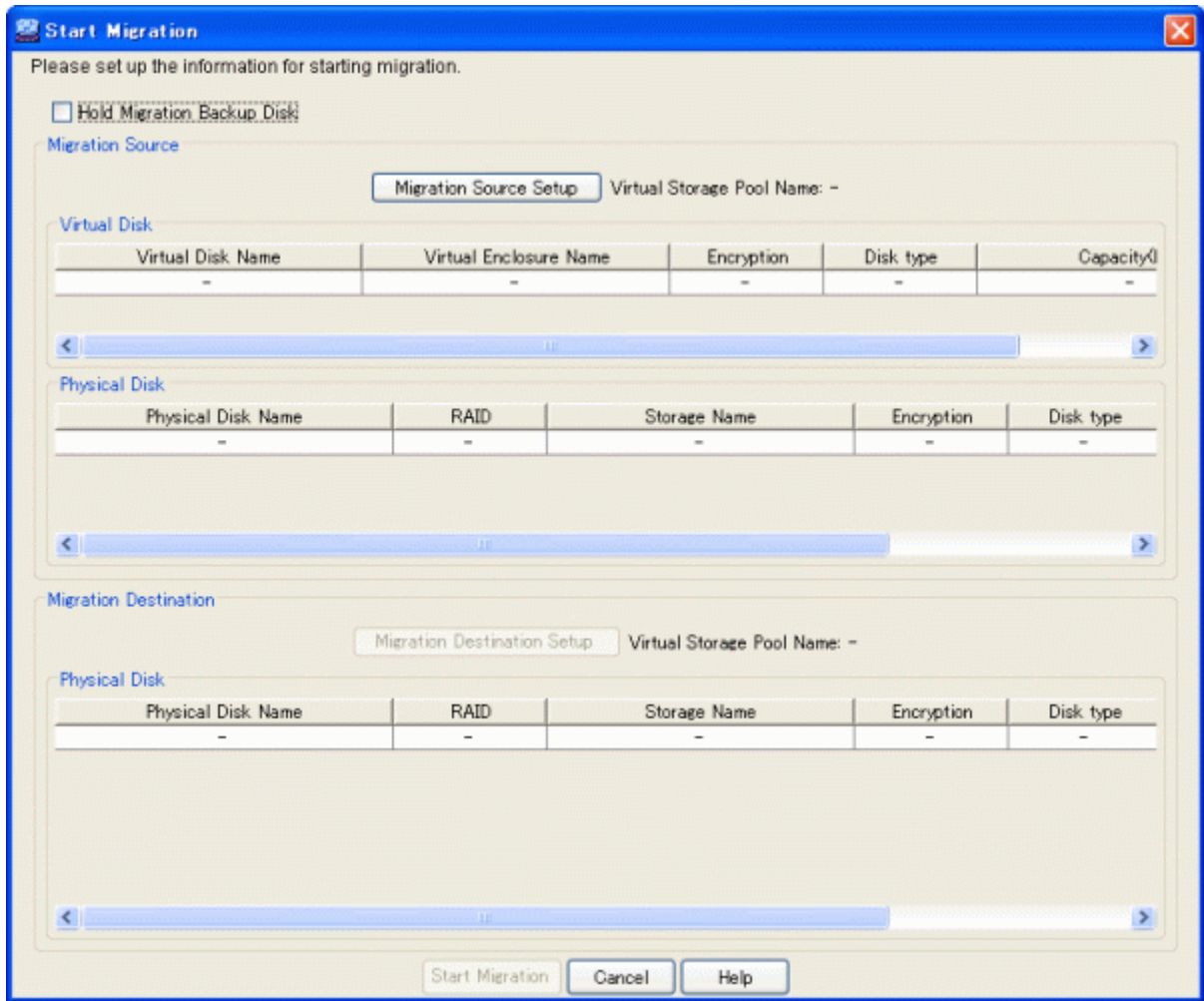
### 5.4.1 Selecting the migration destination physical disk automatically

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The migration destination physical disk can be selected automatically to perform migration as follows:

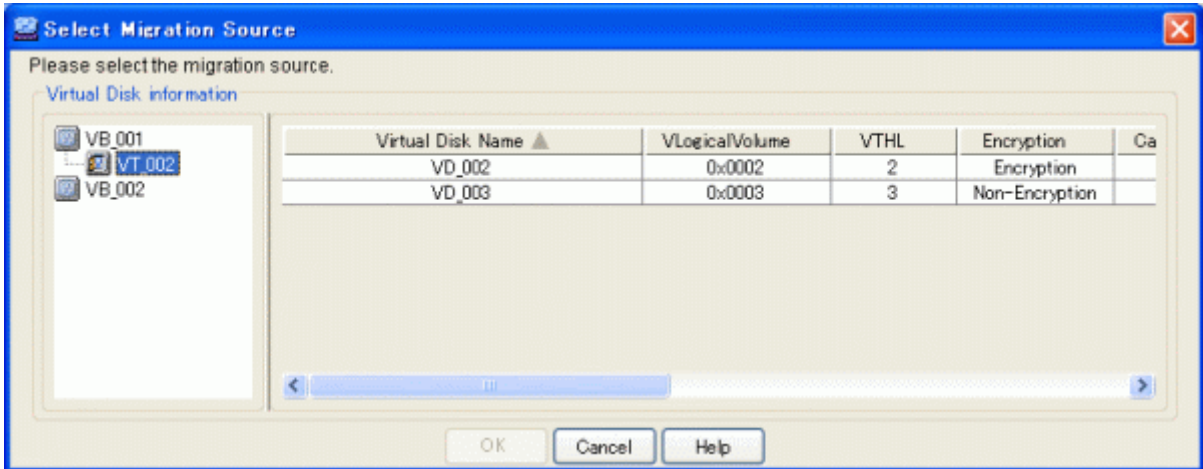
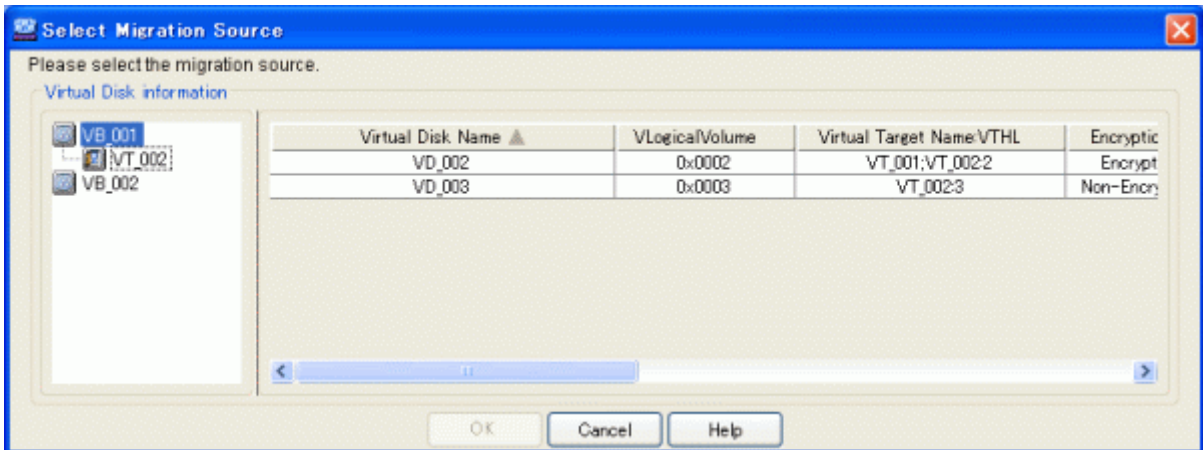
1. Click the <Start Migration> button in the copy window. Otherwise, select [Operations] - [Start Migration].

2. The "Start Migration" dialog box then appears.

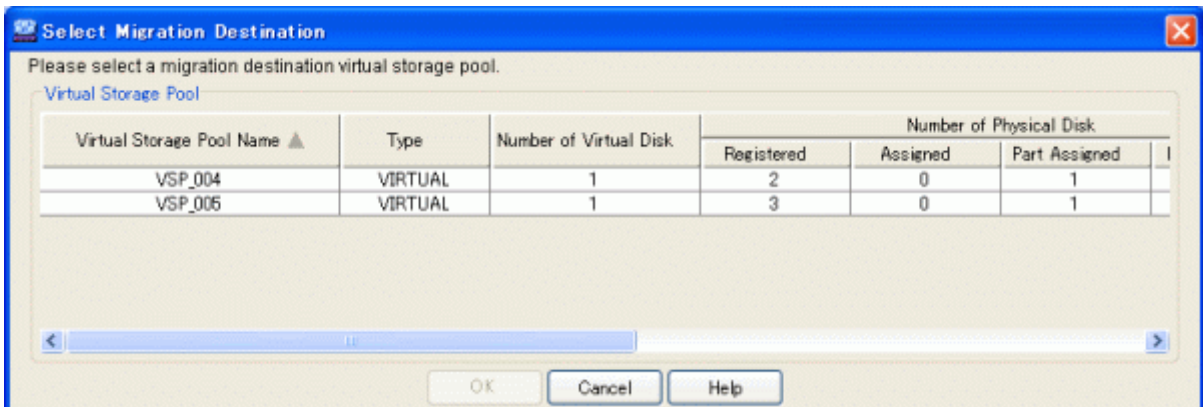


3. When you want to disable the automatic switch from the migration source to the migration destination physical disk, check the [Hold Migration Backup Disk] box (which is not checked at this time by default).
4. Click the <Migration Source Setup> button.
5. The "Select Migration Source" dialog box then appears.
6. Select from the migration source tree area the virtual enclosure that stores the virtual disk you want to migrate.
7. The "Select Migration Source" table lists the virtual disks in the virtual enclosure.

- Select the virtual disk you want to migrate and click the <OK> button.

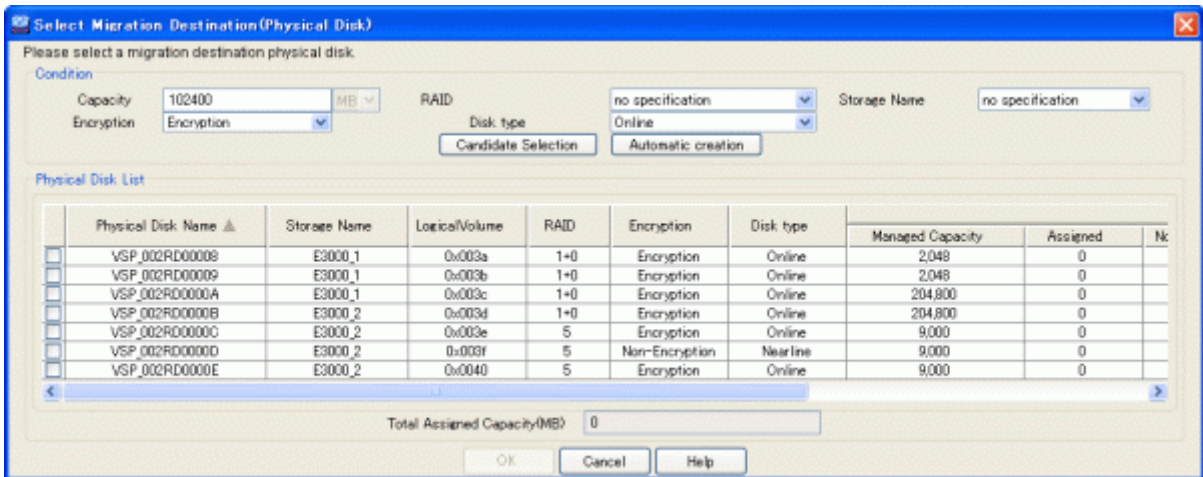


- The "Start Migration" dialog box shows information of the virtual disk selected.
- Click the <Migration Destination Setup> button.
- The "Select Migration Destination" dialog box then appears.



- Select the virtual storage pool in which the migration destination physical disk is registered and click the <OK> button.

- The "Select Migration Destination (Physical Disk)" dialog box then appears.



- Enter the following status information necessary for selecting the migration destination physical disk.

#### Capacity (selective)

The virtual disk capacity is displayed by default. If more capacity is required, enter the appropriate capacity (numeric value) required for the migration destination physical disk.

Note that the capacity can be specified only if "Hold Migration Backup Disk" has a check mark.

The unit is fixed at MB and cannot be changed.

#### RAID (selective)

Select the RAID level of the migration destination physical disk from the pull-down menu.

The pull-down menu lists [No specification](default)/ [1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

#### Storage Name (selective)

When there are multiple migration destination physical disks, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed.

#### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but an encryption attribute that cannot be selected for the physical disk is not displayed.

#### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk are displayed.

- Click the <Automatic creation> button.
- The "Start Migration" confirmation dialog then appears. Click the <OK> button.
- The "Start Migration" message dialog displays the migration activation result. Click the <Close> button.
- Confirm on the copy status reference display screen that migration has been activated.

The migration processing of the virtual disks will be executed.

## 5.4.2 Selecting the migration destination physical disk while checking the physical disk

---

The user can perform migration while checking information of the migration destination physical disk selected automatically based on the information entered.

1. Click the <Start Migration> button in the copy window. Otherwise, select [Operations] - [Start Migration].
2. The "Start Migration" dialog box then appears.
3. When you want to disable the automatic switch from the migration source to the migration destination physical disk, check the [Hold Migration Backup Disk] box (which at this time is not yet checked by default).
4. Click the <Migration Source Setup> button.
5. The "Select Migration Source" dialog box then appears.
6. Select from the migration source tree area the virtual enclosure that stores the virtual disk to be migrated.
7. The "Select Migration Source" table lists the virtual disks in the virtual enclosure.
8. Select the virtual disk to be migrated and click the <OK> button.
9. The "Start Migration" dialog box shows information of the virtual disk selected.
10. Click the <Migration Destination Setup> button.
11. The "Select Migration Destination" dialog box then appears.
12. Select the virtual storage pool in which the migration destination physical disk is registered and click the <OK> button.
13. The "Select Migration Destination (Physical Disk)" dialog box then appears.
14. Enter the following status information necessary for selecting the migration destination physical disk.

### Capacity (selective)

The virtual disk capacity is displayed by default. If more capacity than displayed is required, enter the appropriate capacity (numeric value) required for the migration destination physical disk.

The unit is fixed at [MB].

### RAID (selective)

Select the RAID level of the migration destination physical disk from the pull-down menu.

The pull-down menu lists [No specification](default)/ [1+0], [1], [5], [6] and [0] but the RAID levels that cannot be selected for the physical disks are not displayed.

### Storage Name (selective)

When there are multiple migration destination physical disks, use the physical disks in the same storage or select from the pull-down menu.

Only the storage devices registered in the virtual storage pool are displayed in [Storage name].

The pull-down menu lists [No specification] (default)/[Storage name] but the storage names that cannot be selected for the physical disks are not displayed.

### Encryption (selective)

Select the encryption attribute of a physical disk that configures the virtual disk from the pull-down menu.

The pull-down menu lists [Encryption] and [Non-encryption] but an encryption attribute that cannot be selected for the physical disk is not displayed.

### Disk type (selective)

Use the pull-down menu to select the "disk type" for the physical disks that make up the virtual disk.

The pull-down menu includes "Online" and "Nearline" disk types, but only the options that can be selected for that particular physical disk are displayed.

15. Click the <Candidate Selection> button.
16. The "Select Migration Destination (Physical Disk)" dialog box shows the automatically selected physical disk with its checkbox checked.

If you want to migrate to the automatically selected physical disk:

1. Click the <OK> button.

If you want to migrate to physical disks other than the automatically selected physical disk:

1. Remove the check mark from the automatically selected physical disk.
2. Select and check the physical disk that you want as the migration destination.
3. Click the <OK> button.

If you want to change the assigned capacity of the automatically selected physical disk:

1. Click the <Assigned Capacity> button for the physical disk whose quota capacity you want to change.
2. The "Assigned Capacity" dialog box then appears.
3. Enter the changed quota capacity.

#### Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB].

1. Click the <OK> button in the "Assigned Capacity" dialog box.
2. Click the <OK> button in the "Select Migration Destination (Physical Disk)" dialog box.

17. Click the <Start Migration> button in the "Start Migration" dialog box.
18. The "Start Migration" confirmation dialog then appears. Click the <Close> button.
19. The "Start Migration" dialog displays the migration activation result. Click the <Close> button.
20. Confirm on the copy status reference display screen that migration has been activated.  
The migration processing of the virtual disks will be executed.

### **5.4.3 When the user selects the migration destination physical disk**

---

The user can select all migration destination physical disks for performing migration as follows:

1. Select the <Start Migration> button in the copy window. Otherwise, select [Operations] - [Start Migration].
2. The "Start Migration" dialog box then appears.
3. If you want to disable the automatic switch from the migration source to the migration destination physical disk, check the [Hold Migration Backup Disk] box (which at this time is not yet checked by default).
4. Click the <Migration Source Setup> button.
5. The "Select Migration Source" dialog box then appears.
6. Select from the migration source tree area the virtual enclosure that stores the virtual disk you want to migrate.
7. The "Select Migration Source" table lists the virtual disks in the virtual enclosure.
8. Select the virtual disk you want to migrate and click the <OK> button.
9. The "Start Migration" dialog box shows information of the virtual disk selected.
10. Click the <Migration Destination Setup> button.
11. The "Select Migration Destination" dialog box then appears.
12. Select the virtual storage pool in which the migration destination physical disk is registered and click the <OK> button.

13. The "Select Migration Destination (Physical Disk)" dialog box then appears.
14. Check the migration destination physical disk.

If you want to change the assigned capacity of the physical disk selected:

1. Click the <Assigned Capacity> button for the physical disk whose quota capacity you want to change.
2. The "Assigned Capacity" dialog box then appears.
3. Enter the changed quota capacity.

#### Assigned Capacity (required)

Enter the capacity you want to assign from the physical disk selected to the virtual disk in [MB].

1. Click the <OK> button in the "Assigned Capacity" dialog box.
  2. Click the <OK> button in the "Select Migration Destination (Physical Disk)" dialog box.
15. Click the <Start Migration> button in the "Start Migration" dialog box.
  16. The "Start Migration" confirmation dialog then appears. Click the <OK> button.
  17. The "Start Migration" dialog displays the migration activation result. Click the <Close> button.
  18. Confirm on the copy status reference display screen that migration has been activated.  
The migration processing of the virtual disks will be executed.

## 5.4.4 Precautions on using migration

---

This section describes some precautions on using migration as described below.

### Information displayed in the "View and Create" window

Information displayed in "View and Create" is not automatically updated. Select the [View] - [Update] menu in the [View and Create] window to update the information during or after migration.

### Information displayed in the "Copy Status Inquiry" window

When automatic-switch migration is started, the status may be "Automatic change(standby)" before completing the change of physical disks even when data copying to the migration destination physical disk is completed. Since the copy information is deleted immediately after completing the physical disk switch, update the information in "Copy Status Inquiry" after waiting a while.

### Migration source and migration destination physical disk capacities

The capacity of the migration destination physical disk must be equal to or greater than that of the migration source physical disk. If the migration destination physical disk has greater capacity, a task is required to enable the server operating system and file system to recognize the difference in space. Therefore, the migration source physical disk and migration destination physical disk should have equal capacities.

If migration source physical disk and migration destination physical disk have unequal capacities, an error message is output to stop migration processing when automatic switching migration is performed.

### Data consistency

In migration to hold migration backup disk (hereinafter called "backup disk"), if you want to ensure data consistency stored on backup disks, it is required to write data cached on the application server to the backup disks before migration cutover to ensure the consistency.

## Copying encrypted volumes

When non-encrypted volumes are copied from the encrypted volumes, the level of security deteriorates.

## 5.5 Checking the Copy Status

---

The status of copying a virtual disk can be obtained by checking the "Copy Status Inquiry" window. This section describes how to operate the "Copy Status Inquiry" window. In the "Copy Status Inquiry" window, the operations below can be performed.

- Stop copying
- Change migration
- Operate the backup disk



For an explanation of each window of "Copy Status Inquiry," refer to ["A.3 Explanation of Windows under "Copy""](#).

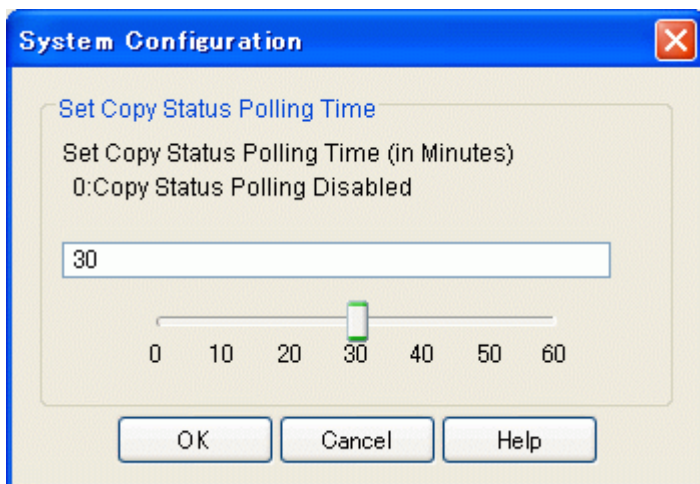
---

### 5.5.1 Polling interval of copying

---

The polling interval of copying can be changed as follows:

1. Select [View] - [Options] - [Option Setting Frame].
2. The "System Configuration" dialog box below then appears.
3. Enter the polling interval to be set and click the <OK> button. Note that 10 min. is set by default.



4. The polling interval of copying is set and information will be updated at the interval set in the "Copy Status Inquiry" window.

### 5.5.2 Stopping copying

---

Migration processing, replication processing, and ACM processing can be stopped as follows:

1. Select the session to be stopped.
2. Click the <Stop> button.

When there are many sessions of the same type (migration, replication, or ACM) as the selected session and they can be stopped, the "Copy session selection (stop)" dialog box appears.

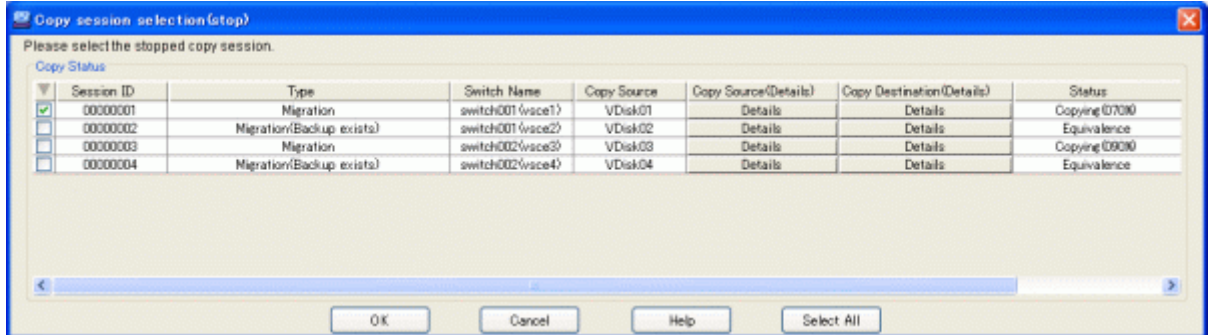


The selected session is checked by default.

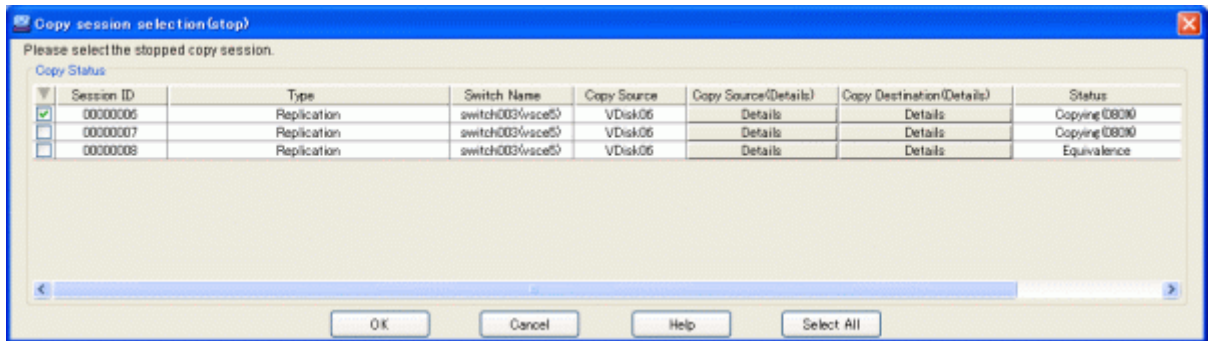
To stop any of the additional sessions, select the appropriate check boxes and click the <OK> button.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " *virtualization switch name (host name)*".

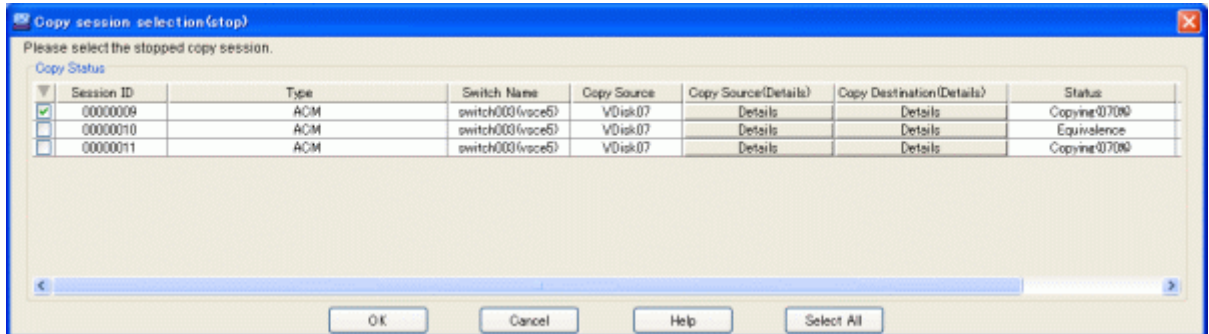
- For Migration



- For Replication



- For ACM



3. The "Stop" confirmation dialog box then appears. Click the <OK> button.
4. The status display is then deleted from the "Copy Status Inquiry" window.

### 5.5.3 Deleting display if a copy error occurs

If migration or replication processing fails, "Error" is displayed in the status field. You can delete the display of the migration or replication processing that ended abnormally.

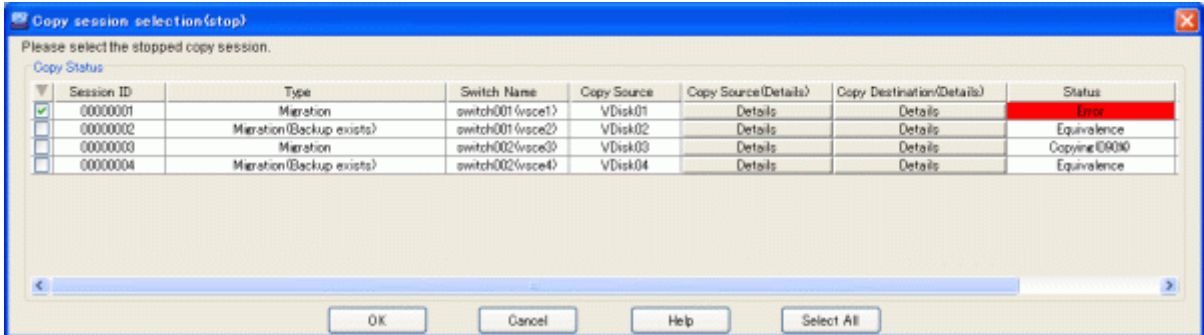
1. Select the session whose status is "Abnormal end".
2. Click the <Stop> button.

When there are many sessions of the same type (migration, replication, or ACM) as the selected session and they can be stopped, the "Copy session selection (stop)" dialog box appears.

The selected session is checked by default.

To stop any of the additional sessions, select the appropriate check boxes and click the <OK> button.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " *virtualization switch name (host name)* ".



3. The "Stop" confirmation dialog box then appears. Click the <OK> button.
4. The status display is then deleted from the "Copy Status Inquiry" window.

## 5.5.4 Changing migration

The physical disks constituting a virtual disk are changed from the migration source physical disks to the migration destination physical disks as follows:

### Note

Note that a migration change can only be made when a backup disk is held when starting migration. If no backup disk is held, migration is changed automatically.

If migration cutover is automatically performed, it may take a maximum of 30 minutes for cutover time.

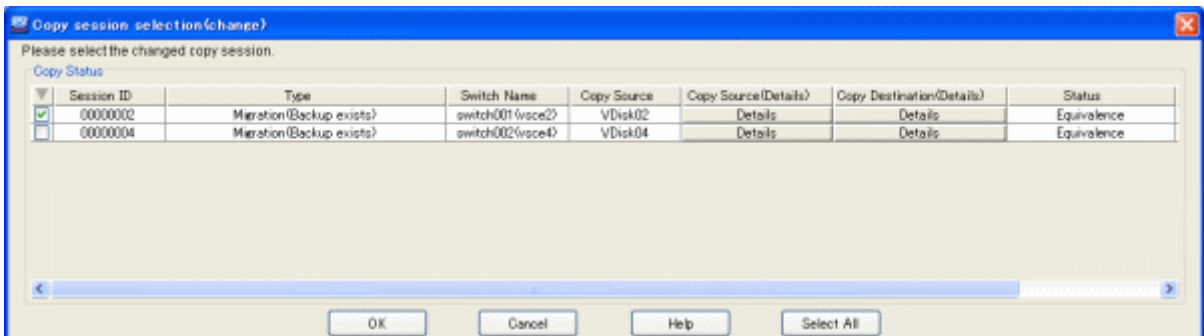
1. Select the session whose migration status is "Equivalence".
2. Click the <Change> button.

When there are many sessions that can be switched, the "Copy session selection (change)" dialog box then appears.

The selected session is checked by default.

To switch any of the additional sessions, select the appropriate check boxes and click the <OK> button.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as " *virtualization switch name (host name)* ".



3. The "Change Migration" confirmation dialog box then appears. Click the <OK> button.
4. The physical disks constituting a virtual disk are then changed to the migration destination physical disks.

## 5.5.5 Operating the backup disk

When a backup disk is held, when migration is started, operations involving the backup disk must be performed when migration is terminated.

The following operations can be performed for the backup disk:

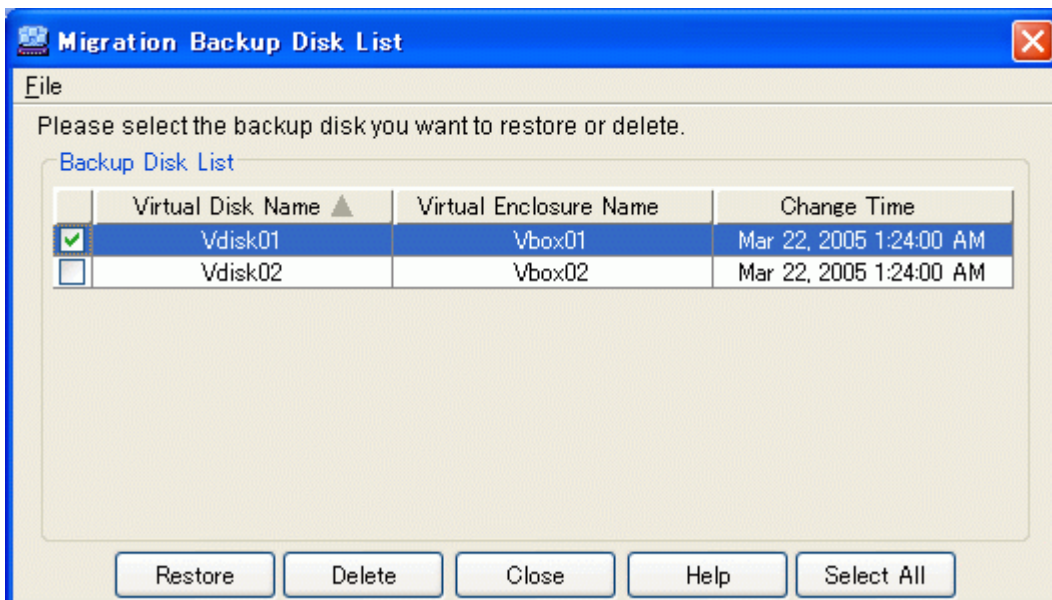
- Delete backup disks
- Restore from the backup disk

### 5.5.5.1 Deleting backup disks

The backup disk held for migration processing is deleted as follows:

1. Start up the "Migration Backup Disk List" dialog box as follows:
  - Click the <Migration Backup Disk List> button in the window, or
  - Click the [Operations] - [Migration Backup Disk] in the window.
2. The "Migration Backup Disk List" dialog box then appears.

For the VS900 Model 300 and Virtualization Blade, switch device names are displayed as "*virtualization switch name (host name)*".



1. Select the backup disk(s) to be deleted and click the <Delete> button.
  - You can select all backup disks by clicking the <Select All> button.
  - If all backup disks are selected, you can use the <Clear> button to remove the selection.
2. The "Delete Migration Backup Disk" confirmation dialog box then appears. Click the <OK> button.
3. The backup disk is deleted.

#### Point

Note that once the migration change is completed and virtual disk operation starts using the migration destination physical disks, no backup disk will be needed. Therefore, be sure to promptly delete the backup disk.

## 5.5.5.2 Restoring from the backup disk

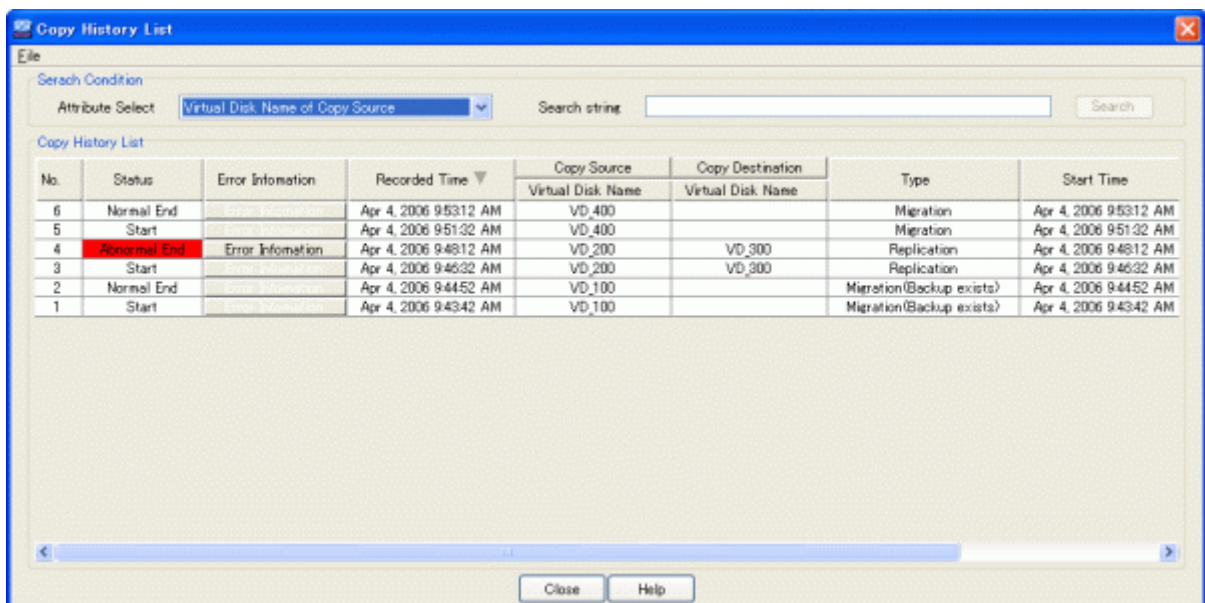
Restore processing is performed from the backup disk held for migration processing as follows:

1. Start up the "Migration Backup Disk List" dialog box as follows:
  - Click the <Migration Backup Disk List> button in the window, or
  - Click the [Operations] - [Migration Backup Disk] in the window.
2. The "Migration Backup Disk List" dialog box then appears.
3. Select the backup disk(s) to be restored and click the <Restore> button.  
You can select all backup disks by clicking the <Select All> button.  
If all backup disks are selected, you can use the <Clear> button to remove the selection.
4. The "Restore Migration Backup Disk" confirmation dialog box then appears. Click the <OK> button.
5. Restore processing is performed from the backup disk.

## 5.6 Copy History List

The copy history list shows migration and replication start/stop history information.

1. Open the "Copy History List" dialog box using one of the following methods:
  - Click the <Copy History List> button, or
  - Select [Operation] - [Copy History List].
2. The "Copy History List" dialog box appears.



3. To perform a search using a keyword, enter search conditions:

### Attribute Select (selective)

Select the attribute that is the search target from the pull-down menu.

The pull-down menu lists [Virtual Disk Name of Copy Source] / [Virtual Disk Name of Copy Destination] / [Session ID].

### Search string (required)

Enter a character string that is the search target together with the selected attribute.

If [Virtual Disk Name of Copy Source] or [Virtual Disk Name of Copy Destination] is the selected attribute, a character string consisting of up to 32 characters can be input.

If [Session ID] is the selected attribute, a character string consisting of up to 8 characters can be input.

4. Click the <Search> button.
5. A line containing a matching character string with the selected attribute is selected. If no matching character string is found, no line is selected.

# Chapter 6 Maintenance

This chapter describes how to perform maintenance on VSC.

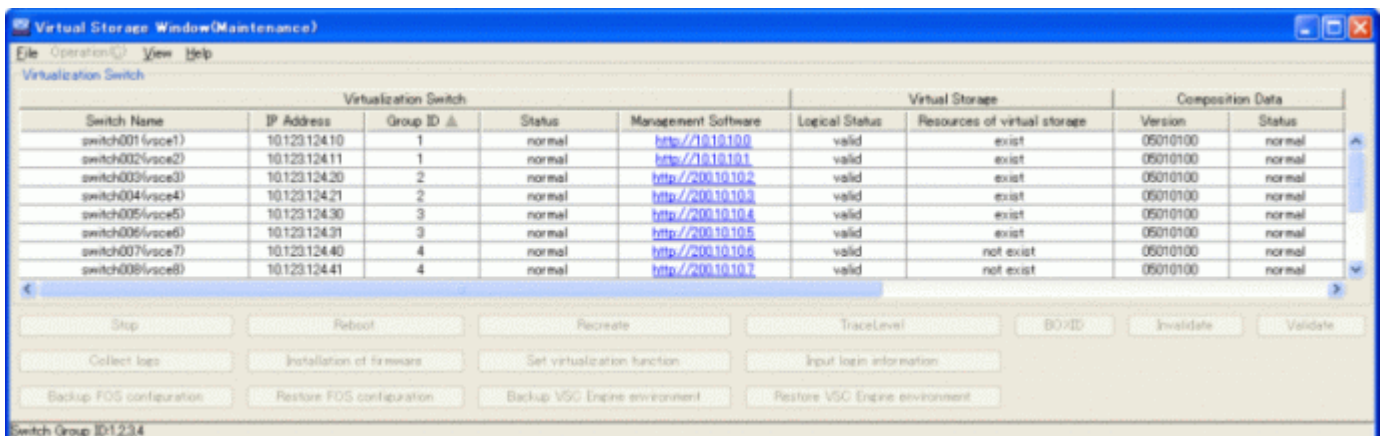
## 6.1 Maintenance Menu of Virtual Storage Window

This section describes how to use the Maintenance menu of the Virtual Storage Window.

You can use the Maintenance menu for the following operations:

- Stopping VSC Engine
- Reboots the virtualization switch \*
- Re-creating configuration information
- Setting a trace level
- Editing a BOX-ID
- Displaying the initiator information of a virtualization switch
- Disabling virtualization switches
- Enabling virtualization switches
- Collect logs \*
- Installation of firmware \*
- Set virtualization function \*
- Input login information \*
- Backup FOS configuration \*
- Restore FOS configuration \*
- Backup VSC Engine environment \*
- Restore VSC Engine environment \*

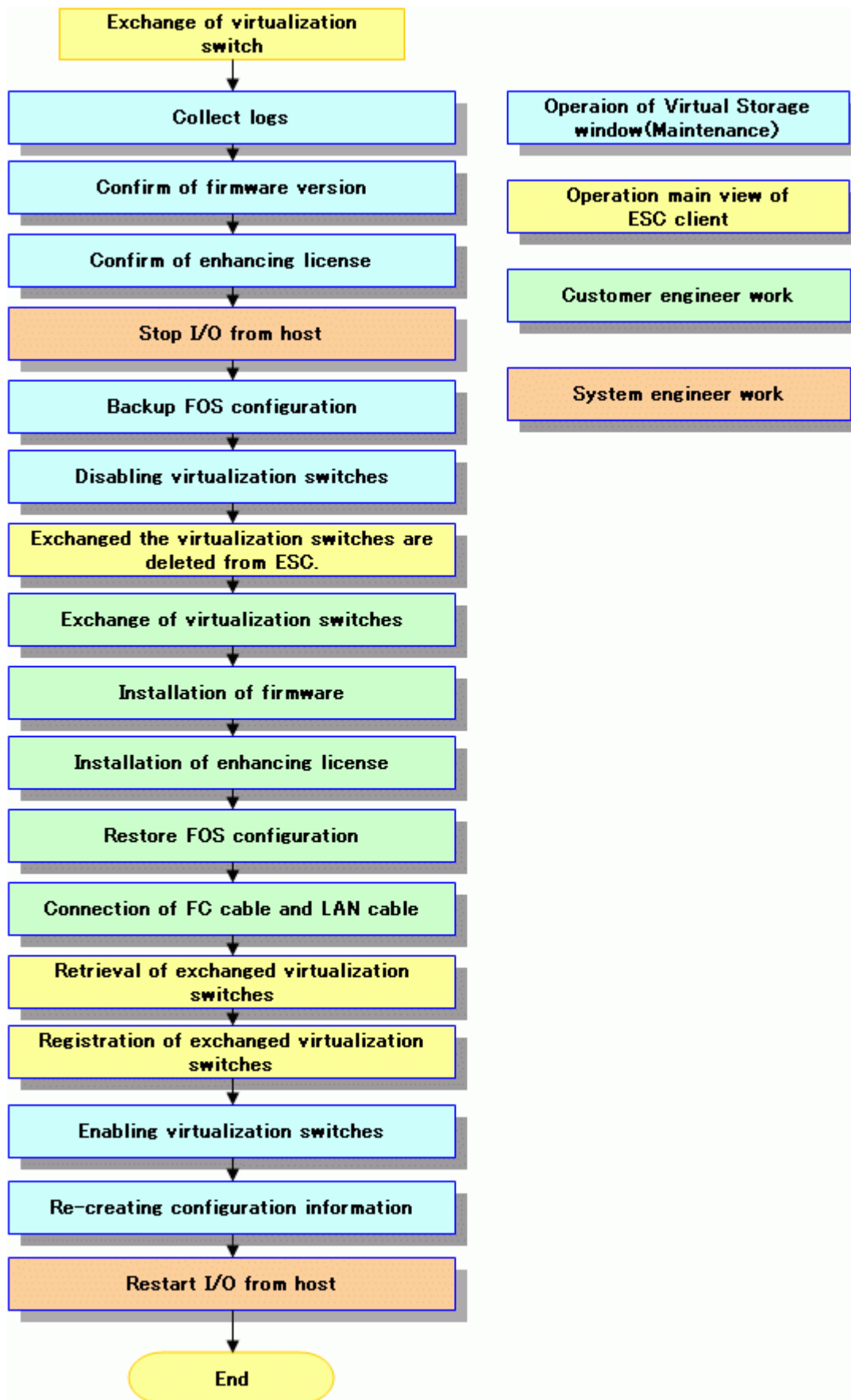
\* - Not available to VS900 Model 200



To replace a virtualization switch, perform the steps below in sequence.

For operation in the main view of ESC client, refer to the "ETERNUS SF Storage Cruiser User's Guide".

For customer engineer work, refer to the "ETERNUS VS900 Virtualization Switch Maintenance Manual".





## 6.1.1 Stopping VSC Engine

---

This section describes how to stop VSC Engine that runs on a virtualization switch.

1. In the Maintenance window, select either of the listed virtualization switches and click the <Stop> button.  
Alternatively, select a virtualization switch and select [Operation] - [Stop].
2. The "Stop VSC Engine" confirmation dialog box then appears. Click the <OK> button.
3. The "Stop VSC Engine" message dialog box then appears. Click the <Close> button.
4. In the Maintenance window, confirm that the virtualization switch is in "Stop" status.

## 6.1.2 Reboots the virtualization switch

---

Activate the virtualization switch - the stopped VSC Engine within the virtualization switch will be activated as well.

Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.



.....  
This feature is not available to VS900 Model 200.  
.....

1. Select a virtualization switch in the Maintenance window, then click <Reboot>.  
Alternatively, select the virtualization switch, then select [Operation] - [Reboot].
2. The "Rebooting a virtualization switch" confirmation dialog box, click <OK>.
3. The "Rebooting a virtualization switch" messages dialog box, click <Close>.
4. In the Maintenance window, make sure that the virtualization status is "Active".

## 6.1.3 Re-creating configuration information

---

This section describes how to matches VSC Manager configuration information with configuration information in a virtualization switch.

If "mismatch" is the status displayed for "Composition Data" in the Maintenance window, the configuration information must be re-created.

1. Select a virtualization switch displayed in the Maintenance window, then click the <Recreate> button.  
Alternatively, select a virtualization switch and then select [Operation] - [Recreate].
2. The "Re-create VSC Engine" confirmation dialog box, click <OK>.
3. The "Re-create VSC Engine" messages dialog box, click <Close>.
4. In the Maintenance window, make sure that the status of composition data in the virtualization switch is "Normal".

## 6.1.4 Setting a trace level

---

This section describes how to set the level at which trace information is collected on a virtualization switch.

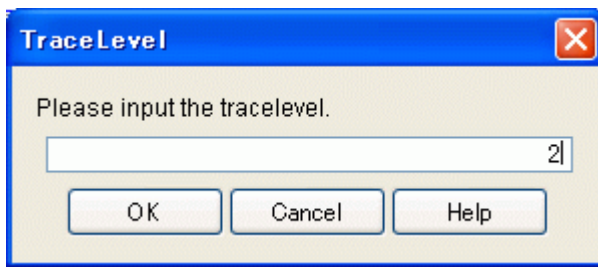


.....  
You cannot set a trace level when the virtualization switch is in "stop" status or "error" status.  
.....

1. In the Maintenance window, select either of the listed virtualization switches and click the <TraceLevel> button. Alternatively, select a virtualization switch and select [Operation] - [TraceLevel].



- The "TraceLevel" dialog box then appears.



- In the "TraceLevel" dialog box, enter one of the following trace levels:

#### Trace level

Enter numeric characters.

Trace level	Information to collect
0	Error information
1	Error, warning, and notification information
2	Error, warning, notification, and program information

#### Point

You should set to "0" during normal operation because it takes time to collect level-1 or level-2 information on a virtualization switch.

#### Information

Note that the maximum trace level is assumed specified when a value greater than the valid value is entered to specify the trace level.

- Click <OK>.
- In the confirmation dialog box, click <OK>.
- In the "TraceLevel" message dialog box, click <Close>.
- In the Maintenance window, make sure that the "trace level" has been changed to the specified value.

## 6.1.5 Editing a BOX-ID

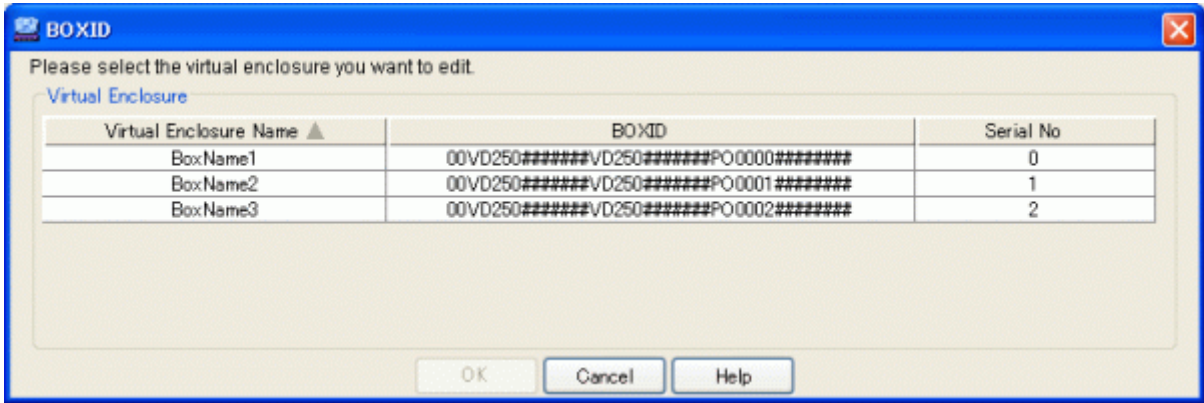
This section describes how to edit a BOX-ID assigned to a virtual enclosure.

#### Note

You cannot edit a BOX-ID when the virtualization switch is in the "stop" status or "error" status or when the configuration information is the "unmatched" status.

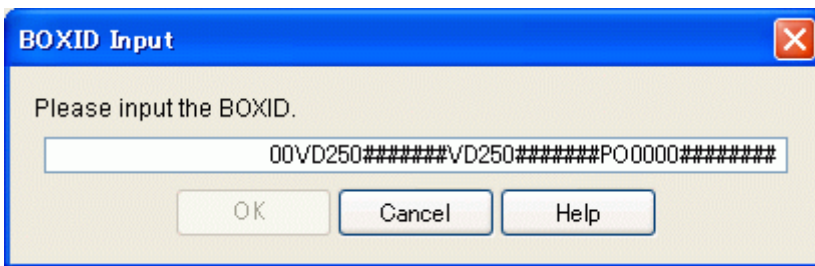
- In the Maintenance window, select either of the virtualization switches listed and select the <BOXID> button. Alternatively, select a virtualization switch and select [Operation] - [BOXID].

A list of virtual enclosures controlled by the selected virtualization switch is displayed.



2. Select a virtual enclosure with the BOX-ID that you want to edit and click the <OK> button.

The "BOXID Input" dialog box then appears.



3. In the "BOXID Input" dialog box, enter a BOX-ID.

BOX-ID

Enter a character string consisting of 40 alphanumeric characters (fixed). Alphabetical characters must be uppercase.

4. In the "BOXID Input" dialog box, click the <OK> button.
5. The "BOXID" confirmation dialog box then appears. Click the <OK> button.
6. The "BOXID" message dialog box then appears. Click the <Close> button.
7. In the Maintenance window, confirm that the BOX-ID has been changed to the specified value.

## 6.1.6 Disabling virtualization switches

---

This section describes how to disable virtualization switches.

1. Select the virtualization switch in the "Maintenance window", and then click the [Disable] button. Alternatively, select the virtualization switch and then select [Disable] from the [Operations] menu.
2. The [Disable Virtualization Switch] dialog box is displayed. Click the [OK] button.
3. The [Disable Virtualization Switch] message dialog box is displayed. Click the [Close] button.
4. Check that the status of the virtualization switch in the "Maintenance window" has changed to [Disabled].

## 6.1.7 Enabling virtualization switches

---

This section describes how to enable virtualization switches.

1. Select the virtualization switch in the "Maintenance window", and then click the [Enable] button. Alternatively, select the virtualization switch and then select [Enable] from the [Operations] menu.
2. The [Enable Virtualization Switch] dialog box is displayed. Click the [OK] button.
3. The [Enable Virtualization Switch] message dialog box is displayed. Click the [Close] button.

4. Check that the status of the virtualization switch in the "Maintenance window" has changed to [Enabled].

## 6.1.8 Displaying the initiator information of a virtualization switch

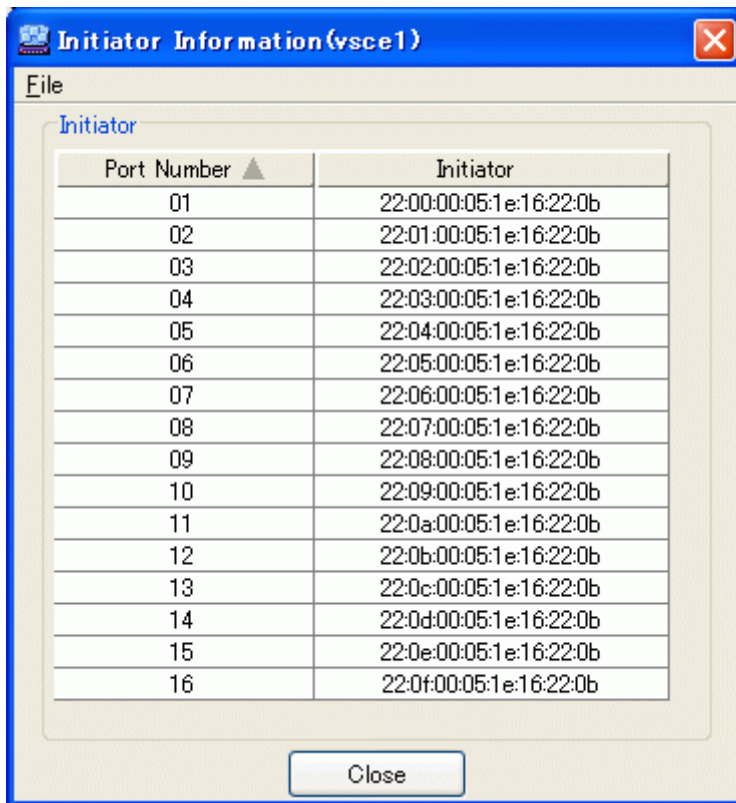
This section describes how to display the initiator information of each port of a virtualization switch.

### Point

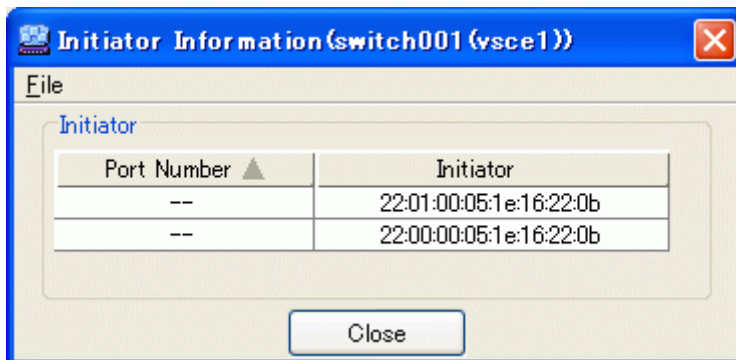
The <Details> buttons for the virtualization switches displayed in the Maintenance window are hidden by default.

To display the <Details> buttons in the Maintenance window, follow the procedure described in "Items for display/non-display" in Section "A.1.2 Common operations in the window", and then display the initiator information.

1. In the Maintenance window, select either of the <Details> buttons for the virtualization switches listed.
2. The "Initiator Information" dialog box shows the "Port Number" corresponding to the "Initiator".
  - For VS900 Model 200



- For VS900 Model 300 and Virtualization Blade



## 6.1.9 Collect logs

This section describes how to collect virtualization log information and virtualization switch log information to the specified FTP server. Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.

### Note

- This feature is not available to VS900 Model 200.
- Specify the absolute path of the directory.
- Make sure that the FTP server has enough disk space for collecting virtualization log information and virtualization switch log information.
- Directory names with spaces cannot be used.

1. Select a virtualization switch in the Maintenance window, then click <Collect logs>. Alternatively, select the virtualization switch, then select [Operation] - [Collect logs].
2. In the "Collect logs" dialog box, enter the fields as described below.

**Collect logs**

Collect the switch logs and virtualization function logs.

**Information of FTP server**

IP address of FTP server: 10.123.124.125

Login name of FTP server: admin

Password of FTP server: \*\*\*\*\*

**Log remote directory information**

Remote directory: /log

OK Cancel Help

3. The forwarding site of information and log information on the forwarding site FTP server of log information is input by "Collect logs" dialog.

#### IP address of FTP server

Address of the FTP server to which the virtualization switch log is to be sent.

The value must be IPv4-compliant -IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### Login name of FTP server

Name used to log in to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### Remote directory

FTP server directory where the virtualization switch log is stored

Only alphanumerics and symbols other than backslash (\) can be entered.

4. Click <OK>.
5. In the confirmation dialog box, click <OK>.
6. The progress dialog box will be displayed.
7. When the process is complete, click <Close>.

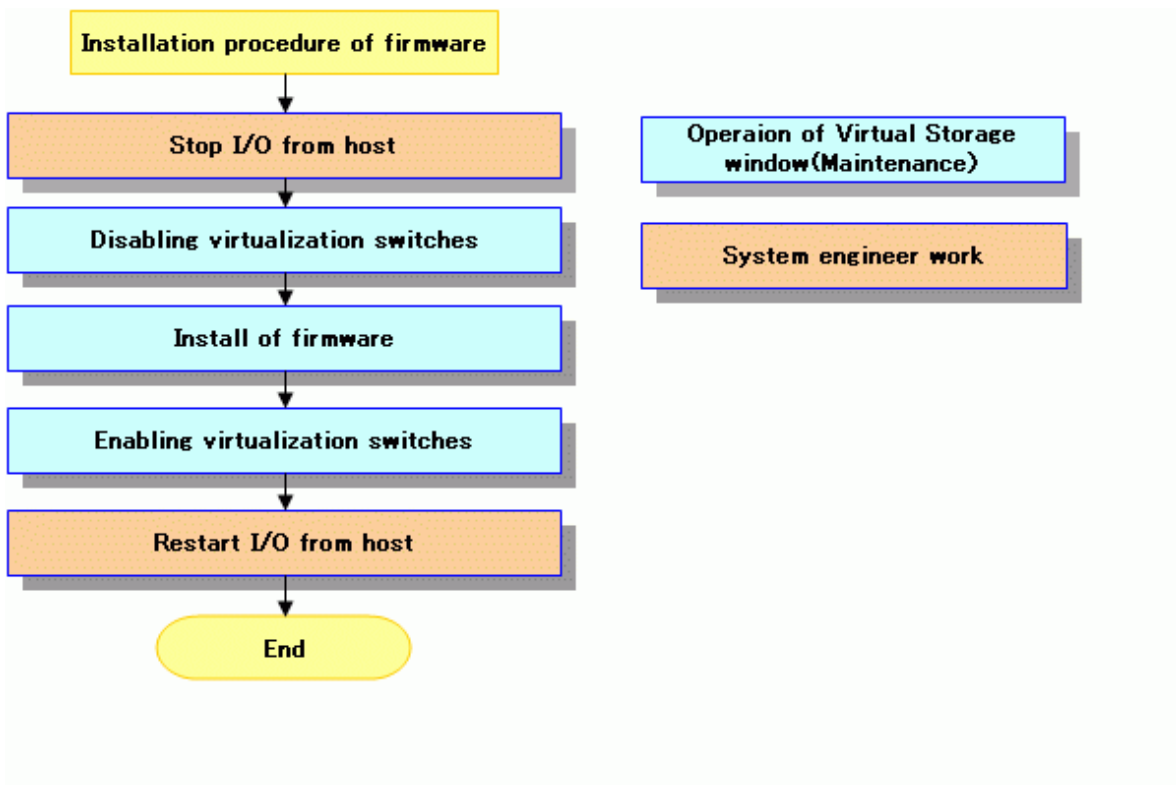
The virtualization log information and virtualization switch log information are collected.

## 6.1.10 Installation of firmware

This section describes how to install virtualization switch firmware.

Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.

The procedure for executing the installation of the firmware is as follows.



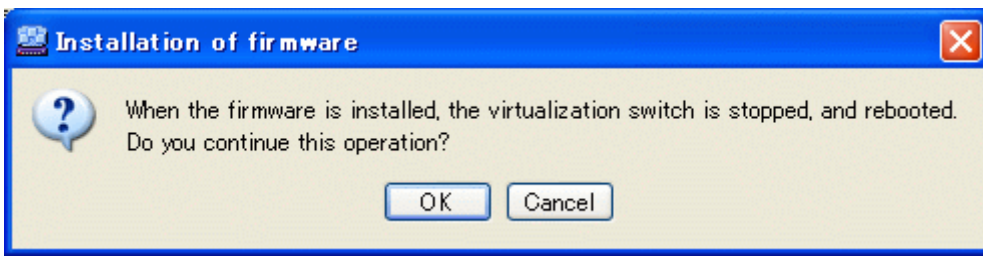
### Note

- This feature is not available to VS900 Model 200.
- Make sure that you do not install a firmware edition earlier than the current one, otherwise subsequent operations are not guaranteed.
- Specify the absolute path of the directory.
- Do not specify the FTP server root directory as the backup destination for the VSC Engine.
- Directory names with spaces cannot be used.

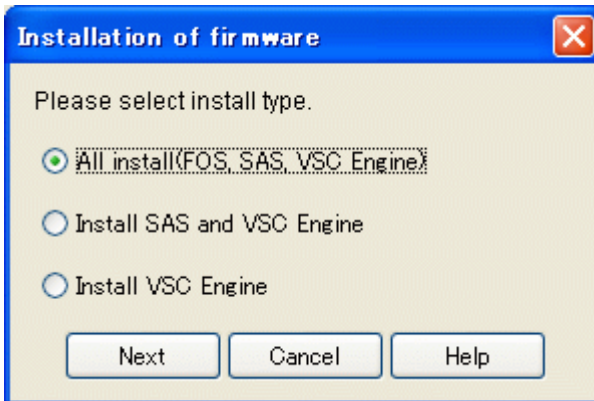
1. Select a virtualization switch in the Maintenance window, then click <Installation of firmware>.

Alternatively, select the virtualization switch, then select [Operation] - [Installation of firmware].

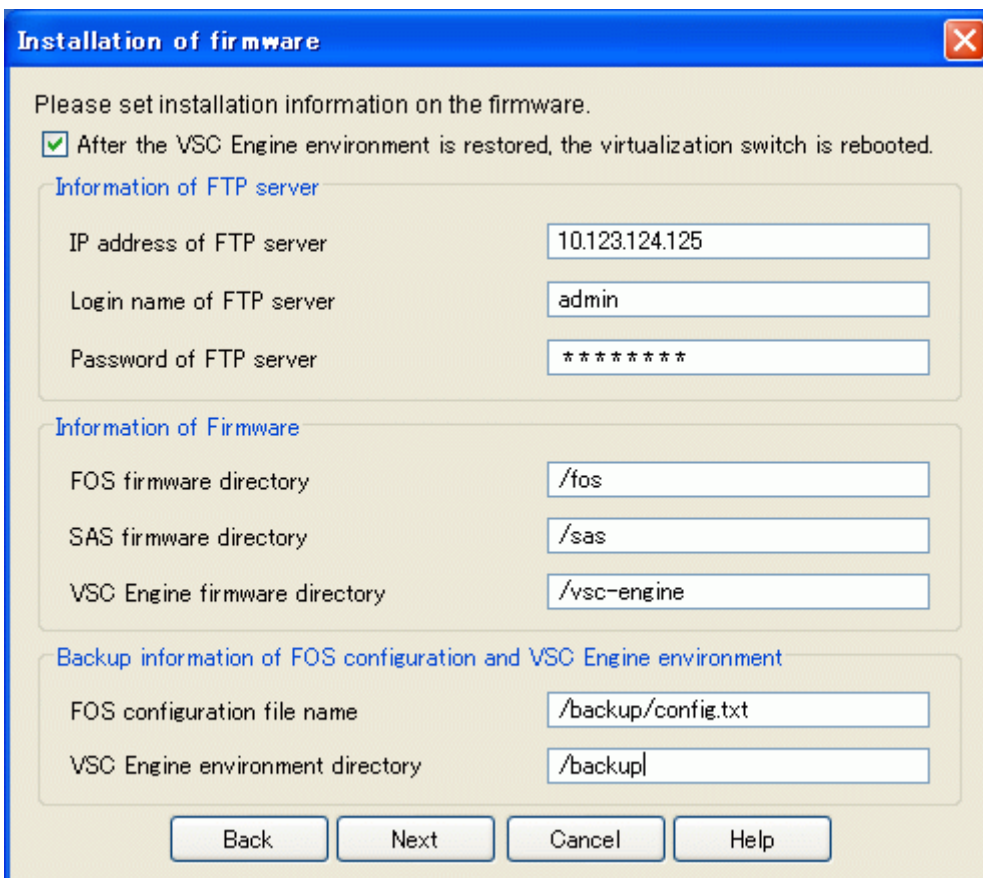
2. In the "Installation of firmware" dialog box, click <OK>.



3. Select a firmware installation pattern, click <Next>.



4. In the " Installation of firmware " dialog box, enter the fields as described below. If you want to select a firmware installation pattern again, then click <Back>.



After the VSC Engine environment is restored, the virtualization switch is rebooted.

Specify whether to reactivate the virtualization switch after the VSC Engine configuration is restored.

This field is selected by default.

#### IP address of FTP server

IP address of the FTP server where the firmware is stored.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### Login name of FTP server

Name used to log in to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### FOS firmware directory

Storage directory of the FOS firmware.

Only alphanumerics and symbols other than backslash (\) can be entered.

This item will be enabled only if the selected installation pattern is "Install all (FOS, SAS, VSC Engine)".

#### SAS firmware directory

Storage directory of the SAS firmware.

Only alphanumerics and symbols other than backslash (\) can be entered.

This item will be enabled only if the selected installation pattern is "Install all (FOS, SAS, VSC Engine)" or "Install only SAS and VSC Engine".

#### VSC Engine firmware directory

Storage directory of the VSC Engine firmware.

Only alphanumerics and symbols other than backslash (\) can be entered.

#### FOS configuration file name

Path and filename of the FOS configuration file to be backed up.

Only alphanumerics and symbols other than backslash (\) can be entered.

This item will be enabled only if the selected installation pattern is "Install all (FOS, SAS, VSC Engine)".

#### VSC Engine environment directory

Backup directory of the VSC Engine environment settings.

Only alphanumerics and symbols other than backslash (\) can be entered.

5. Click <Next>.
6. In the confirmation dialog box, click <OK>.
7. The progress dialog box will be displayed.
8. When the process is complete, click <Close>.

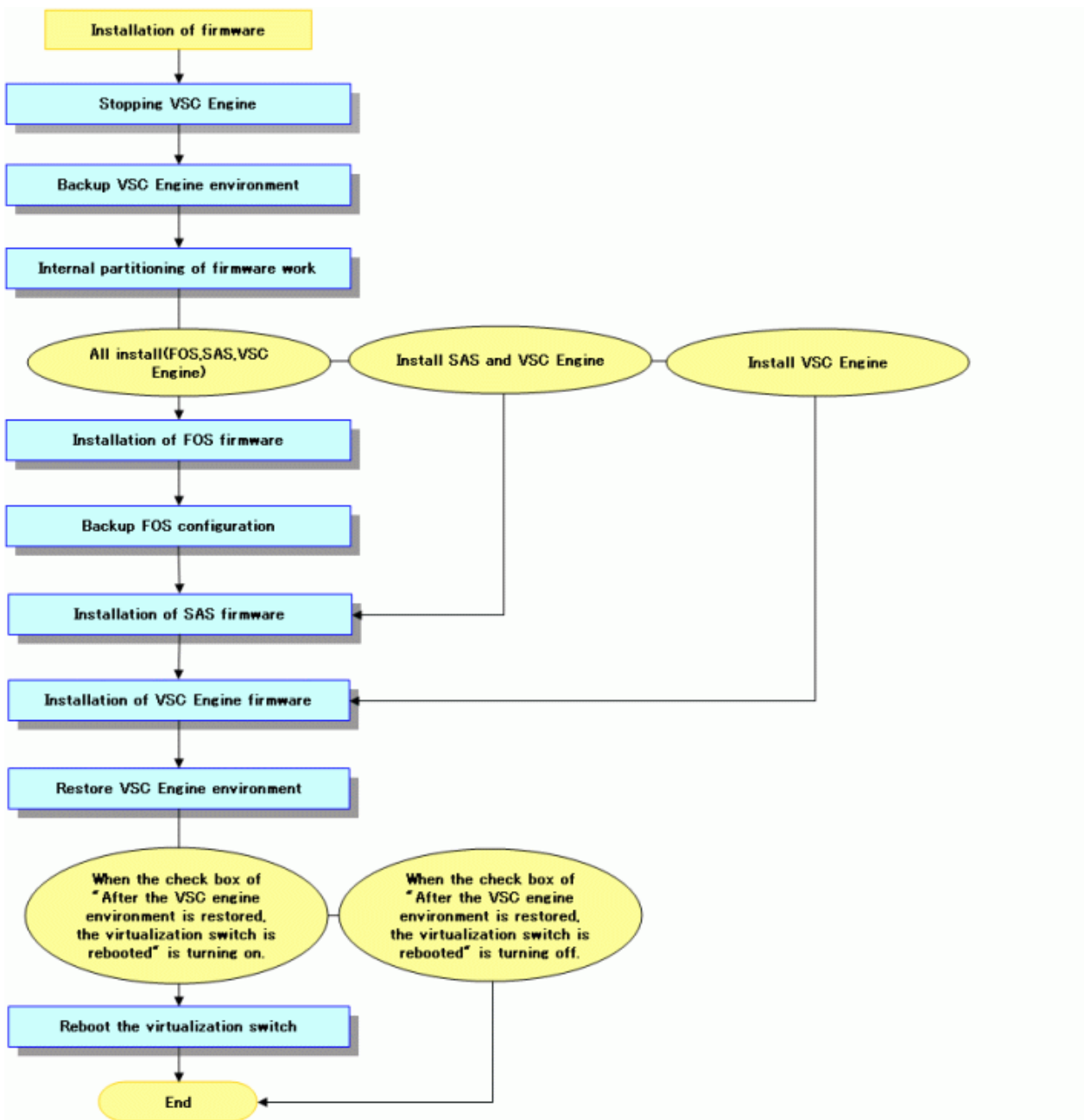
The specified firmware is installed.

### Information

Perform as a batch the processes required during firmware installation.

The figure below shows the processes to be performed during firmware installation.





## 6.1.11 Set virtualization function

This section describes how to set the virtualization switch function.

Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.



### Note

This feature is not available to VS900 Model 200.

1. Select a virtualization switch in the Maintenance window, then click <Set virtualization function>. Alternatively, select the virtualization switch, then select [Operation] - [Set virtualization function].



- In the "Set virtualization function" dialog box, enter the fields as described below.

- Information on "Setting of virtualization function of this switch" and "Setting of virtualization function of other switch", "Setting of VSC Manager", and "Setting of port number" are input by "Set the virtualization function" dialog.

#### Get virtualization function of other switch

Obtain the virtualization function settings of the redundancy switch of the selected virtualization switch (local switch).

#### VSC Engine number of this switch

Virtualization switch number of the selected virtualization switch (this switch).

The current assigned value (if any) will automatically be displayed.

Only integers between 1 and 128 can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### Shared ID of this switch

Shared ID of the selected virtualization switch (this switch).

The current assigned value (if any) will automatically be displayed.

Either 1 or 2 can be entered. This ID has an exclusion relationship with the redundancy switch shared ID (i.e., if the shared ID of the local switch is set to 1, then the shared ID of the redundancy switch will be changed to 2).

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### IP address(eth0) of this switch

IP address of Ethernet port A0 side for virtualization control of the selected virtualization switch (this switch).

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### IP address(eth1) of this switch

IP address of Ethernet port A1 side for virtualization control of the selected virtualization switch (this switch).

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### VSC Engine number of other switch

Virtualization switch number of the redundancy destination (redundancy switch) of the selected virtualization switch.

The current assigned value (if any) will automatically be displayed.

Only integers between 1 and 128 can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### Shared ID of other switch

Shared ID of the redundancy destination (redundancy switch) of the selected virtualization switch.

The current assigned value (if any) will automatically be displayed.

Either 1 or 2 can be entered. This ID has an exclusion relationship with the local switch shared ID (i.e., if the shared ID of the redundancy switch is set to 1, then the shared ID of the local switch will be changed to 2).

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### IP address(eth0) of other switch

IP address of Ethernet port A0 side for virtualization control of the redundancy destination (redundancy switch) of the selected virtualization switch.

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### IP address(eth1) of other switch

IP address of Ethernet port A1 side for virtualization control of the redundancy destination (redundancy switch) of the selected virtualization switch.

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### Setting a cluster

Select this item if the operations management server is in a cluster system.

This item will be automatically selected if two IP addresses were set for the operations management server.

#### IP address of VSC Manager 1

IP address of the first VSC Manager.

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### IP address of VSC Manager 2

IP address of the second VSC Manager.

The current assigned value (if any) will automatically be displayed.

The value must be IPv4-compliant - IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

This item will be enabled only if "Set a cluster" has been selected.

#### Port number between VSC Manager and VSC Engines

Port number for communication between the VSC Manager of the selected virtualization switch (local switch) and VSC Engines - the default value is 7420.

The current assigned value (if any) will automatically be displayed.

Only integers between 0 and 65535 can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### Port number between VSC Engine

Port number for communication between the redundant VSC Engines of the selected virtualization switch (local switch) - the default value is 7422.

The current assigned value (if any) will automatically be displayed.

Only integers between 0 and 65535 can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

#### Port number in VSC Engine

Port number for communication within the VSC Engine of the selected virtualization switch (local switch) - the default value is 7423

The current assigned value (if any) will automatically be displayed.

Only integers between 0 and 65535 can be entered.

This item will be enabled only if the status of the selected virtualization switch is "Stopped".

4. Click <OK>.
5. In the confirmation dialog box, click <OK>.
6. In the message dialog box will be displayed, click <Close>.

The virtualization switch function is set.

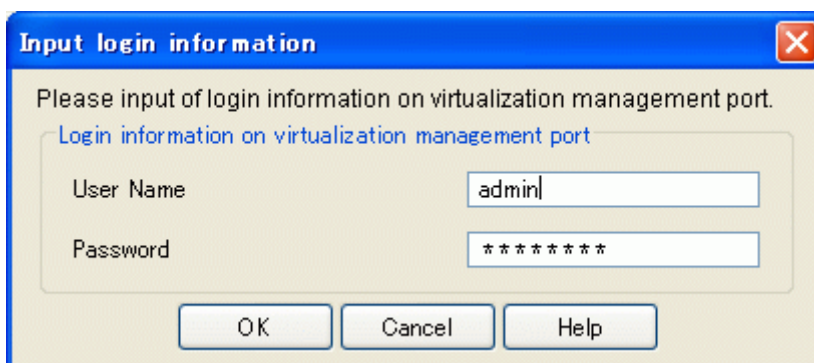
## 6.1.12 Input login information

This section describes how to set the information used to login to the virtualization control Ethernet port.

### Note

This feature is not available to VS900 Model 200.

1. Select a virtualization switch in the Maintenance window, then click <Input login information>.  
Alternatively, select the virtualization switch, then select [Operation] - [Input login information].
2. The "Input login information" dialog box appears.



3. Enter the fields as described below.

#### User Name

Name used to log in to the virtualization control Ethernet port.

Only alphanumeric and symbols can be entered.

## Password

User's password.

Only alphanumerics and symbols can be entered.

4. Click <OK>.
5. In the confirmation dialog box, click <OK>.
6. In the message dialog box will be displayed, click <Close>.

The information to login to the virtualization control Ethernet port is set.

## 6.1.13 Backup FOS configuration

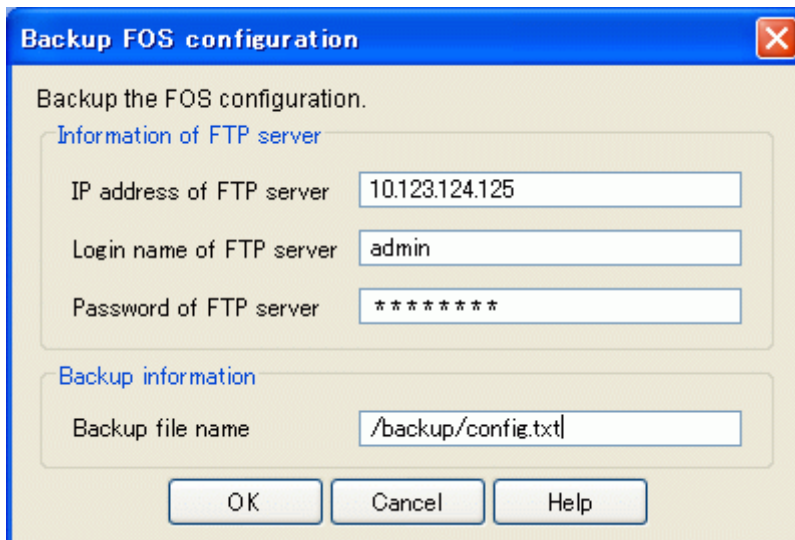
---

This section describes how to back up the FOS configuration to the specified FTP server.

### Note

- This feature is not available to VS900 Model 200.
- Specify the absolute path of the directory.
- Make sure that the FTP server has enough disk space for backing up the FOS configuration file.
- Directory names with spaces cannot be used.

1. Select a virtualization switch in the Maintenance window, then click <Backup FOS configuration>.  
Alternatively, select the virtualization switch, then select [Operation] - [Backup FOS configuration].
2. The "Backup FOS configuration" dialog box appears.



3. Enter the fields as described below.

### IP address of FTP server

IP address of the FTP server where the FOS configuration is to be backed up.

The value must be IPv4-compliant -IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

### Login name of FTP server

Name used to login to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### Backup file name

Path and filename of the FOS configuration file.

Only alphanumerics and symbols other than backslash (\) can be entered.

4. Click <OK>.
  5. In the confirmation dialog box, click <OK>.
  6. In the message dialog box will be displayed, click <Close>.
- The FOS configuration is backed up to the specified FTP server.

### 6.1.14 Restore FOS configuraion

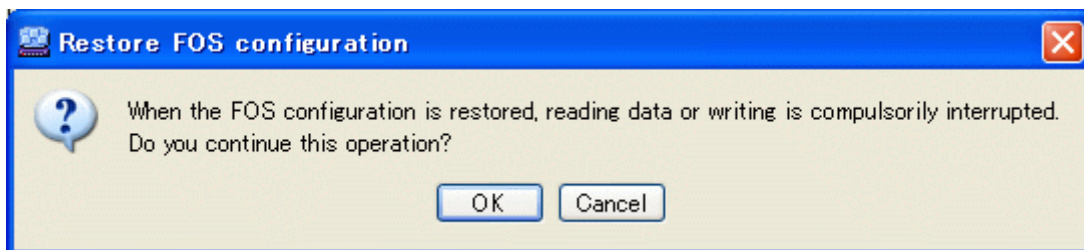
---

This section describes how to restore to a virtualization switch the FOS settings stored in a FTP server.

#### Note

- This feature is not available to VS900 Model 200.
- Specify the absolute path of the directory.
- Directory names with spaces cannot be used.

1. Select a virtualization switch in the Maintenance window, then click <Restore FOS configuration>.  
Alternatively, select the virtualization switch, then select [Operation] - [Restore FOS configuration].
2. In the " Restore FOS configuration" dialog box, click <OK>.



3. The "Restore FOS configuration" dialog box appears.

Restore the FOS configuration.

Information of FTP server

IP address of FTP server: 10.123.124.125

Login name of FTP server: admin

Password of FTP server: \*\*\*\*\*

Restore information

Restore file name: /backup/config.txt

OK Cancel Help

4. Enter the fields as described below.

#### IP address of FTP server

IP address of the FTP server where the FOS configuration file is stored.

The value must be IPv4-compliant -IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### Login name of FTP server

Name used to login to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### Restore file name

Path and filename of the FOS configuration file to be restored.

Only alphanumerics and symbols other than backslash (\) can be entered.

5. Click <OK>.
6. In the confirmation dialog box, click <OK>.
7. In the message dialog box will be displayed, click <Close>.

The FOS configuration stored in the specified FTP server is restored to the virtualization switch.

## 6.1.15 Backup VSC Engine environment

---

This section describes how to back up the VSC Engine environment settings to the specified FTP server.

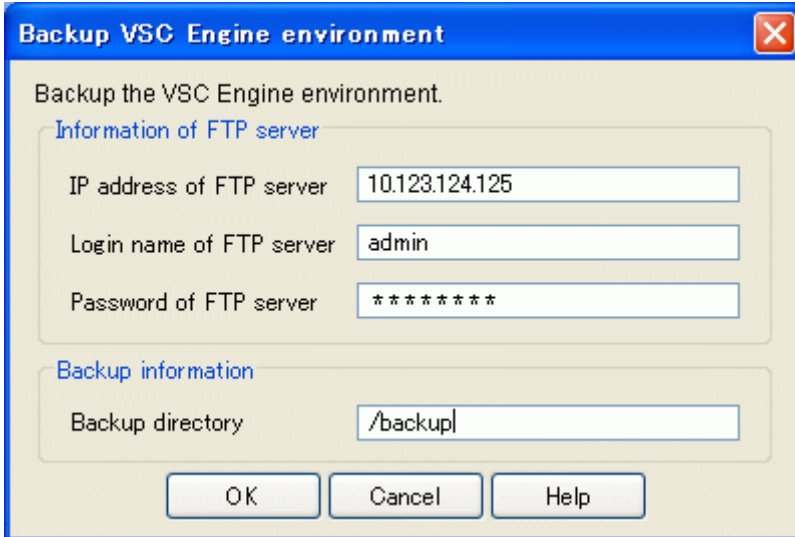
Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.

### Note

- This feature is not available to VS900 Model 200.
- Specify the absolute path of the directory.
- Make sure that the FTP server has enough disk space for backing up the VSC Engine configuration file.

- Directory names with spaces cannot be used.

1. Select a virtualization switch in the Maintenance window, then click <Backup VSC Engine environment>. Alternatively, select the virtualization switch, then select [Operation] - [Backup VSC Engine environment].
2. The "Backup VSC Engine environment" dialog box appears.



3. Enter the fields as described below.

#### IP address of FTP server

IP address of the FTP server where the VSC Engine environment file is to be backed up.

The value must be IPv4-compliant -IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### Login name of FTP server

Name used to login to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### Backup directory

Backup directory for the VSC Engine environment file.

Only alphanumerics and symbols other than backslash (\) can be entered.

4. Click <OK>.
  5. In the confirmation dialog box, click <OK>.
  6. In the message dialog box will be displayed, click <Close>.
- The VSC Engine environment is backed up to the specified FTP server.

## 6.1.16 Restore VSC Engine environment

---

This section describes how to restore to a virtualization switch the VSC Engine environment settings stored in a FTP server.

Beforehand set the information to login to the Ethernet port for virtualization control by the "Input login information" dialog.

## Note

- This feature is not available to VS900 Model 200.
- Specify the absolute path of the directory.
- Do not restore the VSC Engine configuration file to the FTP server root directory.
- Directory names with spaces cannot be used.

1. Select a virtualization switch in the Maintenance window, then click <Restore VSC Engine environment>. Alternatively, select the virtualization switch, then select [Operation] - [Restore VSC Engine environment].
2. The "Restore VSC Engine environment" dialog box appears.

Restore the VSC Engine environment.

Information of FTP server

IP address of FTP server: 10.123.124.125

Login name of FTP server: admin

Password of FTP server: \*\*\*\*\*

Restore information

Restore file name: /backup/vsce31\_20090217\_093904\_

OK Cancel Help

3. Enter the fields as described below.

#### IP address of FTP server

IP address of the FTP server where the VSC Engine configuration file file is stored.

The value must be IPv4-compliant -IPv6-compliant addresses cannot be entered. Only numbers and periods can be entered.

#### Login name of FTP server

Name used to login to the FTP server.

Only alphanumerics and symbols can be entered.

#### Password of FTP server

User's password.

Only alphanumerics and symbols can be entered.

#### Restore file name

Path and filename of the VSC Engine configuration file to be restored.

Only alphanumerics and symbols other than backslash (\) can be entered.

4. Click <OK>.
  5. In the confirmation dialog box, click <OK>.
  6. In the message dialog box will be displayed, click <Close>.
- The VSC Engine environment stored in the specified FTP server is restored to the virtualization switch.



## 6.2 Saving and Restoring the Configuration Information

---

This section describes how to save and restore the configuration information.

The configuration information is a management table that retains the virtualization storage environment, statuses of physical disks that constitute virtual disks, etc.

### 6.2.1 Configuration information types

---

VSC Manager retains the original copy of the configuration information. Each virtualization switch retains some of the related configuration information.

If the configuration information is lost for some reason, no virtual disk can be supplied to a transaction server.

### 6.2.2 Saving the configuration information

---

#### 6.2.2.1 [Solaris OS/Linux OS]Saving the configuration information

A commit script is used to save configuration information. VSC Manager automatically executes the commit script whenever configuration information is changed. Create a commit script in "/etc/opt/FJSVssmgr/current/VscCommitScript". Note that "/opt/FJSVssmgr/lib/sample/vsc/VscCommitScript.sample" contains samples of commit scripts.

You can invoke the commit script to save configuration information as required.

The configuration information of VSC Manager is stored in the "/var/opt/FJSVssmgr/current/vscompose/" directory. Therefore, save all directories and files in this directory. Save the directories and files so that when you restore the configuration information, the directories and files in the "/var/opt/FJSVssmgr/current/vscompose/" directory are restored in the same directory and file configuration as when saved.



#### Example

---

##### Example of commit script:

```
#!/bin/sh
#
# All Rights Reserved, Copyright (c) Fujitsu Ltd. 2004
#
# Storage Software Virtual Storage Conductor
#
# CommitScript Sample
#
#####

ROOT_DIR=$PWD
BKUP_DIR=/var/opt/FJSVssmgr/current/vsclog/VSCCOMPOSE_BAK
BKUP_TMP_DIR=/var/opt/FJSVssmgr/current/vsclog/VSCCOMPOSE_BAK/tmp
COMPOSE_DIR=/var/opt/FJSVssmgr/current/vscompose

if [ ! -d $BKUP_DIR ]; then
    mkdir -p $BKUP_DIR
fi
if [ ! -d $BKUP_TMP_DIR ]; then
    mkdir -p $BKUP_TMP_DIR
fi

cp -p $COMPOSE_DIR/* $BKUP_TMP_DIR
```

```

if [ $? -eq 0 ]; then
    cd $BKUP_DIR
    tar cf compose.BAK.tar ./tmp
    if [ $? -eq 0 ]; then
        echo "Backup Complete."
        rm -rf $BKUP_TMP_DIR
        cd $ROOT_DIR
        exit 0
    fi
fi
echo "Backup failed."
exit 1

```



## Note

Note that a commit script may cause a delay depending on its coding in VSC Manager processing time because it always starts up whenever there is a change in the resource status of virtual storage.

### 6.2.2.2 [Windows]Saving the configuration information

A commit script is used to save configuration information. VSC Manager automatically executes the commit script whenever configuration information is changed. Create a commit script in "\$ENV\_DIR\Manager\etc\opt\FJSVssmgr\current\VscCommitScript.bat".

Note that "\$INS\_DIR\Manager\opt\FJSVssmgr\lib\sample\vsc\VscCommitScript.bat.sample" contains samples of commit scripts.

You can invoke the commit script to save configuration information as required.

The configuration information of VSC Manager is stored in the "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vsccompose" directory.

Therefore, save all directories and files in this directory. Save the directories and files so that when you restore the configuration information, the directories and files in the "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vsccompose" directory are restored in the same directory and file configuration as when saved.



## Example

### Example of commit script

```

@echo off
rem #
rem # All Rights Reserved, Copyright (c) Fujitsu Ltd. 2006-2009
rem #
rem # Storage Software Virtual Storage Conductor
rem #
rem # CommitScript Sample
rem #
rem #####
setlocal

set VARDIR=$TMP_DIR\Manager
if not exist "%VARDIR%" goto fail
set CURRENT_DIR=%VARDIR%\var\opt\FJSVssmgr\current
set BKUP_DIR=vscllog\VSCCOMPOSE_BAK
set COMPOSE_DIR=vsccompose

set /a listflag=0
set /a delflag=0
set /a copyflag=0

cd "%CURRENT_DIR%"

```

```

:: backup check
if not exist "%BKUP_DIR%" mkdir "%BKUP_DIR%"
if errorlevel 1 goto fail

if not exist "%BKUP_DIR%\*.repository" goto allbackup

:: commitlist check
set COMMITLIST_DIR=commitlist
set INSERT_UPDATE_FILE=%COMMITLIST_DIR%\addlist.vsc
set DELETE_FILE=%COMMITLIST_DIR%\deletelist.vsc

if not exist "%COMMITLIST_DIR%" goto allbackup
if not exist "%COMMITLIST_DIR%\*.vsc" goto allbackup

if exist "%INSERT_UPDATE_FILE%" (for %%F in ( %INSERT_UPDATE_FILE% ) do if not %%~zF==0 set /a
listflag = 1 && set /a copyflag = 1)
if exist "%DELETE_FILE%" (for %%F in ( %DELETE_FILE% ) do if not %%~zF==0 set /a listflag = 1 && set /
a delflag = 1)

if %listflag% == 0 (goto allbackup) else goto diffbackup

:allbackup
if exist "%BKUP_DIR%\*.repository" del "%BKUP_DIR%\*.repository"
copy /y "%COMPOSE_DIR%\*.repository" "%BKUP_DIR%" > nul
if errorlevel 1 goto fail
if errorlevel 0 goto success

:diffbackup
if %delflag% == 1 (for /f "tokens=* delims=" %%F in ( %DELETE_FILE% ) do ((del "%BKUP_DIR%\%%F") &
(if exist "%BKUP_DIR%\%%F" goto allbackup)))
if %copyflag% == 1 (for /f "tokens=* delims=" %%F in ( %INSERT_UPDATE_FILE% ) do ((copy /y
"%COMPOSE_DIR%\%%F" "%BKUP_DIR%" > nul) & (if errorlevel 1 goto allbackup)))

:success
if exist "%INSERT_UPDATE_FILE%" (del "%INSERT_UPDATE_FILE%")
if exist "%DELETE_FILE%" (del "%DELETE_FILE%")
echo "Backup Complete."
exit 0

:fail
echo "Backup failed."
exit 1

```

## Note

Note that a commit script may cause a delay depending on its coding in VSC Manager processing time because it always starts up whenever there is a change in the resource status of virtual storage.

## Information

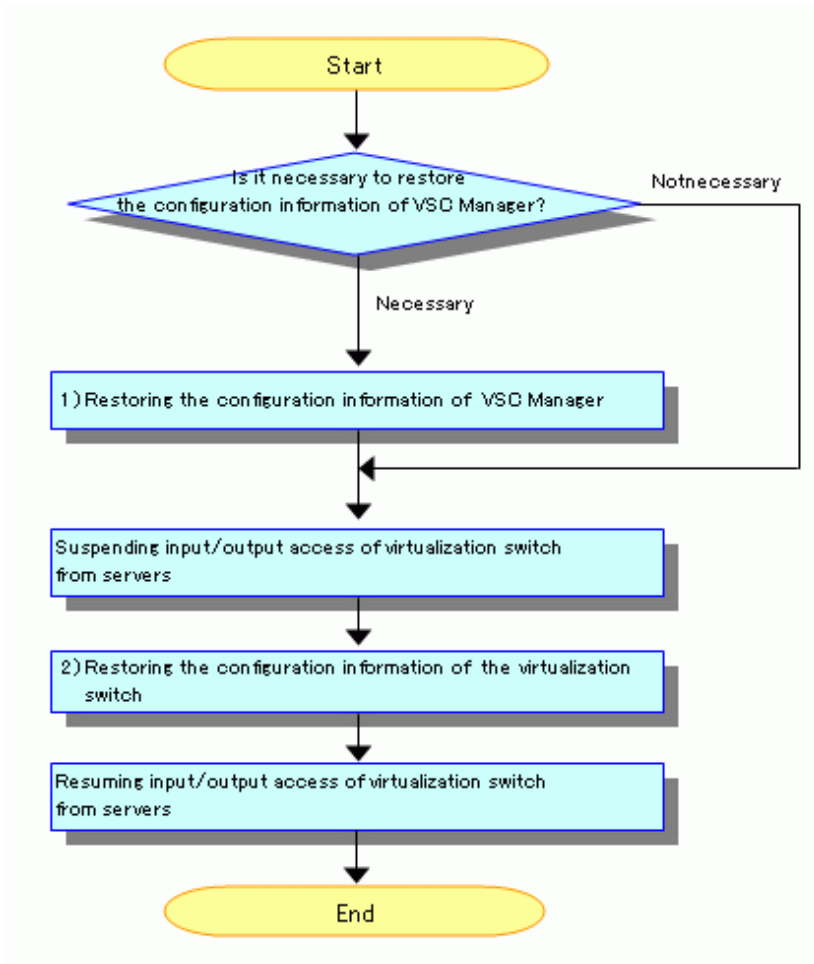
- \$INS\_DIR means "Program Directory" specified at the Manager installation.
- \$ENV\_DIR means "Environment Directory" specified at the Manager installation.
- \$TMP\_DIR means "Work Directory" specified at the Manager installation.

## 6.2.3 Restoring the configuration information

Restore the configuration information as shown in "Figure 6.1 Restoring the configuration information" in the following cases:

- When the configuration information is lost for some reason, or
- When there is a conflict between the configuration information retained by VSC Manager and the configuration information retained by a virtualization switch

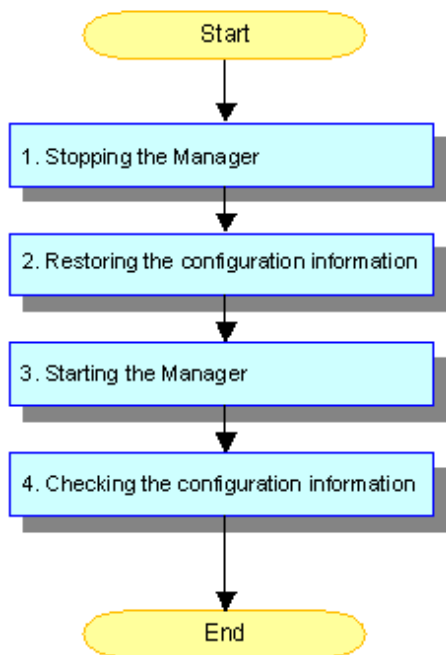
Figure 6.1 Restoring the configuration information



As shown in the procedures for "Figure 6.1 Restoring the configuration information", stop the input/output access from the server with respect to a virtualization switch that is restoring the configuration information.

### 6.2.3.1 [Solaris OS/Linux OS] Restoring the configuration information of VSC Manager

Restore the configuration information of VSC Manager by following the procedure shown below. To restore the configuration information of VSC Manager, you must stop and then restart the system resource manager that runs on the admin server.



### 1. Stopping the Manager

Before restoring the configuration information, be sure to stop the Manager by issuing the following command

```
#/opt/FJSVssmgr/sbin/managerctl stop
```

When using the admin server in a cluster configuration, access the Operation Management View of PRIMECLUSTER and operate the system resource manager to stop cluster service.

### 2. Restoring the configuration information

The directory in which the configuration information file of the Manager is stored is "/var/opt/FJSVssmgr/current/vscompose/."

Before restoring configuration information, the current configuration information files must be saved.

#### Example

Save the current configuration information and restore the configuration information stored on tape "/dev/rmt/0."

```
# setenv BKUPDATE `date '+%y%m%d'`
# cd /var/opt/FJSVssmgr/current
# tar -cf compose.$BKUPDATE.tar vscompose/
# rm -r vscompose
# cd ..
# tar -xf /dev/rmt/0
#
```

### 3. Starting the Manager

Start up the Manager by issuing the following command.

```
#/opt/FJSVssmgr/sbin/managerctl start
```

When using the admin server in a cluster configuration, access the Operation Management View of PRIMECLUSTER and operate the system resource manager to start cluster service.

### 4. Checking the configuration information

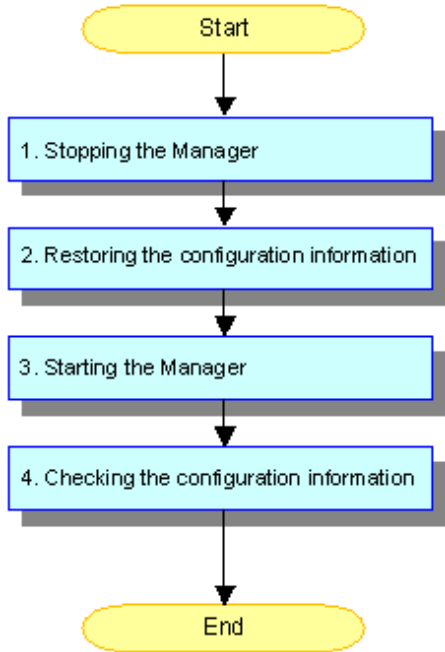
Open the "Virtual Storage Window of the Switch" and check the configuration information.

When no problem is found, the configuration information of the Manager is now restored.

If a problem is found, stop the Manager and restore the configuration information that has been saved as described in step 2. Then, start up the Manager.

### 6.2.3.2 [Windows]Restoring the configuration information of VSC Manager

Restore the configuration information of VSC Manager by following the procedure shown below. To restore the configuration information of VSC Manager, you must stop and then restart the system resource manager that runs on the admin server.



#### Information

**About notation in the following procedures:**

- \$INS\_DIR means "Program Directory" specified at the Manager installation.
- \$TMP\_DIR means "Work Directory" specified at the Manager installation.

#### 1. Stopping the Manager

Before restoring the configuration information, go to [Control Panel] - [Administrative Tools] - [Services], select "ETERNUS SF Storage Cruiser Manager" and stop the service.

When using the admin server in a cluster configuration, access the Operation Management View of PRIMECLUSTER and operate the system resource manager to stop cluster service.

#### 2. Restoring the configuration information

The directory in which the configuration information file of the Manager is stored is "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vsccompose\".

#### Example

Back up the current configuration information file to the C:\BackupTemporary directory, and then restore the configuration information that is stored in the C:\Backup directory.

```
cd $TMP_DIR\Manager\var\opt\FJSVssmgr\current\vsccompose
```

```

copy *.repository C:\BackupTemporary

del *.repository

cd C:\Backup

copy *.repository $TMP_DIR\Manager\var\opt\FJSVssmgr\current\vsccompose

```

3. Starting the Manager

Go to [Control Panel] - [Administrative Tools] - [Services], select "ETERNUS SF Storage Cruiser Manager" and start the service.

When using the admin server in a cluster configuration, access the Operation Management View of PRIMECLUSTER and operate the system resource manager to start cluster service.

4. Checking the configuration information

Open the "Virtual Storage Window of the Switch" and check the configuration information.

When no problem is found, the configuration information of the Manager is now restored.

If a problem is found, stop the Manager and restore the configuration information that has been saved as described in step 2. Then, start up the Manager.

### 6.2.3.3 Restoring the configuration information of a virtualization switch

Two types of restore operations can be performed. To prevent operational errors, Fujitsu recommends that the user perform the restore [Operations using windows \(GUI\)](#) so that the operations can be visually confirmed.

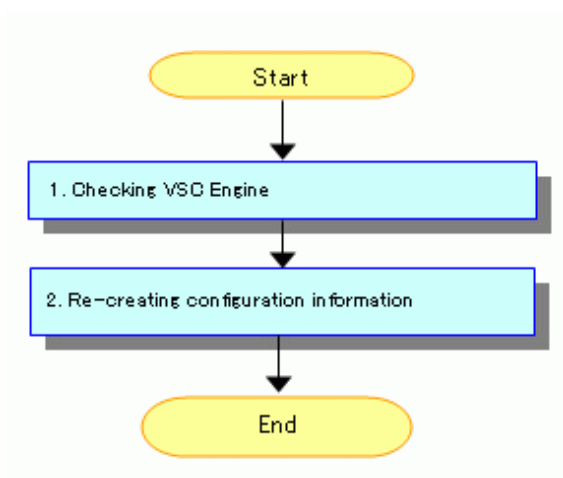
- [Operations using windows \(GUI\)](#)
- [Operations using commands \(CLI\)](#)

If configuration information must be restored for multiple virtualization switches, follow the procedure shown below for each virtualization switch to restore the configuration information.

#### Operations using windows (GUI)

Restore the configuration information of a virtualization switch as follows:

Steps 1 to 2 can be performed at one time in the window displayed by selecting [Operation] - [Recreate] (or by clicking the <Recreate> button in the Maintenance window).

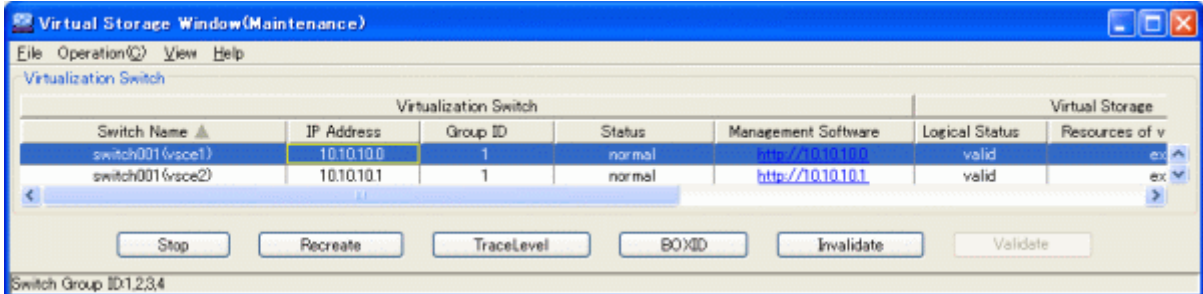


## 1. Checking VSC Engine

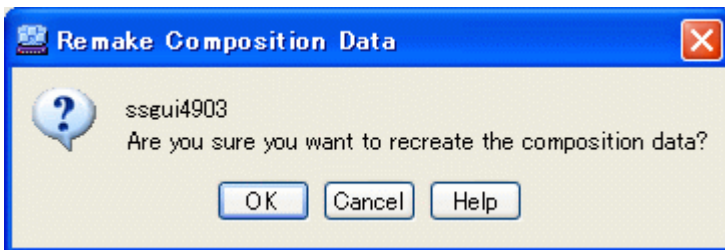
Check whether VSC Engine is running or stopped on a virtualization switch.

Start the Virtual Storage Window, then display the Maintenance window. To check whether VSC Engine is running or stopped on the virtualization switch whose configuration information is to be restored, check the status displayed for the switch.

## 2. Re-creating configuration information



Select "Switch Name" and click the <Recreate> button.



A dialog box appears. Click the <OK> button.

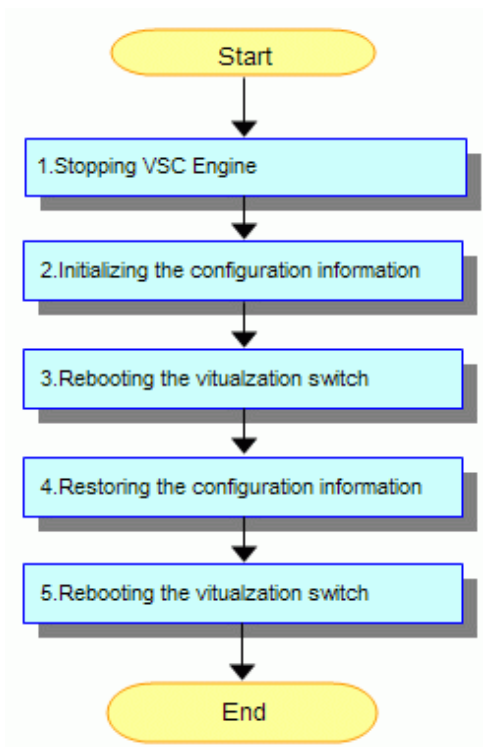
The following types of processing are performed:

1. Initializing configuration information  
The configuration information retained by the virtualization switch is initialized.
2. Rebooting the virtualization switch  
The virtualization switch is rebooted.
3. Restoring the configuration information  
The configuration information of the virtualization switch is restored.
4. Rebooting the virtualization switch  
The virtualization switch is rebooted.

## Operations using commands (CLI)

Restore the configuration information in a virtualization switch as follows:





#### 1. Stopping VSC Engine

Stop VSC Engine running on the virtualization switch as follows.

Start the Virtual Storage Window and display the Maintenance window. Stop VSC Engine by clicking the <Stop> button of the virtualization switch whose configuration information you want restored.

#### 2. Initialize the configuration information retained by the virtualization switch as follows.

Log in, with the user name "admin", to the virtualization switch whose configuration information you want restored, then enter the `vsccreateconfigfile` command to initialize the configuration information.

#### 3. Rebooting the virtualization switch

Reboot the virtualization switch as follows.

Log in, with the user name "admin", to the virtualization switch whose configuration information you want restored, then enter the `reboot` command to reboot the virtualization switch.

#### 4. Restoring the configuration information

The configuration information in the virtualization switch is restored.

Enter the `"remakeconf"` of admin server command, composition information in the virtualization switch is restored.

#### 5. Rebooting the virtualization switch

Reboot the virtualization switch as follows.

Log in, with the user name "admin", to the virtualization switch that was in a redundant configuration and the virtualization switch whose configuration information you want restored, then enter the `reboot` command to reboot the virtualization switch.

## 6.3 Collecting Data

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This section describes how to collect data for troubleshooting.

## 6.3.1 Troubleshooting data for VSC Engine

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Contact your Fujitsu customer engineer (CE) before collecting troubleshooting data for VSC Engine.

## 6.3.2 [Solaris OS/Linux OS]Troubleshooting data for VSC Manager

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Use the `/opt/FJSVssmgr/sbin/managersnap` command to collect troubleshooting data for VSC Manager.

Collect the files shown below to collect individual items of troubleshooting data for VSC Manager. Save copies of these files to removable media on the admin server and give it to your Fujitsu service engineer (SE). Before you save the files to removable media, you can use `tar(1)` and `compress(1)` to compress and combine these files into one or more files.

- Configuration data file: `/etc/opt/FJSVssmgr/current/*`
- Log file: `/var/opt/FJSVssmgr/current/vsclg/*`
- Configuration information file: `/var/opt/FJSVssmgr/current/vscompose/*`

## 6.3.3 [Windows]Troubleshooting data for VSC Manager

---

Collect the files shown below individually to collect the troubleshooting data for the VSC Manager.

Save copies of these files on the admin server to removable media and give it to your Fujitsu service engineer (SE).

Before you save the files to removable media, you can compress and combine the files into one or more files in zip format or lzh format.

- Configuration data file: `$ENV_DIR\Manager\etc\opt\FJSVssmgr\current\*`
- Log file: `$TMP_DIR\Manager\var\opt\FJSVssmgr\current\vsclg\*`
- Configuration information file: `$TMP_DIR\Manager\var\opt\FJSVssmgr\current\vscompose\*`

### Information

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- `$ENV_DIR` means "Environment Directory" specified at the Manager installation.
  - `$TMP_DIR` means "Work Directory" specified at the Manager installation.
- 

## 6.3.4 Troubleshooting data for an admin client

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The troubleshooting data for an admin client is shown below. Save copies of these files to removable media and give it to your Fujitsu service engineer (SE).

- Configuration data file: `$INS_DIR\Client\workspace\.metadata\plugins\com.fujitsu.systemwalker.rcnr.client\etc\san\gui\VSCCGui.cfg`
- Log file: `$INS_DIR\Client\workspace\.metadata\plugins\com.fujitsu.systemwalker.rcnr.client\var\san\gui\vscc`

### Information

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- `$INS_DIR` means "Destination Folder" specified at the Client installation.
-

## 6.4 Viewing Logs

---

This section describes how to view logs.

### 6.4.1 Logs of VSC Manager

---

VSC Manager outputs the following two types of logs:

- System log
- Copy log

#### 6.4.1.1 [Solaris OS/Linux OS]System log

VSC Manager outputs messages via syslogd(1M).

The settings in `/etc/syslog.conf` determine whether messages are actually output and to what file. For information on how to make settings in `/etc/syslog.conf`, see the `syslog.conf(4)`.

#### 6.4.1.2 [Windows]System log

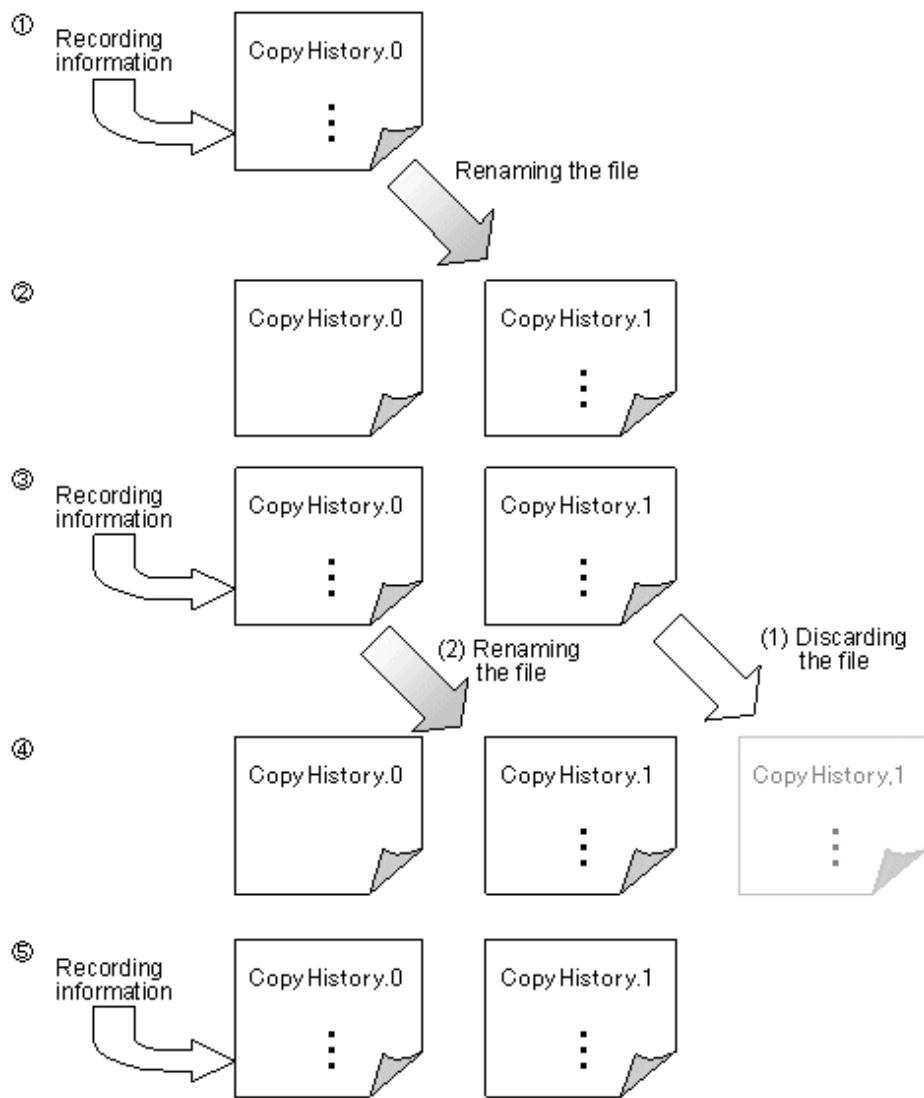
VSC Manager outputs messages via syslog service.

#### 6.4.1.3 [Solaris OS/Linux OS]Copy log

This section describes information (called a "copy log") about the starting and stopping of migration and replication. A copy log is written to a "copy log file".

Two copy log files are retained: The current-generation file (to which information is being written) and the previous-generation file. Both files can be distinguished by the suffix. Suffix ".0" denotes the copy log file to which a copy log is written. When the file size of the current copy log file exceeds the limit value, the file is switched to a new copy log file. The "[Figure 6.2 Switching copy log files](#)" shows how copy log files are switched.

Figure 6.2 Switching copy log files



**File name**

Note that "/var/opt/FJSVssmgr/current/vsclog/VscmCopyHistory.0" and "/var/opt/FJSVssmgr/current/vsclog/VscmCopyHistory.1" are the file names of copy log files. Copy log files have file names with suffixes that denote the generation as follows:

Suffix number	Meaning
.0	A copy log file to which information is currently being recorded
.1	A copy log file of a previous generation

**Record format**

A copy log has the following five types of records:

- Start record  
Output at the start of migration or replication.
- Normal end record  
Output at migration switching or replication detaching.

- Abnormal end record

Output when the migration, replication, or EC (ACM) operation terminated the processing abnormally.

- Cancellation record

Output when migration, replication, or EC (ACM) is terminated, while copying, in the standing by for automatic switch status or the equivalency maintain status.

- Processing failure

In the event of a processing failure or an operation (start, switch, or cancel) failure, the results of record output may not be known and "-" will be displayed.

Each record consists of a common section and a data section.

### Common section

A common section consists of five items. The items are delimited with a blank.

Table 6.1 Structure of the common section

No.	Name	Description
1	Date	Indicates the date on which the record was written in "Mon dd, yyyy" format. <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> </ul>
2	Time	Indicates the time at which the record was written in "hh:mm:ss XM" format. <ul style="list-style-type: none"> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM:AM or PM</li> </ul>
3	Label	Indicates "FSP_FJSVssvsc_Copy:" as a character string.
4	Type	Indicates "INFO:", "WARNING:", or "ERROR:" as a character string.
5	Identifier	Indicates one of the following identifiers that distinguish a data section: <ul style="list-style-type: none"> <li>• 90451: Copy start processing</li> <li>• 90452: Switchover/isolation processing</li> <li>• 90453: Cancel processing for an abnormal session</li> <li>• 90454: Cancel processing for a normal session</li> <li>• 90455: Abnormal end of processing</li> </ul>

### Data section

The data section starts one blank after an "identifier" in the common section. The items in the data section are delimited with a blank.

#### Start record

Table 6.2 Data section (Start record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user: <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> </ul>
2	Record type	Indicates "STARTED" as a character string.

No.	Name	Description
3	Session ID "SID="	Indicates the session ID (eight-digit number). "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk from which data is replicated.</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual disk from which data is replicated.</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk to which data is replicated.</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual disk to which data is replicated.</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication: Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch that performs migration or replication.</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration or replication.
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration or replication. <ul style="list-style-type: none"> <li>• VS900M200: VS900 Model 200</li> <li>• VS900M300: VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• Indicates "VSC" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration or replication.</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• During replication: Indicates the size of the virtual disk from which data is replicated.</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• "-" is displayed.</li> </ul>

Normal end record

Table 6.3 Data section (Normal end record)

No.	Name	Description
1	Processing type	<p>Indicates the copy type selected by the user:</p> <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> </ul>
2	Record type	Indicates "NORMALEND" as a character string.
3	Session ID "SID="	<p>Indicates the session ID (eight-digit number).</p> <p>"SID=xxxxxxx"</p>
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk from which data is replicated.</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual disk from which data is replicated.</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk to which data is replicated.</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• During replication: Indicates the name of the virtual disk to which data is replicated.</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication: Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch that performs migration or replication.</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration or replication.
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration or replication. <ul style="list-style-type: none"> <li>• VS900M200: VS900 Model 200</li> <li>• VS900M300: VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• Indicates "VSC" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration or replication.</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the size of the virtual disk from which data is replicated.</li> </ul>
15	Execution start date and time "StartDate="	Indicates the date and time when to start migration or replication in "Mon dd, yyyy hh:mm:ss XM" format. <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	Indicates the cause of an abnormal end of a unit.  This is the same as an error message.  "-" is displayed.
17	ABEND cause information "Abend="	Outputs the cause of the copy status error. <ul style="list-style-type: none"> <li>• "-" is displayed.</li> </ul>



Abnormal end record

Table 6.4 Data section (Abnormal end record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user: <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "ABNORMALEND" as a character string.
3	Session ID "SID="	Indicates the session ID (eight-digit number). "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication or EC (ACM): Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch used for migration, replication or EC (ACM).</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM). <ul style="list-style-type: none"> <li>• VS900M200: VS900 Model 200</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• VS900M300: VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM)</li> <li>• Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration, replication or EC (ACM).</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

If the cause of the abnormal end cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

Cancellation record

Table 6.5 Data section (Cancellation record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user: <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "CANCELED" as a character string.
3	Session ID "SID="	Indicates the session ID (eight-digit number). "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication or EC (ACM): Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	• Indicates the name of the virtualization switch used for migration, replication, or EC (ACM).
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM). <ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM)</li> <li>• Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration, replication, or EC (ACM).</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

If the cause of the cancellation cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

Processing failure record

Table 6.6 Data section (processing failure record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user. <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "FAILED" as a character string.
3	Session ID "SID="	Indicates the session ID (eight-digit number): "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration Indicates the name of the virtual enclosure containing the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration Indicates "-" as a character string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration Indicates "-" as a character string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration Indicates whether the physical disk that constituted the migration source virtual disks is to be retained as a backup disk at the normal end of migration</li> <li>• YES: Retain it as a backup disk.</li> <li>• NO: Do not retain it as a backup disk.</li> <li>• During replication or EC (ACM) Indicates "-" as a character string.</li> </ul>
9	Virtualization switch name "VSW="	Indicates the name of the virtualization switch used for migration, replication or EC (ACM).
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM).

No.	Name	Description
	"VSTYPE="	<ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM) Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	Indicates the execution priority of migration, replication or EC (ACM).
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

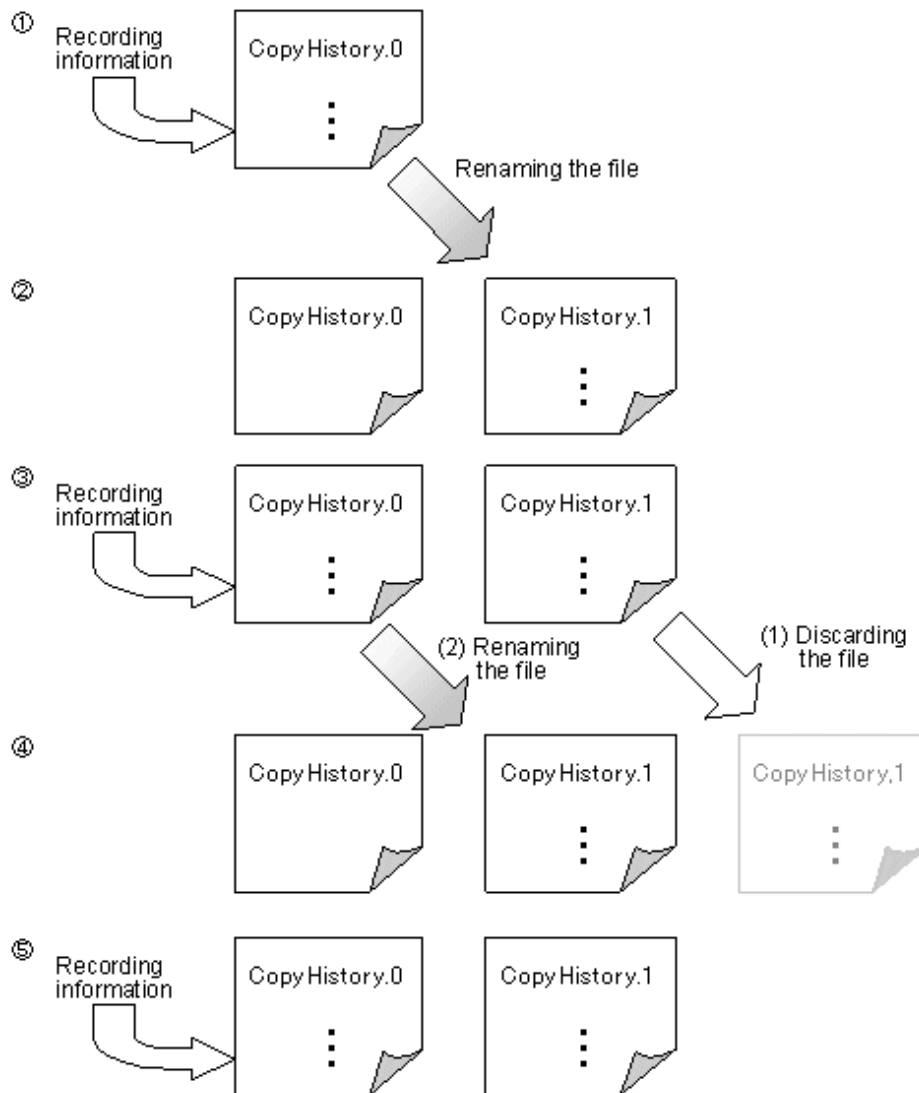
If the cause of the processing failure cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

### 6.4.1.4 [Windows]Copy log

This section describes information (called a "copy log") about the starting and stopping of migration and replication. A copy log is written to a "copy log file."

Two copy log files are retained: The current-generation file (to which information is being written) and the previous-generation file. Both files can be distinguished by the suffix. Suffix ".0" denotes the copy log file to which a copy log is written. When the file size of the current copy log file exceeds the limit value, the file is switched to a new copy log file. The "Figure 6.3 Switching copy log files" shows how copy log files are switched.

Figure 6.3 Switching copy log files



#### File name

Note that "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vsclg\VscmCopyHistory.0" and "\$TMP\_DIR\Manager\var\opt\FJSVssmgr\current\vsclg\VscmCopyHistory.1" are the file names of copy log files. Copy log files have file names with suffixes that denote the generation as follows.

(\$TMP\_DIR means "Work Directory" specified at the Manager installation.)

Suffix number	Meaning
.0	A copy log file to which information is currently being recorded

Suffix number	Meaning
.1	A copy log file of a previous generation

## Record format

A copy log has the following five types of records:

- Start record  
Output at the start of migration or replication.
- Normal end record  
Output at migration switching or replication detaching.
- Abnormal end record  
Output when the migration, replication, or EC (ACM) operation terminated the processing abnormally.
- Cancellation record  
Output when migration, replication, or EC (ACM) is terminated, while copying, in the standing by for automatic switch status or the equivalency maintain status.
- Processing failure  
In the event of a processing failure or an operation (start, switch, or cancel) failure, the results of record output may not be known and "-" will be displayed.

Each record consists of a common section and a data section.

### Common section

A common section consists of five items. The items are delimited with a blank.

Table 6.7 Structure of the common section

No.	Name	Description
1	Date	Indicates the date on which the record was written in "Mon dd, yyyy" format. <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> </ul>
2	Time	Indicates the time at which the record was written in "hh:mm:ss XM" format. <ul style="list-style-type: none"> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
3	Label	Indicates "FSP_FJSVssvsc_Copy:" as a character string.
4	Type	Indicates "INFO:", "WARNING:" or "ERROR:" as a character string.
5	Identifier	Indicates one of the following identifiers that distinguish a data section: <ul style="list-style-type: none"> <li>• 90451: Copy start processing</li> <li>• 90452: Switchover/isolation processing</li> <li>• 90453: Cancel processing for an abnormal session</li> <li>• 90454: Cancel processing for a normal session</li> <li>• 90455: Abnormal end of processing</li> </ul>



## Data section

The data section starts one blank after an "identifier" in the common section. The items in the data section are delimited with a blank.

Start record

Table 6.8 Data section (Start record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user: <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> </ul>
2	Record type	Indicates "STARTED" as a character string.
3	Session ID "SID="	Indicates the session ID (eight-digit number). "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk from which data is replicated.</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual disk from which data is replicated.</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk to which data is replicated.</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual disk to which data is replicated.</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication: Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	• Indicates the name of the virtualization switch that performs migration or replication.
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM). <ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> <li>•</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• Indicates "VSC" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration or replication.</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the size of the virtual disk from which data is replicated.</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• "-" is displayed.</li> </ul>

Normal end record

Table 6.9 Data section (Normal end record)

No.	Name	Description
1	Processing type	<p>Indicates the copy type selected by the user:</p> <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> </ul>
2	Record type	Indicates "NORMALEND" as a character string.
3	Session ID "SID="	<p>Indicates the session ID (eight-digit number).</p> <p>"SID=xxxxxxx"</p>
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk from which data is replicated.</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the name of the virtual disk from which data is replicated.</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual enclosure that contains the virtual disk to which data is replicated.</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication: Indicates the name of the virtual disk to which data is replicated.</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication: Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch that performs migration or replication.</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM). <ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• Indicates "VSC" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration or replication.</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication: Indicates the size of the virtual disk from which data is replicated.</li> </ul>
15	Execution start date and time "StartDate="	Indicates the date and time when to start migration or replication in "Mon dd, yyyy hh:mm:ss XM" format. <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	Indicates the cause of an abnormal end of a unit. This is the same as an error message. "- " is displayed.
17	ABEND cause information "Abend="	Outputs the cause of the copy status error. <ul style="list-style-type: none"> <li>• "- " is displayed.</li> </ul>

#### Abnormal end record

Table 6.10 Data section (Abnormal end record)

No.	Name	Description
1	Processing type	Indicates the copy type selected by the user: <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "ABNORMALEND" as a character string.
3	Session ID "SID="	Indicates the session ID (eight-digit number). "SID=xxxxxxx"
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates "- " as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "- " as a string.</li> </ul>

No.	Name	Description
		<ul style="list-style-type: none"> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication or EC (ACM): Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch used for migration, replication or EC (ACM).</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	<p>Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM).</p> <ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM)</li> <li>• Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration, replication or EC (ACM).</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p>

No.	Name	Description
		"-" is displayed.
17	ABEND cause information "Abend="	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

If the cause of the abnormal end cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

#### Cancellation record

Table 6.11 Data section (Cancellation record)

No.	Name	Description
1	Processing type	<p>Indicates the copy type selected by the user:</p> <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "CANCELED" as a character string.
3	Session ID "SID="	<p>Indicates the session ID (eight-digit number).</p> <p>"SID=xxxxxxx"</p>
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual enclosure that contains the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration: Indicates "-" as a string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>

No.	Name	Description
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration: Indicates whether the physical disk that constituted the source virtual disks is to be retained as a backup disk at the normal end of migration. <ul style="list-style-type: none"> <li>- YES: Retain a backup disk.</li> <li>- No: Do not retain a backup disk.</li> </ul> </li> <li>• During replication or EC (ACM) Indicates "-" as a string.</li> </ul>
9	Virtualization switch name "VSW="	<ul style="list-style-type: none"> <li>• Indicates the name of the virtualization switch used for migration, replication or EC (ACM).</li> </ul>
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	<p>Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM).</p> <ul style="list-style-type: none"> <li>• VS900M200: VS900 Model 200</li> <li>• VS900M300: VS900 Model 300</li> <li>• SN2DSB54V Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM)</li> <li>• Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	<ul style="list-style-type: none"> <li>• Indicates the execution priority of migration, replication or EC (ACM).</li> </ul>
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration: Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	<p>Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format.</p> <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	<p>Indicates the cause of an abnormal end of a unit.</p> <p>This is the same as an error message.</p> <p>"-" is displayed.</p>
17	ABEND cause information	<p>Outputs the cause of the copy status error.</p> <ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> </ul>

No.	Name	Description
	"Abend="	<ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

If the cause of the cancellation cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

#### Processing failure record

Table 6.12 Data section (processing failure record)

No.	Name	Description
1	Processing type	<p>Indicates the copy type selected by the user.</p> <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC (ACM): ACM copy</li> </ul>
2	Record type	Indicates "FAILED" as a character string.
3	Session ID "SID="	<p>Indicates the session ID (eight-digit number):</p> <p>"SID=xxxxxxx"</p>
4	Virtual enclosure name "FromVB="	<ul style="list-style-type: none"> <li>• During migration Indicates the name of the virtual enclosure containing the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
5	Virtual disk name "FromVD="	<ul style="list-style-type: none"> <li>• During migration Indicates the name of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
6	Virtual enclosure name "ToVB="	<ul style="list-style-type: none"> <li>• During migration Indicates "-" as a character string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual enclosure containing the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>
7	Virtual disk name "ToVD="	<ul style="list-style-type: none"> <li>• During migration Indicates "-" as a character string.</li> <li>• During replication or EC (ACM) Indicates the name of the virtual disk to which data is replicated or copied (EC [ACM]).</li> </ul>



No.	Name	Description
8	Backup indication "BackUp="	<ul style="list-style-type: none"> <li>• During migration Indicates whether the physical disk that constituted the migration source virtual disks is to be retained as a backup disk at the normal end of migration</li> <li>• YES: Retain it as a backup disk.</li> <li>• NO: Do not retain it as a backup disk.</li> <li>• During replication or EC (ACM) Indicates "-" as a character string.</li> </ul>
9	Virtualization switch name "VSW="	Indicates the name of the virtualization switch used for migration, replication or EC (ACM).
10	Host name "HOST="	Indicates the host name of the virtualization switch that performs migration, replication, or EC (ACM).
11	Virtualization switch type "VSTYPE="	Indicates the type of the virtualization switch that performs migration, replication, or EC (ACM). <ul style="list-style-type: none"> <li>• VS900M200:VS900 Model 200</li> <li>• VS900M300:VS900 Model 300</li> <li>• SN2DSB54V: Virtualization Blade</li> </ul>
12	Execution type "AP="	<ul style="list-style-type: none"> <li>• During migration or replication Indicates "VSC" as a character string.</li> <li>• During EC (ACM) Indicates "other" as a character string.</li> </ul>
13	Execution priority "Priority="	Indicates the execution priority of migration, replication or EC (ACM).
14	Virtual disk capacity "Capacity="	<ul style="list-style-type: none"> <li>• During migration Indicates the size of the virtual disk from which data is migrated.</li> <li>• During replication or EC (ACM) Indicates the size of the virtual disk from which data is replicated or copied (EC [ACM]).</li> </ul>
15	Execution start date and time "StartDate="	Indicates the date and time when to start migration or replication or EC (ACM) in "Mon dd, yyyy hh:mm:ss XM" format. <ul style="list-style-type: none"> <li>• Mon: Month (three-digit character)</li> <li>• dd: Day (two-digit number)</li> <li>• yyyy: Year (four-digit number)</li> <li>• hh: Hour (on a 12-hour clock, two-digit number)</li> <li>• mm: Minute (two-digit number)</li> <li>• ss: Second (two-digit number)</li> <li>• XM: AM or PM</li> </ul>
16	Message "Message="	Indicates the cause of an abnormal end of a unit. This is the same as an error message. "-" is displayed.
17	ABEND cause information	Outputs the cause of the copy status error.

No.	Name	Description
	"Abend="	<ul style="list-style-type: none"> <li>• COPY_ABEND_CAUSE_OK: Normal ending</li> <li>• COPY_ABEND_CAUSE_MIRROR: Mirror volume error</li> <li>• COPY_ABEND_CAUSE_SRC: Copy source volume error</li> <li>• COPY_ABEND_CAUSE_DST: Copy destination volume error</li> <li>• COPY_ABEND_CAUSE_MANAGEMENT_AREA: VS900 management area error</li> <li>• COPY_ABEND_CAUSE_ENGINE_UNSUPPORTED: Engine not supported</li> <li>• -unknown-: Unknown</li> <li>• COPY_ABEND_CAUSE_OTHER: Other</li> </ul>

If the cause of the processing failure cannot be determined or data cannot be obtained, refer to "6.3 Collecting Data" collect the necessary data for troubleshooting, then contact your Fujitsu systems engineer (SE).

## 6.4.2 Logs of Virtual Storage Window

Logs collected through the Virtual Storage window are stored in the following folder of the Admin Client.

### For Windows Vista

\\client-installation-destination\Client\workspace\.metadata\plugins\com.fujitsu.systemwalker.rcnr.client\var\san\gui\vsc

### Other than Windows Vista

\\user-specified-folder\Client\workspace\.metadata\plugins\com.fujitsu.systemwalker.rcnr.client\var\san\gui\vsc

## 6.5 Functional Restrictions

This section explains restrictions on functions during replacement of a virtualization switch or firmware upgrading.

### 6.5.1 Restrictions during replacement of a virtualization switch

"During replacement of a virtualization switch" means the state in which a virtualization switch is disabled in VSC manager.

VSC manager functions are restricted during replacement of a virtualization switch.

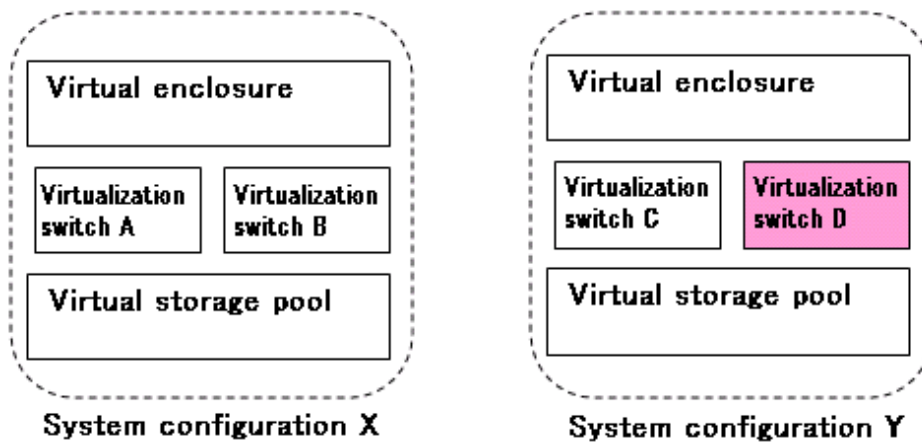
The scope of functional restrictions during replacement of a virtualization switch includes the virtual storage pool and virtual enclosure that manage the virtualization switch being replaced.



#### Example

Restrictions during replacement of virtualization switch D in the system configuration shown in the figure below:

- VSC manager functions are not restricted in system configuration X using virtualization switches A and B.
- VSC manager functions are restricted in system configuration Y using virtualization switches C and D.



.....

The VSC manager functions that are restricted and unrestricted during replacement of a virtualization switch are listed below.

### VSC manager functions that are restricted

#### Virtual disk functions

- Creating and deleting a virtual storage pool
- Registering and releasing a physical disk
- Creating and deleting a virtual enclosure
- Creating and deleting a virtual target
- Creating and deleting a virtual disk and increasing the size of a virtual disk
- Assigning a virtual disk to a virtual target and unassigning one from a virtual target
- Batch conversion of physical disks from a physical to virtual environment

#### Copy functions

- Starting, canceling, and switching migration
- Restoring and deleting a migration backup
- Canceling replication

#### Maintenance function

- Changing the BoxID of a virtual enclosure

### VSC manager functions that are not restricted (\*1)

#### Copy functions

- Copy status inquiry
- Referencing a copy log

#### Maintenance functions

- Displaying the VSC Engine status
- Stopping VSC Engine
- Setting the trace level of VSC Engine
- Re-creating VSC Engine configuration information

- Displaying the initiator information in a virtualization switch

\*1: The functions are restricted only if the processing of these functions is executed for the virtualization switch being replaced.

## **6.5.2 Restrictions during upgrading of virtualization switch firmware**

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Upgrading the Engine program firmware on a virtualization switch in a redundant configuration may create an inconsistency in versions between the virtualization switches in the redundant configuration. In this event, VSC manager functions are restricted.

The VSC manager functions that are restricted or un-restricted during updating of virtualization switch firmware are listed below.

### **VSC manager functions that are restricted**

#### **Virtual disk functions**

- Registering a physical disk
- Creating a virtual enclosure
- Creating and deleting a virtual target
- Creating and deleting a virtual disk or increasing the size of a virtual disk
- Assigning a virtual disk to a virtual target and unassigning one from a virtual target
- Batch conversion of physical disks from a physical to virtual environment

#### **Copy functions**

- Starting and switching migration
- Restoring and deleting a migration backup

#### **Maintenance function**

- Changing the BoxID of a virtual enclosure

### **VSC manager functions that are not restricted**

#### **Virtual disk functions**

- Creating and deleting a virtual storage pool
- Releasing a physical disk
- Deleting a virtual enclosure

#### **Copy functions**

- Copy status inquiry
- Canceling migration
- Canceling replication
- Referencing a copy log

#### **Maintenance functions**

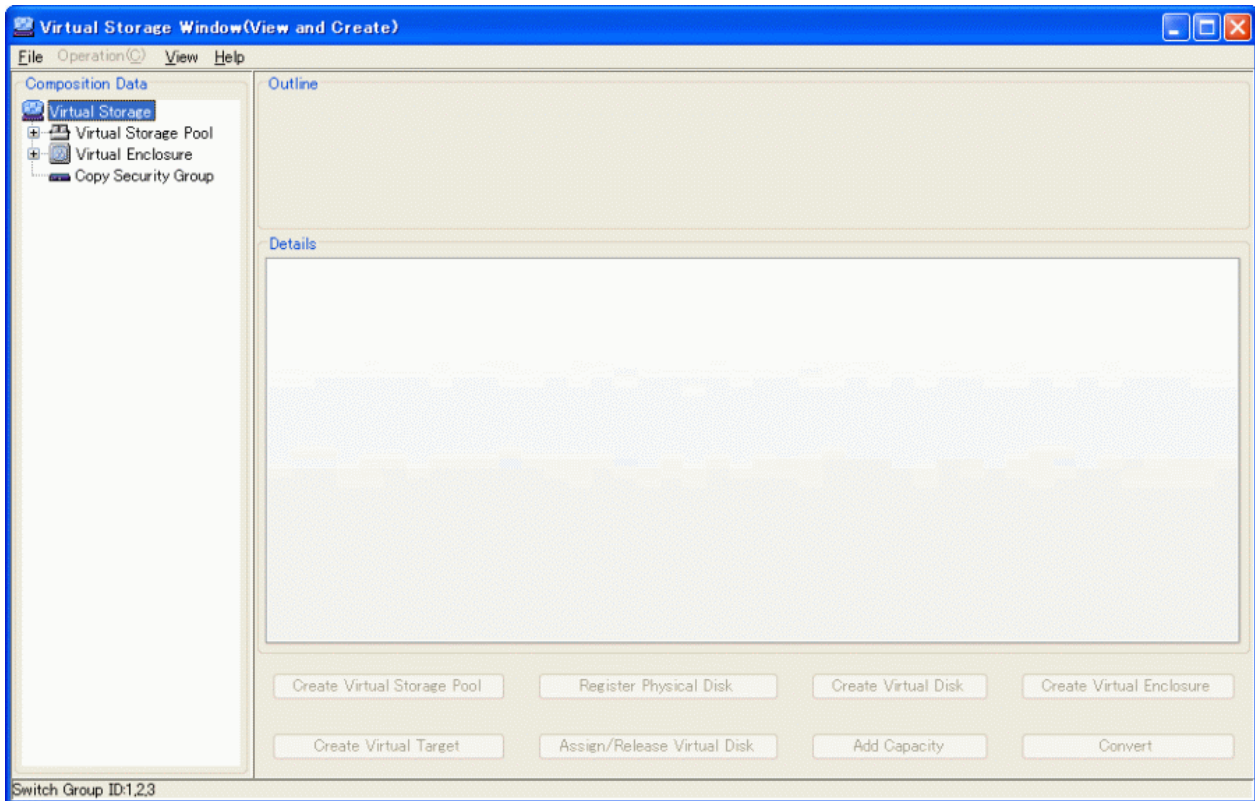
- Obtaining VSC Engine status information
- Stopping VSC Engine
- Setting the trace level of VSC Engine
- Re-creating VSC Engine configuration information
- Displaying the initiator information in a virtualization switch

# Appendix A Window Explanation and Menu List

This appendix describes the virtual storage window and its display content.

## A.1 Window Configuration

This section describes the window configuration of the virtual storage window.



### Menu bar

Selection buttons perform each of the following functions:

<File>, <Operation>, <View>, and <Help>

### Composition Data tree area

Displays the composition data of the virtual disks in a tree structure.

### Outline area

Displays an outline of the node selected in "Composition Data" tree.

### Details area

Displays details of the node selected in "Composition Data" tree.

### Details dialog

Displayed when you click the <Details> button in "Details area".

### Button area

Selection button to move to the window for performing each function.

### Switch Group ID display area

Displays the virtualization switch group IDs that can be displayed and operated.

## A.1.1 Configuration and functions of the menu bar

Each menu button has a pull-down menu. The following describes the configuration of each menu and its functions.

Menu	Pull-down menu	Description of pull-down menu
File	Page Setup	Sets the page format you want to print.
	Print	Prints all tabs currently displayed in the Outline area and Details area of the virtual storage window.
	Exit	Exits the virtual storage window (View and Create, Copy, Maintenance).
Operation (View and Create)	Virtual storage pool	Performs "Create" and "Delete" for the virtual storage pool.
	Physical disk	Performs "Register" and "Release" for the physical disk.
	Virtual disk	Performs "Create", "Delete", "Add capacity", and "Assign/Release" for the virtual disk.
	Virtual enclosure	Performs the following actions for virtual enclosures: [Create], [Register Copy Security Group], [Release Copy Security Group] and [Change Number of Maximum Connections].
	Virtual target	Performs "Create", "Delete", and "Copy" for the virtual target.
	Convert	Performs "Convert", beginning from registration of a physical disk to assignment of virtual disks.
	Copy Security Group	Performs the following actions for copy security groups: [Create], [Delete], [Register Virtual Enclosure], and [Release Virtual Enclosure].
	VS900 Management Area	Performs "Create", "Delete", and "View" for the VS900 management area.
Operation (Copy)	Start Migration	Starts a migration.
	Change	Changes migrations.
	Cancel	Cancels migrations.
	Migration Backup Disk List	Restores and deletes migration backup disks.
	Copy History List	Displays copy histories.
Operation (Maintenance)	Stop	Stops the VSC Engine running on the virtualization switch.
	Reboot	Reboots the virtualization switch.
	Recreate	Recreates the configuration information in the virtualization switch.
	TraceLevel	Change the collection level for the trace information that is collected on the virtualization switch.
	BOX ID	Edits the BOX ID for the virtual enclosure.
	Disable	Disables the virtualization switch.
	Enable	Enables the virtualization switch.
	Collect logs	Collects virtualization switch FOS and VSC Engine log.
	Installation of firmware	Installs the FOS, SAS, and VSC Engine firmware for the virtualization switch.
	Set virtualization function	Sets login information of the port for virtualization control of the virtualization switch.
	Input login information	Sets login information for the port of the virtualization switch virtualization management.
	Backup FOS configuration	Backs up the FOS configuration for the virtualization switch.
	Restore FOS configuration	Restores the FOS configuration for the virtualization switch.

Menu	Pull-down menu	Description of pull-down menu
	Backup VSC Engine environment	Backs up the VSC Engine environment for the virtualization switch.
	Restore VSC Engine environment	Restores the VSC Engine environment for the virtualization switch.
View	Options	This menu option has two sub-options. The first sub-option displays the [Select Switch Group] dialog box for the Virtual Storage window. The second sub-option is used to change the operating environment for the Virtual Storage Window (Copy).
	Refresh	Displays the latest configuration information of virtual storage resources. However, information cannot be refreshed while the "Details dialog" is displayed. Press the <Details> button again to refresh the Details dialog.
Help	Help	Displays the user's guide.
	Version Information	Displays the version number of the virtual storage window.

## A.1.2 Common operations in the window

The user can customize display of the virtual storage window.

### Items for display/non-display

You can select the items you want to display as follows:

1. Select and right-click the header of the desired item to display the <Display/Non-display> button. Then, click the <Display/Non-display> button.
2. The "Display/Non-display" dialog box appears, with the display item being checked.
3. Check the items you want to display or remove the checkmark from items you do not want to display, and then click the <OK> button.

You cannot save this information in this window. When restarted, the "Virtual storage window" displays items in default order.

### Item sorting

You can change the order of information displayed under an item in ascending or descending order.

Click the header of the item under which you want to sort information.

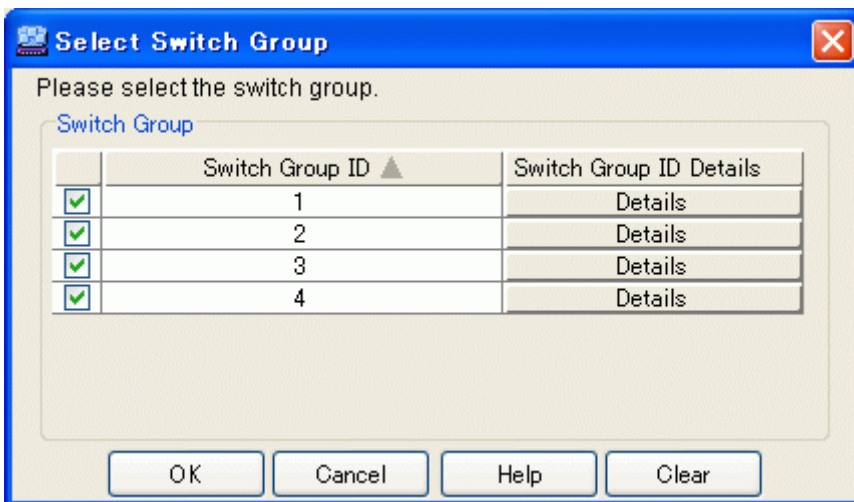
You cannot save the window status. When restarted, the "Virtual storage window" displays items in default order.

### The "filter by switch group" function

The "filter by switch group" function makes it possible to display information about and operate on only virtual resources related to the specified switch group, where a group of redundant virtualization switches is considered to be a single "switch group".

1. Select [Options] - [Select Switch Group] from the [View] menu.

2. The [Select Switch Group] dialog box will be displayed.



3. Select the following items in the [Select Switch Group] dialog box.  
Switch Group (Required)  
Select the switch groups to be displayed and operated on. (Multiple switch groups can be selected.)
4. Click the [OK] button.  
It will then be possible to display information about and operate on only virtual resources related to the specified switch group.

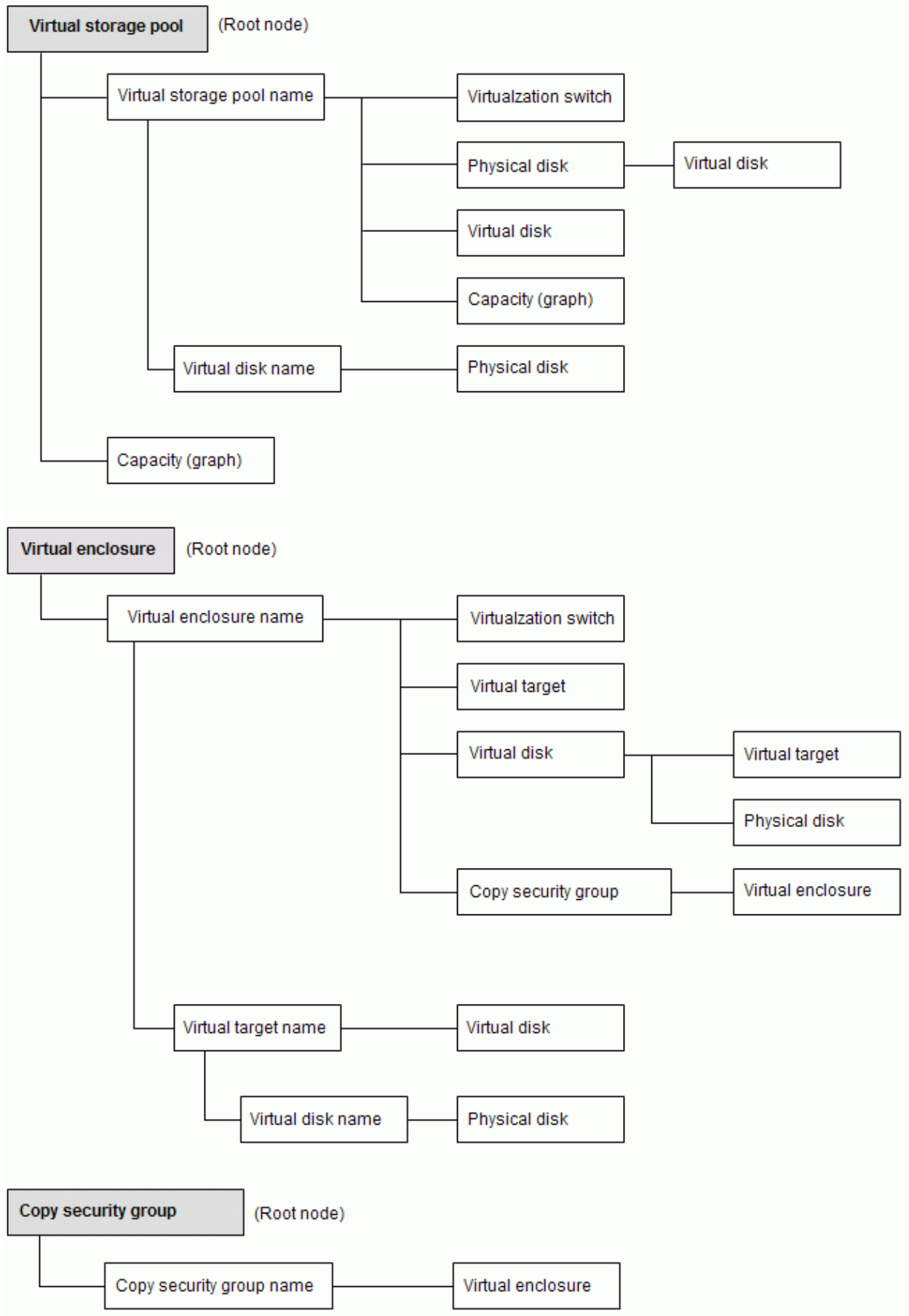
## A.2 Explanation of the Windows under "View and Create"

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This section describes the window content and items displayed under "View and Create".



Figure A.1 Overall structure of "View and Create"



## A.2.1 Displaying the virtual storage pool (root node)

The following describes the window displayed when you select the virtual storage pool (root).

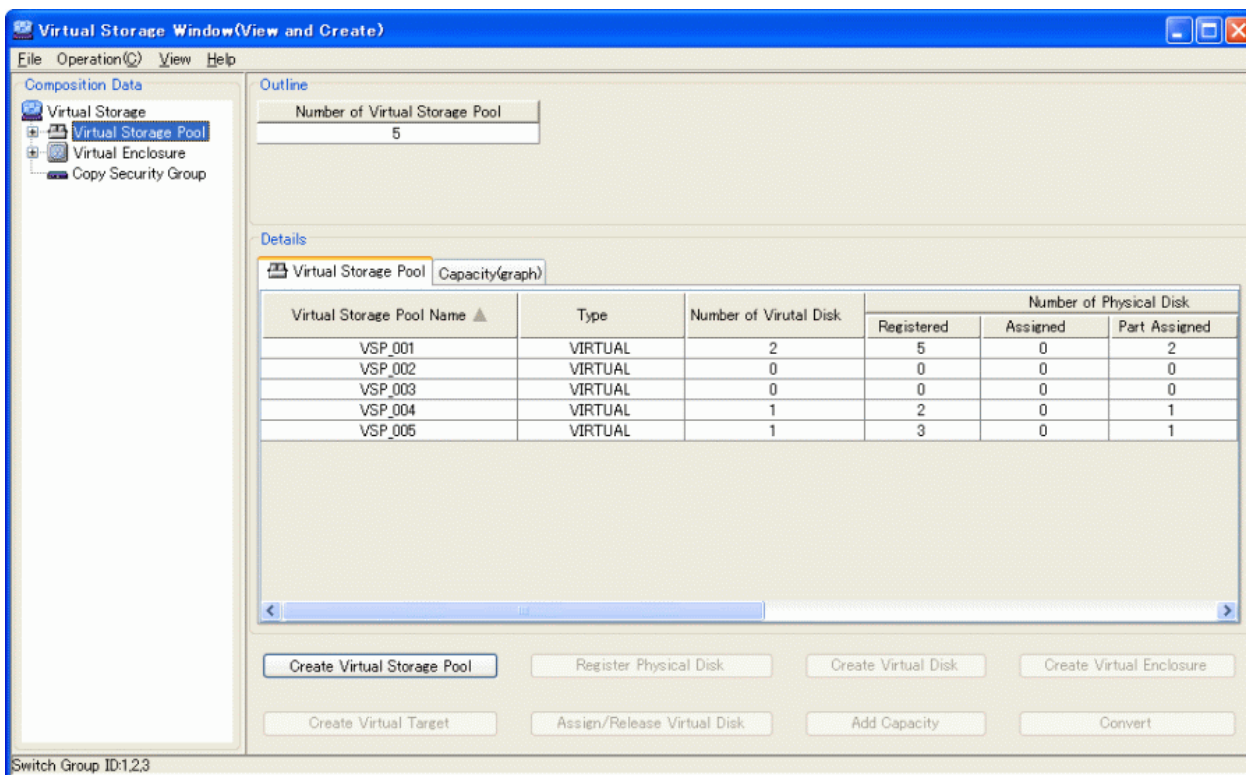


Table A.1 Display information of "Outline area (Virtual Storage Pool [root])"

Item	Description
Number of Virtual Storage Pool	Total number of virtual storage pools created

Table A.2 Display information of "Details area (Virtual Storage Pool [root])"

Item	Description	
Virtual Storage Pool Name	Name of the virtual storage pool created	
Type	Displays 'VIRTUAL'	
Number of Virtual Disk	Number of virtual disks created from the virtual storage pool concerned	
Number of Physical Disk	Registered	Total number of physical disks registered in the virtual storage pool
	Assigned	Total number of physical disks whose physical space has been assigned to a virtual disk
	Part Assigned	Total number of physical disks whose physical space has partially been assigned to a virtual disk
	No Assigned	Total number of physical disks whose physical space has not been assigned to a virtual disk
Capacity (MB)	Capacity	Total physical space capacity of physical disks registered in the virtual storage pool
	Assigned	Total capacity of physical space assigned to a virtual disk
	No Assigned	Total capacity of physical space that has not been assigned to a virtual disk

Item	Description
VS900 Management Area	Total capacity of the VS900 management area for the physical disks registered in a virtual storage pool

## A.2.2 Displaying the capacity (graph)

The following describes the capacity (graph) window displayed when you select the Virtual Storage Pool (root).

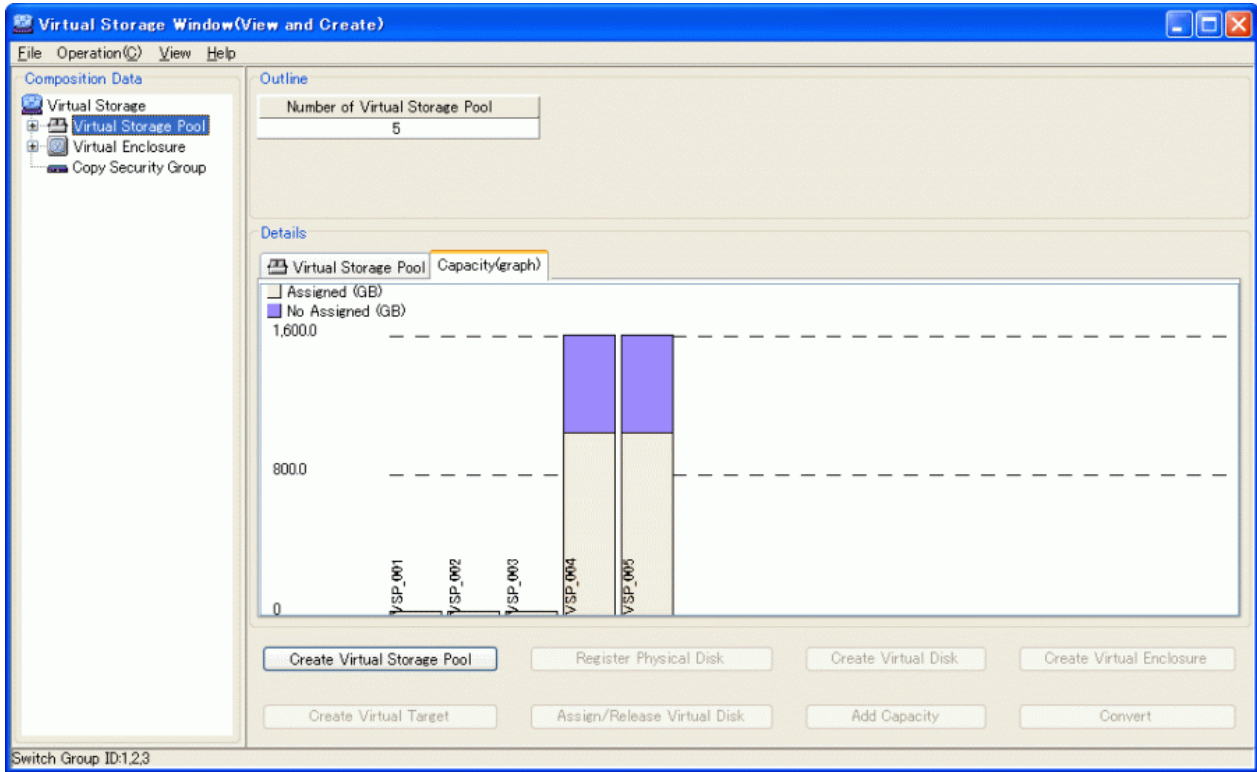


Table A.3 Display information of "Details area (Capacity [graph])"

Item	Description
Capacity (graph)	Capacities of assigned and non-assigned parts of a VS900 management area

## A.2.3 Displaying the virtual storage pool

The following describes the window displayed when you select the desired virtual storage pool name in the Composition Data tree.

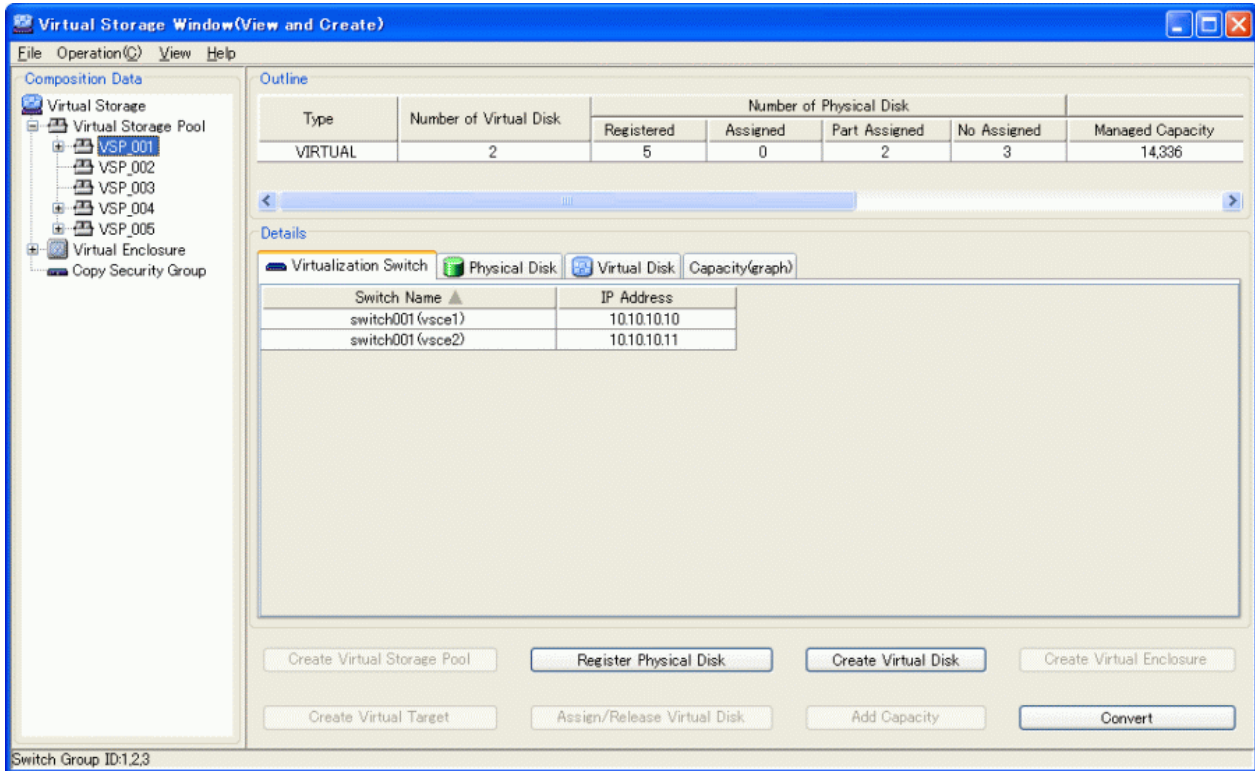


Table A.4 Display information for "Outline area (Virtual Storage Pool)"

Item		Description
Type		Displays 'VIRTUAL'
Number of Virtual Disk		Number of virtual disks created from the virtual storage pool
Number of Physical Disk	Registered	Total number of physical disks registered in the virtual storage pool
	Assigned	Total number of physical disks whose physical space has been assigned to a virtual disk
	Part Assigned	Total number of physical disks whose physical space has partially been assigned to a virtual disk
	No Assigned	Total number of physical disks whose physical space has not been assigned to a virtual disk
Capacity (MB)	Managed Capacity	Total physical space capacity of physical disk registered in the virtual storage pool
	Assigned	Total capacity of physical space assigned to a virtual disk
	No Assigned	Total capacity of physical space that has not been assigned to a virtual disk
	VS900 Management Area	Total capacity of the VS900 management area for the physical disks registered in a virtual storage pool

Table A.5 Display information of "Details area (Virtualization Switch)"

Item	Description
Switch Name	Name of the virtualization switch registered when creating the virtual storage pool For virtualization switches other than the VS900 Model 200, the switch device name is displayed as " <i>virtualization switch name (host name)</i> ".
IP Address	IP address of Ethernet port for virtualization switch control of the virtualization switch

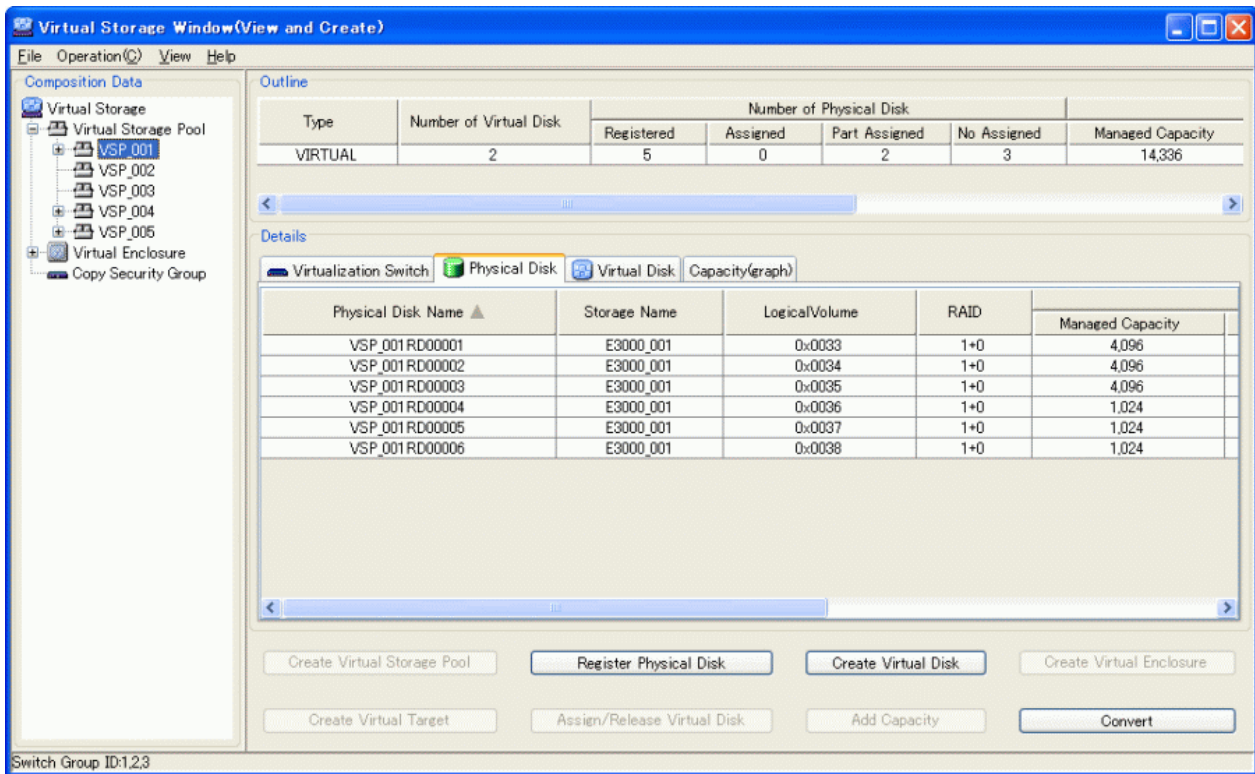


Table A.6 Display information of "Details area (Physical Disk)"

Item		Description	Remarks
Physical Disk Name		Name of the physical disk name registered in the virtual storage pool	
Storage Name		Name of the physical disk storage	
Product ID		Product ID of the storage	Hidden by default
Serial Number		Serial number of the storage	Hidden by default
AffinityGroup:LUN		Affinity group number, logical unit number	Hidden by default
LogicalVolume		Storage internal number of the physical disk	
RAID		RAID level of the physical disk (1+0,1,5,6,0)	
Encryption		Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type		Disk type of the physical disk (nearline, online)	Hidden by default
Capacity (MB)	Managed Capacity	Physical disk capacity	
	Assigned	Physical space assigned to a virtual disk	
	Assigned Details	Details button for the assigned area	
	No Assigned	Physical space that is not assigned to a virtual disk	
	VS900 Management Area	Physical disk capacity of a VS900 management area	
Number of Non-assigned Extent		Total number of extents available on the physical disk	Hidden by default



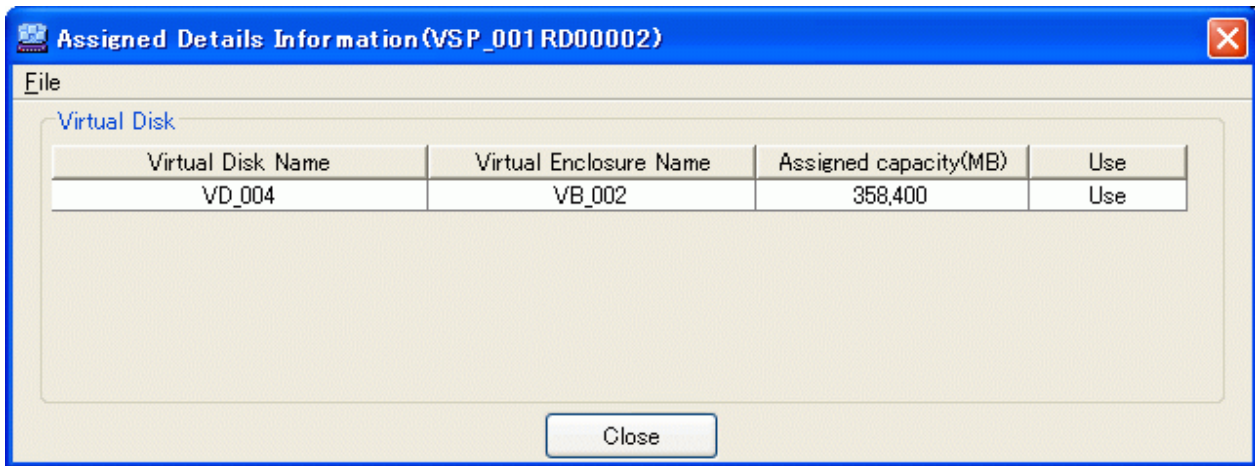


Table A.7 Display information of "Assigned Details Information" dialog

Item	Description	Remarks
Virtual Disk Name	Name of the virtual disk to which a physical disk has been assigned	
Encryption attribute	Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the physical disk (nearline, online)	Hidden by default
Virtual Enclosure Name	Name of the virtual enclosure in which the virtual disk is registered	
Assigned capacity (MB)	Physical space capacity used by the virtual disk	
Use	Displays "Backup" when the physical disk is a backup disk for the virtual disk. Otherwise, displays "Operation".	

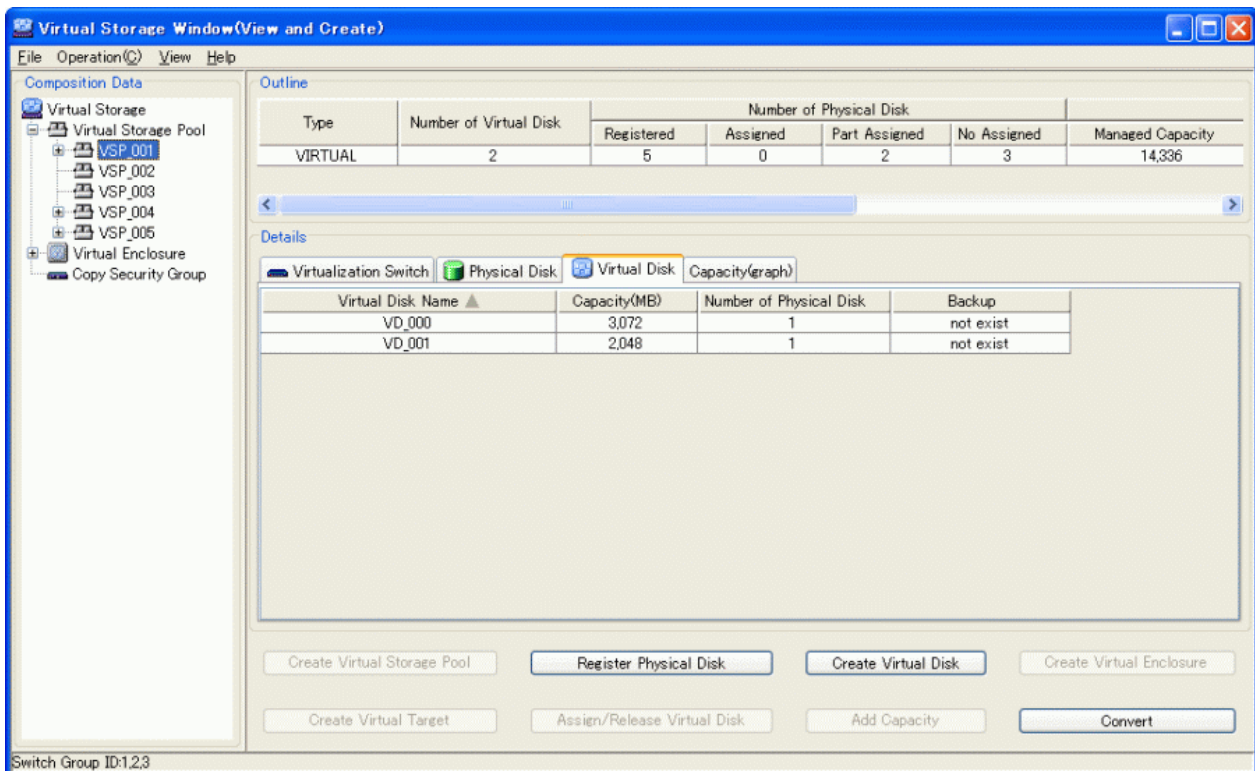


Table A.8 Display information of "Details area (Virtual Disk)"

Item	Description	Remarks
Virtual Disk Name	Name of the virtual disk	

Item	Description	Remarks
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
Capacity (MB)	Virtual disk capacity	
Number of Physical Disk	Number of physical disks constituting the virtual disk	
Backup	Whether backup disks are available	

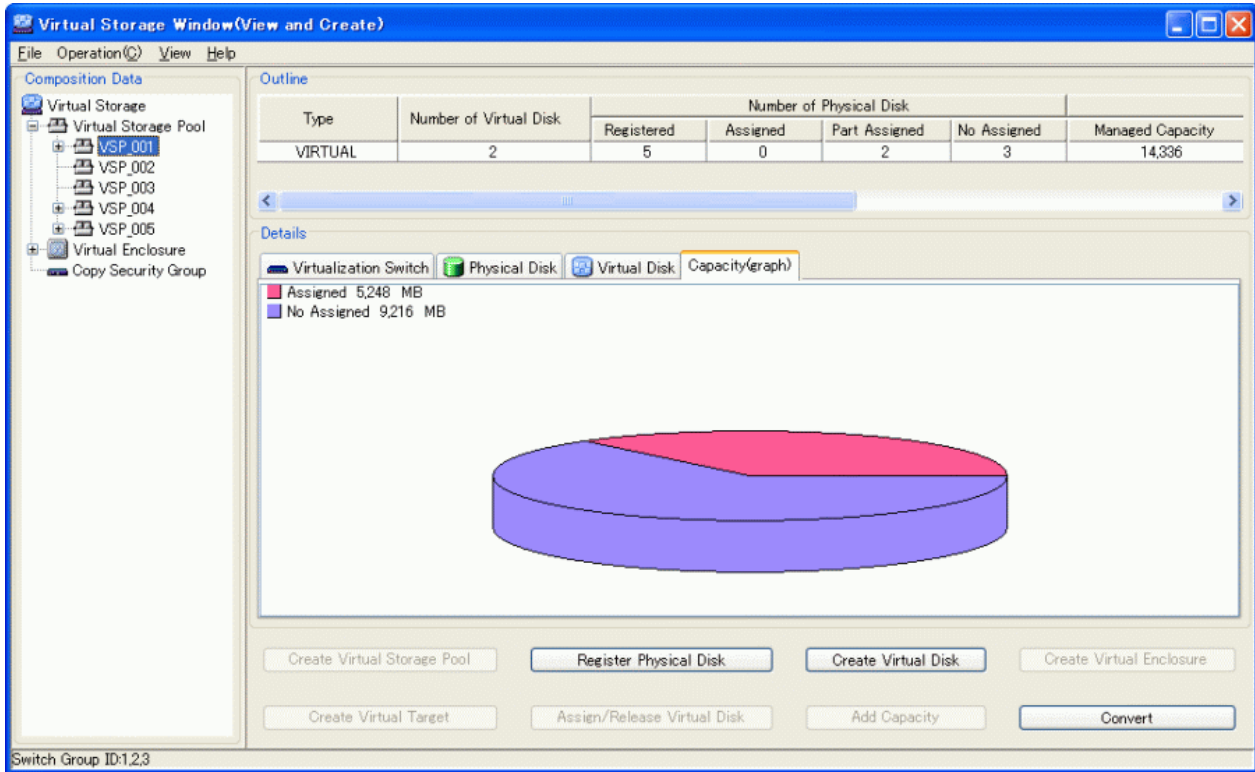


Table A.9 Display information of "Details area (Capacity [graph])"

Item	Description
Capacity (graph)	Capacities of assigned and non-assigned parts of a VS900 management area

## A.2.4 Displaying the virtual disk

The following describes the window displayed when you select the virtual disk name under the Virtual Storage Pool in the Composition Data tree.

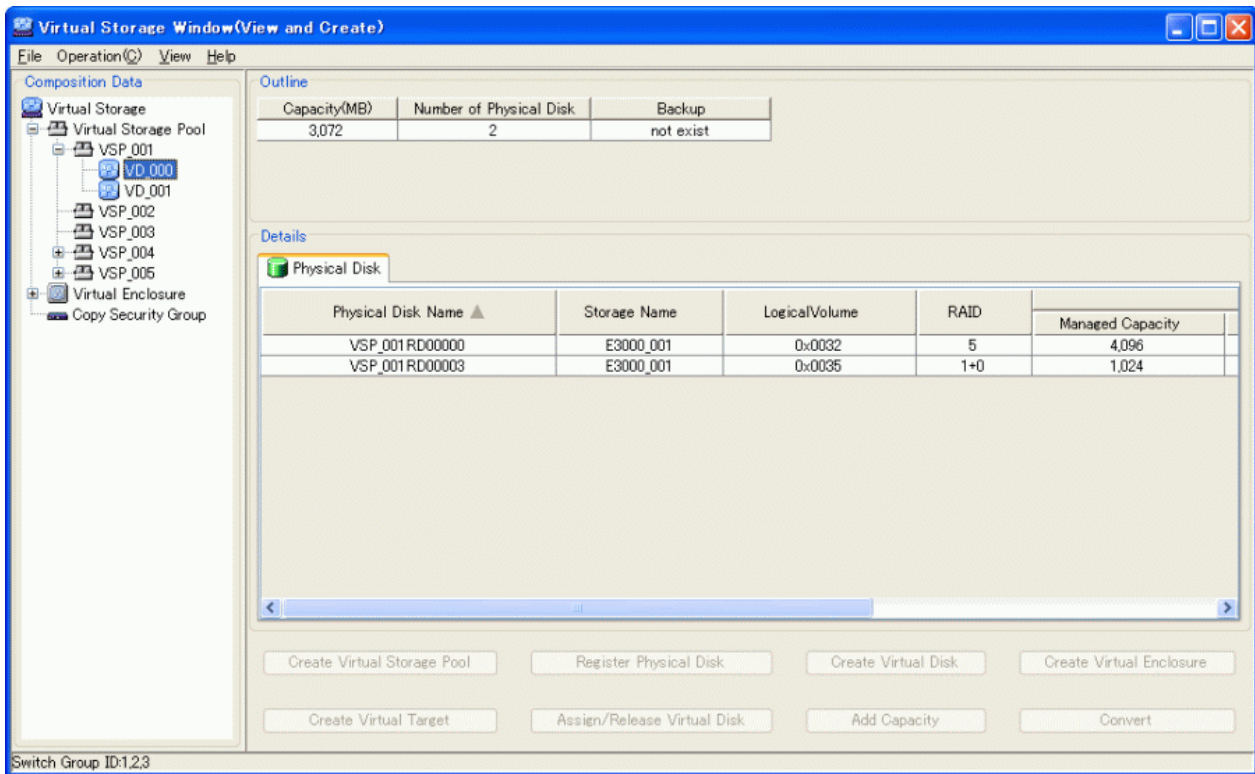


Table A.10 Display information of "Outline area (Virtual Disk)"

Item	Description	Remarks
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
Capacity (MB)	Virtual disk capacity	
Number of Physical Disk	Number of physical disks constituting the virtual disk	
Backup	Whether backup disks are available	

Table A.11 Display information of "Details area (Physical Disk)"

Item	Description	Remarks
Physical Disk Name	Name of the physical disk registered in the virtual storage pool	
Storage Name	Name of the physical disk storage	
Product ID	Product ID of the storage	Hidden by default
Serial Number	Serial number of the storage	Hidden by default
AffinityGroup:LUN	Affinity group number, logical unit number	Hidden by default
LogicalVolume	Storage internal number of the physical disk	
RAID	RAID level of the physical disk (1+0,1,5,6,0)	
Encryption	Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the physical disk (nearline, online)	Hidden by default
Capacity (MB)	Managed Capacity	Physical disk capacity
	Assigned	Physical space assigned to a virtual disk
	No Assigned	Physical space not assigned to a virtual disk
	VS900 management area	Physical disk capacity of a VS900 Management Area



Item	Description	Remarks
Number of Non-assigned Extent	Total number of extents available on the physical disk	Hidden by default

## A.2.5 Displaying the virtual enclosure (root node)

The following describes the window displayed when you select the Virtual Enclosure (root).

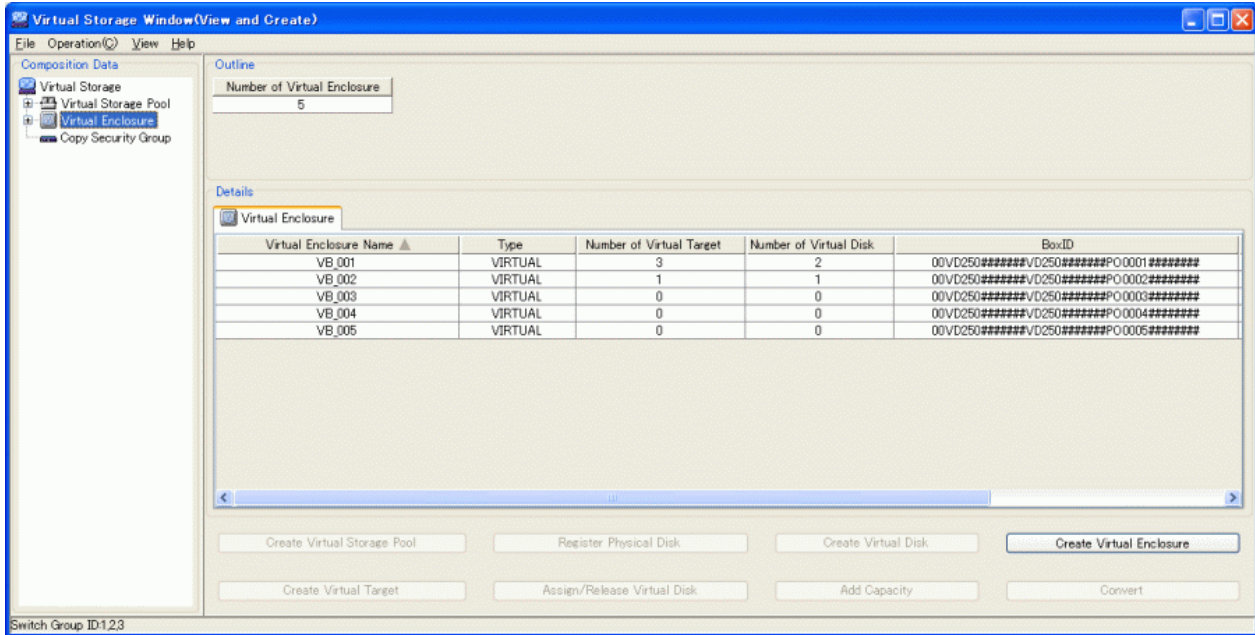


Table A.12 Display information of "Outline area (Virtual Enclosure [root])"

Item	Description
Number of Virtual Enclosure	Total number of virtual enclosures created

Table A.13 Display information of "Details area (Virtual Enclosure [root])"

Item	Description
Virtual Enclosure Name	Name of the virtual enclosure created
Type	Displays 'VIRTUAL'
Number of Virtual Target	Number of virtual targets created from the virtual enclosure pool concerned
Number of Virtual Disk	Total number of virtual disks registered in the virtual enclosure
BoxID	Specific identifier for the virtual enclosure
Number of Maximum Copy Sessions	The maximum number of replication sessions that can be performed by ETERNUS SF AdvancedCopy Manager for virtual disks in the virtual enclosure

## A.2.6 Displaying the virtual enclosure

The following describes the window displayed when you select the desired virtual enclosure name in the Composition Data tree.

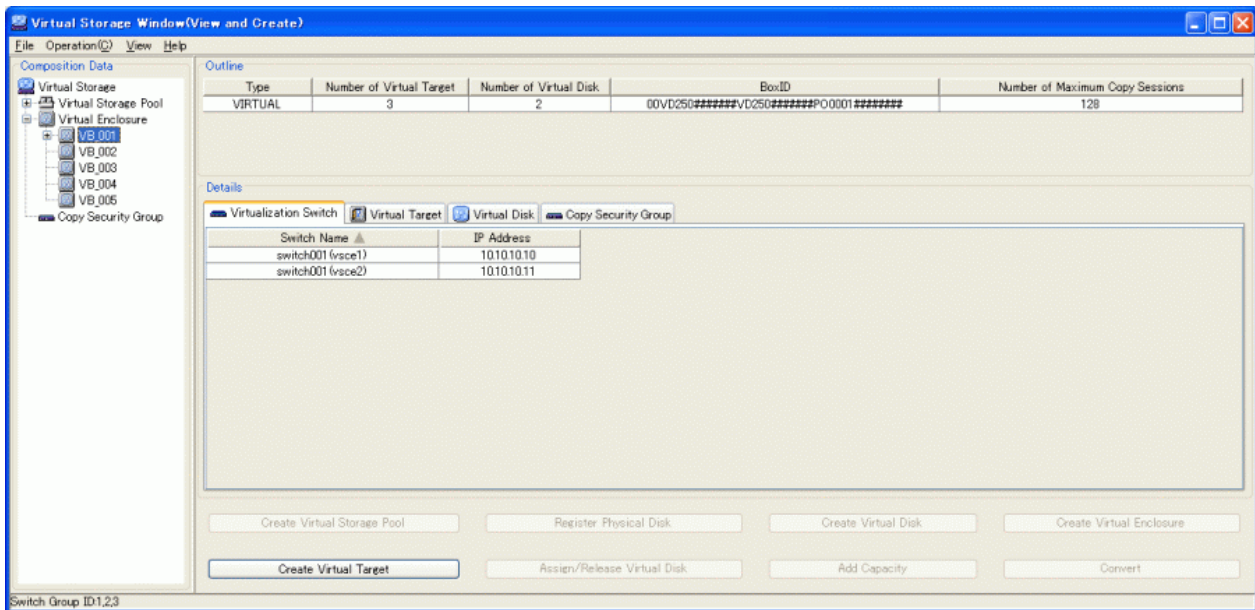


Table A.14 Display information of "Outline area (Virtual Enclosure)"

Item	Description
Type	Displays 'VIRTUAL'
Number of Virtual Target	Number of virtual targets registered with the virtual enclosure
Number of Virtual Disk	Total number of virtual disks registered in the virtual enclosure
BoxID	Specific identifier for the virtual enclosure
Number of Maximum Copy Sessions	The maximum number of replication sessions that can be performed by ETERNUS SF AdvancedCopy Manager for virtual disks in the virtual enclosure

Table A.15 Display information of "Details area (Virtualization Switch)"

Item	Description
Switch Name	Name of the virtualization switch registered in the virtual enclosure For virtualization switches other than the VS900 Model 200, the switch device name is displayed as " <i>virtualization switch name (host name)</i> ".
IP Address	IP address of Ethernet port for virtualization switch control of the virtualization switch

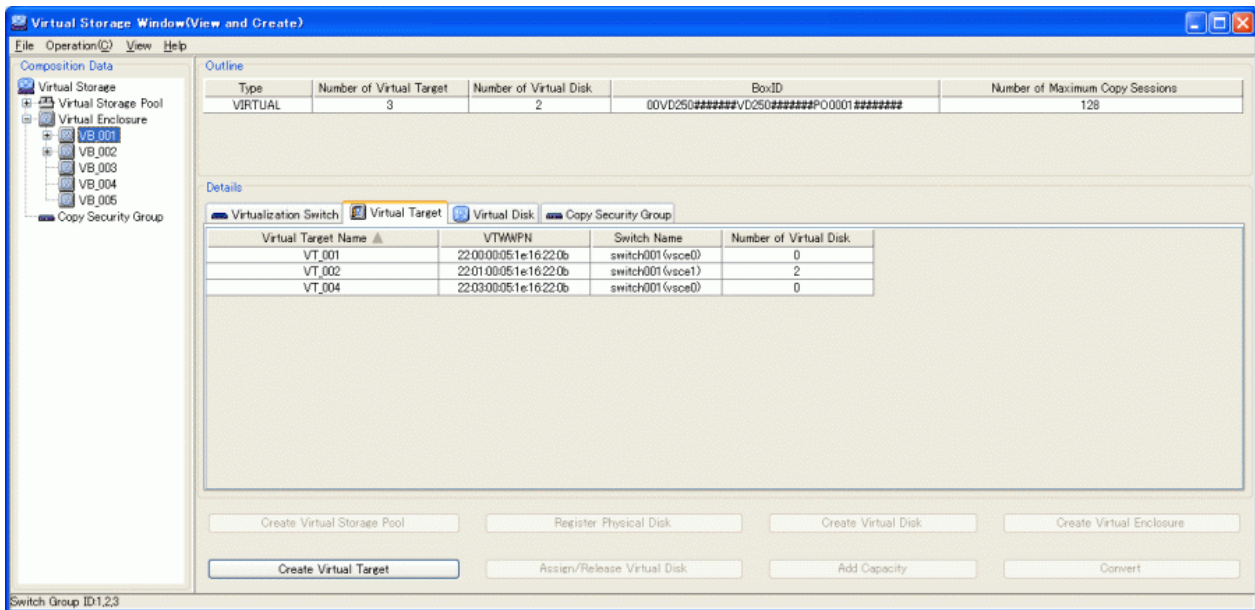


Table A.16 Display information of "Details area (Virtual Target)"

Item	Description
Virtual Target Name	Name of the virtual target registered in the virtual enclosure
VTWWPN	WWN of the virtual target
Switch Name	Name of the virtualization switch registered to the virtual target For virtualization switches other than the VS900 Model 200, the switch device name is displayed as " <i>virtualization switch name (host name)</i> ".
Number of Virtual Disk	Total number of virtual disks registered to the virtual target

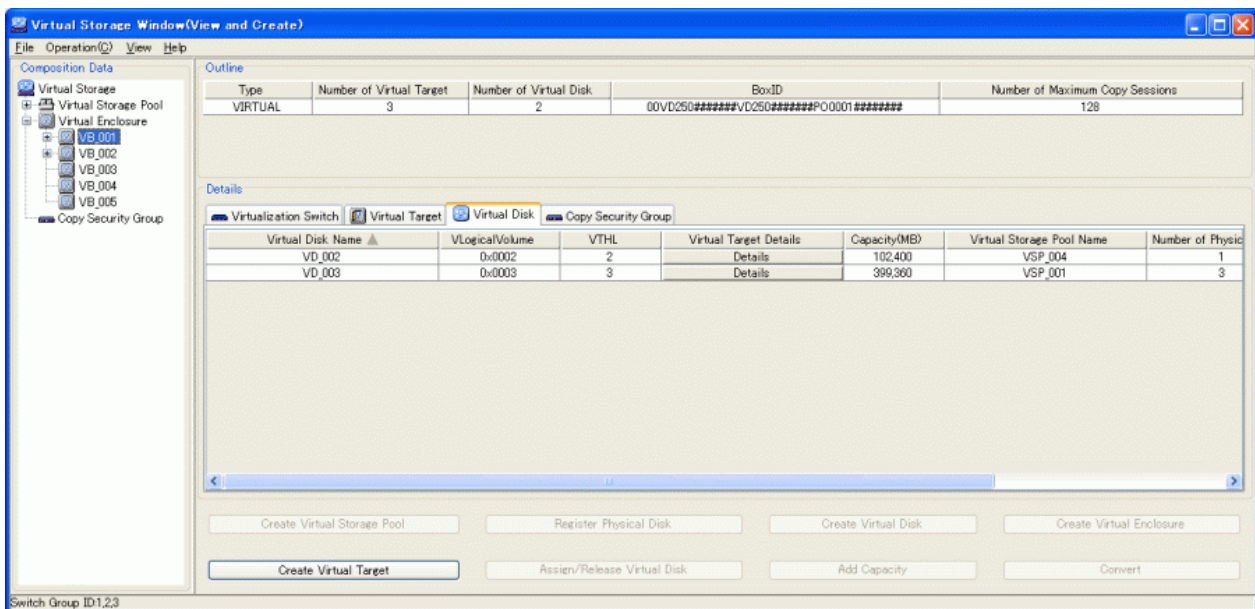


Table A.17 Display information of "Details area (Virtual Disk)"

Item	Description	Remarks
Virtual Disk Name	Name of the virtual disk registered in the virtual enclosure	
VLogicalVolume	Virtual disk identifier	
VTHL	Host identifier for the virtual disk (HostLUN)	

Item	Description	Remarks
Virtual Target Details	Details button for the virtual target to which a virtual disk has been assigned	
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
Capacity (MB)	Virtual disk capacity	
Virtual Storage Pool Name	Name of the virtual storage pool in which the physical disk is registered	
Number of Physical Disk	Number of physical disks constituting the virtual disk	
Physical Disk Details	Details button for physical disk information	
Backup	Identifier that indicates whether backup is available  Yes: Backup available No: Backup not available	

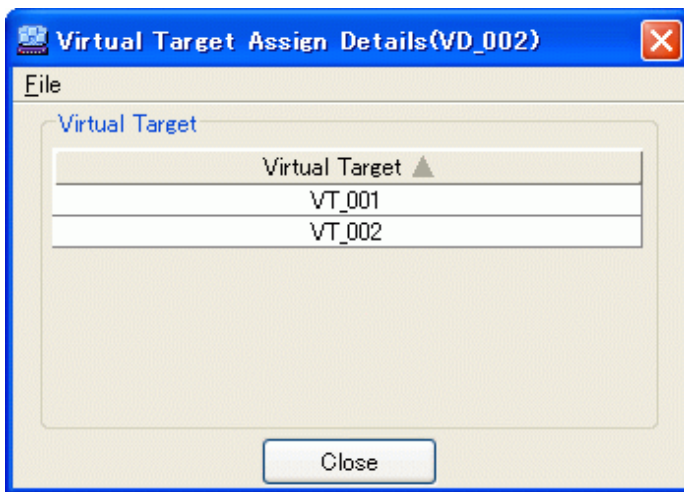


Table A.18 Display information of "Details area (Virtual Target)"

Item	Description
Virtual Target	List of virtual targets to which a virtual disk has been assigned

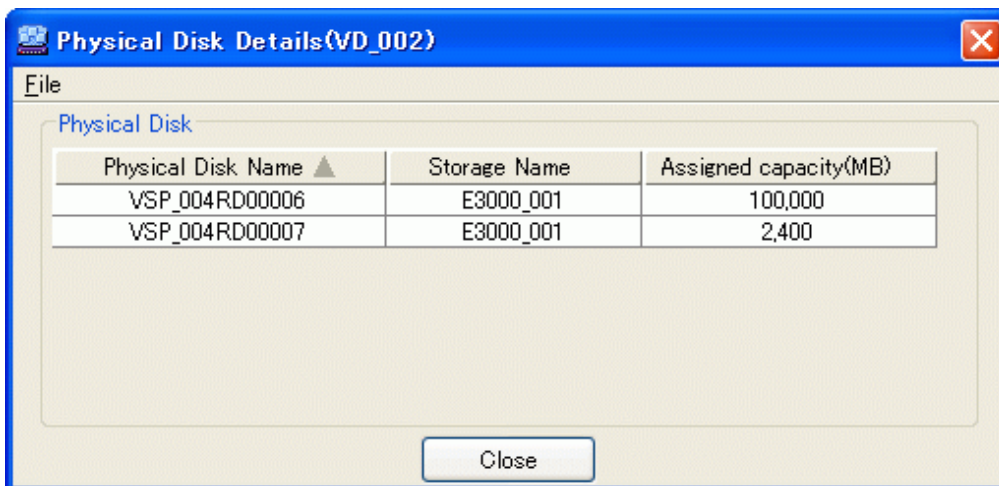


Table A.19 Display information of "Physical Disk Details" dialog

Item	Description	Remarks
Physical Disk Name	Name of the physical disk constituting a virtual disk	



Item	Description	Remarks
Storage Name	Name of the physical disk storage	
Encryption	Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the physical disk (nearline, online)	Hidden by default
Assigned capacity (MB)	Physical space capacity assigned to a virtual disk	

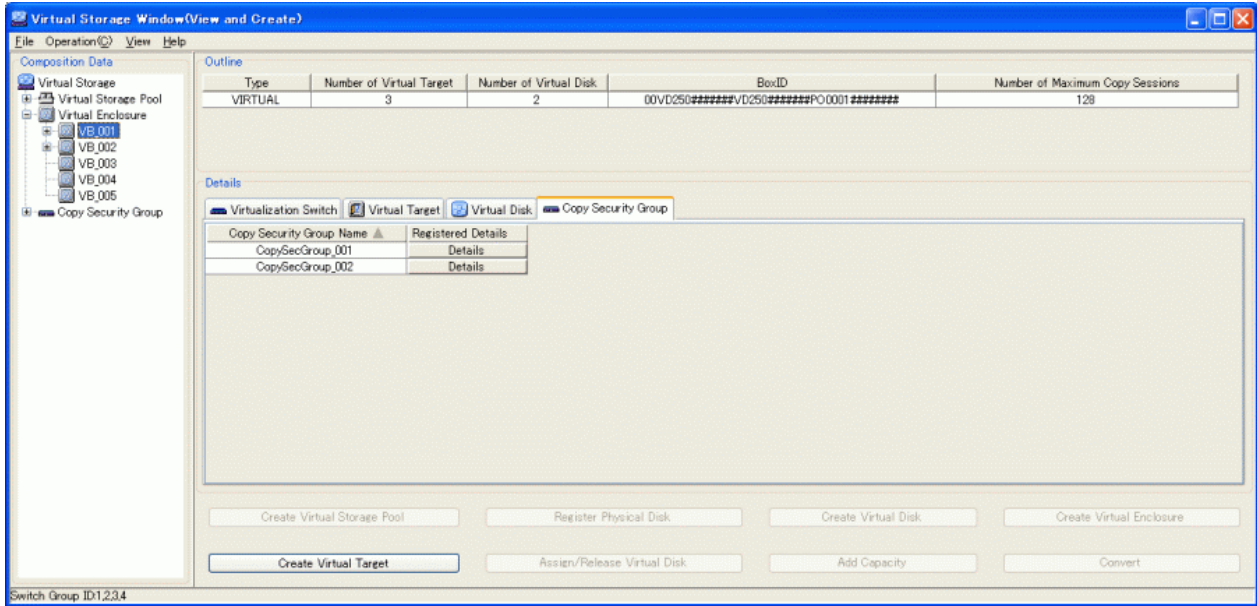


Table A.20 Information displayed in the [Details (copy security groups)] dialog box

Item	Description
Copy Security Group Name	The names of the copy security groups registered in the virtual enclosure
Registered Details	Buttons for displaying detailed information about the virtual enclosures registered with the copy security group

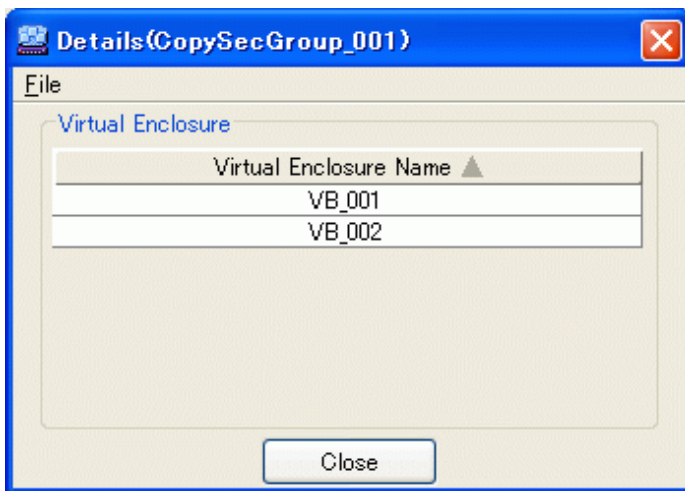


Table A.21 Information displayed in the [Details (virtual enclosures)] dialog box

Item	Description
Virtual Enclosure Name	The names of the virtual enclosures registered with the copy security group

## A.2.7 Displaying the virtual target

The following describes the window displayed when you select the virtual target name under the Virtual Enclosure in the Composition Data tree.

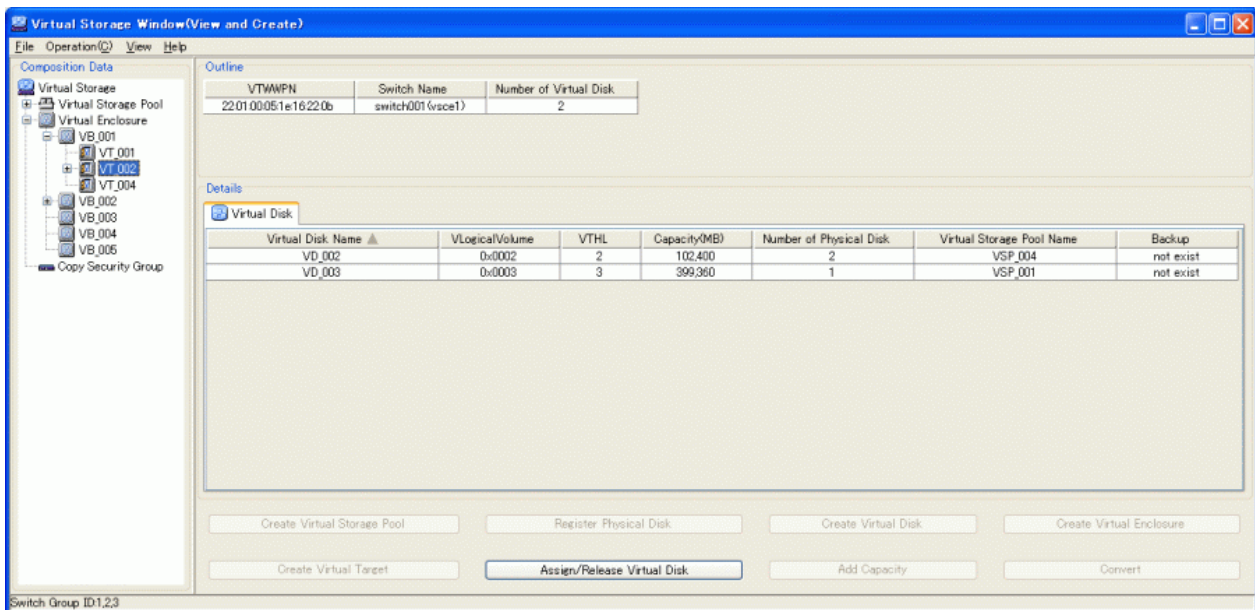


Table A.22 Display information of "Outline area (Virtual Target)"

Item	Description
VTWWPN	WWN of the virtual target
Switch Name	Name of the virtualization switch registered to the virtual target For virtualization switches other than the VS900 Model 200, the switch device name is displayed as " <i>virtualization switch name (host name)</i> ".
Number of Virtual Disk	Total number of virtual disks registered in the virtual enclosure

Table A.23 Display information of "Details area (Virtual Disk)"

Item	Description	Remarks
Virtual Disk Name	Name of the virtual disk registered to the virtual target	
VLogicalVolume	Virtual disk identifier	
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
VTHL	Host identifier for the virtual disk (HostLUN)	
Capacity (MB)	Virtual disk capacity	
Number of Physical Disk	Number of physical disks constituting the virtual disk	
Virtual Storage Pool Name	Name of the virtual storage pool in which the physical disk is registered	
Backup	Identifier that indicates whether backup is available Yes: Backup available No: Backup not available	

## A.2.8 Displaying the virtual disk

The following describes the window displayed when you select the virtual disk name under the Virtual Enclosure displayed in the Composition Data tree.

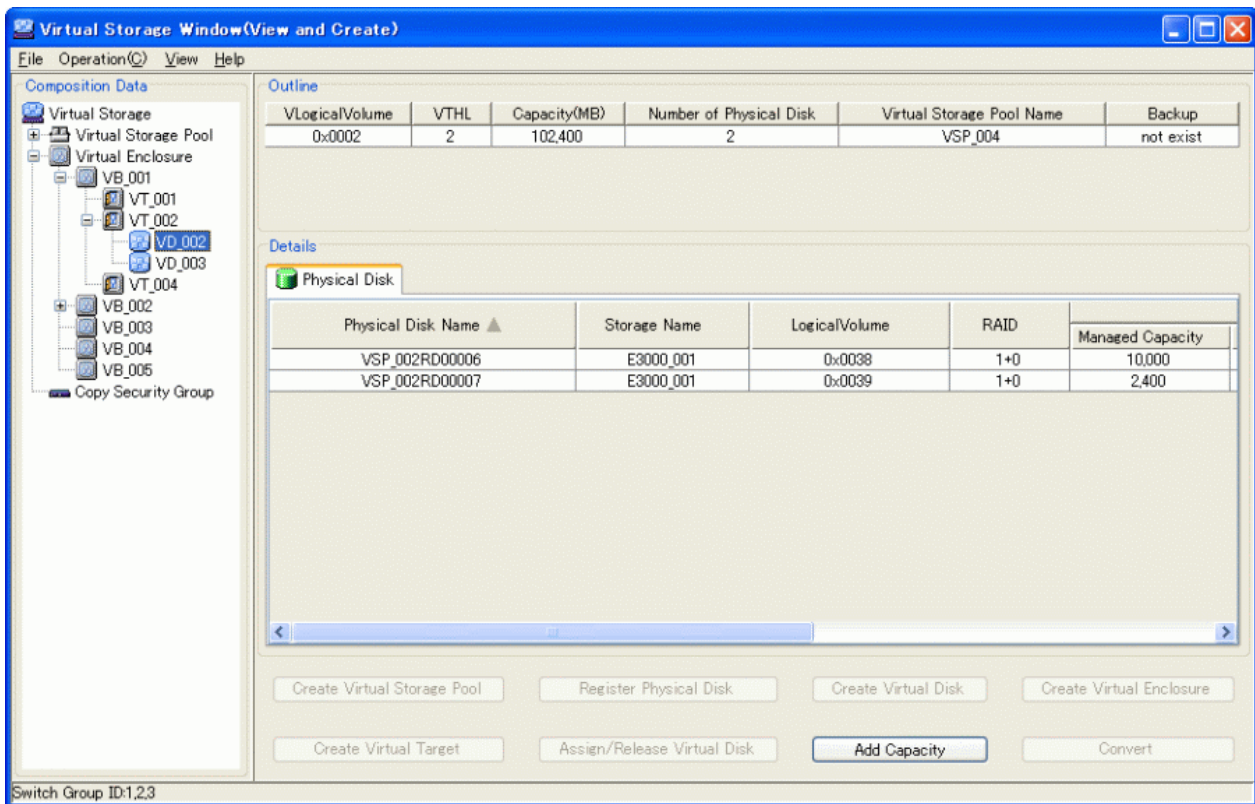


Table A.24 Display information of "Outline area (Virtual Disk)"

Item	Description	Remarks
VLogicalVolume	Virtual disk identifier	
VTHL	Host identifier for the virtual disk (HostLUN)	
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
Capacity (MB)	Virtual disk capacity Total capacity assigned to each physical disk displayed in the Details area	
Number of Physical Disk	Number of physical disks constituting the virtual disk	
Virtual Storage Pool Name	Name of the virtual storage pool in which the physical disk is registered	
Backup	Identifier that indicates whether backup is available Yes: Backup available No: Backup not available	

Table A.25 Display information of "Details area (Virtual Disk)"

Item	Description	Remarks
Physical Disk Name	Name of the physical disk constituting the virtual disk	
Storage Name	Name of the physical disk storage	
Product ID	Product ID of the storage	Hidden by default
Serial Number	Serial number of the storage	Hidden by default

Item		Description	Remarks
AffinityGroup:LUN		Affinity group number:logical unit number	Hidden by default
LogicalVolume		Storage internal number of the physical disk	
RAID		RAID level of the physical disk (1+0,1,5,6,0)	
Encryption		Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type		Disk type of the physical disk (nearline, online)	Hidden by default
Capacity (MB)	Managed Capacity	Physical disk capacity	
	Assigned	Physical space capacity assigned to the virtual disk concerned	
	Assigned (other)	Physical space capacity assigned to another virtual disk	
	No Assigned	Physical space capacity not assigned to the virtual disks	
	VS900 Management Area	Physical disk capacity of a VS900 management area	
Number of Non-assigned Extent		Total number of extents available on the physical disk	Hidden by default

## A.2.9 Displaying the copy security group(root node)

This section explains the windows that are displayed when the root Copy Security Group node is selected.

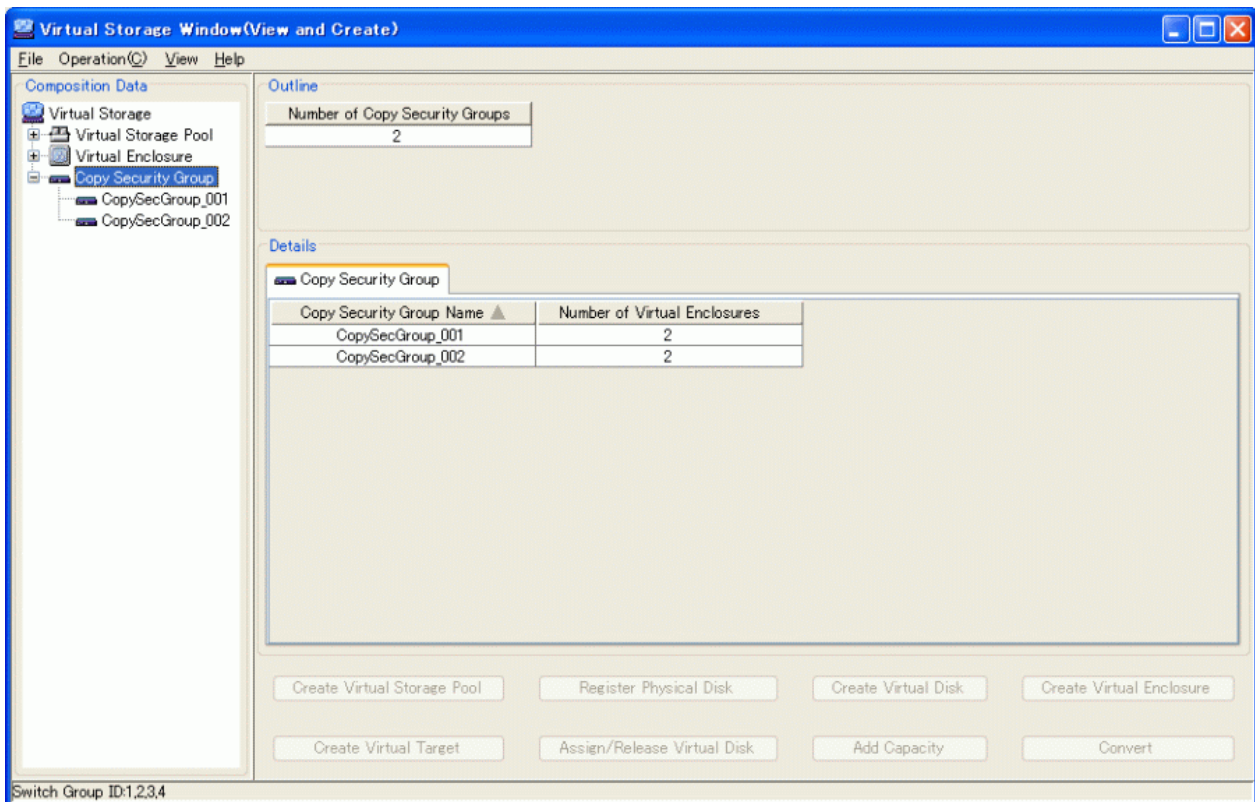


Table A.26 Information displayed in the [Outline (copy security group (root))]

Item	Description
Number of Copy Security Groups	The total number of copy security groups that have been created



Table A.27 Information displayed in the [Details (copy security group (root))]

Item	Description
Copy Security Group Name	The names of the copy security groups that have been created
Number of Virtual Enclosures	The total number of virtual enclosures that have been registered with each copy security group

## A.2.10 Displaying the copy security group

This section explains the windows that are displayed when an arbitrary copy security group is selected in the Composition Data tree.

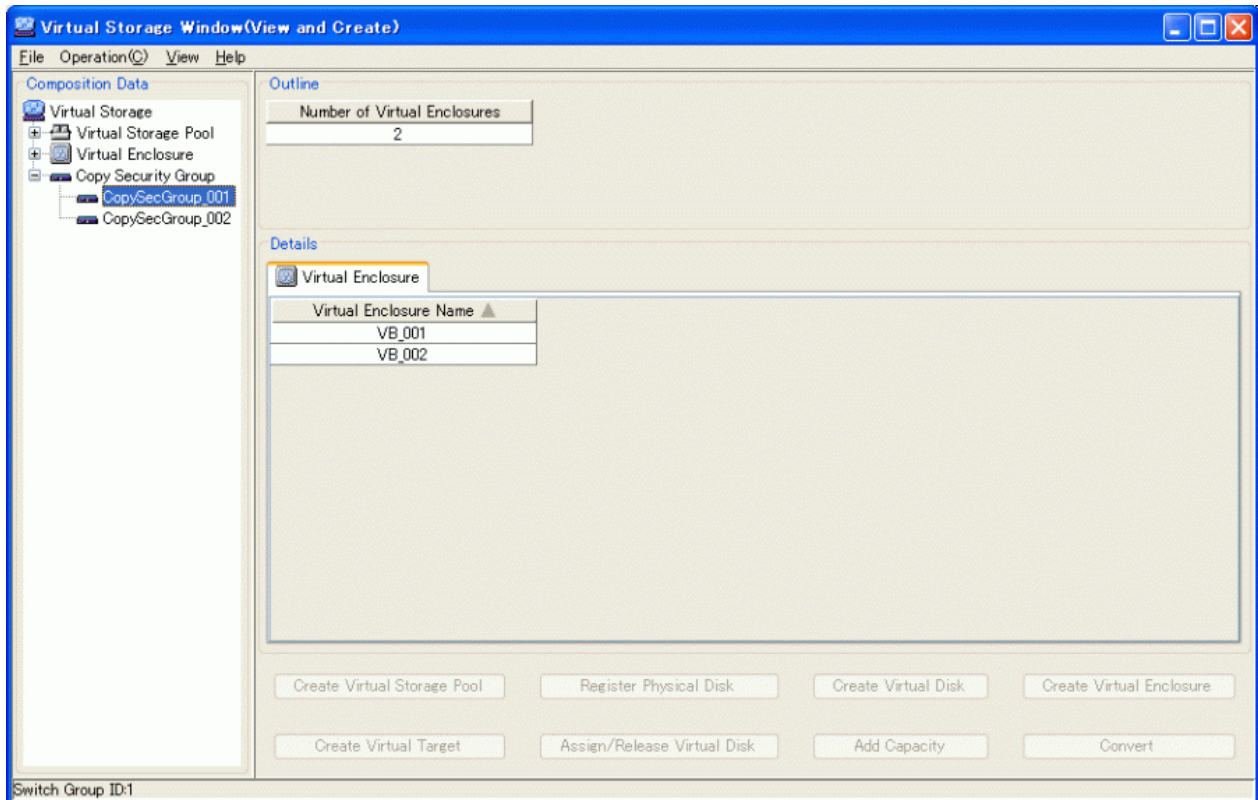


Table A.28 Information displayed in the [Outline (copy security group)]

Item	Description
Number of Virtual Enclosures	The total number of virtual enclosures that have been registered with each copy security group

Table A.29 Information displayed in the [Details (virtual enclosure)]

Item	Description
Virtual Enclosure Name	The names of the virtual enclosures registered with the copy security group

## A.3 Explanation of Windows under "Copy"

This section describes the window content and items displayed under "Copy".

### A.3.1 Displaying copy inquiry

The following describes the windows displayed for copy status inquiry.

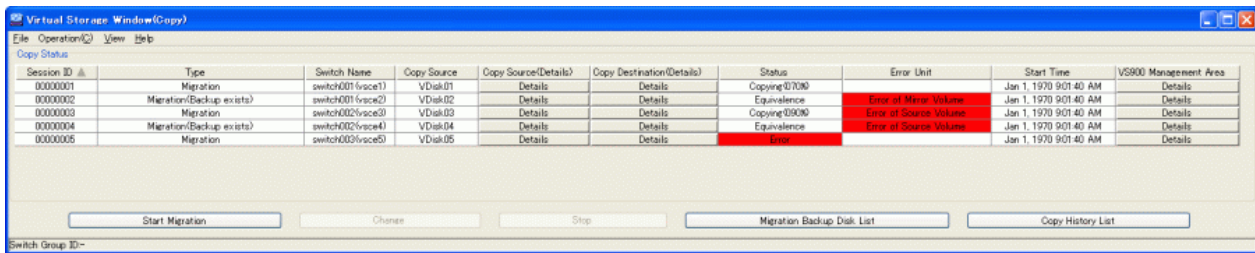


Table A.30 Display information of "Copy Status"

Item	Description	Remarks
	<p>Operation buttons for copy processing</p> <p>[Stop]: Stops copy processing.</p> <p>[Switch]: Switches the virtual disk composition to the migration destination physical disk. This button is enabled only with "Retain migration backup" selected at migration startup.</p>	
Session ID	Session ID at copy processing startup	
Type	<p>Copy processing type</p> <p>"Migration": Indicates auto-switching migration.</p> <p>"Migration (Backup exists)": Indicates migration in which the user switches the physical disks.</p> <p>"Replication": Indicates replication.</p> <p>"ACM": Indicates replication started from ETERNUS SF AdvancedCopy Manager.</p>	
Switch Name	<p>Name of the virtualization switch which is performing copy processing</p> <p>For virtualization switches other than the VS900 Model 200, the switch device name is displayed as "<i>virtualization switch name (host name)</i>".</p>	
Copy Source	Name of the virtual disk where copy processing is being performed	
Copy Source (Details)	Details button for the copy source	
Copy Destination (Details)	Details button for the copy destination	
Status	<p>Status of copy processing</p> <p>"Copying": Copying data from the copy source to the copy destination.</p> <p>"Equivalent": Maintaining equivalence of the copy source and copy destination after completing copy processing.</p> <p>"Standing by for automatic switch": Maintaining the equivalency between the copy source and the copy destination after data copying is completed. (Valid when migration is executed by specifying not to hold the migration backup disk)</p> <p>"Unusual": An error occurred during data copying.</p> <p>"Suspend": Suspending data copying.</p> <p>"Halt Copy": Suspending processing because of an error detected during data copying.</p> <p>"Error": Error occurred during copy processing.</p> <p>In cases of "Unusual", display the "Error Unit" item and check error details. Please see the Abnormal end record of "<a href="#">6.4.1.3 [Solaris OS/Linux OS]Copy log</a>" or "<a href="#">6.4.1.4 [Windows]Copy log</a>", and confirm the cause.</p>	
Error Unit	<p>Copy error location</p> <p>"Error of Source Volume": An error occurred on the copy source physical disk.</p> <p>"Error of Destination Volume ": An error occurred on the copy destination</p>	Hidden by default

Item	Description	Remarks
	physical disk. "VS900 Management Area error": An error occurred in a VS900 management area. "Unknown (other errors)": An error other than the above occurred. "Unknown (VSC Engine unupport)": An error occurred because an unsupported VSC Engine function is specified.	
VS900 Management Area	Button for displaying detailed information on the VS900 management area used for the session	Hidden by default

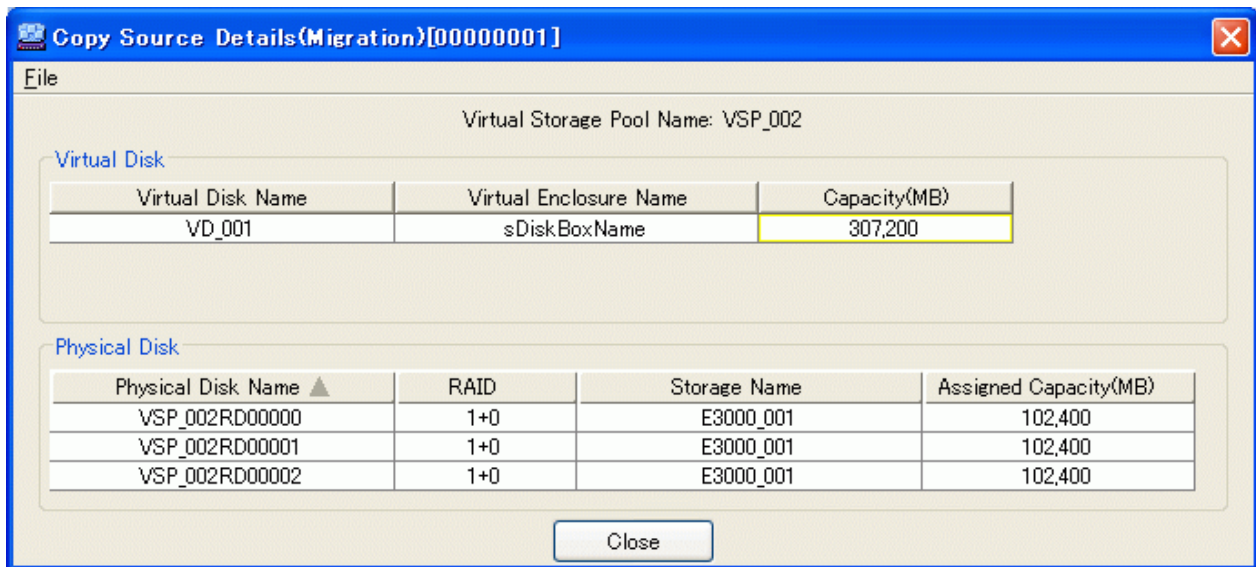


Table A.31 Display information of "Copy Source Details" dialog

Item	Description	Remarks
Virtual Storage Pool Name	Name of the virtual storage pool in which the physical disk is registered	
Virtual Disk Name	Name of the virtual disk used for copying	
Virtual Enclosure Name	Name of the virtual enclosure in which the virtual disk is registered	
Capacity (MB)	Virtual disk capacity	
Encryption	Encryption attribute of the virtual disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the virtual disk (nearline, online)	Hidden by default
Physical Disk Name	List of physical disks constituting the virtual disk	
RAID	RAID level of the physical disk (0, 1+0, 1, 5, 6)	
Storage Name	Name of the physical disk storage	
Encryption	Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the physical disk (nearline, online)	Hidden by default
Assigned Capacity (MB)	Capacity assigned from the physical disk concerned to the virtual disk	

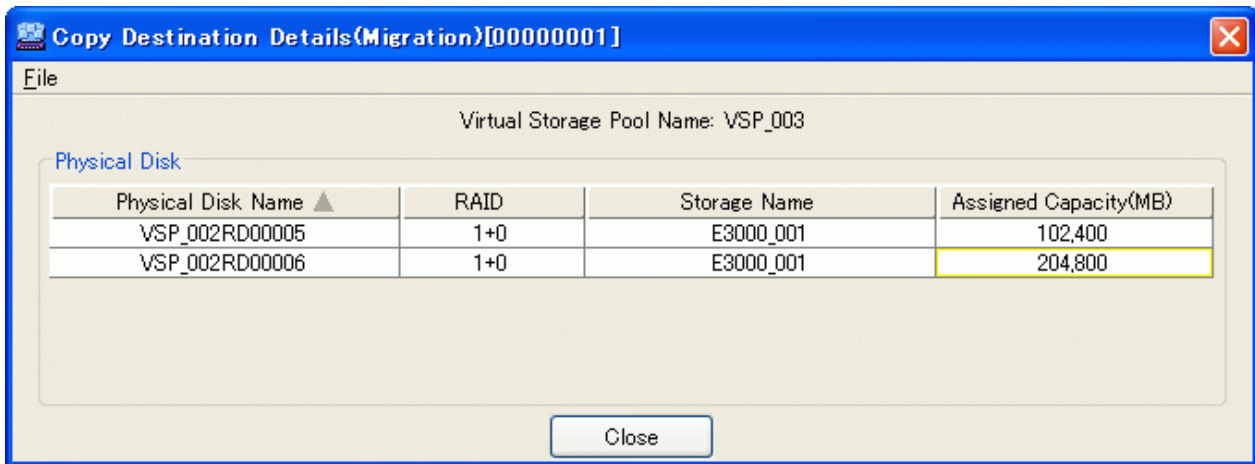


Table A.32 Display information of "Copy Destination Details" dialog

Item	Description	Remarks
Virtual Storage Pool Name	Name of the virtual storage pool in which the physical disk is registered	
Virtual Disk Name	Name of the copy destination virtual disk (displayed only for replication)	
Virtual Enclosure Name	Name of the virtual enclosure in which the copy destination virtual disk is registered (displayed only for replication)	
Capacity (MB)	Capacity of the copy destination virtual disk (displayed only for replication)	
Physical Disk Name	List of copy destination physical disks	
RAID	RAID level of the physical disk (0, 1+0, 1, 5, 6)	
Storage Name	Name of the physical disk storage	
Encryption	Encryption attribute of the physical disk (encryption, non-encryption)	Hidden by default
Disk type	Disk type of the physical disk (nearline, online)	Hidden by default
Assigned Capacity (MB)	Capacity assigned from the physical disk concerned to the virtual disk	

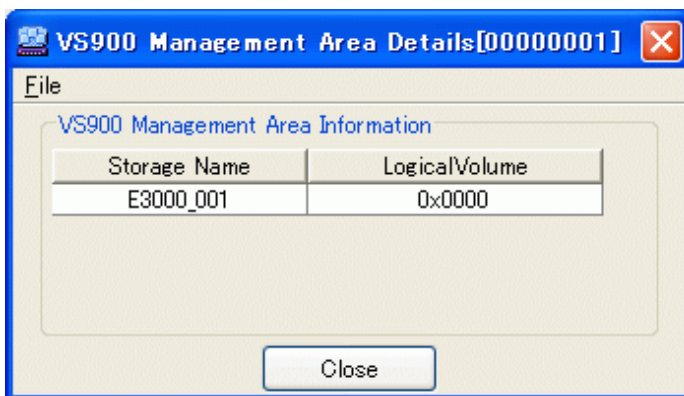


Table A.33 Display information of the "VS900 Management Area Details" dialog

Item	Description
Storage Name	Disk unit name of the physical disk containing a VS900 management area
LogicalVolume	Internal disk unit number of the physical disk containing a VS900 management area

### A.3.2 Displaying the migration backup disk list

The following describes the displayed information in the Migration Backup Disk List dialog.

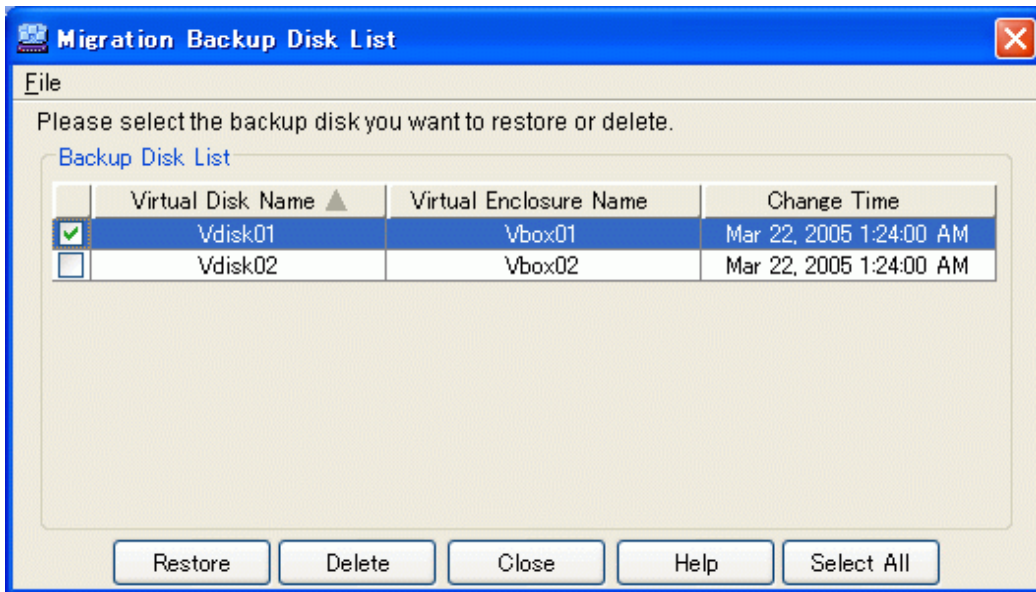


Table A.34 Display information of "Migration Backup Disk List" dialog

Item	Description
	Operation buttons for the migration backup disk list [Restore]: Restores the backup disk to where it was originally stored. [Delete]: Deletes the backup disk.
Virtual Disk Name	Name of the virtual disk used for backup
Virtual Enclosure Name	Name of the virtual enclosure in which the backup disk is registered
Change Time	Time when the virtual disk configuration is changed to the migration destination physical disk

### A.3.3 Displaying the copy history list

The following describes the displayed information in the Copy History List dialog.



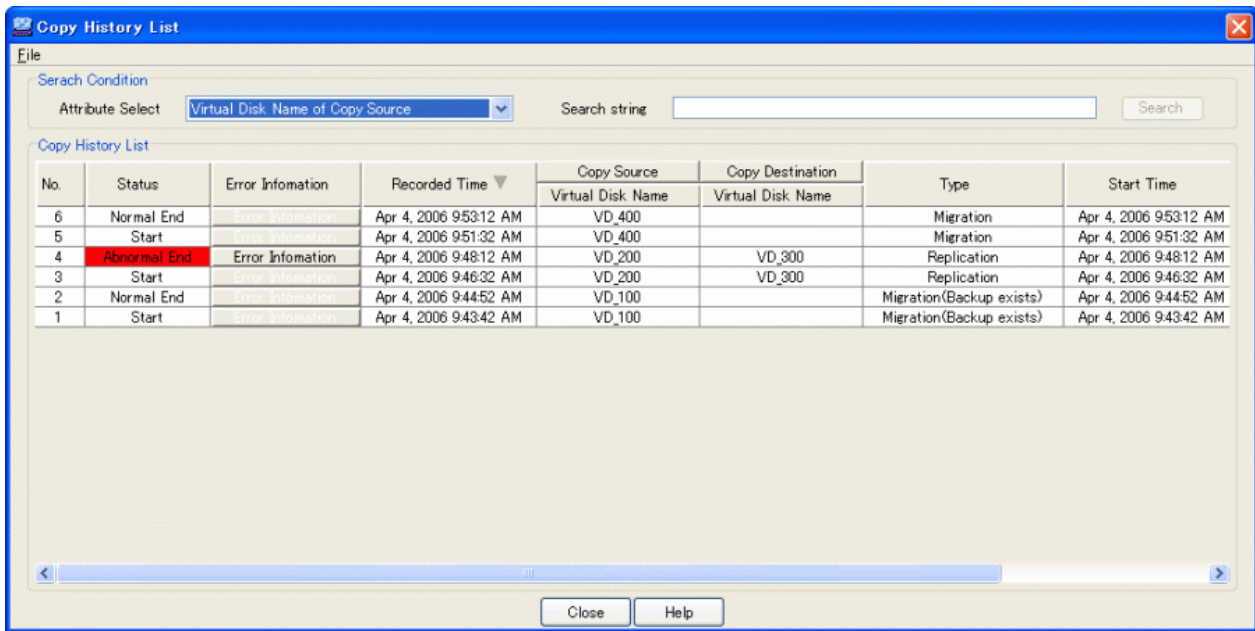


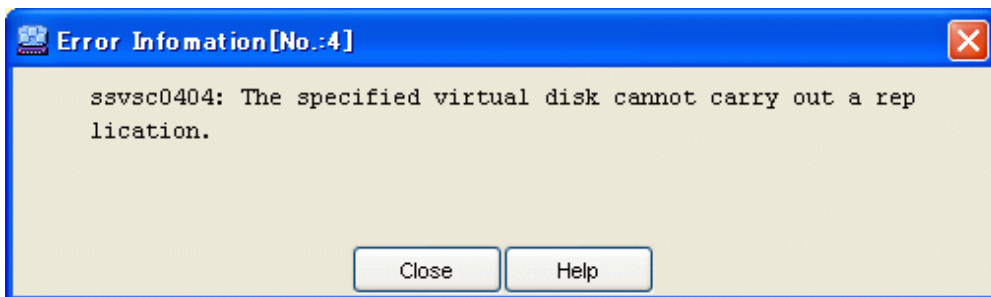
Table A.35 Display information of the "Copy History List" dialog

Item	Description	Remarks
No.	Copy history number (1 or higher)	
Status	Copy processing status "Copying": Copying data from the copy source to the copy destination. "Synchronized": Maintaining synchronization of the copy source and copy destination after completing copy processing. "Error": An error occurred during copy processing.	
Error Unit	Copy error location "Error of Mirror Volume": An error occurred on a mirror volume physical disk. "Error of Source Volume": An error occurred on the copy source physical disk. "Error of Destination Volume": An error occurred on the copy destination physical disk. "VS900 Management Area error": An error occurred in a VS900 management area. "Unknown (Other errors)": An error other than the above occurred. "Unknown (VSC Engine unsupported)": An error occurred because an unsupported VSC Engine function is specified. "Unknown": Error of unknown origin occurred.	Hidden by default
Error Information	Error information obtained at an abnormal end of copying	
Recorded Time	Logged dates and times in the copy history	
Copy Source	Virtual Disk Name	Name of the copy source virtual disk
	Virtual Enclosure Name	Name of the copy source virtual enclosure
Copy Destination	Virtual Disk Name	Name of the copy destination virtual disk
	Virtual Enclosure Name	Name of the copy destination virtual enclosure

Item		Description	Remarks
	Capacity (MB)	Copy capacity	Hidden by default
Type		Copy processing type "Migration": Indicates auto-switching migration. "Migration (Backup exists)": Indicates migration in which the user switches physical disks. "Replication": Indicates replication. "ACM": Indicates replication started from ETERNUS SF AdvancedCopy Manager.	
Switch Name		Name of the virtualization switch used to execute copy processing  For virtualization switches other than the VS900 Model 200, the switch device name is displayed as " <i>virtualization switch name (host name)</i> ".	Hidden by default
Execution Type		Type of application executing copy processing "VSC": Executed from ETERNUS SF Storage Cruiser. "other": Executed from an application other than ETERNUS SF Storage Cruiser (including ETERNUS SF AdvancedCopy Manager)	Hidden by default
Start Time		Start time of copy processing	
Session ID		Session ID at copy processing startup	

The error information dialog box is explained here.

The cause of an abnormal end of copying can be determined from the message ID displayed in the error information dialog box. For details, refer to "[Appendix E Error Messages](#)".



## A.4 Explanation of Windows under "Maintenance"

This section describes the window content and items displayed under "Maintenance".

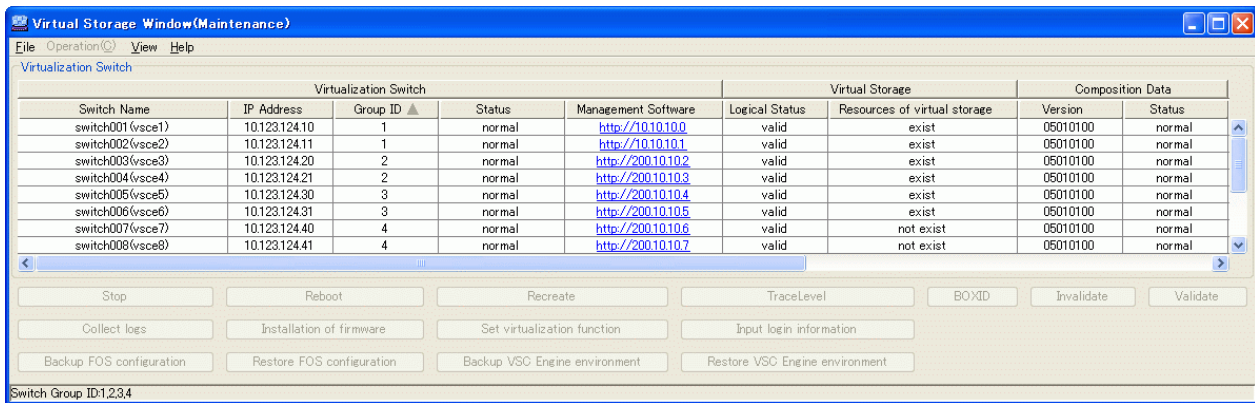


Table A.36 Display information of "Maintenance"

Item	Description	Remarks	
Virtualization Switch	Switch Name	Name of the virtualization switch  For virtualization switches other than the VS900 Model 200, the switch device name is displayed as “ <i>virtualization switch name (host name)</i> ”.	
	IP Address	IP address of Ethernet port for virtualization switch control of the virtualization switch	
	Group ID	Switch ID in redundant configuration  Indicates that redundant configuration is built with switches of the same ID.	
	Series Name	Series name of the virtualization switch	Hidden by default
	Model Name	Model name of the virtualization switch	Hidden by default
	Initiator	Details button for the initiator	Hidden by default
	Status	Operating status of VSC Engine  "Normal": VSC Engine is operating. "Stopped": VSC Engine is stopped. Otherwise, communication with the virtualization switch failed. "Error": The VSC Engine is in error.	
Management Software	Button for displaying the management software on a virtualization switch		
Virtual Storage	Logical Status	The logical status of the virtualization switch  [Enabled]: The virtualization switch is enabled [Disabled]: The virtualization switch is disabled	
	Resources of virtual storage	Indicates whether there are virtual storage resources  [Exist]: There are resources [Not exist]: There are no resources	
Composition Data	Version	Version number of composition data collected by the virtualization switch concerned	
	Status	Consistency of composition data between the virtualization switch and admin server  "normal": Consistent "unusual": Inconsistent	



Item		Description	Remarks
Firmware (VSC Engine)	Version	Program version number of VSC Engine	
	Creation Day	Build day of the VSC Engine program	
	Trace Level	Level of trace information collected in the virtualization switch	
	License Information	Displays virtualization switch license information.	
Firmware (FOS/SAS)	Version	Displays virtualization switch FOS and SAS edition number.	

### Point

The <Details> buttons for the virtualization switches displayed in the Maintenance window are hidden by default.

To display the <Details> buttons in the Maintenance window, follow the procedure described in "Items for display/non-display" in Section "A.1.2 Common operations in the window", and then display the initiator information.

## A.4.1 Displaying initiator details

The following describes the initiator details window.

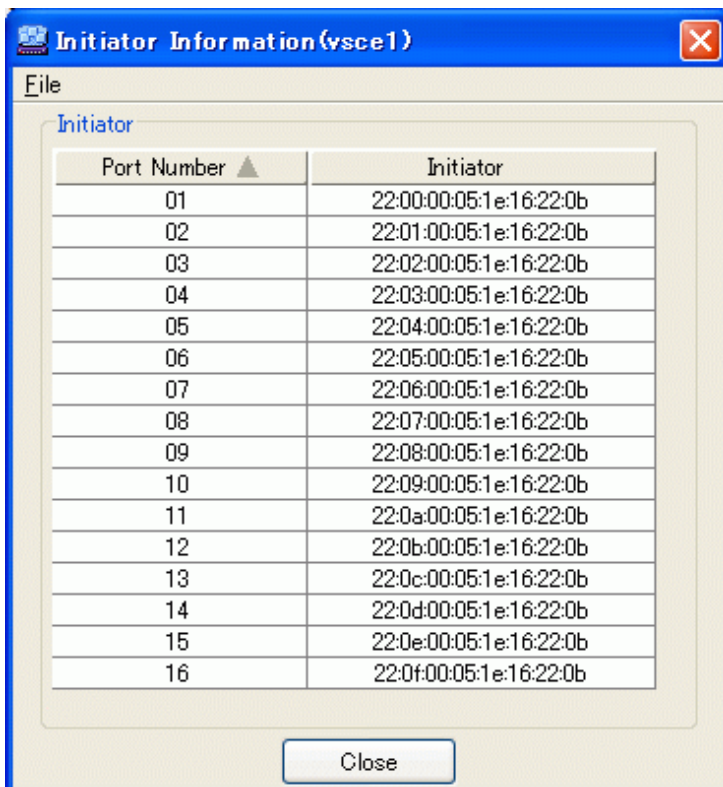


Table A.37 Display information of "Initiator Information" dialog

Item	Description
Port Number	Port number of the virtualization switch For virtualization switches other than the VS900 Model 200, the port number is displayed as "--".
Initiator	Initiator of the port number

# Appendix B Admin Server Commands

This appendix provides reference for commands used with Virtual Storage Conductor running on the admin server.

To create a large number of virtual resources, or to automate virtual resource operations, script files or batch files (that contain admin server commands) can be created.

## Description format

The command description format is as follows:

### Standard format

Indicates optional characters or optional strings. Input the data as specified.

### Italics

Indicates input characters or input strings.

The following table lists the characters that can be input.

Character type	Meaning	Number of bytes per character
Characters	Characters listed in "Table: Characters that can be input"	1
Numeric	Numeric characters from 0 to 9 of characters	1
Lowercase	Lowercase characters from a to z of characters	1
Uppercase	Uppercase characters from A to Z of characters	1
Special character	"_" (underscore)	1
Alphabetic	Uppercase and Lowercase alphabetic characters	1
Alphanumeric	Alphabetic and numeric characters	1

Uppercase and lowercase characters are distinguished.

Table B.1 Characters that can be input

High-order 4 bits	Low-order 4 bits															
	0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f
0																
1																
2																
3	0	1	2	3	4	5	6	7	8	9						
4		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z					_
6		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z					

### { a | b }

Select either a or b.

### [ a ]

You can omit a.

### Underscore

Default value

...

You can specify this repeatedly.

## Notes

### Command execution privilege

All commands must be executed by a user with root (administrator) privileges.

### Resource name

Name each resource (including the virtualization switch, virtual storage pool, physical disk, virtual enclosure, virtual target, and virtual disk) to make it identifiable to users and VSC. These names must be unique in VSC. Example the virtual storage pool and virtual enclosure must not have the same name.

## B.1 Admin Server Commands relating to Displaying and Operating Virtual Resources

---

### B.1.1 createvp Command

---

#### NAME

createvp - Creates a virtual storage pool

#### SYNOPSIS

[Solaris OS/Linux OS]

Case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd createvp -p virtual-storage-pool-name -s switch-name1,switch-name2  
/opt/FJSVssmgr/sbin/vscmcmd createvp -h
```

Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd createvp -p virtual-storage-pool-name  
-s "switch-name1(host-name1)", "switch-name2(host-name2)"  
  
/opt/FJSVssmgr/sbin/vscmcmd createvp -h
```

[Windows OS]

Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvp -p virtual-storage-pool-name  
-s switch-name1,switch-name2  
  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvp -h
```

Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvp -p virtual-storage-pool-name  
-s "switch-name1(host-name1)", "switch-name2(host-name2)"
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvp -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command creates a virtual storage pool.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool to be created.

Specify a string consisting of between 1 and 26 alphanumeric characters and underscore characters.

### **-s *switch-name* or "*switch-name(host-name)*"**

Specify the name of the virtualization switch to associate with the virtual storage pool.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify "*virtualization switch name (host name)*" enclosed in double quotation marks.

### **-h**

Indicates how to use the command.

## EXAMPLES

Creating a virtual storage pool with the name "POOL" that is associated with the virtualization switch with the name "switch001".

```
# /opt/FJSVssmgr/sbin/vscmcmd createvp -p POOL -s "switch001(vsce1)", "switch001(vsce2)"  
Command terminated normally.
```

## EXIT STATUS

0: The creation of the virtual storage pool has terminated normally.

1: The creation of the virtual storage pool has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.2 deletevp Command](#)

## B.1.2 deletevp Command

---

### NAME

deletevp - Deletes a virtual storage pool

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd deletevp -p virtual-storage-pool-name  
/opt/FJSVssmgr/sbin/vscmcmd deletevp -h
```

#### [Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevp -p virtual-storage-pool-name  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevp -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command deletes a virtual storage pool.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool to be deleted.

### **-h**

Indicates how to use the command.

## EXAMPLES

Deleting a virtual storage pool with the name "POOL".

```
# /opt/FJSVssmgr/sbin/vscmcmd deletevp -p POOL  
Command terminated normally.
```

## EXIT STATUS

0: The deletion of the virtual storage pool has terminated normally.

1: The deletion of the virtual storage pool has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.1 createvp Command](#)

## B.1.3 registlv Command

---

### NAME

registlv - Registers a physical disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd registlv -p virtual-storage-pool-name [-e physical-disk-name]  
-w wwpn1:host-lun1[,wwpn2:host-lun2[,...]]  
[-k storage-name] [-u logical-volume]
```

```
/opt/FJSVssmgr/sbin/vscmcmd registlv -h
```

#### [Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe registlv -p virtual-storage-pool-name  
[-e physical-disk-name] -w wwpn1:host-lun1[,wwpn2:host-lun2[,...]]  
[-k storage-name] [-u logical-volume]
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe registlv -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command registers a physical disk with the specified virtual storage pool.

There are the following three methods for registering physical disks with virtual storage pools:

1. Automatically generating the name of the physical disk
2. Specifying an arbitrary name for the physical disk to be registered with the virtual storage pool
3. Specifying the following information about the physical disk to be registered with the virtual storage pool: The name of the storage device that contains the physical disk, and an arbitrary logical volume number for the physical disk

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool where the physical disk is to be registered.

### **-e *physical-disk-name***

Specify the name of the physical disk to be registered with the virtual storage pool.

Specify a string consisting of between 1 and 32 alphanumeric characters and underscore characters.

If the -e option is omitted, a name for the physical disk is defined automatically.

The names of physical disks must obey the following rule:

*Virtual storage pool name* + R + *five digit number* (Example: Pool001R00001)

### **-w *wwpn1:host-lun1[,wwpn2:host-lun2,...]***

Specify the WWPNs and LUNs for the CA ports on the physical disk.

Specify the LUNs using decimal notation.

### **-k *storage-name***

Specify the name of the storage device that contains the physical disk.

Specify this option only to register a storage unit excluding Fujitsu's storage unit.

If the -k option is specified, be sure to specify the -u option as well.

### **-u *logical-volume***

Specify the logical volume number for the physical disk to be registered.

Specify the logical volume number using hexadecimal notation.

Specify this option only to register a storage unit excluding Fujitsu's storage unit.

If the -u option is specified, be sure to specify the -k option as well.

**-h**

Indicates how to use the command.

## EXAMPLES

Automatically generating the name of the physical disk to be registered with the virtual storage pool “POOL”

The route information for the physical disk in this example is as follows: LUN “1” for WWPN “210000e000a80382” and LUN “1” for WWPN “210000e000a80383”.

```
# /opt/FJSVssmgr/sbin/vscmcmd registlv -p POOL -w 210000e000a80382:1,210000e000a80383:1
PhysicalDiskName POOLR00001
Command terminated normally.
```

Specifying an arbitrary name (“RDISK001”) for the physical disk to be registered with the virtual storage pool “POOL”

The route information for the physical disk in this example is as follows: LUN “1” for WWPN “210000e000a80382” and LUN “1” for WWPN “210000e000a80383”.

```
# /opt/FJSVssmgr/sbin/vscmcmd registlv -p POOL -e RDISK001 -w 210000e000a80382:1,210000e000a80383:1
PhysicalDiskName RDISK001
Command terminated normally.
```

Specifying the following information about the physical disk to be registered with the virtual storage pool: the name of the physical disk (RDISK1), the name of the storage device that contains the physical disk (Storage001), and an arbitrary logical volume number (0x001a) for the physical disk

The route information for the physical disk in this example is as follows: LUN “1” for WWPN “210000e000a80382” and LUN “1” for WWPN “210000e000a80383”

```
# /opt/FJSVssmgr/sbin/vscmcmd registlv -p POOL -e RDISK001 -w 210000e000a80382:1,210000e000a80383:1
-k Storage001 -u 1a
PhysicalDiskName RDISK001
Command terminated normally.
```

## EXIT STATUS

0: The registration of the physical disk has terminated normally.

1: The registration of the physical disk has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.4 releaselv Command](#)

## B.1.4 releaselv Command

---

### NAME

releaselv - Releases a physical disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd releaselv -p virtual-storage-pool-name -e physical-disk-name
/opt/FJSVssmgr/sbin/vscmcmd releaselv -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe releaselv -p virtual-storage-pool-name  
-e physical-disk-name
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe releaselv -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command releases a physical disk from a virtual storage pool.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool where the physical disk is registered.

**-e *physical-disk-name***

Specify the name of the physical disk to be released from the virtual storage pool.

**-h**

Indicates how to use the command.

## EXAMPLES

Releasing physical disk "POOL001R00001" which is registered with the virtual storage pool "POOL"

```
# /opt/FJSVssmgr/sbin/vscmcmd releaselv -p POOL -e POOL001R00001  
Command terminated normally.
```

## EXIT STATUS

0: The release of the physical disk has terminated normally.

1: The release of the physical disk has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.3 registlv Command](#)

## B.1.5 createvb Command

---

### NAME

createvb - Creates a virtual enclosure

### SYNOPSIS

[Solaris OS/Linux OS]

Case of VS900 Model 200



```
/opt/FJSVssmgr/sbin/vscmcmd createvb -x virtual-box-name -s switch-name1,switch-name2[,...] [-b virtual-box-id]
/opt/FJSVssmgr/sbin/vscmcmd createvb -h
```

#### Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd createvb -x virtual-box-name
-s "switch-name1(host-name1)", "switch-name2(host-name2)"[,...] [-b virtual-box-id]
/opt/FJSVssmgr/sbin/vscmcmd createvb -h
```

#### [Windows OS]

#### Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvb -x virtual-box-name
-s switch-name1,switch-name2[,...] [-b virtual-box-id]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvb -h
```

#### Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvb -x virtual-box-name
-s "switch-name1(host-name1)", "switch-name2(host-name2)"[,...] [-b virtual-box-id]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvb -h
($INS_DIR means "Program Directory" specified at the Manager installation.)
```

## DESCRIPTION

This command creates a virtual enclosure.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-x virtual-box-name**

Specify the name of the virtual enclosure to be created.

Specify a string consisting of between 1 and 32 alphanumeric characters and underscore characters.

### **-s switch-name or "switch-name(host-name)"**

Specify the name of the virtualization switch that will be associated with the virtual enclosure.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify “*virtualization switch name (host name)*” enclosed in double quotation marks.

### **-b virtual box-id**

Specify the BoxID for the virtual enclosure to be created.

Specify an arbitrary string that is 40 characters long and consists of alphanumeric characters and hash (#) characters.

### **-h**

Indicates how to use the command.

## EXAMPLES

Creating a virtual enclosure called “VBOX” that is associated with the virtualization switch called “switch001”

In this example, the BoxID is “00VS900#####VS900#####BB0002#####”.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvb -x VBOX -s "switch001(vsce1)","switch001(vsce2)"
-b 00VS900#####VS900#####BB0002#####
Command terminated normally.
```

## EXIT STATUS

- 0: The creation of the virtual enclosure has terminated normally.
- 1: The creation of the virtual enclosure has terminated abnormally.

## SEE ALSO

[B.1.16 getvb Command](#), [B.1.6 deletevb Command](#)

## B.1.6 deletevb Command

---

### NAME

deletevb - Deletes a virtual enclosure

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd deletevb -x virtual-box-name
/opt/FJSVssmgr/sbin/vscmcmd deletevb -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevb -x virtual-box-name
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevb -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command deletes a virtual enclosure.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

### OPTIONS

**-x *virtual-box-name***

Specify the name of the virtual enclosure to be deleted.

**-h**

Indicates how to use the command.

## EXAMPLES

Deleting a virtual enclosure called "VBOX".

```
# /opt/FJSVssmgr/sbin/vscmcmd deletevb -x VBOX
Command terminated normally.
```

## EXIT STATUS

0: The deletion of the virtual enclosure has terminated normally.

1: The deletion of the virtual enclosure has terminated abnormally.

## SEE ALSO

[B.1.16 getvb Command](#), [B.1.5 createvb Command](#)

## B.1.7 createvt Command

---

### NAME

createvt - Creates a virtual target

### SYNOPSIS

[Solaris OS/Linux OS]

**Case of VS900 Model 200**

```
/opt/FJSVssmgr/sbin/vscmcmd createvt -t virtual-target-name -x virtual-box-name -s switch-name
/opt/FJSVssmgr/sbin/vscmcmd createvt -h
```

**Other case of VS900 Model 200**

```
/opt/FJSVssmgr/sbin/vscmcmd createvt -t virtual-target-name -x virtual-box-name -s "switch-name(host-
name)"
/opt/FJSVssmgr/sbin/vscmcmd createvt -h
```

[Windows OS]

**Case of VS900 Model 200**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvt -t virtual-target-name -x virtual-box-name
-s switch-name
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvt -h
```

**Other case of VS900 Model 200**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvt -t virtual-target-name -x virtual-box-name
-s "switch-name(host-name)"
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvt -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command creates a virtual target.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-t *virtual-target-name***

Specify the name of the virtual target to be created.

Specify a string consisting of between 1 and 32 alphanumeric characters and underscore characters.

### **-x *virtual-box-name***

Specify the name of the virtual enclosure where the virtual target is to be created.

### **-s *switch-name* or "*switch-name(host-name)*"**

Specify the name of the virtualization switch that will be associated with the virtual target.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify “*virtualization switch name (host name)*” enclosed in double quotation marks.

### **-h**

Indicates how to use the command.

## EXAMPLES

Creating a virtual target called “VT” that is associated with the virtualization switch “switch001” on the virtual enclosure “VBOX”.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvt -t VT -x VBOX -s "switch001(vsce1)"  
Command terminated normally.
```

## EXIT STATUS

0: The creation of the virtual target has terminated normally.

1: The creation of the virtual target has terminated abnormally.

## SEE ALSO

[B.1.17 getvt Command](#), [B.1.8 deletevt Command](#)

## B.1.8 deletevt Command

---

### NAME

deletevt - Deletes a virtual target

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd deletevt -t virtual-target-name
```

```
/opt/FJSVssmgr/sbin/vscmcmd deletevt -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevt -t virtual-target-name  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevt -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command deletes a virtual target.

For the VS900 Model 200, specify the virtualization switch name. Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-t *virtual-target-name***

Specify the name of the virtual target to be deleted.

**-h**

Indicates how to use the command.

## EXAMPLES

Deleting a virtual target called "VT".

```
# /opt/FJSVssmgr/sbin/vscmcmd deletevt -t VT  
Command terminated normally.
```

## EXIT STATUS

0: The deletion of the virtual target has terminated normally.

1: The deletion of the virtual target has terminated abnormally.

## SEE ALSO

[B.1.17 getvt Command](#), [B.1.7 createvt Command](#)

## B.1.9 createvd Command

---

### NAME

createvd - Creating a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

To create a virtual disk and allocate it to a virtual target

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name  
-z size{M|G|T}
```

```
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

**or**

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name
-e physical-disk-name1[,physical-disk-name2[,...]]
[-z size1{M|G|T}[,size2{M|G|T}[,...]]]
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

**or without initializing VTOC area**

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name
-e physical-disk-name
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
-m noclear
```

**To create a virtual disk without allocating it to a virtual target**

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name
-z size{M|G|T}
```

**or**

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name
-e physical-disk-name1[,physical-disk-name2[,...]]
[-z size1{M|G|T}[,size2{M|G|T}[,...]]]
```

**or without initializing VTOC area**

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -v virtual-disk-name -p virtual-storage-pool-name
-e physical-disk-name
-m noclear
```

```
/opt/FJSVssmgr/sbin/vscmcmd createvd -h
```

**[Windows OS]**

**To create a virtual disk and allocate it to a virtual target**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
-z size{M|G|T}
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

**or**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
-e physical-disk-name1[,physical-disk-name2[,...]]
[-z size1{M|G|T}[,size2{M|G|T}[,...]]]
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

**or without initializing VTOC area**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
```

```
-e physical-disk-name
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
-m noclear
```

#### To create a virtual disk without allocating it to a virtual target

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
-z size{M/G/T}
```

or

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
-e physical-disk-name1[,physical-disk-name2[,...]]
[-z size1{M/G/T}[,size2{M/G/T}[,...]]
```

#### or without initializing VTOC area

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -v virtual-disk-name
-p virtual-storage-pool-name
-e physical-disk-name
-m noclear
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe createvd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation).

## DESCRIPTION

This command creates a virtual disk. When virtual disks are created, they can also be allocated to virtual targets.

There are the following four methods for creating virtual disks:

1. Creating a virtual disk with a specified capacity by automatically selecting the physical disks that will make up the virtual disk from the specified virtual storage pool.  
(Specify the -v, -p and -z options)
2. Creating a virtual disk with a specified capacity by automatically selecting the physical disks that will make up the virtual disk from the specified virtual storage pool, and allocating the virtual disk that has been created to a specified virtual target.  
(Specify the -v, -p, -z, -t and -l options)
3. Creating a virtual disk by specifying the physical disks that will make up the virtual disk.  
(Specify the -v, -p, -e and -z options)
4. Creating a virtual disk by specifying the physical disks that will make up the virtual disk, and allocating the virtual disk that has been created to a specified virtual target.  
(Specify the -v, -p, -e, -z, -t and -l options)

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk to be created.

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool where the physical disk is registered.

**-e *physical-disk-name1[,physical-disk-name2[,...]]***

Specify the names of the physical disks that will make up the virtual disk.

**-z *size1{M/G/T}{,size2{ M/G/T}{,...}}***

If the -e option has been specified, specify the capacity and units of the physical disks that will make up the virtual disk.

If the -e option has not been specified, specify the capacity and units of the virtual disk. The physical disks is selected automatically.

For physical disks with more free space than the specified size, all of the free space on the physical disk is allocated to the virtual disk.

**-t *virtual-target-name1[,virtual-target-name[,...]]***

Specify the name of the virtual target to which the virtual disk will be allocated.

**-l *virtual-host-lun***

Specify the virtual host LUN for the virtual disk to be allocated to the virtual target, using decimal notation.

This option is valid only when the -t option is also specified.

**-m *noclear***

If this option is specified, the VTOC area will not be initialized when the virtual disk is created.

Specify this option to show data for the virtual disk as well, by specifying a physical disk where data already exists.

**-h**

Indicates how to use the command.

## EXAMPLES

Creating a virtual disk (VDISK001) with a specified capacity (1024 MB) by automatically selecting the physical disks that will make up the virtual disk from the specified virtual storage pool (POOL001).

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -z 1024M
Command terminated normally.
```

Creating a virtual disk (VDISK001) with a specified capacity (1024 MB) by automatically selecting the physical disks that will make up the virtual disk from the specified virtual storage pool (POOL001), and then allocating the virtual disk that has been created to the specified virtual target (VT001). In this example, "1" is specified for the virtual host LUN.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -z 1024M -t VT001 -l 1
Command terminated normally.
```

Creating a virtual disk (VDISK001) with a specified capacity (1024 MB) by automatically selecting the physical disks that will make up the virtual disk from the specified virtual storage pool (POOL001), and then allocating the virtual disk that has been created to two virtual targets (VT001 and VT002). In this example, "1" is specified for the virtual host LUN.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -z 1024M -t VT001,VT002 -l 1
Command terminated normally.
```

Creating a virtual disk (VDISK001) by freely specifying the physical disk (RDISK001) that will make up the virtual disk and the capacity (1024 MB) of the virtual disk.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -e RDISK001 -z 1024M
Command terminated normally.
```

Creating a virtual disk (VDISK001) by freely specifying two physical disks that will make up the virtual disk

In this example, the capacity of RDISK001 is specified as 512 MB and the capacity of RDISK002 is specified as 1024 MB.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -e RDISK001,RDISK002 -z 512M,1024M
Command terminated normally.
```

Creating a virtual disk (VDISK001) by freely specifying two physical disks that will make up the virtual disk

In this example, the capacity of RDISK001 is specified as 512 MB and the capacity of RDISK002 is specified as 1024 MB.



The virtual disk that has been created is allocated to two virtual targets (VT001 and VT002). “1” is specified for the virtual host LUN.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -e RDISK001,RDISK002 -z 512M,1024M -t
VT001,VT002 -l 1
Command terminated normally.
```

Creating a virtual disk (VDISK001) by specifying the physical disk (RDISK001) that will make up the virtual disk. In this example, the VTOC area is not initialized.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -e RDISK001 -m noclear
Command terminated normally.
```

Creating a virtual disk (VDISK001) by specifying the physical disk (RDISK001) that will make up the virtual disk.

The virtual disk that has been created is allocated to two virtual targets (VT001 and VT002). “1” is specified for the virtual host LUN.

In this example, the VTOC area is not initialized.

```
# /opt/FJSVssmgr/sbin/vscmcmd createvd -v VDISK001 -p POOL001 -e RDISK001 -t VT001,VT002 -l 1 -m
noclear
Command terminated normally.
```

## EXIT STATUS

- 0: The creation of the virtual disk has terminated normally.
- 1: The creation of the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.18 getvd Command](#), [B.1.10 deletevd Command](#)

## B.1.10 deletevd Command

---

### NAME

deletevd - Deletes a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd deletevd -v virtual-disk-name
/opt/FJSVssmgr/sbin/vscmcmd deletevd -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevd -v virtual-disk-name
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe deletevd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command deletes a virtual disk.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk to be deleted.

### **-h**

Indicates how to use the command.

## EXAMPLES

Deleting a virtual disk called "VDISK".

```
# /opt/FJSVssmgr/sbin/vscmcmd deletevd -v VDISK
Command terminated normally.
```

## EXIT STATUS

0: The deletion of the virtual disk has terminated normally.

1: The deletion of the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.18 getvd Command](#), [B.1.9 createvd Command](#)

## B.1.11 assignvd Command

---

### NAME

assignvd - Allocates a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd assignvd -v virtual-disk-name
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

```
/opt/FJSVssmgr/sbin/vscmcmd assignvd -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe assignvd -v virtual-disk-name
-t virtual-target-name1[,virtual-target-name2[,...]]
-l virtual-host-lun
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe assignvd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command allocates a virtual disk to a virtual target.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk to be allocated to the virtual target.

### **-t *virtual-target-name[,virtual-target-name2[,...]]***

Specify the name of the virtual target to which the virtual disk will be allocated.

### **-l *virtual-host-lun***

Specify the virtual host LUN for the virtual disk to be allocated to the virtual target, using decimal notation.

### **-h**

Indicates how to use the command.

## EXAMPLES

Allocating a virtual disk (VDISK) to a virtual target (VT). In this example, the virtual host LUN is “2”.

```
# /opt/FJSVssmgr/sbin/vscmcmd assignvd -v VDISK -t VT -l 2
Command terminated normally.
```

Allocating a virtual disk (VDISK) to two virtual targets (VT001 and VT002). In this example, the virtual host LUN is “2”.

```
# /opt/FJSVssmgr/sbin/vscmcmd assignvd -v VDISK -t VT001,VT002 -l 2
Command terminated normally.
```

## EXIT STATUS

0: The allocation of the virtual disk has terminated normally.

1: The allocation of the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.18 getvd Command](#), [B.1.16 getvb Command](#), [B.1.17 getvt Command](#), [B.1.12 releasevd Command](#)

## B.1.12 releasevd Command

---

### NAME

releasevd - Releases the allocation of a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd releasevd -v virtual-disk-name
/opt/FJSVssmgr/sbin/vscmcmd releasevd -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe releasevd -v virtual-disk-name  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe releasevd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command releases a virtual disk from a virtual target.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-v *virtual-disk-name***

Specify the name of the virtual disk to be released from the virtual target.

**-h**

Indicates how to use the command.

## EXAMPLES

Releasing the virtual disk "VDISK" from the virtual target "VT".

```
# /opt/FJSVssmgr/sbin/vscmcmd releasevd -v VDISK  
Command terminated normally.
```

## EXIT STATUS

0: The release of the virtual disk has terminated normally.

1: The release of the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.18 getvd Command](#), [B.1.16 getvb Command](#), [B.1.17 getvt Command](#), [B.1.11 assignvd Command](#)

## B.1.13 addvdcapacity Command

---

### NAME

addvdcapacity - Adds capacity to a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v virtual-disk-name -z size{G|M|T}  
/opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v virtual-disk-name  
-e physical-disk-name1[,physical-disk-name2[,...]]  
[-z [size1{M|G|T}[,size2{M|G|T}[,...]]]  
  
/opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -h
```

## [Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe addvdcapacity -v virtual-disk-name -z size{G|M|T}  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe addvdcapacity -v virtual-disk-name  
-e physical-disk-name1[,physical-disk-name2[,...]]  
[-z [size1{M|G|T}][,size2{M|G|T}][,...]]
```

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe addvdcapacity -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command adds capacity to a virtual disk.

There are the following three methods for adding capacity to virtual disks:

1. Specifying the amount of capacity to be added.
2. Specifying the physical disk where capacity is to be added and the capacity of the physical disk.
3. Specifying the physical disk where capacity is to be added, and the total free space on the physical disk.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk where capacity is to be added.

### **-e *physical-disk-name1[,physical-disk-name2[,...]]***

Specify the name of the physical disk where capacity is to be added.

### **-z *size{M|G|T}***

Specify the size of the extra capacity to be added, including the units ("M" for megabytes, "G" for gigabytes and "T" for terabytes).

### **-h**

Indicates how to use the command.

## EXAMPLES

Adding 1024 MB of extra capacity to virtual disk "VDISK".

```
# /opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v VDISK -z 1024M  
Command terminated normally.
```

Adding 512 MB of extra capacity from physical disk "RDISK" to virtual disk "VDISK".

```
# /opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v VDISK -e RDISK -z 512M  
Command terminated normally.
```

Adding 256 MB of extra capacity from physical disk "RDISK001" and 512 MB of extra capacity from physical disk "RDISK002" to virtual disk "VDISK".

```
# /opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v VDISK -e RDISK001,RDISK002 -z 256M,512MB  
Command terminated normally.
```

Adding all of the free space on physical disk "RDISK001" and physical disk "RDISK002" to virtual disk "VDISK".

```
# /opt/FJSVssmgr/sbin/vscmcmd addvdcapacity -v VDISK -e RDISK001,RDISK002  
Command terminated normally.
```

## EXIT STATUS

- 0: The addition of extra capacity to the virtual disk has terminated normally.
- 1: The addition of extra capacity to the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.17 getvt Command](#)

## B.1.14 modifyvd Command

---

### NAME

modifyvd - Changes the allocation of a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd modifyvd -v virtual-disk-name  
-t virtual-target-name1[,virtual-target-name2[,...]]  
-l virtual-host-lun
```

```
/opt/FJSVssmgr/sbin/vscmcmd modifyvd -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe -v virtual-disk-name  
-t virtual-target-name1[,virtual-target-name2[,...]]  
-l virtual-host-lun  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe modifyvd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command changes the allocation of virtual disks.

This command can be used to change the virtual target to which the virtual disk is allocated, or to allocate the virtual disk to additional virtual targets, or to change the virtual host LUN.

Allocations cannot be changed for virtual disks that have not been allocated to virtual targets.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

### OPTIONS

**-v *virtual-disk-name***

Specify the name of the virtual disk to be allocated to the virtual target.

**-t *virtual-target-name1[,virtual-target-name2[,...]]***

Specify the name of the virtual target to which the virtual disk will be allocated.

**-l *virtual-host-lun***

Specify the virtual host LUN for the virtual disk to be allocated to the virtual target, using decimal notation.

**-h**

Indicates how to use the command.

## EXAMPLES

Allocating a virtual disk (VDISK) that has been allocated to virtual target “VT001” to a different virtual target (VT002). In this example, the virtual host LUN is 2.

```
# /opt/FJSVssmgr/sbin/vscmcmd modifyvd -v VDISK -t VT002 -l 2
Command terminated normally.
```

## EXIT STATUS

0: Changing the allocation for the virtual disk has terminated normally.

1: Changing the allocation for the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.17 getvt Command](#)

## B.1.15 getvp Command

---

### NAME

getvp - Displays information about a virtual storage pool

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getvp [-a [-d]]
/opt/FJSVssmgr/sbin/vscmcmd getvp -p virtual-storage-pool-name -m {real | virtual} [-a [-d]]
/opt/FJSVssmgr/sbin/vscmcmd getvp -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvp [-a [-d]]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvp -p virtual-storage-pool-name -m {real | virtual} [-a [-d]]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvp -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command displays information about virtual storage pools.

Information can be displayed in three ways, as follows.

1. Displaying a list of virtual storage pools.
2. Displaying information about the physical disks that have been registered with a specified virtual storage pool.
3. Displaying information about the virtual disks that have not been allocated to the virtual targets in the specified virtual storage pool.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool.

### **-m {*real* | *virtual*}**

*real*: This option displays information about the physical disks that have been registered with the specified virtual storage pool.

*virtual*: This option displays information about the virtual disks that have not been allocated to the virtual targets in the specified virtual storage pool.

### **-a**

This option displays detailed information.

### **-d**

This option displays information in CSV format.

If this option is specified, the -a option must be specified.

### **-h**

Indicates how to use the command.

## EXAMPLES

Displaying a list of virtual storage pools.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp
VirtualStoragePoolName SwitchName
POOL001                switch001(vsce1),switch001(vsce2)
POOL002                switch002(vsce3),switch002(vsce4)
POOL003                switch003(vsce5),switch003(vsce6)
Command terminated normally.
```

Displaying a list of virtual storage pools, with detailed information about each virtual storage pool.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -a
VirtualStoragePoolName Type      SwitchName
POOL001                virtual switch001(vsce1),switch001(vsce2)
POOL002                virtual switch002(vsce3),switch002(vsce4)
POOL003                virtual switch003(vsce5),switch003(vsce6)
Command terminated normally.
```

Displaying a detailed list of virtual storage pools in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -a -d
"VirtualStoragePoolName","Type","SwitchName"
"POOL001","virtual","switch001(vsce1),switch001(vsce2)"
"POOL002","virtual","switch002(vsce3),switch002(vsce4)"
"POOL003","virtual","switch003(vsce5),switch003(vsce6)"
Command terminated normally.
```

Displaying information about the physical disks that have been registered with the specified virtual storage pool (POOL001).

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m real
PhysicalDiskName StorageName      LogicalVolume WWP:N:LUN
POOL001R00001    E2000_DB          0x0001        210000e000a80382:1,210000e000a80383:1
POOL001R00002    E2000_DB          0x0002        210000e000a80382:2,210000e000a80383:2
POOL001R00003    E2000_DB          0x0003        210000e000a80382:3,210000e000a80383:3
Command terminated normally.
```

Displaying detailed information about the physical disks that have been registered with the specified virtual storage pool (POOL001).



```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m real -a
PhysicalDiskName StorageName      LogicalVolume RaidLevel Encryption DiskType WWPN:LUN
POOL001R00001    E2000_DB        0x0001        5          Encryption Online
210000e000a80382:1,210000e000a80383:1
POOL001R00002    E2000_DB        0x0002        5          Encryption Online
210000e000a80382:2,210000e000a80383:2
POOL001R00003    E2000_DB        0x0003        5          Encryption Online
210000e000a80382:3,210000e000a80383:3
Command terminated normally.
```

Displaying detailed information about the physical disks that have been registered with the specified virtual storage pool (POOL001) in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m real -a -d
"PhysicalDiskName", "StorageName", "LogicalVolume", "RaidLevel", "Encryption", "DiskType", "WWPN:LUN"
"POOL001R00001", "E2000_DB", "0x0001", "5", "Encryption", "Online", "210000e000a80382:1,210000e000a80383:1"
"
"POOL001R00002", "E2000_DB", "0x0002", "5", "Encryption", "Online", "210000e000a80382:2,210000e000a80383:2"
"
"POOL001R00003", "E2000_DB", "0x0003", "5", "Encryption", "Online", "210000e000a80382:3,210000e000a80383:3"
"
Command terminated normally.
```

Displaying information about the virtual disks that have not been allocated to the virtual targets in the specified virtual storage pool.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m virtual
VirtualDiskName Capacity(MB) BackUp
VDISK001          1024 No
VDISK002          2048 No
VDISK003          512 No
Command terminated normally.
```

Displaying detailed information about the virtual disks that have not been allocated to the virtual targets in the specified virtual storage pool.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m virtual -a
VirtualDiskName Encryption DiskType Capacity(MB) BackUp
VDISK001          Encryption Online          1024 No
VDISK002          Encryption Online          2048 No
VDISK003          Encryption Online          512 No
Command terminated normally.
```

Displaying detailed information about the virtual disks that have not been allocated to the virtual targets in the specified virtual storage pool in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvp -p POOL001 -m virtual -a -d
"VirtualDiskName", "Encryption", "DiskType", "Capacity(MB)", "BackUp"
"VDISK001", "Encryption", "Online", "1024", "No"
"VDISK002", "Encryption", "Online", "2048", "No"
"VDISK003", "Encryption", "Online", "512", "No"
Command terminated normally.
```

Table B.2 Display items for the getvp command and their meanings

Display item	Displayed when the -a option is not specified	Meaning
VirtualStoragePoolName	Yes	The names of the virtual storage pools
Type	No	"virtual" is always displayed

Display item	Displayed when the -a option is not specified	Meaning
SwitchName	Yes	The names of the virtualization switches registered with each virtual storage pool (followed by the host names in parentheses)
PhysicalDiskName	Yes	The names of the physical disks that have been registered with the virtual storage pool
StorageName	Yes	The storage devices where the physical disks are located
LogicalVolume	Yes	The disk device numbers for the physical disks
RaidLevel	No	The RAID levels (1+0,1,5,6,0) for the physical disks or virtual disks
Encryption	No	The encryption attribute for the physical disks or virtual disks (encrypted/unencrypted)
DiskType	No	The disk type for the physical disks or virtual disks (online/nearline)
WWPN:LUN	Yes	The WWPNs and LUN numbers of the physical disks
VirtualDiskName	Yes	The name of the virtual disk that has been registered with the virtual virtual storage pool
Capacity(MB)	Yes	The capacity of the virtual disks
BackUp	Yes	A flag indicating whether disks hold a backup Yes: The disk holds a backup No: The disk does not hold a backup

## EXIT STATUS

- 0: Displaying information about the virtual storage pool has terminated normally.
- 1: Displaying information about the virtual storage pool has terminated abnormally.

## SEE ALSO

[B.1.1 createvp Command](#), [B.1.2 deletevp Command](#)

## B.1.16 getvb Command

---

### NAME

getvb - Displays information about a virtual enclosure

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getvb [-a [-d]]
/opt/FJSVssmgr/sbin/vscmcmd getvb -x virtual-box-name [-d]
/opt/FJSVssmgr/sbin/vscmcmd getvb -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvb [-a [-d]]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvb -x virtual-box-name [-d]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvb -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command displays information about virtual enclosures.

Information can be displayed in the following two ways:

1. Displaying a list of virtual enclosures.
2. Displaying information about the virtual targets that have been registered with the specified virtual enclosure.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-x virtual-box-name**

Specify the name of the virtual enclosure.

### **-a**

This option displays detailed information.

### **-d**

This option displays information in CSV format.

If -x option is not specified, the -a option must be specified.

### **-h**

Indicates how to use the command.

## EXAMPLES

Displaying a list of virtual enclosures.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvb
VirtualBoxName SwitchName
VBOX001         switch001(vsce1),switch001(vsce2)
VBOX002         switch002(vsce3),switch002(vsce4)
VBOX003         switch003(vsce5),switch003(vsce6)
Command terminated normally.
```

Displaying a list of virtual enclosures, with detailed information about each virtual enclosure.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvb -a
VirtualBoxName Type      SwitchName                               BoxID
VBOX001         virtual switch001(vsce1),switch001(vsce2)  00VS900#####VS900#####BB0001#####
VBOX002         virtual switch002(vsce3),switch002(vsce4)  00VS900#####VS900#####BB0002#####
VBOX003         virtual switch003(vsce5),switch003(vsce6)  00VS900#####VS900#####BB0003#####
Command terminated normally.
```

Displaying a detailed list of virtual enclosures in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvb -a -d
"VirtualBoxName","Type","SwitchName","BoxID"
"VBOX001","virtual","switch001(vsce1),switch001(vsce2)"," 00VS900#####VS900#####BB0001#####"
"VBOX002","virtual","switch002(vsce3),switch002(vsce4)"," 00VS900#####VS900#####BB0002#####"
"VBOX003","virtual","switch003(vsce5),switch003(vsce6)"," 00VS900#####VS900#####BB0003#####"
Command terminated normally.
```

Displaying information about the virtual targets that have been registered with the specified virtual enclosure (VBOX001).

```
# /opt/FJSVssmgr/sbin/vscmcmd getvb -x VBOX001
VirtualTragetName VTWWPN
VT001             2000000b5d12fd31
VT002             2001000b5d12fd31
VT003             2002000b5d12fd31
Command terminated normally.
```

Displaying information about the virtual targets that have been registered with the specified virtual enclosure (VBOX001) in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvb -x VBOX001 -d
"VirtualTragetName", "VTWWPN"
"VT001", "2000000b5d12fd31"
"VT002", "2001000b5d12fd31"
"VT003", "2002000b5d12fd31"
Command terminated normally.
```

Table B.3 Display items for the getvb command and their meanings

Display item	Displayed when the -a option is not specified	Meaning
VirtualBoxName	Yes	The names of the virtual enclosures
Type	No	"virtual" is always displayed
SwitchName	Yes	The names of the virtualization switches that have been registered with each virtual enclosure (followed by the host names in parentheses)
BoxID	No	A unique identifier for each virtual enclosure
VirtualTargetName	Yes	The names of virtual targets that have been registered with the virtual enclosure
VTWWPN	Yes	The WWPN for each virtual target

## EXIT STATUS

- 0: Displaying information about the virtual enclosure has terminated normally.
- 1: Displaying information about the virtual enclosure has terminated abnormally.

## SEE ALSO

[B.1.5 createvb Command](#), [B.1.6 deletevb Command](#)

## B.1.17 getvt Command

---

### NAME

getvt - Displays information about a virtual target

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getvt [-d]
/opt/FJSVssmgr/sbin/vscmcmd getvt -t virtual-target-name [-a [-d]]
/opt/FJSVssmgr/sbin/vscmcmd getvt -h
```

## [Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvt [-d]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvt -t virtual-target-name [-a [-d]]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvt -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command display information about virtual targets.

Information can be displayed in the following two ways:

1. Displaying a list of virtual targets.
2. Displaying information about the virtual disks that have been allocated to the specified virtual target.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-t *virtual-target-name***

Specify the name of the virtual target.

### **-a**

This option displays detailed information.

### **-d**

This option displays information in CSV format.

If -t option is not specified, the -a option must be specified.

### **-h**

Indicates how to use the command.

## EXAMPLES

Displaying a list of virtual targets.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvt
VirtualTargetName VTWWPN          SwitchName          VirtualBoxName
VT001             2000000b5d12fd31  switch001(vsce1)  VBOX001
VT002             2001000b5d12fd31  switch002(vsce2)  VBOX001
VT003             2002000b5d12fd31  switch002(vsce2)  VBOX001
Command terminated normally.
```

Displaying a list of virtual targets in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvt -d
"VirtualTargetName","VTWWPN","SwitchName","VirtualBoxName"
"VT001","2000000b5d12fd31","switch001(vsce1)","VBOX001"
"VT002","2001000b5d12fd31","switch002(vsce2)","VBOX001"
"VT003","2002000b5d12fd31","switch002(vsce2)","VBOX001"
Command terminated normally.
```

Displaying information about the virtual disks that have been allocated to the specified virtual target (VT001).

```
# /opt/FJSVssmgr/sbin/vscmcmd getvt -t VT001
VirtualDiskName VLogicalVolume VTHL Capacity(MB) BackUp
VDISK001        0x0000          0          1024 Yes
VDISK002        0x0001          1          2048 No
```

```
VDISK003      0x0002      2      4096 No
Command terminated normally.
```

Displaying detailed information about the virtual disks that have been allocated to the specified virtual target (VT001).

```
# /opt/FJSVssmgr/sbin/vscmcmd getvt -t VT001 -a
VirtualDiskName Encryption DiskType VLogicalVolume VTHL Capacity(MB) BackUp
VDISK001      Encryption Online      0x0000      0      1024 Yes
VDISK002      Encryption Online      0x0001      1      2048 No
VDISK003      Encryption Online      0x0002      2      4096 No
Command terminated normally.
```

Displaying detailed information about the virtual disks that have been allocated to the specified virtual target (VT001) in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvt -t VT001 -a -d
"VirtualDiskName","Encryption","DiskType","VLogicalVolume","VTHL","Capacity(MB)","BackUp"
"VDISK001","Encryption","Online","0x0000","0","1024","Yes"
"VDISK002","Encryption","Online","0x0001","1","2048","No"
"VDISK003","Encryption","Online","0x0002","2","4096","No"
Command terminated normally.
```

Table B.4 Display items for the getvt command and their meanings

Display item	Displayed when the -a option is not specified	Meaning
VirtualTargetName	Yes	The names of the virtual targets
VTWWPN	Yes	The WWPN for each virtual target
SwitchName	Yes	The names of the virtualization switches that have been registered with each virtual target (followed by the host names in parentheses)
VirtualBoxName	Yes	The name of the virtual enclosure where the virtual target has been registered
VirtualDiskName	Yes	The name of the virtual disk that has been registered with the virtual target
Encryption	No	The encryption attribute for each virtual disk (encrypted/unencrypted)
DiskType	No	The disk type for each virtual disk (online/nearline)
VLogicalVolume	Yes	A number that identifies each virtual disk
VTHL	Yes	A number that identifies the host for the virtual disk
Capacity(MB)	Yes	The capacity of the virtual disks
BackUp	Yes	A flag indicating whether the virtual disk holds a backup” Yes: The disk holds a backup No: The disk does not hold a backup

## EXIT STATUS

- 0: Displaying information about the virtual target has terminated normally.
- 1: Displaying information about the virtual target has terminated abnormally.

## SEE ALSO

[B.1.7 createvt Command](#), [B.1.8 deletevt Command](#)

## B.1.18 getvd Command

---

### NAME

getvd - Displays information about a virtual disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getvd -v virtual-disk-name [-a [-d]]  
/opt/FJSVssmgr/sbin/vscmcmd getvd -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvd -v virtual-disk-name [-a [-d]]  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvd -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command displays information about the physical disks that make up the specified virtual disk.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

### OPTIONS

#### **-v *virtual-disk-name***

Specify the name of the virtual disk.

#### **-a**

This option displays detailed information.

#### **-d**

This option displays information in CSV format.

If this option is specified, the -a option must be specified.

#### **-h**

Indicates how to use the command.

### EXAMPLES

Displaying a list of information about the physical disks that make up the specified virtual disk.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvd -v VDISK001  
PhysicalDiskName LogicalVolume WPN:LUN Capacity(MB)  
POOL001R00001 0x0001 210000e000a80382:1,210000e000a80383:1 512  
POOL001R00002 0x0002 210000e000a80382:2,210000e000a80383:2 1024  
POOL001R00003 0x0003 210000e000a80382:3,210000e000a80383:3 2048  
Command terminated normally.
```

Displaying a list of detailed information about the physical disks that make up the specified virtual disk.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvd -v VDISK001 -a  
PhysicalDiskName StorageName LogicalVolume RaidLevel Encryption DiskType  
WPN:LUN Capacity(MB)
```

```

POOL001R00001    E2000_DB          0x0001          1+0          Encryption Online
210000e000a80382:1,210000e000a80383:1          512
POOL001R00002    E2000_DB          0x0002          1+0          Encryption Online
210000e000a80382:2,210000e000a80383:2          1024
POOL001R00003    E2000_DB          0x0003          5            Encryption Online
210000e000a80382:3,210000e000a80383:3          2048
Command terminated normally.

```

Displaying a list of detailed information about the physical disks that make up the specified virtual disk in CSV format.

```

# /opt/FJSVssmgr/sbin/vscmcmd getvd -v VDISK001 -a -d
"PhysicalDiskName", "StorageName", "LogicalVolume", "RaidLevel", "Encryption", "DiskType", "WWPN:LUN", "Capacity(MB)"
"POOL001R00001", "E2000_DB", "0x0001", "1+0", "Encryption", "Online", "210000e000a80382:1,210000e000a80383:1", "512"
"POOL001R00002", "E2000_DB", "0x0002", "1+0", "Encryption", "Online", "210000e000a80382:2,210000e000a80383:2", "1024"
"POOL001R00003", "E2000_DB", "0x0003", "5", "Encryption", "Online", "210000e000a80382:3,210000e000a80383:3", "2048"
Command terminated normally.

```

Table B.5 Display items for the getvd command and their meanings

Display item	Displayed when the -a option is not specified	Meaning
PhysicalDiskName	Yes	The names of the physical disks that make up the virtual disk
StorageName	No	The names of the disk devices that contain each physical disk
LogicalVolume	Yes	The disk device numbers for the physical disks
RaidLevel	No	The RAID level for each physical disk (1+0,1,5,6,0)
Encryption	No	The encryption attribute for each physical disk (encrypted/unencrypted)
DiskType	No	The disk type for each physical disk (online/nearline)
WWPN:LUN	Yes	The WWPNs and LUN numbers of the physical disks
Capacity(MB)	Yes	The capacity of each physical disk that has been allocated to the virtual disk

## EXIT STATUS

- 0: Displaying information about the virtual disk has terminated normally.
- 1: Displaying information about the virtual disk has terminated abnormally.

## SEE ALSO

[B.1.9 createvd Command](#), [B.1.10 deletevd Command](#)

## B.1.19 getcapacity Command

### NAME

getcapacity - Displays information about the capacity of physical disks



## SYNOPSIS

[Solaris OS/Linux OS]

### Case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd getcapacity [-s switch-name1,switch-name2 ] [-d]  
/opt/FJSVssmgr/sbin/vscmcmd getcapacity -h
```

### Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd getcapacity [-s "switch-name1(host-name1)", "switch-name2(host-name2)" ] [-d]  
d]
```

```
/opt/FJSVssmgr/sbin/vscmcmd getcapacity -h
```

[Windows OS]

### Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getcapacity [-s switch-name1,switch-name2] [-d]  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getcapacity -h
```

### Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getcapacity  
[-s "switch-name1(host-name1)", "switch-name2(host-name2)" ] [-d]  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getcapacity -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command displays information about the capacity of the physical disks that can be recognized from the specified virtualization switches.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-s *switch-name1[,switch-name2[,...]]***

**or "*switch-name1(host-name1)*"[, "*switch-name1(host-name2)*"[,...]]**

Specify the names of the virtualization switches.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify "*virtualization switch name (host name)*" enclosed in double quotation marks.

If this option is omitted, a list of information about the capacities of all of the physical disks that can be recognized from all of the virtualization switches registered on the admin server is displayed.

**-d**

This option displays information in CSV format.

**-h**

Indicates how to use the command.

## EXAMPLES

Displaying information about the capacities of the physical disks that can be recognized from all virtualization switches.

```
# /opt/FJSVssmgr/sbin/vscmcmd getcapacity
Switch Name: switch001(vsce1),switch001(vsce2)
StorageName  Total    Unregistered VirtualStoragePoolName Registered Assigned
E2000_DB1    50,000    40,000 POOL001                100,000    0
E2000_DB2    100,000   20,000 POOL002                80,000    40,000
E4000_DB1    200,000   10,000 POOL003                190,000   180,000

Switch Name: switch002(vsce3),switch002(vsce4)
StorageName  Total    Unregistered VirtualStoragePoolName Registered Assigned
E8000_DB1    500,000   100,000 POOL001                400,000   300,000
Command terminated normally.
```

Displaying information about the capacities of the physical disks that can be recognized from all virtualization switches in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getcapacity -d
"SwitchName","StorageName","Total","Unregistered","VirtualStoragePoolName","Registered","Assigned"
"switch001(vsce1),switch001(vsce2)","E2000_DB1","50,000","40,000","POOL001","100,000","0"
"switch001(vsce1),switch001(vsce2)","E2000_DB2","100,000","20,000","POOL002","80,000","40,000"
"switch001(vsce1),switch001(vsce2)","E4000_DB1","200,000","10,000","POOL003","190,000","180,000"
"switch002(vsce3),switch001(vsce4)","E8000_DB1","500,000","100,000","POOL001","400,000","300,000"
Command terminated normally.
```

Displaying information about the capacity of the physical disks that can be recognized from the specified virtualization switches.

```
# /opt/FJSVssmgr/sbin/vscmcmd getcapacity -s "switch001(vsce1)","switch001(vsce2)"
Switch Name: switch001(vsce1),switch001(vsce2)
StorageName  Total    Unregistered VirtualStoragePoolName Registered Assigned
E2000_DB1    50,000    40,000 POOL001                100,000    0
E2000_DB2    100,000   20,000 POOL002                80,000    40,000
E4000_DB1    200,000   10,000 POOL003                190,000   180,000
Command terminated normally.
```

Displaying information about the capacities of the physical disks that can be recognized from the specified virtualization switch in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getcapacity -s "switch001(vsce1)","switch001(vsce2)" -d
"SwitchName","StorageName","Total","Unregistered","VirtualStoragePoolName","Registered","Assigned"
"switch001(vsce1),switch001(vsce2)","E2000_DB1","50,000","40,000","POOL001","100,000","0"
"switch001(vsce1),switch001(vsce2)","E2000_DB2","100,000","20,000","POOL002","80,000","40,000"
"switch001(vsce1),switch001(vsce2)","E4000_DB1","200,000","10,000","POOL003","190,000","180,000"
Command terminated normally.
```

Table B.6 Display items for the getcapacity command and their meanings

Display item	Meaning
SwitchName	The names of the virtualization switches that can be recognized from physical disks (followed by the host names in parentheses)
StorageName	The names of the disk] devices where the physical disks that can be recognized from the virtualization switches are located
Total	The total capacity (in MB) of the physical disks that can be recognized from each virtualization switch
Unregistered	The total capacity (in MB) of the physical disks that have not been registered in a virtual storage pool
VirtualStoragePoolName	The names of the virtual storage pools If no physical disks have been registered with a virtual storage pool, a hyphen ("-") is displayed.
Registered	The total capacity (in MB) of the physical disks that have been registered with the virtual storage pool

Display item	Meaning
	If no physical disks have been registered with a virtual storage pool, a hyphen (“-”) is displayed.
Assigned	The total capacity (in MB) of the physical disks that have been allocated to virtual disks If no physical disks have been registered with a virtual storage pool, a hyphen (“-”) is displayed.

## EXIT STATUS

- 0: Displaying the capacities of the physical disks has terminated normally.
- 1: Displaying the capacities of the physical disks has terminated abnormally.

## SEE ALSO

[B.1.15 getvp Command](#), [B.1.1 createvp Command](#), [B.1.3 registlv Command](#), [B.1.9 createvd Command](#)

## B.1.20 getlv Command

---

### NAME

getlv - Displays information about a physical disk

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getlv -p virtual-storage-pool-name [-a [-d]]
/opt/FJSVssmgr/sbin/vscmcmd getlv -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getlv -p virtual-storage-pool-name [-a [-d]]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getlv -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command display information about the physical disks that can be recognized from virtualization switches.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

### OPTIONS

**-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool.

**-a**

This option displays detailed information.

**-d**

This option displays information in CSV format.

If this option is specified, the -a option must be specified.

-h

Indicates how to use the command.

## EXAMPLES

Displaying information about a physical disk.

```
# /opt/FJSVssmgr/sbin/vscmcmd getlv -p POOL
StorageName LogicalVolume RaidLevel Encryption DiskType Capacity(MB) WWPN:LUN
E2000_DB 0x0001 1+0 Encryption Online 1024
210000e000a80382:1,210000e000a80383:1
E2000_DB 0x0002 1+0 Encryption Online 2048
210000e000a80382:2,210000e000a80383:2
E2000_DB 0x0003 5 Encryption Online 4096
210000e000a80382:3,210000e000a80383:3
Command terminated normally.
```

Displaying detailed information about a physical disk.

```
# /opt/FJSVssmgr/sbin/vscmcmd getlv -p POOL -a
StorageName LogicalVolume RaidLevel Encryption DiskType Capacity(MB) ErrorInfo.
CA:Port WWPN:LUN
E2000_DB 0x0001 1+0 Encryption Online 1024
CM0x00:CA0x00:Port0x00,CM0x00:CA0x00:Port0x00 210000e000a80382:1,210000e000a80383:1 -
E2000_DB 0x0002 1+0 Encryption Online 2048
CM0x00:CA0x00:Port0x00,CM0x00:CA0x00:Port0x00 210000e000a80382:2,210000e000a80383:2 -
E2000_DB 0x0003 5 Encryption Online 4096
CM0x00:CA0x00:Port0x00,CM0x00:CA0x00:Port0x00 210000e000a80382:3,210000e000a80383:3 -
Command terminated normally.
```

Displaying detailed information about a physical disk in CSV format.

```
# /opt/FJSVssmgr/sbin/vscmcmd getlv -p POOL -a -d
"StorageName","LogicalVolume","RaidLevel","Encryption","DiskType","Capacity(MB)","CA:Port","WWPN:LUN",
"ErrorInfo."
"E2000_DB","0x0001","1+0","Encryption","Online","1024","CM0x00:CA0x00:Port0x00,
CM0x00:CA0x00:Port0x00","210000e000a80382:1,210000e000a80383:1","-"
"E2000_DB","0x0002","1+0","Encryption","Online","2048","CM0x00:CA0x00:Port0x00,
CM0x00:CA0x00:Port0x00","210000e000a80382:2,210000e000a80383:2","-"
"E2000_DB","0x0003","5","Encryption","Online","4096","CM0x00:CA0x00:Port0x00,
CM0x00:CA0x00:Port0x00","210000e000a80382:3,210000e000a80383:3","-"
Command terminated normally.
```

Table B.7 Display items for the getlv command and their meanings

Display item	Displayed when the -a option is not specified	Meaning
StorageName	Yes	The names of the disk devices that contain each physical disk
LogicalVolume	Yes	The disk device numbers for the physical disks
RaidLevel	Yes	The RAID level of each physical disk (1+0,1,5,6,0)
Encryption	Yes	The encryption attribute for each physical disk (encrypted/unencrypted)
DiskType	Yes	The disk type for each physical disk (online/nearline)
Capacity(MB)	Yes	The capacity of each physical disk
CA:Port	No	Information about the CA that the physical disk is connected to
WWPN:LUN	Yes	The WWPNs and LUN numbers of the physical disks

Display item	Displayed when the -a option is not specified	Meaning
ErrorInfo.	No	The reason why the physical disk cannot be registered with a virtual storage pool

## EXIT STATUS

- 0: Displaying information about the physical disk has terminated normally.
- 1: Displaying information about the physical disk has terminated abnormally.

## SEE ALSO

[B.1.3 registlv Command](#)

# B.2 Admin Server Commands relating to Copies

---

## B.2.1 startrep Command

---

### NAME

startrep - Starts replication

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd startrep -v virtual-disk-name -d destination-virtual-disk-name [-f]
/opt/FJSVssmgr/sbin/vscmcmd startrep -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe startrep -v virtual-disk-name -d destination-virtual-disk-name [-f]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe startrep -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

### DESCRIPTION

This command starts replication and returns the session ID. Thereafter, use this session ID to control the replication. Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

### OPTIONS

**-v *virtual-disk-name***

Specifies the name of the virtual disk as the replication source.

**-d *destination-virtual-disk-name***

Specifies the name of the virtual disk as the replication destination.

**-f**

Permits copying of encrypted items to non-encrypted items.

**-h**

Indicates how to use the command.

## EXAMPLES

Replicates virtual disk "VDisk\_0001" to virtual disk "VDisk\_0101" as follows:

```
# /opt/FJSVssmgr/sbin/vscmcmd startrep -v VDisk_0001 -d VDisk_0101
SessionID 10020028
Command terminated normally.
```

Replicates virtual disk "VDisk\_0002" to virtual disk "VDisk\_0202".

Allows forcible specification of encrypted volumes to non-encrypted volumes.

```
# /opt/FJSVssmgr/sbin/vscmcmd strtrep -v VDisk_0002 -d VDisk_0202 -f
SessionID 10020028
ssvsc0434: The copy from Encryption attribute volume to Non-Encryption attribute volume was carried
out.
Command terminated normally.
```

## EXIT STATUS

0: Starting the replication has terminated normally.

1: Starting the replication has terminated abnormally.

## SEE ALSO

[B.2.2 finishrep Command](#), [B.2.3 cancelrep Command](#), [B.2.8 getsession Command](#)

## NOTES

- Do not access a virtual disk from the transaction server while replicating that virtual disk. Otherwise, an access error occurs.
- You cannot replicate the following virtual disks:
  - Virtual disk under migration process
  - Virtual disk under replication process

## B.2.2 finishrep Command

---

### NAME

finishrep - Finishes replication

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd finishrep -i session-id
/opt/FJSVssmgr/sbin/vscmcmd finishrep -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe finishrep -i session-id  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe finishrep -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command cancels the synchronized state and finishes replication. This command can be executed in any session of synchronized replication.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-i *session-id***

Specifies the session ID of the session that finishes replication.

**-h**

Indicates how to use the command.

## EXAMPLES

Finishes the replication being performed with session ID "00020027" as follows:

```
# /opt/FJSVssmgr/sbin/vscmcmd finishrep -i 00020027  
Command terminated normally.
```

## EXIT STATUS

0: Finishing the replication has terminated normally.

1: Finishing the replication has terminated abnormally.

## SEE ALSO

[B.2.1 startrep Command](#), [B.2.8 getsession Command](#)

## B.2.3 cancelrep Command

---

### NAME

cancelrep - Cancels replication

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd cancelrep -i session-id  
/opt/FJSVssmgr/sbin/vscmcmd cancelrep -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe cancelrep -i session-id
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe cancelrep -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command cancels replication in progress.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-i *session-id***

Specifies the session ID of the session in which you want to cancel replication.

### **-h**

Indicates how to use the command.

## EXAMPLES

Cancel the replication in progress with session ID "00010001" as follows:

```
# /opt/FJSVssmgr/sbin/vscmcmd cancelrep -i 00010001
Command terminated normally.
```

## EXIT STATUS

0: Canceling the replication has terminated normally.

1: Canceling the replication has terminated abnormally.

## SEE ALSO

[B.2.8 getsession Command](#)

## B.2.4 startmig Command

---

### NAME

startmig - Starts migration

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd startmig -v virtual-disk-name -p virtual-storage-pool-name
[ -z size1{M|G|T} ] [-b]
/opt/FJSVssmgr/sbin/vscmcmd startmig -v virtual-disk-name -p virtual-storage-pool-name
-e physical-disk-name1[, physical-disk-name2[, ...]]
[ -z size1{M|G|T}[, size2{M|G|T}[, ...]] ] [-b] [-f]

/opt/FJSVssmgr/sbin/vscmcmd startmig -h
```



## [Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe startmig -v virtual-disk-name  
-p virtual-storage-pool-name  
[ -z size1{M|G|T} ] [-b]  
  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe startmig -v virtual-disk-name  
-p virtual-storage-pool-name  
-e physical-disk-name1[,physical-disk-name2[,...]] [ -z size1{M|G|T}{[,size2{M|G|T}{[,...]]} ] [-b] [-f]  
  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe startmig -h  
  
($INS_DIR means "Program Directory" specified at the Manager installation.)
```

## DESCRIPTION

This command starts a migration and returns a session ID.

Specify this session ID for all subsequent operations on this migration.

There are the following four methods for starting migrations:

1. Start the migration by automatically selecting the physical disks that will be the migration destination.
2. Start the migration with a backup, by automatically selecting the physical disks that will be the migration destination.
3. Start the migration by freely specifying which physical disks will be the migration destination.
4. Start the migration with a backup, by freely specifying which physical disks will be the migration destination.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk for the migration source.

### **-p *virtual-storage-pool-name***

Specify the name of the virtual storage pool where the migration destination physical disks are registered.

### **-e *physical-disk-name1[,physical-disk-name2[,...]]***

Specify the name of the physical disk for the migration destination.

If this option is omitted, physical disks are automatically selected from the virtual storage pool specified with the -p option.

### **-z *size1{M|G|T}{[,size2{M|G|T}{[,...]]}***

Specify the size of the physical disks for the migration destination using decimal notation, including the units (“M” for megabytes, “G” for gigabytes and “T” for terabytes).

### **-b**

Specify this option to start the migration with a backup.

If this option is not specified, the migration is started without a backup.

### **-f**

This option allows copies from encrypted sources to unencrypted destinations.

### **-h**

Indicates how to use the command.

## EXAMPLES

Performing a migration from a migration source virtual disk called “VDISK001” by automatically selecting the migration destination from the physical disks registered in a virtual storage pool called “POOL”.

```
# /opt/FJSVssmgr/sbin/vscmcmd startmig -v VDISK001 -p POOL
SessionID 10020028
Command terminated normally.
```

Performing a migration (with a backup) from a migration source virtual disk called “VDISK001” by automatically selecting the migration destination from the physical disks registered in a virtual storage pool called “POOL”.

```
# /opt/FJSVssmgr/sbin/vscmcmd startmig -v VDISK001 -p POOL -b
SessionID 10020028
Command terminated normally.
```

Performing a migration (with a backup) from a migration source virtual disk called “VDISK001” by freely specifying a physical disk (POOLR00001) registered in a virtual storage pool called “POOL” as the migration destination.

```
# /opt/FJSVssmgr/sbin/vscmcmd startmig -v VDISK001 -p POOL -e POOLR00001 -z 100M -b
SessionID 10020028
Command terminated normally.
```

## EXIT STATUS

- 0: Starting the migration has terminated normally.
- 1: Starting the migration has terminated abnormally.

## SEE ALSO

[B.2.2 finishrep Command](#), [B.2.3 cancelrep Command](#), [B.2.8 getsession Command](#)

## NOTES

- Migrations cannot be started from the following virtual disks:
  - Virtual disks where migration processing is executing
  - Virtual disks where replication processing is executing
- For migrations where a backup is not specified, make sure that the total capacity of the migration destination physical disks is the same as the capacity of the migration source virtual disk, or else the migration will not start.

## B.2.5 finishmig Command

---

### NAME

finishmig - Changes migration

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd finishmig -i session-id
/opt/FJSVssmgr/sbin/vscmcmd finishmig -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe finishmig -i session-id  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe finishmig -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command releases equivalency maintenance state and changes a migration. This command can only be executed on migration sessions that are in equivalency maintenance state.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-i *session-id***

Specify the session ID for the session where the migration is to be changed.

**-h**

Indicates how to use the command.

## EXAMPLES

Changing a migration that is executing as session 10020027.

```
# /opt/FJSVssmgr/sbin/vscmcmd finishmig -i 10020027  
Command terminated normally.
```

## EXIT STATUS

0: Changing the migration has terminated normally.

1: Changing the migration has terminated abnormally.

## SEE ALSO

[B.2.4 startmig Command](#), [B.2.6 cancelmig Command](#), [B.2.8 getsession Command](#)

## B.2.6 cancelmig Command

---

### NAME

cancelmig - Stops migration

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd cancelmig -i session-id  
/opt/FJSVssmgr/sbin/vscmcmd cancelmig -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe cancelmig -i session-id
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe cancelmig -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command stops migrations that are executing.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-i *session-id***

Specify the session ID for the migration to be stopped.

### **-h**

Indicates how to use the command.

## EXAMPLES

Stopping a migration that is executing as session 10010001.

```
# /opt/FJSVssmgr/sbin/vscmcmd cancelmig -i 10010001
Command terminated normally.
```

## EXIT STATUS

0: Stopping the migration has terminated normally.

1: Stopping the migration has terminated abnormally.

## SEE ALSO

[B.2.4 startmig Command](#), [B.2.5 finishmig Command](#), [B.2.8 getsession Command](#)

## B.2.7 operatebackmig Command

---

### NAME

operatebackmig - Restores or deletes migration backup disks

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd operatebackmig -v virtual-disk-name -o { restore | delete }
/opt/FJSVssmgr/sbin/vscmcmd operatebackmig -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe operatebackmig -v virtual-disk-name -o { restore | delete }
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe operatebackmig -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command deletes the backup disks that are held by migration processing.

It also performs restorations from the backup disks that are held by migration processing.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-v *virtual-disk-name***

Specify the name of the virtual disk that holds the migration backup.

### **-o { *restore* | *delete* }**

*restore*: This option performs a restoration from the backup disks that are held by migration processing.

*delete*: This option deletes the backup disks that are held by migration processing.

### **-h**

Indicates how to use the command.

## EXAMPLES

Performing a restoration from a virtual disk called "VDISK" that holds a backup.

```
# /opt/FJSVssmgr/sbin/vscmcmd operatebackmig -v VDISK -o restore
Command terminated normally.
```

Deleting a virtual disk called "VDISK" that holds a backup.

```
# /opt/FJSVssmgr/sbin/vscmcmd operatebackmig -v VDISK -o delete
Command terminated normally.
```

## EXIT STATUS

0: The restoration or deletion of the migration backup disk has terminated normally.

1: The restoration or deletion of the migration backup disk has terminated abnormally.

## SEE ALSO

[B.2.4 startmig Command](#), [B.2.9 getbackmig Command](#), [B.2.8 getsession Command](#)

## B.2.8 getsession Command

---

### NAME

getsession - Displays the execution status of migration/replication and EC (ACM)

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getsession [-i session-id] [-a]
/opt/FJSVssmgr/sbin/vscmcmd getsession -h
```

**[Windows OS]**

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getsession [-i session-id] [-a]
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getsession -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command displays the execution status of migration/replication and EC (ACM).

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

**-i session-id**

Specifies the session ID to display the execution status of a specific session.

If you do not specify this operand, the status of all migration, replication, and EC (ACM) in progress is displayed.

**-a**

This option displays detailed information.

**-h**

Indicates how to use the command.

## EXAMPLES

Displaying the status of all migrations, replications and ECs (ACM) that are executing. For ECs (ACM), the first digit of the session ID is "0".

```
# /opt/FJSVssmgr/sbin/vscmcmd getsession
SID      Type      FromVirtualDiskName ToVirtualDiskName BackUp Phase      TotalCapacity
10010001 migration VDISK_MIG001      -                Yes  copying(87%) 1024MB
10010002 replication VDISK_REP001      VDISK_REP002    -    Equivalent 500MB
00010003 EC(ACM)    VDISK_ACM001      VDISK_ACM002    -    Equivalent 500MB
Command terminated normally.
```

Displaying the status of the migration executing with the section ID "10010001".

```
# /opt/FJSVssmgr/sbin/vscmcmd getsession -i 10010001
SID      Type      FromVirtualDiskName ToVirtualDiskName BackUp Phase      TotalCapacity
10010001 migration VDISK_001          -                Yes  Equivalent 1024MB
Command terminated normally.
```

Displaying the status of the replication executing with the section ID "10010002".

```
# /opt/FJSVssmgr/sbin/vscmcmd getsession -i 10010002
SID      Type      FromVirtualDiskName ToVirtualDiskName BackUp Phase      TotalCapacity
10010002 replication VDISK_REP001      VDISK_REP002    -    Equivalent 500MB
Command terminated normally.
```

Displaying the status of the EC (ACM) executing with the section ID "00010003". For ECs (ACM), the first digit of the session ID is "0".

```
# /opt/FJSVssmgr/sbin/vscmcmd getsession -i 00010003
SID      Type      FromVirtualDiskName ToVirtualDiskName BackUp Phase      TotalCapacity
```

Table B.8 Display items and meanings of the getsession command

Display item	Displayed when the -a option is not specified	Meaning
SID	Yes	Session ID of migration/replication
Type	Yes	Session type <ul style="list-style-type: none"> <li>• migration: Migration</li> <li>• replication: Replication</li> <li>• EC(ACM): ACM copy</li> </ul>
FromVirtualBoxName	No	<ul style="list-style-type: none"> <li>• Migration: Name of the virtual enclosure that includes the virtual disk performing migration</li> <li>• Replication or EC (ACM): Name of the virtual enclosure containing the replication or EC (ACM) source virtual disk</li> </ul>
FromVirtualDiskName	Yes	<ul style="list-style-type: none"> <li>• Migration: Name of the virtual disk performing migration</li> <li>• Replication or EC (ACM): Name of the replication or EC (ACM) source virtual disk</li> </ul>
ToVirtualBoxName	No	<ul style="list-style-type: none"> <li>• Migration: "-"(Hyphen):no information</li> <li>• Replication or EC (ACM): Name of the virtual enclosure containing the replication or EC (ACM) destination virtual disk</li> </ul>
ToVirtualDiskName	Yes	<ul style="list-style-type: none"> <li>• Migration: "-"(Hyphen):no information</li> <li>• Replication or EC (ACM): Name of the replication or EC (ACM) destination virtual disk</li> </ul>
BackUp	Yes	<ul style="list-style-type: none"> <li>• Migration: Backup disk information               <ul style="list-style-type: none"> <li>- Yes: After completing migration, retain a backup disk.</li> <li>- No: After completing migration, do not retain a backup disk.</li> </ul> </li> <li>• Replication or EC (ACM): "-"(Hyphen):no information</li> </ul>
SwitchName	Yes	Name of the virtualization switch performing migration/replication
Application	No	<ul style="list-style-type: none"> <li>• Migration or replication The character string "VSC" is displayed.</li> <li>• EC (ACM)</li> <li>• The character string "other" is displayed.</li> </ul>
Phase	Yes	Migration, replication or EC (ACM) execution status

Display item	Displayed when the -a option is not specified	Meaning
		<ul style="list-style-type: none"> <li>• Equivalent: Synchronization maintained</li> <li>• Copying(nn%): Synchronization completed (nn%: Percentage of data copying completed)</li> <li>• No pair: Waiting for execution</li> <li>• Err suspend: Abnormal condition</li> <li>• No pair: Copying not executed</li> <li>• Finish: Copying completed</li> <li>• Suspend: Suspended</li> <li>• Halt: Detected a path error in the copy destination device, and has suspended the copy operation</li> </ul>
TotalCapacity	Yes	<ul style="list-style-type: none"> <li>• Migration: Capacity (MB) of the virtual disk performing migration</li> <li>• Replication or EC (ACM): Capacity (MB) of the replication or EC (ACM) source virtual disk</li> <li>• ETERNUS SF AdvancedCopy Manager : Total copy size (MB)</li> </ul>
StartDate	No	Start date of migration, replication or EC (ACM)
Abend	No	<p>Error cause</p> <ul style="list-style-type: none"> <li>• 0x00: Normal COPY_ABEND_CAUSE_OK</li> <li>• 0x01: Mirror volume error COPY_ABEND_CAUSE_MIRROR</li> <li>• 0x02: Copy source volume error COPY_ABEND_CAUSE_SRC</li> <li>• 0x03: Copy destination volume error COPY_ABEND_CAUSE_DST</li> <li>• 0x04: VS900 management area error COPY_ABEND_CAUSE_MANAGEMENT_ARE</li> <li>• 0x80: Other error COPY_ABEND_CAUSE_OTHER</li> </ul>



Display item	Displayed when the -a option is not specified	Meaning
		<ul style="list-style-type: none"> <li>• 0x81: Engine unsupported COPY_ABEND_CAUSE_ENGINE_UNSUPPORT</li> </ul>
ManagementArea	No	Management area information <ul style="list-style-type: none"> <li>• Unit-name + LunV-number: Obtained management area</li> <li>• "-": No management area</li> <li>• "unknown": A management area exists but cannot be obtained.</li> </ul>

## EXIT STATUS

- 0: Execution status has been displayed.
- 1: Execution status could not be displayed.

## SEE ALSO

[B.2.4 startmig Command](#), [B.2.1 startrep Command](#)

## NOTES

This command displays an error message under either of the following conditions:

- VSC Engine is stopped.
- Communicate with VSC Engine is not possible because the virtualization switch is powered off.

The virtualization switches that can be communicated with have their session displayed.

## B.2.9 getbackmig Command

---

### NAME

getbackmig - Displays a list of migration backup disks

### SYNOPSIS

[Solaris OS/Linux OS]

```
/opt/FJSVssmgr/sbin/vscmcmd getbackmig
/opt/FJSVssmgr/sbin/vscmcmd getbackmig -h
```

[Windows OS]

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getbackmig
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getbackmig -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command displays a list of the virtual disks that are holding backup disks.

Execute this command as the administrator for the operating system (that is, with “Administrator” or “root” privileges).

## OPTIONS

**-h**

Indicates how to use the command.

## EXAMPLES

Displaying a list of the virtual disks that are holding backups.

```
# /opt/FJSVssmgr/sbin/vscmcmd getbackmig
VirtualDiskName VirtualBoxName FinishDate
vdisk01          BoxNAME#01      2008/03/11 18:00:10
vdisk02          BoxNAME#02      2008/03/11 17:00:30
Command terminated normally.
```

Table B.9 Display items for the getbackmig command and their meanings

Display item	Meaning
VirtualDiskName	The name of a virtual disk that holds a backup
VirtualBoxName	The name of the virtual enclosure where the virtual disk that holds the backup is located
FinishDate	The time when the migration switched over

## EXIT STATUS

0: Displaying a list of migration backup disks has terminated normally.

1: Displaying a list of migration backup disks has terminated abnormally.

## SEE ALSO

[B.2.7 operatebackmig Command](#), [B.2.8 getsession Command](#)

## B.3 Admin Server Commands relating to Maintenance

---

### B.3.1 setvscetrclvl Command

---

#### NAME

setvscetrclvl - Sets the trace level of VSC Engine

#### SYNOPSIS

[Solaris OS/Linux OS]

#### Case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -s switch-name -c trace-level  
/opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -h
```

#### Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -s "switch-name(host-name)" -c trace-level  
/opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -h
```

#### [Windows OS]

#### Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe setvscetrclvl -s switch-name -c trace-level  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe setvscetrclvl -h
```

#### Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe setvscetrclvl -s "switch-name(host-name)" -c trace-  
level  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe setvscetrclvl -h
```

(*\$INS\_DIR* means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command sets the output level of trace for troubleshooting VSC Engine. Execute this command as instructed by the customer engineer (CE or SE).

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-s *switch-name* or "*switch-name(host-name)*"**

Specify the name of the virtualization switch for which the trace level is to be set.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify "*virtualization switch name (host name)*" enclosed in double quotation marks.

### **-c *trace-level***

Sets the trace level.

The relationship between trace level and output content is as follows.

0: Error information

1: Error information, warning information, and notification information

2: Error information, warning information, notification information, and program information

### **-h**

Indicates how to use the command.

## EXAMPLES

Setting the trace level for a VS900 Model 200 virtualization switch called "vscl" to "2".

```
# /opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -s vsce1 -c 2
Command terminated normally.
```

Setting the trace level for a virtualization switch (switch001) that is not a VS900 Model 200 and whose host name is “vsce1” to “2”.

```
# /opt/FJSVssmgr/sbin/vscmcmd setvscetrclvl -s "switch001(vsce1)" -c 2
Command terminated normally.
```

## EXIT STATUS

- 0: Setting the trace level has terminated normally.
- 1: Setting the trace level has terminated abnormally.

## SEE ALSO

[B.3.3 getvsw Command](#)

## NOTES

The Fujitsu engineer (CE or SE) collects data for error investigation. Contact your Fujitsu engineer (CE or SE). Return to trace level "0" immediately after the Fujitsu engineer (CE or SE) collects the necessary data.

## B.3.2 remakeconf Command

---

### NAME

remakeconf - Restores composition data of VSC Engine

### SYNOPSIS

[Solaris OS/Linux OS]

Case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd remakeconf -s switch-name
/opt/FJSVssmgr/sbin/vscmcmd remakeconf -h
```

Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd remakeconf -s "switch-name(host-name)"
/opt/FJSVssmgr/sbin/vscmcmd remakeconf -h
```

[Windows OS]

Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe remakeconf -s switch-name
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe remakeconf -h
```

Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe remakeconf -s "switch-name(host-name)"
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe remakeconf -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command restores composition data of the virtualization switch from the admin server.

Execute this command as the administrator for the operating system (that is, with "Administrator" or "root" privileges).

## OPTIONS

### **-s *switch-name* or "*switch-name(host-name)*"**

Specify the name of the virtualization switch for which the configuration information is to be recreated.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify "*virtualization switch name (host name)*" enclosed in double quotation marks.

### **-h**

Indicates how to use the command.

## EXAMPLES

Restoring the configuration information for a VS900 Model 200 virtualization switch called "vsce1".

```
# /opt/FJSVssmgr/sbin/vscmcmd remakeconf -s vsce1
Command terminated normally.
```

Restoring the configuration information for a virtualization switch called "switch001" that is not a VS900 Model 200 and whose host name is "vsce1".

```
# /opt/FJSVssmgr/sbin/vscmcmd remakeconf -s "switch001(vsce1)"
Command terminated normally.
```

## EXIT STATUS

0: The recreation of the configuration information has terminated normally.

1: The recreation of the configuration information has terminated abnormally.

## SEE ALSO

[B.3.3 getvsw Command](#)

## NOTES

Stop access from any transaction server via the virtualization switch that is restoring composition data.

For how to restore composition data, refer to "[6.2 Saving and Restoring the Configuration Information](#)", and follow the procedure described.

## B.3.3 getvsw Command

---

### NAME

getvsw - Displays information of the virtualization switches

## SYNOPSIS

[Solaris OS/Linux OS]

### Case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd getvsw [-s switch-name]  
/opt/FJSVssmgr/sbin/vscmcmd getvsw -h
```

### Other case of VS900 Model 200

```
/opt/FJSVssmgr/sbin/vscmcmd getvsw [-s "switch-name(host-name1)"]  
/opt/FJSVssmgr/sbin/vscmcmd getvsw -h
```

[Windows OS]

### Case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvsw [-s switch-name]  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvsw -h
```

### Other case of VS900 Model 200

```
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvsw [-s "switch-name(host-name1)"]  
$INS_DIR\Manager\opt\FJSVssmgr\sbin\vscmcmd.exe getvsw -h
```

(\$INS\_DIR means "Program Directory" specified at the Manager installation.)

## DESCRIPTION

This command displays information of the virtualization switches registered on the admin server.

This command must be executed by a user with root privileges.

## OPTIONS

### **-s *switch-name* or "*switch-name(host-name)*"**

Specify the name of the virtualization switch for which information is to be displayed.

For the VS900 Model 200, specify the virtualization switch name.

For virtualization switches other than the VS900 Model 200, specify "*virtualization switch name (host name)*" enclosed in double quotation marks.

If this option is omitted, a list of all the virtualization switches registered on the admin server is displayed, together with information about their status.

### **-h**

Indicates how to use the command.

## EXAMPLES

Displaying a list of all the virtualization switches registered on the admin server, together with information about their statuses.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvsw  
SwitchName      Status  ConfigFile GroupID  
switch001(vsce1) running correct  1
```

```
switch001(vsce2) running incorrect 1
switch002(vsce3) running correct 2
switch002(vsce4) running correct 2
Command terminated normally.
```

Displaying information about the virtualization switch called “switch001(vsce1)”.

```
# /opt/FJSVssmgr/sbin/vscmcmd getvsw -s "switch001(vsce1)"
SwitchName    switch001
HostName      vsce1
SlotNumber    -
GroupID       1
Series        VS900
Model         VS900
Status        running
LStatus       valid
Resources      exist
ConfigFile    correct
TraceLevel    0
Version       00000001
FirmVersion   05200001
BuildDate     2008/06/04 16:14:37
SwitchDate    2008/10/20 20:45:22
Copyright     FUJITSU LIMITED
Command terminated normally.
```

Table B.10 Display items and meanings of the getvsw command

Item name	Meaning
SwitchName	Name of the virtualization switch
HostName	Host name defined in the /etc/hosts file
SlotNumber	This is always displayed as “-“
GroupID	ID of switches in the redundancy configuration This indicates that the redundancy configuration is built in the switches with the same ID
Series	Series name
Model	Model name
Status	Operating status of VSC Engine <ul style="list-style-type: none"> <li>• running Running normally</li> <li>• abnormal Running abnormally</li> </ul>
LStatus	The logical status of the virtualization switch <ul style="list-style-type: none"> <li>• valid The virtualization switch has been enabled</li> <li>• invalid The virtualization switch has been disabled</li> </ul>
Resources	A flag indicating whether there are virtual storage resources <ul style="list-style-type: none"> <li>• exist There are virtual storage resources</li> <li>• not exist There are no virtual storage resources</li> </ul>
ConfigFile	Status of composition data held by VSC Engine

Item name	Meaning
	<ul style="list-style-type: none"> <li>• correct The correct status in which the data is consistent with composition data of VSC Manager</li> <li>• incorrect The incorrect status in which the data is inconsistent with composition data of VSC Manager</li> </ul>
TraceLevel	Setting level of the trace used for VSC Engine troubleshooting
Version	Version number of composition data held by VSC Manager Displays "NONE" when no composition data has been created.
FirmVirsiion	Version number of the VSC Engine firmware
BuildDate	Creation date of the VSC Engine
SwitchDate	Current time of the internal clock held by the virtualization switch
Copyright	Indicates Copyright

## EXIT STATUS

- 0: Information of the virtualization switch is displayed.
- 1: Information of the virtualization switch is not displayed.

## SEE ALSO

None

## NOTES

- If "abnormal" is displayed in "Status", the following items are not displayed:
  - Series
  - Model
  - ConfigFile
  - TraceLevel
  - Version
  - FirmVersion
  - BuildDate
  - SwitchDate
  - Copyright
- If "incorrect" is displayed in "ConfigFile", you must restore the composition data.



# Appendix C Commands for Virtualization Switch

This appendix provides a reference for commands to be executed on a virtualization switch.

## C.1 vscefieldsetnow Command

### NAME

vscefieldsetnow - Sets up the VSC Manager for connection

### SYNOPSIS

```
vscefieldsetnow
```

### DESCRIPTION

This command changes or dynamically adds a VSC Manager for connection while the VSC Engine is running during the operation.

This command can be executed while the VSC Engine is running.

This command must be executed by a user with administrator privileges.

### OPTIONS

None.

### EXAMPLES

Case of VS900 Model 200

```
vsce1:admin> vscefieldsetnow

Setting up VSCManager. <cr> to skip a parameter

How many VSC Manager do you install in this system?: (1..2) [2] 2
  // Input explanation: Enter the number 2 to specify that two VSC Managers will be set up. //

Input 'IP Address' of VSC Manager 1: [192.168.1.1] 192.168.1.6
  // Input explanation: Enter new IP Address (192.168.1.6) to change the address from the one
displayed. //

Input 'IP Address' of VSC Manager 2: [192.168.1.100]
  // Input explanation: Press [ENTER] key to accept the IP Address displayed. //

[VSC Manager(1)]
  IP Address = 192.168.1.6
[VSC Manager(2)]
  IP Address = 192.168.1.100
Are you sure ? Yes:1 No:other -> 1
vscefieldsetnow: Operation normally end.
```

Other case of VS900 Model 200

```
BFOS:admin> vscefieldsetnow
```

```

setting up to the networks of vscengine. <cr> to skip a parameter

how many vsc manager do you install in this system? (1..2) [1] -> 2
// Input explanation: Enter the number 2 to specify that two VSC Managers will be set up. //

input 'ip address' of vsc manager 1. [192.168.1.1] 192.168.1.6
// Input explanation: Enter new IP Address (192.168.1.6) to change the address from the one
displayed. //

input 'ip address' of vsc manager 2: [192.168.1.100]
// Input explanation: Press [ENTER] key to accept the IP Address displayed. //

setting parameters are ...

Setting of this switch:
    vsce number      = vsce31
    shared id        = 1
    ip address(eth0) = 192.168.1.110
    ip address(eth1) = 192.168.1.111

Setting of other switch:
    vsce number      = vsce32
    shared id        = 2
    ip address(eth0) = 192.168.1.120
    ip address(eth1) = 192.168.1.121

Setting of VSC Manager 1:
    ip address       = 192.168.1.6

Setting of VSC Manager 2:
    ip address       = 192.168.1.100

Are you sure ? Yes:1 No:other -> 1

vscefieldsetnow : Operation normally end.

BFOS:admin>

```

## EXIT STATUS

- 0: Normal end of setting up the VSC Manager for connection.
- 1: Failure to set up the VSC Manager for connection.

## C.2 vscecreateconfigfile Command

---

### NAME

vscecreateconfigfile - Initializes the configuration information stored on a virtualization switch

### SYNOPSIS

```
vscecreateconfigfile
```

### DESCRIPTION

This command initializes the configuration information stored on a virtualization switch.

This command must be executed by a user with administrator privileges.

## OPTIONS

None.

## EXIT STATUS

0: Normal end of initializing configuration information

1: Failure to initialize configuration information

## C.3 vsceportset Command

---

### NAME

vsceportset - Changes the communication port number used for communication with the admin server

### SYNOPSIS

```
vsceportset
```

### DESCRIPTION

Use this command to change the port number when the default port number (7420) used for communication with the admin server or the default port number (7422) used for communication with the virtualization switch in a redundant configuration is already in use.

This command must be executed by a user with administrator privileges.

### OPTIONS

None.

### EXAMPLES

This command changes the port number used for communication with the admin server to 7455, the port number used for communication with the other virtualization switch in a redundant configuration to 7456, and the port number used for local interface communication in the virtualization switch to 7457.

Case of VS900 Model 200

```
vscel:admin> vsceportset
Input vsc-manager-engine-if port Number:[7420] -> 7455 [ENTER] Example: Specify 7455.
Input vsc-engine-engine-if port Number:[7422] -> 7456 [ENTER] Example: Specify 7456.
Input vsc-engine-self-if port Number:[7423] -> 7457 [ENTER] Example: Specify 7457.

Setting parameters are ...
 vsc-manager-engine-if Port Number = 7520
 vsc-engine-engine-if Port Number = 7522
 vsc-engine-self-if Port Number = 7523
Are you sure ? Yes:1 No:other -> 1 [ENTER] Confirm data for execution.

vsceportset Operation normally end.
```

When the vsceportset command is executed, the value displayed in each square bracket in the input request message is the currently set value. If you do not want to change the currently set value, simply press [ENTER] without entering any value.

```

vscel:admin> vsceportset
Input vsc-manager-engine-if port Number:[7455] -> [ENTER] Example: Specify no value.
Input vsc-engine-engine-if port Number:[7456] -> [ENTER] Example: Specify no value.
Input vsc-engine-self-if port Number:[7457] -> [ENTER] Example: Specify no value.

Setting parameters are ...
vsc-manager-engine-if Port Number = 7455
vsc-engine-engine-if Port Number = 7456
vsc-engine-self-if Port Number = 7457
Are you sure ? Yes:1 No:other -> 1 [ENTER] Confirm data for execution.

vsceportset Operation normally end.

```

#### Other case of VS900 Model 200

```

BFOS:admin> vsceportset

Port number set. <cr> to skip a parameter

Input vsc-manager-engine-if port Number. [7420] -> 7455 [ENTER] 例:7455を指定
Input vsc-engine-engine-if port Number. [7422] -> 7456 [ENTER] 例:7456を指定
Input vsc-engine-self-if port Number. [7423] -> 7457 [ENTER] 例:7457を指定

Setting parameters are ...

vsc-manager-engine-if Port Number = 7455
vsc-engine-engine-if Port Number = 7456
vsc-engine-self-if Port Number = 7457

Are you sure ? Yes:1 No:other -> 1 [ENTER] Confirm data for execution.

vsceportset : Operation normally end.

BFOS:admin>

```

When the vsceportset command is executed, the value displayed in each square bracket in the input request message is the currently set value. If you do not want to change the currently set value, simply press [ENTER] without entering any value.

```

BFOS:admin> vsceportset

Port number set. <cr> to skip a parameter

Input vsc-manager-engine-if port Number. [7455] -> [ENTER] Example: Specify no value.
Input vsc-engine-engine-if port Number. [7456] -> [ENTER] Example: Specify no value.
Input vsc-engine-self-if port Number. [7457] -> [ENTER] Example: Specify no value.

Setting parameters are ...

vsc-manager-engine-if Port Number = 7455
vsc-engine-engine-if Port Number = 7456
vsc-engine-self-if Port Number = 7457

Are you sure ? Yes:1 No:other -> 1 [ENTER] Confirm data for execution.

```

```
vsceportset : Operation normally end.  
BFOS:admin>
```

## EXIT STATUS

- 0: Normal end of changing the port number
- 1: Failure to change the port number

## C.4 vscestopengine Command

---

### NAME

vscestopengine - Stops the engine program on the virtualization switch

### SYNOPSIS

```
vscestopengine
```

### DESCRIPTION

This command stops the engine program on the virtualization switch.  
This command must be executed by a user with administrator privileges.

### OPTIONS

None

### EXIT STATUS

- 0: Normal end of stop processing
- 1: Failure to stop the program

# Appendix D Limit Values

This appendix describes the limit values for Virtual Storage Conductor.

## D.1 Virtual Storage Resources

The following table lists the limit values for virtual storage resources.

Table D.1 Limit values for virtual storage resources

Item to be limited	Limit value	Description
Max number of virtualization switches	128	Number of virtualization switches that one admin server can manage.
Number of virtualization switches in redundant configuration	2	Number of virtualization switches when one Virtual Storage Conductor has a redundant configuration.
Max number of virtual storage pools	128	Multiple virtual storage pools created for each Virtual Storage Conductor (single virtualization switch or virtualization switch in redundant configuration) are all managed on the admin server. This limit value is the maximum number of virtual storage pools that one admin server can manage.
Max number of virtual enclosures	1024	Multiple virtual enclosures created for each Virtual Storage Conductor (single virtualization switch or virtualization switch in redundant configuration) are all managed on the admin server.  This limit value is the maximum number of virtual enclosures that one admin server can manage.
	240	This limit value is the number of virtual enclosures that can be created and associated with a single virtual switch group.
Maximum physical disk size	2TB-512B	The maximum registerable size of physical disks is a value found by reducing 512B (byte) from 2TB (terabyte).
Max number of physical disks	65535	Total number of physical disks that can be registered in all virtual storage pools that one admin server can manage.
	16384	Total number of physical disks that can be registered to one virtualization switch
Max number of virtual disks	128	This limit value applies to each port of the virtualization switch connected to the host bus adapter (HBA). When a virtual disk is distributed among multiple virtual targets, the total number applies.
	2048	Maximum number of virtual disks that can be created for each Virtual Storage Conductor (single virtualization switch or virtualization switch in redundant configuration)
Max size of virtual disk	2097151MB	This limit value is obtained by subtracting 1MB from 2TB.
Minimum size of virtual disk	1MB	The minimum size of a virtual disk is 1MB.
Max number of virtual targets	32	This limit value applies to each port of the virtualization switch that is connected to the host bus adapter (HBA).
	32	The values on the left are applicable to each virtualization switch in one virtual enclosure.
	240	This limit value applies to each virtualization switch.
Max number of physical disks configuring virtual disk	16	One virtual disk can be created from multiple physical disks. This limit value is the maximum number of physical disks that configure the virtual disk.

Item to be limited	Limit value	Description
Max number of extents of physical disks configuring virtual disk	16	This limit value is the maximum number of extents (total number of extents of all physical disks) of physical disks that configure the virtual disk.  When one physical disk is not used, this number is "1". Thus, when no physical disks are used, the maximum number of extents is equal to the number of physical disks.
Number of multi-paths of virtual disk	2	Each physical connection between the server and virtualization switch becomes an individual path.
Max copy multiplicity	128	The maximum number of times multiple migrations or replications can be performed simultaneously using one virtualization switch group (redundancy configuration).
	4	The maximum number of times multiple replications can be performed using one virtual disk that contains the copy source.
Max-Throttle	40	The value based on Max-Throttle specification for the channel adapter (CA) where the physical disk that constitutes a virtual disk is installed  The storage type is GR, ETERNUS2000, ETERNUS3000, or ETERNUS6000.
	256	The value based on Max-Throttle specification for the channel adapter (CA) where the physical disk that constitutes a virtual disk is installed  The storage type is ETERNUS4000 or ETERNUS8000.
Maximum number of copy security groups	1024	This limit value is the maximum number of copy security groups that can be created on one admin server.
Number of virtual enclosures that can be registered per copy security group	1024	This limit value is the maximum number of virtual enclosures that can be registered in one copy security group.
Number of copy security groups that can be registered per virtual enclosure	1024	This limit value is the maximum number of copy security groups that can be registered for one virtual enclosure.

## D.2 Server Connected to a Virtualization Switch

The following table lists the limit value concerning the server connected to a virtualization switch.

Table D.2 Limit value concerning the server

Item to be limited	Limit value	Description
Max number of host bus adapters	32	This limit value applies to each port of the virtualization switch connected to the host bus adapter (HBA).

## D.3 Storage Connected to a Virtualization Switch

The following table lists the limit values for the storage that is connected to a virtualization switch.

Table D.3 Limit values concerning the storage

Item to be limited	Limit value	Description
Max number of channel adapters (CA)	256	This limit value applies to each port of the virtualization switch connected to a storage

Item to be limited	Limit value	Description
Max number of disks	256	Maximum number of physical disks assigned to one channel adapter (CA) in the storage



# Appendix E Error Messages

## E.1 VSC Manager

This appendix describes the error messages output by VSC Manager.

Either English or Japanese messages are output as specified in environment variable LANG.

Messages output by VSC Manager consist of those output to the system log and those output to the operator terminal.

### Message output format

VSC Manager outputs messages in the following output format:

```
label: error_type: message_ID: message_text
```

### Labels

VSC Manager outputs messages with the following labels:

Label	Meaning
FSP_FJSVssvsc_Service	Common service
FSP_FJSVssvsc_Virtual	Virtual disk operation
FSP_FJSVssvsc_Copy	Migration or replication operation
FSP_FJSVssvsc_Mainte	Maintenance operation

### Error type

VSC Manager outputs messages with the following error types:

Error type	Meaning
ERR	Take action as instructed.
WARNING	Take any action required as instructed.
INFO	The system administrator need not take any action.

Table E.1 Items in message text

Item	Description
Message text	Text of a message to be output. Each message is output in the following format: Message ID : Message text
Explanation	Explains why this message is output.
Parameters	Explains the meanings of any parameters included in the message.
User action	Explains the action to be taken for this message.

### ssvsc0000

#### ssvsc0000: System error occurred.

#### Explanation

An unexpected error occurred.

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0001**

---

#### **ssvsc0001: Command name is invalid.**

## Explanation

The command name is invalid.

## User action

Specify a correct command name.

For more information, refer to "[Appendix B Admin Server Commands](#)".

### **ssvsc0002**

---

#### **ssvsc0002: Input form of an option is invalid.**

## Explanation

An option is in an incorrect input form.

## User action

Confirm that:

- A value is specified after an option that requires a value.
- A value is not specified after an option that does not require a value
- A correct option is specified.
- No option is specified more than once.
- Only one value is specified after an option.

For more information, refer to "[Appendix B Admin Server Commands](#)".

### **ssvsc0003**

---

#### **ssvsc0003: Command name is not specified.**

## Explanation

No command string is specified.

## User action

Refer to "[Appendix B Admin Server Commands](#)", and specify a command.

### **ssvsc0004**

---

#### **ssvsc0004: The h option and other options are specified simultaneously.**

## Explanation

The -h option and other options are specified simultaneously.

## User action

The -h option cannot be specified simultaneously with other options.

To specify help, specify the -h option alone.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0005

---

### ssvsc0005: The value of an option is invalid. *Option = {0}*

#### Explanation

An option has an invalid value.

#### Parameters

Option with an invalid value specified

#### User action

Confirm that the %Option values:

- Are the correct character type.
- Are the correct length.
- Are within the correct specification range.
- Are correctly delimited with a comma or colon.
- Consist of as many values as required.

Re-enter the command with the option specified in a valid form.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0006

---

### ssvsc0006: The required option is not specified.

#### Explanation

A mandatory option is not specified.

#### User action

Re-enter the command with the mandatory option specified.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0007

---

### ssvsc0007: The same virtualization switch host name is specified.

#### Explanation

There is already an existing virtualization switch with the specified host name.

#### User action

Specify a unique name for the virtualization switch.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0008

---

### ssvsc0008: The same virtual target name is specified.

#### Explanation

The specified virtual target name already exists.

#### User action

Specify a unique name for the virtual target.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0009

---

### ssvsc0009: The same combination of WWN and host-lun is specified.

#### Explanation

The specified combination of a WWN and LUN already exists.

#### User action

Specify a unique combination of a WWN and LUN.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0010

---

### ssvsc0010: The same real disk name is specified.

#### Explanation

The specified physical disk name already exists.

#### User action

Specify a unique name for the physical disk.

For more information, refer to "[Appendix B Admin Server Commands](#)".

## ssvsc0101

---

### ssvsc0101: A mismatch was found in composition data files of virtual storage. *SwitchName = {0}*

#### Explanation

A mismatch was found in the configuration information between virtual switch = {0} and VSC Manager.

#### Parameters

0: The name of the virtual switch that does not match the configuration information

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

#### User action

Perform the following for the virtualization switch (%SwitchName):

1. Restore the configuration information by referring to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)".
2. Confirm that the status of the configuration information of %SwitchName matches that on the Virtual Storage Window (Maintenance). Alternatively, using the getvsw command, confirm that the ConfigFile for %SwitchName has the correct status.

## ssvsc0102

---

### ssvsc0102: A mismatching data was found in configuration data files. *Item = {0}*

#### Explanation

The configuration data file contains %Item with an incorrectly specified value.

#### Parameters

0: Name of the item with an incorrectly specified value

#### User action

Verify the value specified for %Item in the configuration data file.

Correct any incorrect value, and restart the manager.

If it is not operating normally, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0103**

---

**ssvsc0103: Unable to connect to the VSC manager. The VSC manager address is {0}:{1}.**

#### **Explanation**

No connection to VSC Manager can be established from the Virtual Storage Window (View and Create). VSC Manager may not be operating normally.

#### **Parameters**

0: IP address

1: Port number

#### **User action**

Confirm that VSC Manager is operating normally.

If it is not operating normally, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0104**

---

**ssvsc0104: Unable to access to the VSC manager. The VSC manager address is {0}:{1}.**

#### **Explanation**

No connection to VSC Manager can be established from the Virtual Storage Window. The VSC Manager may not be operating normally.

#### **Parameters**

0: IP address

1: Port number

#### **User action**

Confirm that VSC Manager is operating normally.

If it is not operating normally, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0105**

---

**ssvsc0105: Unrecoverable error has been detected in communication between client and VSC manager. The VSC manager address is {0}:{1}.**

#### **Explanation**

An unrecoverable error was detected in communication between the Virtual Storage Window and VSC Manager. VSC Manager probably ended abnormally during communication, or the Virtual Storage Window and VSC Manager may have versions that do not match.

#### **Parameters**

0: IP address

1: Port number

#### **User action**

Confirm that VSC Manager is operating normally, or verify the versions of the Virtual Storage Window and VSC Manager. If VSC Manager is not operating normally, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0106

---

### ssvsc0106: VSC Manager does not start yet.

#### Explanation

VSC Manager is not running.

#### User action

Re-execute the manager command.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0107

---

### ssvsc0107: The specified virtualization switch is already invalid. *Host name = {0}*

#### Explanation

The user attempted to disable a virtualization switch, but it has already been disabled.

#### Parameters

0: Virtualization switch name (host name)

#### User action

Refresh the Virtual Storage (Maintenance) window. Then check whether the specified virtualization switch has been enabled in the Virtual Storage (Maintenance) window.

## ssvsc0108

---

### ssvsc0108: The specified virtualization switch is already valid. *Host name = {0}*

#### Explanation

The user attempted to enable a virtualization switch, but it has already been enabled.

#### Parameters

0: Virtualization switch name (host name)

#### User action

Refresh the Virtual Storage (Maintenance) window. Then check whether the specified virtualization switch has been disabled in the Virtual Storage (Maintenance) window.

## ssvsc0109

---

### ssvsc0109: The slot position of the virtualization blade may be different from a position of registered information. *Host name = {0}*

#### Explanation

The virtualization blade may have been inserted into the wrong slot.

#### Parameters

0: Virtualization switch name (host name)

#### User action

Check the insertion position for the virtualization blade.

Otherwise, update the management status of physical resources to the latest status, and then execute the processing again

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0110**

---

#### **ssvsc0110: A mismatching data was found in the specified switch name. *Switch name = {0}***

##### Explanation

The name of the switch may not match the registered information.

##### Parameters

0: Virtualization switch name (host name)

##### User action

Check whether the specified switch name is correct.

### **ssvsc0111**

---

#### **ssvsc0111: The slot position and serial number of the specified virtualization blade are different from registered information. *Switch name = {0}***

##### Explanation

The slot position and serial number of a virtualization blade do not match the registered information.

##### Parameters

0: Virtualization switch name (host name)

##### User action

When replacing virtualization blades, make sure that the new virtualization blade is inserted into the same slot as the old virtualization blade. When changing the slot position for a virtualization blade, make sure the serial number is the same as before.

### **ssvsc0200**

---

#### **ssvsc0200: Since processing in which it did not complete in virtualization switch was canceled, Discontinuing the processing which is required. *Host name = {0}***

##### Explanation

The requested processing could not be executed because processing was in progress on the virtualization switch.

The processing in progress was canceled.

##### Parameters

0: Virtualization switch name (host name)

##### User action

Perform the operation again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0201**

---

#### **ssvsc0201: The specified virtualization switch name is not registered.**

##### Explanation

The host name of the virtualization switch is incorrect, or the virtualization switch is not registered.

## User action

Confirm that the virtualization switch specified in the Virtual Storage Window (Maintenance) exists. Also, use the `getvsw` command to check whether the virtualization switch is registered. Then, specify the correct host name for the virtualization switch, or register the virtualization switch.

## **ssvsc0202**

---

### **ssvsc0202: The specified virtual storage pool name already exists.**

#### Explanation

Multiple virtual storage pools cannot be created with the same name.

#### User action

Check virtual storage pool names in the Virtual Storage Window (View and Create), and specify a virtual storage pool name not being used.

## **ssvsc0203**

---

### **ssvsc0203: The specified virtual storage pool does not exist.**

#### Explanation

The specified name of the virtual storage pool is incorrect. Alternatively, the specified virtual storage pool does not exist.

#### User action

Check the virtual storage pool name on the Virtual Storage Window (View and Create).

## **ssvsc0204**

---

### **ssvsc0204: The specified physical disk name already exists.**

#### Explanation

Multiple physical disks cannot be registered with the same name.

#### User action

Check physical disk names in the Virtual Storage Window (View and Create), and specify a physical disk name not being used.

## **ssvsc0205**

---

### **ssvsc0205: The specified physical disk does not exist.**

#### Explanation

The specified physical disk name is incorrect. Alternatively, the specified physical disk doesn't exist.

#### User action

In the Virtual Storage Window (View and Create), check the physical disk name.

## **ssvsc0206**

---

### **ssvsc0206: The specified virtual enclosure name already exists.**

#### Explanation

An attempt was made to create a virtual enclosure with an existing name.

#### User action

Check virtual enclosure names in the Virtual Storage Window (View and Create).



## **ssvsc0207**

---

### **ssvsc0207: The specified virtual enclosure does not exist.**

#### Explanation

The specified virtual enclosure name is incorrect. Alternatively, the specified virtual enclosure doesn't exist.

#### User action

Check virtual enclosure names in the Virtual Storage Window (View and Create).

## **ssvsc0208**

---

### **ssvsc0208: The specified virtual target name already exists.**

#### Explanation

Multiple virtual targets cannot be created with the same name.

#### User action

Check virtual target names in the Virtual Storage Window (View and Create), and specify a virtual target name not being used.

## **ssvsc0209**

---

### **ssvsc0209: The specified virtual target does not exist.**

#### Explanation

The virtual target name is incorrect. Alternatively, the specified virtual target doesn't exist.

#### User action

Check virtual target names in the Virtual Storage Window (View and Create).

## **ssvsc0210**

---

### **ssvsc0210: The specified virtual disk name already exists.**

#### Explanation

Multiple virtual disks cannot be created with the same name.

#### User action

Check virtual disk names in the Virtual Storage Window (View and Create), and specify a virtual disk name not being used.

## **ssvsc0211**

---

### **ssvsc0211: The physical disk is not registered into the specified virtual storage pool.**

#### Explanation

The specified virtual storage pool does not have any physical disk.

#### User action

Check the virtual storage pool in the Virtual Storage Window (View and Create), and register a physical disk in the virtual storage pool.

## **ssvsc0212**

---

### **ssvsc0212: The availabilities of a virtual storage pool or a physical disk are insufficient.**

## Explanation

A virtual disk with the specified capacity cannot be created because the virtual storage pool or physical disk is short of free space. Alternatively, migration could not be started because the empty capacity of the physical disk in copy destination virtual storage pool is smaller than the capacity of the copy source virtual disk.

## User action

Check the size of unallocated space in the virtual storage pool or physical disk in the Virtual Storage Window (View and Create).

- If a virtual disk is automatically created or capacity is added:
  - Register physical disks corresponding to the configuration conditions in the virtual storage pool.
  - Delete unnecessary virtual disks created in the specified virtual storage pool, which consist of physical disks corresponding to the configuration conditions.
- If a virtual disk is selected and created or capacity is added by the user:
  - Select a physical disk with unallocated space.
  - Register the physical disk in the virtual storage pool.
  - Delete unnecessary virtual disks created in the specified virtual storage pool.
- If a migration is started:
  - Check the empty capacity of the copy source virtual disk.
  - Register the physical disk in the virtual storage pool.
  - Delete unnecessary virtual disks created in the specified virtual storage pool.

## ssvsc0213

---

### ssvsc0213: The specified virtual disk does not exist.

## Explanation

The virtual disk name is incorrect. Alternatively, the specified virtual disk doesn't exist.

## User action

Check the name of the virtual disk being created on the Virtual Storage Window (View and Create).

## ssvsc0214

---

### ssvsc0214: The specified virtualization switch host name already exists.

## Explanation

Multiple virtualization switches cannot be created with the same host name.

## User action

Check the registered host names of virtualization switches in the Virtual Storage Window (Maintenance ). Alternatively, use the `getvsw` command to check the registered host names of virtualization switches.

## ssvsc0215

---

### ssvsc0215: Since a virtualization switch is in an equipment exchange state, this function cannot be performed. *Virtualization switch host name = {0}*

## Explanation

The virtualization switch with %HostName is being replaced. Functions are restricted during switch replacement.

## Parameters

0: Name of the virtualization switch in an exchange state

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

## User action

After the virtualization switch is replaced, perform registration of the virtualization switch on the ESC Resource Management Window. Then, refer to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)".

## ssvsc0216

---

### ssvsc0216: The memory is lack.

#### Explanation

The memory space is running low.

#### User action

Restart VSC Manager.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0217

---

### ssvsc0217: The specified virtual storage pool does not exist. *The number of succeeded in deleting = {0}/{1}units*

#### Explanation

An invalid virtual storage pool name was specified. Alternatively, the specified virtual disk doesn't exist.

#### Parameters

0: Number of units successfully deleted

1: Specified number of units

#### User action

Check the name of the virtual storage pool on the Virtual Storage Window (View and Create).

## ssvsc0218

---

### ssvsc0218: The specified physical disk does not exist. *The number of succeeded in release = {0}/{1}units*

#### Explanation

An invalid physical disk name was specified. Alternatively, the specified physical disk doesn't exist.

#### Parameters

0: Number of units successfully released

1: Specified number of units

#### User action

Check physical disk names in the Virtual Storage Window (View and Create).

## ssvsc0219

---

### ssvsc0219: The specified virtual enclosure does not exist. *The number of succeeded in deleting = {0}/{1}units*

## Explanation

An invalid virtual enclosure name is specified, or the specified virtual enclosure name doesn't exist.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

Check virtual enclosure names in the Virtual Storage Window (View and Create).

## ssvsc0220

---

**ssvsc0220: The specified virtual target does not exist. The number of succeeded in deleting = {0}/{1}units**

## Explanation

An invalid virtual target name was specified. Alternatively, the specified virtual target doesn't exist.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

Check virtual target names in the Virtual Storage Window (View and Create).

## ssvsc0221

---

**ssvsc0221: The specified virtual disk does not exist. The number of succeeded in deleting = {0}/{1}units**

## Explanation

An invalid virtual disk name was specified. Alternatively, the specified virtual disk doesn't exist.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

Check the names of created virtual disks in the Virtual Storage Window (View and Create).

## ssvsc0222

---

**ssvsc0222: Numbers for farm of an engine of a processing object are different.**

## Explanation

Different firmware versions of VSC Engine are being used in a redundant configuration.

## User action

Set up a redundant configuration using virtualization switches with the same firmware versions. If the problem persists, referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0223

---

**ssvsc0223: Since a virtualization switch is in an equipment exchange state, failed to deletion. Host name = {0} The number of succeeded in making = {1}/{2}units**

## Explanation

The virtualization switch with %HostName is being replaced. Functions are restricted during switch replacement.

## Parameters

0: Host name of the virtualization switch being replaced

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Number of units successfully deleted

2: Specified number of units

## User action

After the virtualization switch is replaced perform registration on the ESC Resource Management Window. Then restore the configuration information; refer to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)".

## ssvsc0224

---

**ssvsc0224: Since a virtualization switch is in an equipment exchange state. Virtualization switch host name = {0}**

## Explanation

The virtualization switch with %HostName is being replaced. Functions are restricted during switch replacement.

## Parameters

0: Host name of the virtualization switch being replaced

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

## User action

After the virtualization switch is replaced perform registration on the ESC Resource Management Window, and then restore the configuration information; refer to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)".

## ssvsc0225

---

**ssvsc0225: Failed to getting of real disk information.**

## Explanation

Physical disk information could not be obtained because an error occurred when storage unit information was being retrieved.

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0226

---

**ssvsc0226: Commit script cannot be performed. file = {0}**

## Explanation

The commit script start program was deleted.

## Parameters

0: Path of the commit script start program file

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0227

---

**ssvsc0227: The number of virtual targets of SCSI command cues exceeds the limitation value of CA port. Real disk = {0} , Limitation value = {1} excess the number = {2}**

### Explanation

The number of SCSI command queues of virtual targets exceeds the limit value for a CA port.

### Parameters

- 0: Physical disk information
- 1: Information regarding the number of queues
- 2: Number of excess queues

### User action

Select a physical disk from another CA port.

## ssvsc0228

---

**ssvsc0228: The number of virtual targets of SCSI command cues exceeds the limitation value of CA port. Virtual disk = {0} , Real disk = {1} , Limitation value = {2} excess the number = {3}**

### Explanation

The number of SCSI command queues of virtual targets exceeds the limit value for a CA port.

### Parameters

- 0: Virtual disk information
- 1: Physical disk information
- 2: Information regarding the number of queues
- 3: Number of excess queues

### User action

Using a physical disk under another CA port, create a virtual disk again.

## ssvsc0229

---

**ssvsc0229: It failed in the excess of the number of SCSI command cues check processing of the virtual target. Code = {0}**

### Explanation

Processing to check whether the number of SCSI command queues of virtual targets exceeds the limit value has failed.

### Parameters

- 0: VSC Engine error code

### User action

Referring to "6.3 Collecting Data," collect the necessary data for troubleshooting, and then contact your Fujitsu engineer (CE or SE).

## ssvsc0230

---

**ssvsc0230: The specified virtualization switch name is already registered.**

### Explanation

A virtualization switch of the same name is not allowed to multi-register.

## User action

Check virtualization switch names on the virtual storage window (maintenance) to set an unused virtualization switch name.

### ssvsc0231

---

**ssvsc0231: Since a virtualization switch is in an equipment exchange state, Failed to release. Host name = {0} The number of succeeded in release = {1}/{2}units**

## Explanation

The virtualization switch for %HostName is being replaced. While the device is being replaced, the functions are restricted.

## Parameters

0: The host name of a virtualization switch that is being replaced

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Quantity that has succeeded in release

2: Specified quantity

## User action

Since exchange virtualization switch, after the virtualization switch is replaced, execute "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)" and perform registration on the ESC Resource Management Window.

### ssvsc0232

---

**ssvsc0232: Information was not able to be acquired from the principal switch.**

## Explanation

The necessary information could not be acquired from the principal switch.

## User action

Check the following points:

- Check whether there are any problems with the virtualization switches associated with the specified virtual storage pool or with the network environment for the FC switches in cascading connections to these virtualization switches.
- Check whether the FC switches in cascading connections to the virtualization switches associated with the specified virtual storage pool have been registered.

### ssvsc0233

---

**ssvsc0233: Failed to getting virtualization switch. Host name = {0}**

## Explanation

A failure occurred in a virtualization switch, and the information acquisition failed.

## Parameters

0: Virtualization switch host name

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

## User action

Refer to "[6.3 Collecting Data](#)" to collect required data for troubleshooting and contact the Fujitsu engineer (CE/SE).

### ssvsc0234

---

**ssvsc0234: Since a virtualization switch is in an equipment exchange state, Failed to process. Host name = {0} The number of succeeded in processing = {1}/{2}units**

**Explanation**

The virtualization switch (%HostName) is being replaced. During device replacement, functions will be limited.

**Parameters**

0: Name of the host of the virtualization switch being replaced

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Number of units successfully processed

2: Number of units specified

**User action**

After the virtualization switch is replaced perform registration on the Physical Device Replacement Window. Refer to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)".

**ssvsc0235**

---

**ssvsc0235: The virtualization switch has been registered with the VSC Manager. Host name = {0}**

**Explanation**

The virtualization switch has been registered with the VSC Manager.

**Parameters**

0: Virtualization switch name (host name)

**User action**

None

**ssvsc0236**

---

**ssvsc0236: Virtualization function has been started.**

**Explanation**

A virtualization switch has either been registered successfully or the virtualization switch function has started successfully.

**User action**

None

**ssvsc0237**

---

**ssvsc0237: Failed to starting virtualization function.**

**Explanation**

A virtualization switch has failed to be registered or the virtualization switch function has failed to start.

**User action**

Take the action appropriate for the error messages that are displayed after this message.

**ssvsc0238**

---

**ssvsc0238: Virtualization function has been stopped.**



#### Explanation

The virtualization switch function has stopped successfully.

#### User action

None

#### **ssvsc0239**

---

#### **ssvsc0239: Failed to stopping virtualization function.**

#### Explanation

Stopping the virtualization switch function has failed.

#### User action

Take the action appropriate for the error messages that are displayed after this message.

#### **ssvsc0240**

---

#### **ssvsc0240: The virtualization switch has been deleted from the VSC Manager. Host name = {0}**

#### Explanation

The virtualization switch has been deleted from the VSC Manager.

#### Parameters

0: Virtualization switch name (host name)

#### User action

None

#### **ssvsc0241**

---

#### **ssvsc0241: The specified Disk has virtual disks.**

#### Explanation

There is a virtual disk for the specified physical disk.

#### User action

Use the Virtual Storage window (View and Create) to check that no virtual disks have been created for the specified physical disk.

#### **ssvsc0300**

---

#### **ssvsc0300: The maximum number of creating virtual storage pools was exceeded.**

#### Explanation

No more virtual storage pools can be created.

#### User action

Delete unnecessary virtual storage pools and try again.

For the number of virtual storage pools that can be created, refer to "[Appendix D Limit Values](#)."

#### **ssvsc0301**

---

#### **ssvsc0301: The physical disk is registered into the specified virtual storage pool.**

## Explanation

A virtual storage pool in which a physical disk is registered cannot be deleted.

## User action

Confirm that the specified name of the virtual storage pool is correct.

In the Virtual Storage Window (View and Create), check for a physical disk in the virtual storage pool to be deleted.

If the virtual storage pool contains a physical disk, release the physical disk from the virtual storage pool before executing the command.

## **ssvsc0302**

---

### **ssvsc0302: The specified physical disk name already exists.**

## Explanation

An attempt was made to register a physical disk that has already been registered.

## User action

Verify the WWN and LUN in the Virtual Storage Window (View and Create), and execute the command again.

## **ssvsc0303**

---

### **ssvsc0303: The maximum number of registering physical disks was exceeded.**

## Explanation

No more physical disks can be registered.

## User action

Release unnecessary physical disks, and execute the command again.

For the number of physical disks that can be registered, refer to "[Appendix D Limit Values](#)".

## **ssvsc0304**

---

### **ssvsc0304: The specified physical disk does not exist. Code = {0}**

## Explanation

VSC Engine could not find the specified physical disk.

## Parameters

0: VSC Engine error code

## User action

Check the storage unit management window or the Design Sheet specifications to verify the WWN and LUN to be registered. In the related management windows, confirm that all the physical disks that constitute virtual disks are connected to virtualization switches.

## **ssvsc0305**

---

### **ssvsc0305: There is no response from the specified real disk. Code = {0}**

## Explanation

The specified physical disk did not respond.

## Parameters

0: VSC Engine error code

## User action

Check the power supply and connection cable of the disk unit.

Alternatively check the following settings of the disk unit; host worldwide name, host affinity and virtualization switch zoning.

For details, refer to "[3.4.1.1 Using the zoning function of a virtualization switch](#)" and "[3.4.1.2 Using the host table settings mode of ETERNUS and GR](#)".

If the problem persists, collect the necessary data for troubleshooting and contact your Fujitsu engineer (CE or SE).

## ssvsc0306

---

**ssvsc0306: The specified physical disk is disk equipment of the outside for support. Code = {0}**

### Explanation

The specified physical disk is a non-supported disk unit or not a disk unit at all.

### Parameters

0: VSC Engine error code

### User action

Use supported hardware for operation.

For details, refer to "[1.4.1 Supported hardware](#)".

## ssvsc0307

---

**ssvsc0307: Failed to Registration of a physical disk. Code = {0}**

### Explanation

Physical disk registration failed because an error occurred in a virtualization switch.

### Parameters

0: VSC Engine error code

### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0308

---

**ssvsc0308: The specified physical disk is assigned to the real space of a virtual disk.**

### Explanation

The specified physical disk is allocated to the real space of a virtual disk.

### User action

Delete the allocated virtual disk and then execute the command again.

## ssvsc0309

---

**ssvsc0309: The physical disk specified in the specified virtual storage pool does not exist.**

### Explanation

The specified physical disk is registered in another virtual storage pool.

#### User action

Verify the relationship between the virtual storage pool and physical disk, which is registered in the virtual storage pool, in the Virtual Storage Window (View and Create), and execute the command again.

#### **ssvsc0310**

---

#### **ssvsc0310: The maximum number of creating virtual enclosures was exceeded.**

#### Explanation

No more virtual enclosures can be created.

#### User action

Delete unnecessary virtual enclosures, and execute the command again.

For the number of virtual enclosures that can be created, refer to "[Appendix D Limit Values](#)".

#### **ssvsc0311**

---

#### **ssvsc0311: The specified BOX-ID already exists.**

#### Explanation

An attempt was made to create a virtual enclosure with a BOX-ID that was already created.

#### User action

Verify the box\_id for the virtual enclosure in the Virtual Storage Window (View and Create).

#### **ssvsc0312**

---

#### **ssvsc0312: The virtual target is created to the specified virtual enclosure.**

#### Explanation

A virtual enclosure in which a virtual target is registered cannot be deleted.

#### User action

Confirm that the specified virtual enclosure name is correct.

In the Virtual Storage Window (View and Create), check for a virtual target in the virtual enclosure to be deleted.

If the virtual enclosure contains a virtual target, delete the virtual target from the virtual enclosure before executing the command.

#### **ssvsc0313**

---

#### **ssvsc0313: The specified enclosure or the specified virtualization switch is a mistake.**

#### Explanation

A virtual target cannot be created because the relationship between the virtualization switch and the virtual enclosure is invalid.

#### User action

Verify the relationship between the registered virtualization switch and the virtual enclosure in the Virtual Storage Window (View and Create), and execute the command again.

#### **ssvsc0314**

---

#### **ssvsc0314: The maximum number of creating virtual targets was exceeded in the specified virtual enclosure. Code = {0}**

#### Explanation

No more virtual targets can be created in the same virtual enclosure.

## Parameters

0: VSC Engine error code

## User action

Delete unnecessary virtual targets, and execute the command again.

For the number of virtual targets that can be created in the same virtual enclosure, refer to "[Appendix D Limit Values](#)".

## ssvsc0315

---

**ssvsc0315: The maximum number of creating virtual targets was exceeded in the specified virtualization switch. Code = {0}**

## Explanation

No more virtual targets can be created in the virtualization switch.

## Parameters

0: VSC Engine error code

## User action

Delete unnecessary virtual targets, and execute the command again.

For the number of virtual targets that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

## ssvsc0316

---

**ssvsc0316: Failed to creation of a virtual target. Code = {0}**

## Explanation

A virtual target could not be created because an error occurred in a virtualization switch.

## Parameters

0: VSC Engine error code

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0317

---

**ssvsc0317: The virtual disk is assigned to the specified virtual target.**

## Explanation

The virtual target to which a virtual disk is assigned cannot be deleted.

## User action

Unassign the virtual disk from the virtual target, and delete the virtual target.

## ssvsc0318

---

**ssvsc0318: Failed to deletion of a virtual target. Code = {0}**

## Explanation

A virtual target could not be deleted because an error occurred in a virtualization switch.

## Parameters

0: VSC Engine error code

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0319**

---

#### **ssvsc0319: The specified virtual target is invalid.**

## Explanation

A virtual disk cannot be allocated to the specified virtual target because the virtualization switch that controls the corresponding virtual storage pool does not have the virtual target.

## User action

Check the Virtual Storage Window (View and Create) and ensure that the virtual disk is specified for the corresponding storage pool on the virtualization switch.

### **ssvsc0320**

---

#### **ssvsc0320: The virtual target in a different virtual enclosure was specified.**

## Explanation

The specified virtual target belongs to a different virtual enclosure.

## User action

Check the virtual target name in the Virtual Storage Window (View and Create). Specify a virtual target that belongs to the same virtual enclosure.

### **ssvsc0322**

---

#### **ssvsc0322: The maximum number of creating extents of physical disk that constituted a virtual disk was exceeded.**

## Explanation

An attempt was made to create an extent that constitutes a virtual disk that exceeds the maximum number of extents that can be created.

## User action

Take either of the following procedures on the Virtual Storage Window (View and Create) screen.

- If a virtual disk is automatically created or capacity is added:
  - Register physical disks corresponding to the configuration conditions in the virtual storage pool.
  - Specify another virtual storage pool.
- If a virtual disk is selected and created or capacity is added by the user:
  - Refer to "[A.2.3 Displaying the virtual storage pool](#)" to check the number of unallocated extents of the "View and Create" screen and specify physical disks so that the number of extents may not exceed the maximum permissible number. For details, refer to "[Appendix D Limit Values](#)".
  - Execute "Candidate Selection".
  - Register physical disks in the virtual storage pool.

If capacity is added, there are cases where the number of extents has already reached the maximum permissible number. In this case, use Migration to expand the capacity.

## ssvsc0324

---

**ssvsc0324: The maximum number of creating virtual disks was exceeded in the specified virtualization switch. Code = {0}**

### Explanation

No more virtual disks can be created in the virtualization switch.

### Parameters

0: VSC Engine error code

### User action

Delete unnecessary virtual disks, and execute the command again.

For the number of virtual disks that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

## ssvsc0325

---

**ssvsc0325: Failed to creation of a virtual disk. Code = {0}**

### Explanation

A virtual disk could not be created because an error occurred in a virtualization switch.

### Parameters

0: VSC Engine error code

### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0326

---

**ssvsc0326: The specified virtual disk is now copying. Code = {0}**

### Explanation

You cannot manipulate a virtual disk that is being copied.

### Parameters

0: VSC Engine error code

### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the getsession command to check the copy status.

## ssvsc0327

---

**ssvsc0327: Failed to deletion of a virtual disk. Code = {0}**

### Explanation

A virtual disk could not be deleted because an error occurred in a virtualization switch.

### Parameters

0: VSC Engine error code

### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0328

---

### ssvsc0328: The specified host quota number already exists.

#### Explanation

Each host allocation number in the same virtual target must be unique.

#### User action

Check the host allocation numbers of virtual disks in the Virtual Storage Window (View and Create).

Specify a host allocation number that is unique within the virtual target.

## ssvsc0329

---

### ssvsc0329: The number of host quota numbers which can be created on the virtual targets is over the maximum number which can be created. Code = {0}

#### Explanation

No more host allocation numbers can be created in the same virtual target.

#### Parameters

0: VSC Engine error code

#### User action

Delete unnecessary host allocation numbers, and execute the command again.

For the number of host allocation numbers that can be created in a virtual target, refer to "[Appendix D Limit Values](#)".

## ssvsc0330

---

### ssvsc0330: Failed to setting of a host quota number. Code = {0}

#### Explanation

A host allocation number could not be set because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0331

---

### ssvsc0331: The I/O error occurred when it accessed a physical disk. Code = {0}

#### Explanation

An error was detected during access to the physical disk from the virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).



## ssvsc0332

---

### ssvsc0332: It is in the state which cannot use a virtual disk. Code = {0}

#### Explanation

An error occurred in the virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Check the disk unit status and execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0333

---

### ssvsc0333: A physical disk cannot be registered in WWN and host-lun which were specified.

#### Explanation

The access path from the specified physical disk to the virtual storage pool is incorrect. Alternatively, the number of virtualization switches managed by the specified virtual storage pool and the number of paths for the physical disks do not match.

#### User action

Check the storage unit management window or the Design Sheet specifications to verify the WWN and LUN to be registered. Confirm that all the physical disks constituting the virtual disk are connected to the virtualization switches on the Relationship Management Window. Ensure that the physical disk can be seen from all the virtualization switches controlled by the specified virtual storage pool. Ensure that there is only one access path to a physical disk from each virtualization switch.

## ssvsc0334

---

### ssvsc0334: Physical disk does not exist in the specified composition conditions.

#### Explanation

There is no physical disk that meets the specified configuration conditions.

#### User action

Refresh the Virtual Storage Window (View and Create) and enter the configuration conditions again.

## ssvsc0335

---

### ssvsc0335: Failed to capacity addition of a virtual disk. Code = {0}

#### Explanation

Failed to add capacity to a virtual disk because an error occurred in the virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0336

---

### ssvsc0336: The specified physical disk cannot carry out capacity addition of a virtual disk.

## Explanation

The specified physical disk is registered in a different virtual storage pool from the physical disk that constitutes the virtual disk.

## User action

Specify a physical disk registered in the same virtual storage pool.

## **ssvsc0337**

---

### **ssvsc0337: The specified virtual disk is assigned to the virtual target.**

## Explanation

You cannot delete the specified virtual disk because it is allocated to the virtual target.

## User action

Unassign the virtual disk before deleting it.

## **ssvsc0338**

---

### **ssvsc0338: The specified physical disk does not exist. *LogicalVolume = {0}***

## Explanation

The information of the physical resources under management may be outdated.

## Parameters

0: Physical disk information

## User action

Refresh the physical resources management status to the latest one and register the physical disk again.

## **ssvsc0339**

---

### **ssvsc0339: The specified virtual disk cannot be accessed from the virtualization switch group of the specified virtual target.**

## Explanation

The same virtualization switch group must control the virtual target and virtual disk.

## User action

In the Virtual Storage Window (View and Create), check the virtualization switch of the virtual enclosure to which the virtual target belongs, and check the virtualization switch of the virtual storage pool containing the virtual disk. Specify a virtual target and virtual disk in the same virtualization switch.

## **ssvsc0340**

---

### **ssvsc0340: The specified virtual disk in the process of migration or backup already exists. *Virtual disk = {0}***

## Explanation

Either the specified virtual disk is in the process of migration or there is a migration backup.

## Parameters

0: Virtual disk name

## User action

In the Virtual Storage Window (Copy), confirm that the specified virtual disk is not in the process of migration or that there is no migration backup. Cancel migration or delete the backup, then execute the command again.

### **ssvsc0341**

---

**ssvsc0341: The host quota number of the specified virtual disk is intermingled. *Virtual disk = {0}***

## Explanation

The virtual disk can be allocated with only one host allocation number.

## Parameters

0: Virtual disk name

## User action

In the Virtual Storage Window (View and Create), check the host allocation number of virtual disks and allocate the virtual disk with the same host allocation number.

### **ssvsc0342**

---

**ssvsc0342: The virtual target in a different virtual enclosure was specified. *Virtual disk = {0}***

## Explanation

A different virtual enclosure has the specified virtual target.

## Parameters

0: Virtual disk name

## User action

In the Virtual Storage Window (View and Create), check the virtual target name.

Specify a virtual target included in the same virtual enclosure.

### **ssvsc0343**

---

**ssvsc0343: The specified virtual disk is now copying. *Virtual disk = {0} Code = {1}***

## Explanation

You cannot manipulate a virtual disk that is being copied.

## Parameters

0: Virtual disk name

1: VSC Engine error code

## User action

In the Virtual Storage Window (Copy), check the copying status.

### **ssvsc0344**

---

**ssvsc0344: It is in the state which cannot use a virtual disk. *Virtual disk = {0} Code = {1}***

## Explanation

An error occurred in the virtualization switch.

## Parameters

- 0: Virtual disk name
- 1: VSC Engine error code

## User action

Check the disk unit status and repeat this operation.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0345**

---

### **ssvsc0345: Failed to assignment of a virtual disk. Code = {0}**

## Explanation

A virtual disk could not be allocated because an error occurred in a virtualization switch.

## Parameters

- 0: VSC Engine error code

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0346**

---

### **ssvsc0346: Failed to creation of a virtual enclosure. Code = {0}**

## Explanation

A virtual enclosure could not be created because an error occurred in a virtualization switch.

## Parameters

- 0: VSC Engine error code

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0347**

---

### **ssvsc0347: The I/O error occurred when it accessed a physical disk. Logical/Volume = {0}. Code = {1}**

## Explanation

An error was detected during access from the virtualization switch to the physical disk.

## Parameters

- 0: Physical disk information
- 1: VSC Engine error code

## User action

Submit the request again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0348**

---

**ssvsc0348: The specified physical disk is disk equipment of the outside for support. LogicalVolume = {0}. Code = {1}**

**Explanation**

The specified physical disk is a non-supported disk unit or not a disk unit at all.

**Parameters**

- 0: Physical disk information
- 1: VSC Engine error code

**User action**

Use supported hardware for operation. For details, refer to "[1.4.1 Supported hardware](#)".

**ssvsc0349**

---

**ssvsc0349: The specified physical disk is in a busy state. LogicalVolume = {0}.**

**Explanation**

The specified physical disk returned a busy status.

**Parameters**

- 0: Physical disk information

**User action**

Submit the request again.

**ssvsc0350**

---

**ssvsc0350: The specified host quota number already exists. Virtual disk = {0}**

**Explanation**

No more host allocation numbers can be created in the same virtual target.

**Parameters**

- 0: Virtual disk name

**User action**

In the Virtual Storage Window (View and Create), check the host allocation number of the virtual disk.

**ssvsc0351**

---

**ssvsc0351: The specified physical disk already exists. LogicalVolume = {0}**

**Explanation**

An attempt was made to register a physical disk that has already been registered.

**Parameters**

- 0: Physical disk information

**User action**

Refresh the Virtual Storage Window (View and Create), verify the WWN and LUN, and execute the command again.

**ssvsc0352**

---

**ssvsc0352: A physical disk cannot be registered in WWN and host-lun which were specified. LogicalVolume = {0}****Explanation**

The access path from the specified physical disk to the virtual storage pool is incorrect.

Or the number of virtualization switches managed by the specified virtual storage pool is not consistent with that of physical disk paths.

**Parameters**

0: Physical disk information

**User action**

Check the WWN and LUN of a physical disk to be registered on the management window of the storage device or on the specifications in design sheet.

Check on the related management window if the physical disks making up a virtual disk are connected to all the virtualization switches.

Set up so that the physical disks can be seen from all the virtualization switches managed by the specified virtual storage pool.

In addition, the number of access paths to the physical disks from each virtualization switch should be one.

**ssvsc0353**

---

**ssvsc0353: The specified physical disk does not exist. LogicalVolume = {0} Code = {1}****Explanation**

The specified physical disk could not be found from VSC Engine.

**Parameters**

0: Physical disk information

1: VSC Engine error code

**User action**

Check the storage unit management window or the Design Sheet specifications to verify the WWN and LUN to be registered.

In the related management windows, confirm that all the physical disks that constitutes the virtual disk are connected to virtualization switches.

**ssvsc0354**

---

**ssvsc0354: The specified physical disk is assigned to the real space of a virtual disk. LogicalVolume = {0}****Explanation**

The specified physical disk is allocated to the real space of a virtual disk.

**Parameters**

0: Physical disk information

**User action**

In the Virtual Storage Window (View and Create), check the virtual disk allocated to the real space.

**ssvsc0355**

---

**ssvsc0355: The most suitable real disk that constituted a virtual disk, was not be elected in consideration of an associated CM.****Explanation**

The virtual disk that is most suitable considering the associated CM cannot be selected from the specified virtual storage pool.

## User action

Perform one of the following actions in the Virtual Storage Window (View and Create):

- To create a virtual disk in the specified virtual storage pool or add the capacity, do not use the <Candidate Selection> and <Automatic creation> button but directly select the physical disk.
- Add physical disks corresponding to the configuration conditions to the specified virtual storage pool.
- Specify another virtual storage pool.

## ssvsc0356

---

**ssvsc0356: The maximum number of creating virtual disks was exceeded in the specified virtualization switch.**

## Explanation

No more virtual disks can be created in the virtualization switch.

## User action

Delete unnecessary virtual disks, and execute the command again.

For the number of virtual disks that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

## ssvsc0357

---

**ssvsc0357: The maximum number of creating extents of physical disk that constituted a virtual disk was exceeded. *The number of succeeded in making = {0}/{1}units.***

## Explanation

The maximum number of extents that can be created for the physical disks constituting a virtual disk has been exceeded.

## Parameters

0: Number of units successfully created

1: Specified number of units

## User action

Take either of the following procedures on the Virtual Storage Window (View and Create) screen.

- If a virtual disk is automatically created or capacity is added:
  - Register physical disks corresponding to the configuration conditions in the virtual storage pool.
  - Specify another virtual storage pool.
- If a virtual disk is selected and created or capacity is added by the user:
  - Refer to "[A.2.3 Displaying the virtual storage pool](#)" to check the number of unallocated extents of the "View and Create" screen and specify physical disks so that the number of extents may not exceed the maximum permissible number. For details, refer to "[Appendix D Limit Values](#)".
  - Execute "Candidate Selection".
  - Register physical disks in the virtual storage pool.

If capacity is added, there are cases where the number of extents has already reached the maximum permissible number. In this case, use Migration to expand the capacity.

## ssvsc0358

---

**ssvsc0358: The most suitable real disk that constituted a virtual disk, was not be elected in consideration of an associated CM. *The number of succeeded in making = {0}/{1}units***

## Explanation

The virtual disk that is most suitable considering the associated CM cannot be selected from the specified virtual storage pool.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Perform one of the following actions in the Virtual Storage Window (View and Create):

- To create a virtual disk in the specified virtual storage pool or add the capacity, do not use the <Candidate Selection> and <Automatic creation> button but directly select the physical disk.
- Add physical disks corresponding to the configuration conditions to the specified virtual storage pool.
- Specify another virtual storage pool.

## **ssvsc0359**

---

**ssvsc0359: It is in the state which cannot use a virtual disk. Code = {0} The number of succeeded in making = {1}/{2}units**

## Explanation

An error was detected during access from the virtualization switch to the physical disk.

## Parameters

- 1: Number of units successfully created
- 2: Specified number of units

## User action

Execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0360**

---

**ssvsc0360: There is no response from the specified real disk. Code = {0} The number of succeeded in making = {1}/{2}units**

## Explanation

No response was issued from the selected physical disk.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0361**

---

**ssvsc0361: Failed to creation of a virtual disk. Code = {0} The number of succeeded in making = {1}/{2}units**



## Explanation

A virtual disk could not be created because an error occurred in a virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0362

---

**ssvsc0362: It is in the state which cannot use a virtual disk. Code = {0} The number of succeeded in making = {1}/{2}units**

## Explanation

An error occurred in the virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Check the state of the disk unit and reenter the command.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0363

---

**ssvsc0363: The physical disk is registered into the specified virtual storage pool. The number of succeeded in deleting = {0}/{1}units**

## Explanation

A virtual storage pool in which a physical disk is registered cannot be deleted.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

In the Virtual Storage Window (View and Create), check for a physical disk in the virtual storage pool that is to be deleted.

If the virtual storage pool contains a physical disk, release the physical disk from the virtual storage pool before executing the command.

## ssvsc0364

---

**ssvsc0364: The specified physical disk is assigned to the real space of a virtual disk. The number of succeeded in release = {0}/{1}units**

## Explanation

The specified physical disk has already been allocated to the real space of a virtual disk.

## Parameters

- 0: Number of units successfully released
- 1: Specified number of units

## User action

Refresh the Virtual Storage Window (View and Create), select an unallocated physical disk, and execute the command again.

### **ssvsc0365**

---

**ssvsc0365: The virtual target is created to the specified virtual enclosure. The number of succeeded in deleting = {0}/{1}units**

## Explanation

A virtual enclosure in which a virtual target is registered cannot be deleted.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

In the Virtual Storage Window (View and Create), check for a virtual target in the virtual enclosure that is to be deleted.

If the virtual enclosure contains a virtual target, delete the virtual target from the virtual enclosure before executing the command.

### **ssvsc0366**

---

**ssvsc0366: The virtual disk is assigned to the specified virtual target. The number of succeeded in deleting = {0}/{1}units**

## Explanation

A virtual target to which a virtual disk has been allocated cannot be deleted.

## Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

## User action

Unassign the virtual disk before deleting the virtual target.

### **ssvsc0367**

---

**ssvsc0367: Failed to deletion of a virtual target. Code = {0} The number of succeeded in deleting = {1}/{2}units**

## Explanation

A virtual target could not be deleted because an error occurred in a virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully deleted
- 2: Specified number of units

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0368**

---

**ssvsc0368: The specified virtual disk is now copying. Code = {0} The number of succeeded in deleting = {1}/{2}units**

### Explanation

You cannot operate a virtual disk that is subject to a copy operation.

### Parameters

- 0: VSC Engine error code
- 1: Number of units successfully deleted
- 2: Specified number of units

### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the `getsession` command to check the copy status.

## **ssvsc0369**

---

**ssvsc0369: Failed to deletion of a virtual disk. Code = {0} The number of succeeded in deleting = {1}/{2}units**

### Explanation

An error occurred in the virtualization switch.

### Parameters

- 0: VSC Engine error code
- 1: Number of units successfully deleted
- 2: Specified number of units

### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0370**

---

**ssvsc0370: The specified virtual disk is assigned to the virtual target. The number of succeeded in deleting = {0}/{1}units**

### Explanation

The specified virtual disk cannot be deleted because it is allocated to a virtual target.

### Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

### User action

Unassign the virtual disk before deleting it.

## **ssvsc0371**

---

**ssvsc0371: It is in the state which cannot use a virtual disk. Code = {0} The number of succeeded in deleting = {1}/{2}units**

### Explanation

An error occurred in the virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully deleted
- 2: Specified number of units

## User action

Check the state of the disk unit and reenter the command.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0372**

---

**ssvsc0372: The I/O error occurred when it accessed a physical disk. Code = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

## Explanation

An error was detected during access to the physical disk from the virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

## User action

Execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0373**

---

**ssvsc0373: The specified physical disk is disk equipment of the outside for support. Code = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

## Explanation

The specified physical disk is an unsupported disk unit or it is not a disk unit.

## Parameters

- 0: VSC Engine error code
- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

## User action

Use supported hardware for operation. For details, refer to "[1.4.1 Supported hardware](#)".

## **ssvsc0374**

---

**ssvsc0374: It is in the state which cannot use a virtual disk. Code = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

## Explanation

An error occurred in the virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

## User action

Confirm that the status of the disk unit is normal, then execute the command again.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0375**

---

**ssvsc0375: Failed to batch conversion. Code = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

## Explanation

Batch conversion failed because an error occurred in a virtualization switch.

## Parameters

- 0: VSC Engine error code
- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

## User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0376**

---

**ssvsc0376: The maximum number of creating virtual targets was exceeded in the specified virtual enclosure.**

## Explanation

No more virtual targets can be created in the same virtual enclosure.

## User action

Delete unnecessary virtual targets, and execute the command again. For the number of virtual targets that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

## **ssvsc0377**

---

**ssvsc0377: The maximum number of creating virtual targets was exceeded in the specified virtualization switch.**

## Explanation

No more virtual targets can be created in the virtualization switch.

## User action

Delete unnecessary virtual targets, then execute the command again. For the number of virtual targets that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

## **ssvsc0378**

---

**ssvsc0378: The number of host quota numbers which can be created on the virtual targets is over the maximum number which can be created.**

**Explanation**

No more host allocation numbers can be created in the same target.

**User action**

Delete unnecessary host allocation numbers, then execute the command again. For the number of host allocation numbers that can be created in a virtualization switch, refer to "[Appendix D Limit Values](#)".

**ssvsc0379**

---

**ssvsc0379: The specified host quota number already exists.**

**Explanation**

Each host allocation number in the same virtual target must be unique.

**User action**

Check the host allocation numbers of virtual disks in the Virtual Storage Window (View and Create). Specify a host allocation number that is unique within the virtual target.

**ssvsc0380**

---

**ssvsc0380: A physical disk cannot be registered in WWN and host-lun which were specified. LogicalVolume = {0} The number of succeeded in making = {1}/{2}units**

**Explanation**

The access path from the specified physical disk to the virtual storage pool is incorrect.

Alternatively, the number of virtualization switches managed by the specified virtual storage pool does not match the number of paths for the physical disks.

**Parameters**

- 0: Physical disk information
- 1: Number of units successfully created
- 2: Specified number of units

**User action**

Check the storage unit management window or the Design Sheet specifications to verify the WWN and LUN of the physical disk to be registered.

Confirm that all the physical disks constituting the virtual disk are connected to the virtualization switches on the Relationship Management Window. Ensure that the physical disk can be seen from all the virtualization switches controlled by the specified virtual storage pool. Ensure that there is only one access path to a physical disk from individual virtualization switch.

**ssvsc0381**

---

**ssvsc0381: The specified physical disk does not exist. Code = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

**Explanation**

The specified physical disk could not be found from VSC Engine.

**Parameters**

- 0: VSC Engine error code
- 1: Physical disk information

- 2: Number of units successfully created
- 3: Specified number of units

#### User action

Check the storage unit management window or the Design Sheet specifications to verify the WWN and LUN to be registered.

In the related management windows, confirm that the physical disk is connected to all virtualization switches associated with the virtual storage used.

#### **ssvsc0382**

---

**ssvsc0382: The specified physical disk does not exist. LogicalVolume = {0} The number of succeeded in making = {1}/{2}units**

#### Explanation

Information on the physical resources under management is probably out of date.

#### Parameters

- 0: Physical disk information
- 1: Number of units successfully created
- 2: Specified number of units

#### User action

Update the physical resource management status, then register the physical disk again.

#### **ssvsc0383**

---

**ssvsc0383: The specified physical disk already exists. LogicalVolume = {0} The number of succeeded in making = {1}/{2}units**

#### Explanation

An attempt was made to register an already registered physical disk.

#### Parameters

- 0: Name of the physical disk that could not be registered
- 1: Number of units successfully created
- 2: Specified number of units

#### User action

Verify the WWN and LUN in the Virtual Storage Window (View and Create).

#### **ssvsc0384**

---

**ssvsc0384: Neither the device name nor the LUNV number of the input parameter are used.**

#### Explanation

Although the physical disk is registered in the virtual storage pool, the values stored in VSC Manager are used as the name of storage unit and the LUNV number. The specified name of storage unit and LUNV number are not used.

#### User action

Confirm that the physical disk is not Fujitsu's.

#### **ssvsc0385**

---

**ssvsc0385: The physical disk is not registered into the CA Port.**

## Explanation

A VS900 management area could not be created because no physical disk connected to the specified CA port had been registered.

## User action

Register a physical disk connected to the specified CA port.

## ssvsc0386

---

### ssvsc0386: The VS900 management area in the specified CA port has been made.

## Explanation

Creating a VS900 management area failed because there is already an existing VS900 management area for the specified CA port.

## User action

In the "List of VS900 Management Areas" window, confirm that the VS900 management area of the specified CA port already exists.

## ssvsc0387

---

### ssvsc0387: As for a real disk in the specified CA port, empty capacity necessary for the VS900 management area is insufficient.

## Explanation

A VS900 management area could not be created because the physical disk connected to the specified CA port does not have sufficient free space to accommodate the VS900 management area.

## User action

Perform one of the following operations in the Virtual Storage Window (View and Create) until sufficient free space for the VS900 management area can be secured:

- Increase the size of the physical disk connected to the specified CA port.
- Delete a virtual disk to which the physical disk connected to the specified CA port is allocated.

## ssvsc0388

---

### ssvsc0388: Failed to creation of a VS900 management area. Code = {0}

## Explanation

A VS900 management area could not be created because an error occurred in a virtualization switch.

## Parameters

0: VSC Engine error code

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0389

---

### ssvsc0389: The VS900 management area does not exist in the specified CA port.

## Explanation

Deleting the VS900 management area of the specified CA port failed because it was not found.

## User action

In the "List of VS900 Management Areas" window, confirm that the VS900 management area of the specified CA port does not exist.



## ssvsc0390

---

**ssvsc0390: The session that uses the VS900 management area in the specified CA port exists. *SessionID = {0}***

### Explanation

The VS900 management area of the specified CA port could not be deleted because the session using the VS900 management area cannot be reallocated to another VS900 management area.

### Parameters

0: ID of the session in use

If multiple sessions are in use, they are all displayed delimited by a comma ",".

### User action

Terminate the target session(s), then execute the command again.

## ssvsc0391

---

**ssvsc0391: The session that uses the VS900 management area in the specified CA port cannot be allocated in another VS900 management area. *SessionID = {0}***

### Explanation

An attempt was made to relocate the session using the VS900 management area of the specified CA port to another VS900 management area, but no alternative VS900 management area was found. Therefore, the VS900 management area could not be deleted.

### Parameters

0: ID of the session in use

If multiple sessions are in use, they are all displayed delimited by a comma ",".

### User action

Create another VS900 management area in the same switch group as that of the specified VS900 management area, then execute the command again.

If no other VS900 management area can be created, terminate the target session(s), then execute the command again.

## ssvsc0392

---

**ssvsc0392: The session that uses the VS900 management area in the specified CA port exists. *Reallocatable SessionID = {0} Not Reallocatable SessionID = {1}***

### Explanation

An attempt was made to relocate the session using the VS900 management area of the specified CA port to another VS900 management area, but the attempt failed. Therefore, the VS900 management area could not be deleted.

### Parameters

0: ID of a relocatable session. If multiple sessions are in use, they are all displayed delimited by a comma ",".

1: ID of a non-relocatable session. If multiple sessions are in use, they are all displayed delimited by a comma ",".

### User action

Perform one of the following operations, and execute the command again:

- Terminate the non-relocatable session(s).
- Create another VS900 management area in the same switch group as that of the specified VS900 management area.

If no other VS900 management area can be created, terminate the relocatable session(s).

### **ssvsc0393**

---

#### **ssvsc0393: Failed to deletion of a VS900 management area. Code = {0}**

##### Explanation

The VS900 management area could not be deleted because an error occurred in a virtualization switch.

##### Parameters

0: VSC Engine error code

##### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0394**

---

#### **ssvsc0394: The specified physical disk is assigned to the VS900 management area. LogicalVolume = {0}**

##### Explanation

The specified physical disk could not be released because it had been allocated to a VS900 management area.

##### Parameters

0: Physical disk information

##### User action

Delete the VS900 management area to which the disk is allocated, then execute the command again.

### **ssvsc0395**

---

#### **ssvsc0395: The specified physical disk is assigned to the VS900 management area. The number of succeeded in release = {0}/{1}units**

##### Explanation

The specified physical disk could not be released because it had been allocated to a VS900 management area.

##### Parameters

0: Number of units successfully released

1: Specified number of units

##### User action

Delete the VS900 management area to which the disk is allocated, then execute the command again.

### **ssvsc0399**

---

#### **ssvsc0399: The specified physical disk is off the subject of the support.**

##### Explanation

The specified physical disk is excluded from support. Therefore, it cannot be registered.

##### User action

Check the following information on a physical disk in which an error occurred.

- Check if the physical disk capacity exceeds the maximum value defined in VSC Engine.

After correcting the above mentioned matter, update the management status of the physical resource to the latest status and then re-register the physical disk.

## **ssvsc0400**

---

### **ssvsc0400: Backup has already existed in the specified virtual disk.**

#### Explanation

A virtual disk having a backup cannot be migrated.

#### User action

Delete the backup disk in the Virtual Storage Window (Copy), then execute migration processing again.

## **ssvsc0401**

---

### **ssvsc0401: The specified sessionID does not exist.**

#### Explanation

The specified session has already ended.  
Otherwise, the specified session ID is incorrect.

#### User action

Confirm that the target session ID exists in the Virtual Storage Window (Copy).  
Use the getsession command to check the session ID.

## **ssvsc0402**

---

### **ssvsc0402: The specified virtual storage pool cannot carry out a migration.**

#### Explanation

The virtual storage pool that includes the virtual disk to be migrated and the destination virtual storage pool are not controlled by the same virtualization switch group.

#### User action

Specify a virtual storage pool associated with the same virtualization switch group as that of the virtual storage pool to which the virtual disk to be migrated belongs.

## **ssvsc0403**

---

### **ssvsc0403: The specified virtualization switch cannot carry out a migration.**

#### Explanation

The specified virtualization switch does not form a redundant configuration with the following virtualization switch:

- The virtualization switch associated with the virtual storage pool to which the virtual disk to be migrated belongs

#### User action

Specify the virtualization switch associated with the virtual storage pool to which the virtual disk to be migrated belongs.

## **ssvsc0404**

---

### **ssvsc0404: The specified virtual disk cannot carry out a replication.**

#### Explanation

The replication cannot be carried out in the same virtual disk.

#### User action

Specify a copy destination virtual disk that is different from the copy source virtual disk.

## ssvsc0405

---

### ssvsc0405: The specified virtualization switch cannot carry out a replication.

#### Explanation

The specified virtualization switch does not form a redundant configuration with the following virtualization switch:

- The virtualization switch associated with the virtual storage pool to which the virtual disk to be replicated belongs

#### User action

Specify the virtualization switch associated with the virtual storage pool to which the virtual disk to be replicated belongs.

## ssvsc0406

---

### ssvsc0406: The maximum number of copying simultaneously was exceeded. Code = {0}

#### Explanation

No more copy processing can be started.

#### Parameters

0: VSC Engine error code

#### User action

Cancel copying in the Virtual Storage Window (Copy), or use the cancelrep command to cancel replication. For the maximum number of concurrent copy processing, refer to "[Appendix D Limit Values](#)".

## ssvsc0407

---

### ssvsc0407: The specified sessionID is not a session of a migration.

#### Explanation

The specified session ID is not for migration. Therefore, migration can neither be canceled nor terminated.

#### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the getsession command to check the session type.

## ssvsc0408

---

### ssvsc0408: The specified sessionID is not a session of a replication.

#### Explanation

The specified session ID is not for replication. Therefore, replication can neither be canceled nor terminated.

#### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the getsession command to check the session type.

## ssvsc0409

---

### ssvsc0409: The specified sessionID is not equivalent.

#### Explanation

Migration or replication is in progress with the session of the specified session ID, so the session cannot be terminated.

#### User action

Check the copy status in the Virtual Storage Window (Copy), then execute the command again when the status changes to "synchronized".  
Alternatively, use the getsession command to check the copy status, then execute the command again when "Phase" changes to "equivalent".

## **ssvsc0410**

---

### **ssvsc0410: Backup does not exist in the specified virtual disk.**

#### Explanation

There is no migration backup for the virtual disk.

#### User action

Confirm that the target virtual disk has a backup disk in the Virtual Storage Window (Copy).

## **ssvsc0411**

---

### **ssvsc0411: The specified virtual disk is now migration.**

#### Explanation

The specified virtual disk is already in the process of migration.

#### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the `getsession` command to check the copying status.

If the following conditions are all met, it is likely that an internal error occurred:

- The Virtual Storage Window (copy) does not display a session for the specified virtual disk.
- The migration backup disk list window does not display the specified virtual disk.
- The detailed information on already allocated physical disks displayed in the Virtual Storage Window (View and Create) includes the specified virtual disk.
- If the `getsession` command indicates that the relevant copy session is present:  
Refresh the Virtual Storage Window (Copy). If the problem persists, close the Virtual Storage Window (Copy) and open it again. If the problem still persists, restart the admin client program.
- If the `getsession` command indicates that the relevant copy session does not exist, or if the action taken as described in above fails to solve the problem:  
Refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then restart the Manager. Also, contact your Fujitsu engineer (CE or SE).

## **ssvsc0412**

---

### **ssvsc0412: The specified virtual disk is now replication.**

#### Explanation

The specified virtual disk is already in the process of replication.

#### User action

Check the copy status in the Virtual Storage Window (Copy). Alternatively, use the `getsession` command to check the copying status.

## **ssvsc0413**

---

### **ssvsc0413: Failed to getting session information.**

#### Explanation

Failed to get session information.

## User action

Check the status information for the virtualization switch in the Virtual Storage Window (Maintenance). If the status information indicates an error (abnormal), check the virtualization switch or network for errors.

Alternatively, use the getvsw command to check the status information for the virtualization switch. If the status information indicates an error (abnormal), check the virtualization switch or network for errors.

## **ssvsc0414**

---

### **ssvsc0414: Failed to starting migration. Code = {0}**

#### Explanation

Migration could not be started because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0415**

---

### **ssvsc0415: Failed to changing migration. Code = {0}**

#### Explanation

Migration could not be changed because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0416**

---

### **ssvsc0416: Failed to stopping migration. Code = {0}**

#### Explanation

Migration could not be stopped because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0417**

---

### **ssvsc0417: Failed to replicating migration backup. Code = {0}**

#### Explanation

A migration backup could not be restored because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0418**

---

#### **ssvsc0418: Failed to deleting migration backup. Code = {0}**

#### Explanation

A migration backup could not be deleted because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0419**

---

#### **ssvsc0419: Failed to starting replication. Code = {0}**

#### Explanation

Replication could not be started because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0420**

---

#### **ssvsc0420: Failed to separation replication. Code = {0}**

#### Explanation

Replication could not be isolated because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

If the VSC Engine error code is 0x3112, re-create the virtualization switch configuration information and then perform replication isolation again. If this does not solve the problem, referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0421**

---

#### **ssvsc0421: Failed to stopping replication. Code = {0}**

#### Explanation

Replication could not be stopped because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0422**

---

#### **ssvsc0422: The specified replication point virtual disk does not exist.**

#### Explanation

The specified name of the destination virtual disk is incorrect.

#### User action

Check the virtual disk in the Virtual Storage Window (View and Create), then specify a valid virtual disk name.

#### **ssvsc0423**

---

#### **ssvsc0423: Failed to getting the session status. Code = {0}**

#### Explanation

Session status information could not be obtained because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0424**

---

#### **ssvsc0424: The specified virtual disk cannot carry out a replication. Code = {0}**

#### Explanation

The virtual storage pool that includes the virtual disk to be replicated and the destination virtual storage pool are not controlled by the same virtualization switch group.

#### Parameters

0: VSC Engine error code

#### User action

Specify a virtual storage pool associated with the same virtualization switch group as that of the virtual storage pool to which the virtual disk to be replicated belongs.

#### **ssvsc0425**

---

#### **ssvsc0425: Failed to automatic changing migration. Code = {0} SessionID = {1}**

#### Explanation

Migration could not be automatically changed because an error occurred in a virtualization switch.

#### Parameters

0: VSC Engine error code

1: A session ID.

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).



## ssvsc0426

---

**ssvsc0426: It is not in agreement with the real disk storage capacity of a migration place and a migration source.**

### Explanation

If migration is executed in a mode that does not retain a migration backup disk, the destination physical disk must have the same capacity as the source physical disk.

### User action

Execute migration with the capacity of the destination physical disk equal to that of the source physical disk.

## ssvsc0427

---

**ssvsc0427: Unable to read all files.**

### Explanation

An attempt to read the entire copy history failed.

### User action

Check whether the copy history file is damaged.

## ssvsc0428

---

**ssvsc0428: Unable to read some files. *File name = {0}***

### Explanation

An attempt to read the copy history failed.

### Parameters

0: Name of the copy history file

### User action

Check whether the copy history file is damaged.

## ssvsc0429

---

**ssvsc0429: Failed to stopping replication.**

### Explanation

Replication could not be stopped.

### User action

Confirm that:

- The switch status in the Maintenance window is normal.
- The Engine status is active.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0430

---

**ssvsc0430: Failed to stopping migration.**

## Explanation

Migration could not be stopped.

## User action

Confirm that:

- The switch status in the Maintenance window is normal.
- The Engine status is active.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0431**

---

### **ssvsc0431: The specified virtual disk is not assigned to the virtual target.**

## Explanation

The virtual disk to be copied has not been allocated to a virtual target.

## User action

Allocate the target virtual disk to a virtual target.

## **ssvsc0432**

---

### **ssvsc0432: The capacity of the replication point virtual disk is insufficient.**

## Explanation

Replication cannot be carried out because the capacity of the virtual disk specified as the replication destination is smaller than that of the virtual disk of the replication source.

## User action

Specify, as the replication destination, a virtual disk with a capacity larger than that of the replication source virtual disk.

## **ssvsc0433**

---

### **ssvsc0433: It cannot copy from Encryption attribute volume to Non-Encryption attribute volume was detected.**

## Explanation

The encrypted volumes cannot be copied to the non-encrypted volumes.

## User action

Specify a volume with the encryption attribute as the virtual disk of the replication destination. Alternatively, specify the "f" option and re-execute.

## **ssvsc0434**

---

### **ssvsc0434: The copy from Encryption attribute volume to Non-Encryption attribute volume was carried out.**

## Explanation

Replication from the encrypted volumes to the non-encrypted volumes was carried out.

## User action

If copying from an encrypted volume to a non-encrypted volume is not permitted, terminate the replication session.

## ssvsc0435

---

### ssvsc0435: The specified sessionID is now copying.

#### Explanation

The session with the specified ID is being copied, and so cannot be terminated.

#### User action

Check the copy status on the Virtual Storage Window (Copy), and re-execute the command when it has changed to the equivalency maintain status.

Alternatively, check the copy status using the getssession command and re-execute the command when the phase has become equivalent.

## ssvsc0436

---

### ssvsc0436: Failed to stopping migration. Code = {0} The number of succeeded in processing = {1}/ {2}units

#### Explanation

An error occurred with a virtualization switch, and migration could not be stopped.

#### Parameters

- 0: VSC Engine error code
- 1: Number of units successfully processed
- 2: Number of units specified

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0437

---

### ssvsc0437: Failed to stopping migration. The number of succeeded in processing = {0}/ {1}units

#### Explanation

Migration could not be stopped.

#### Parameters

- 0: Number of units successfully processed
- 1: Number of units specified

#### User action

Confirm that:

- the switch status on the maintenance window is normal
- the engine is in the activation status

If the problem persists, by referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0438

---

### ssvsc0438: Failed to getting session information. The number of succeeded in processing = {0}/ {1}units

#### Explanation

Session information could not be obtained.

## Parameters

0: Number of units successfully processed  
1: Number of units specified

## User action

Check the status information of the virtual switch on the Virtual Storage Window (Maintenance). If the status shows abnormal, check for errors in the virtual switch or the network.

Alternatively, check the status information of the virtualization switch using the `getvsw` command. If the status shows abnormal, check for errors in the virtual switch or the network.

## ssvsc0439

---

**ssvsc0439: The specified sessionID does not exist. The number of succeeded in processing = {0}/{1}units**

## Explanation

The specified session has already ended. Alternatively, an incorrect session ID has been specified.

## Parameters

0: Number of units successfully processed  
1: Number of units specified

## User action

Check if the session ID exists on the Virtual Storage Window (Copy).

Check the session ID using the `getsession` command.

## ssvsc0440

---

**ssvsc0440: Failed to stopping replication. The number of succeeded in processing = {0}/{1}units**

## Explanation

Replication could not be stopped.

## Parameters

0: Number of units successfully processed  
1: Number of units specified

## User action

Confirm that:

- the switch status on the maintenance window shows normal
- the engine is in the activation status

If the problem persists, by referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0441

---

**ssvsc0441: Failed to stopping replication. Code = {0} The number of succeeded in processing = {1}/{2}units**

## Explanation

An error occurred with a virtualization switch, and replication could not be stopped.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully processed
- 2: Number of units specified

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0442**

---

**ssvsc0442: Failed to changing migration. Code = {0} The number of succeeded in processing = {1}/  
{2}units**

## Explanation

An error occurred with a virtualization switch, and migration could not be switched.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully processed
- 2: Number of units specified

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## **ssvsc0443**

---

**ssvsc0443: The specified sessionID is not equivalent. The number of succeeded in processing = {0}/  
{1}units**

## Explanation

The session with the specified ID is not in the equivalency maintain status, and so cannot be ended.

## Parameters

- 0: Number of units successfully processed
- 1: Number of units specified

## User action

Check the copy status on the Virtual Storage Window (Copy), and re-execute the command when it has changed to the equivalency maintain status.

Alternatively, check the copy status using the getsession command and re-execute the command when the phase has become equivalent.

## **ssvsc0444**

---

**ssvsc0444: Failed to replicating migration backup. Code = {0} The number of succeeded in processing =  
{1}/{2}units**

## Explanation

An error occurred with a virtualization switch, and the migration backup could not be restored.

## Parameters

- 0: VSC Engine error code
- 1: Number of units successfully processed
- 2: Number of units specified

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0445**

---

**ssvsc0445: Backup does not exist in the specified virtual disk. The number of succeeded in processing = {0}/{1}units**

#### Explanation

The migration backup for the virtual disk cannot be found.

#### Parameters

- 0: Number of units successfully processed
- 1: Number of units specified

#### User action

Ensure that a backup disk exists for the virtual disk by checking the Virtual Storage Window (Copy).

#### **ssvsc0446**

---

**ssvsc0446: Failed to deleting migration backup. Code = {0} The number of succeeded in processing = {1}/{2}units**

#### Explanation

An error occurred with a virtualization switch, and the migration backup could not be deleted.

#### Parameters

- 0: VSC Engine error code
- 1: Number of units successfully processed
- 2: Number of units specified

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0447**

---

**ssvsc0447: The specified virtual disk reaches an executable number of copies. Code = {0}**

#### Explanation

The specified virtual disk has reached the maximum number of copies that can be executed. Therefore, no more copies can be made.

#### Parameters

- 0: VSC Engine error code

#### User action

Stop replication of the specified virtual disk of the copy source on the Virtual Storage Window (Copy) or using the cancelrep command.

For the maximum number of copies, refer to "Appendix D Limit Values".

#### **ssvsc0448**

---

**ssvsc0448: The specified BackupDisk cannot be restored.**

#### Explanation

The specified backup disk cannot be restored because it has already been restored. This backup disk can only be deleted.

## User action

Use the Virtual Storage window (Copy) to delete the backup disk for the target virtual disk.

### ssvsc0449

---

**ssvsc0449: The specified BackupDisk cannot be restored.The number of succeeded in processing = {0}/ {1}units**

## Explanation

The specified backup disk cannot be restored because it has already been restored. This backup disk can only be deleted.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Use the Virtual Storage window (Copy) to delete the backup disk for the target virtual disk.

### ssvsc0500

---

**ssvsc0500: The host name is invalid in the virtualization switch. Host name = {0}**

## Explanation

Failed to communicate with the virtualization switch because the host name of the virtualization switch is invalid.

## Parameters

- 0: Host name of the virtualization switch used for communication

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

## User action

- Solaris OS/Linux OS

Confirm that:

- The host name of the virtualization switch is registered in the /etc/hosts file.
- The correct IP address of Ethernet port for virtualization control of the virtualization switch is entered in the /etc/hosts file.

- Windows

Confirm that:

- The host name of the virtualization switch is registered in the %SystemRoot%\system32\drivers\etc\hosts file.
- The correct IP address of Ethernet port for virtualization control of the virtualization switch is entered in the %SystemRoot%\system32\drivers\etc\hosts file.

### ssvsc0501

---

**ssvsc0501: The maximum number of registering virtualization switches was exceeded.**

## Explanation

No more virtualization switches can be registered.

## User action

Delete unnecessary virtualization switches, then execute the command again. For the number of virtualization switches that can be registered, refer to "[Appendix D Limit Values](#)".

## ssvsc0502

---

### ssvsc0502: The host name of specified virtualization switch already exists.

#### Explanation

Multiple virtualization switches cannot be registered with the same host name.

#### User action

Check the registered virtualization switch information in the Virtual Storage Window (Maintenance). Alternatively, use the `getvsw` command to check the registered host names of virtualization switches.

## ssvsc0503

---

### ssvsc0503: Virtualization switch status is error. *SwitchName = {0}*

#### Explanation

The virtualization switch is in an error status.

#### Parameters

0: Name of the virtualization switch in error status

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

#### User action

Verify the status of the target virtualization switch.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0504

---

### ssvsc0504: The specified device is deleted from devices subject to management of a storage resource. Please click a [delete] button, when you perform device exchange. Please perform again after deleting all the resources of virtual storage relevant to the specified device, when not performing device exchange.

#### Explanation

There is virtual configuration information for the virtualization switch.

#### User action

If you want to proceed with device exchange, click the <Delete> button.

If you do not want to proceed with device exchange, delete all resources of virtual storage related to the specified device and try again.

## ssvsc0505

---

### ssvsc0505: The corresponding information does not exist.

#### Explanation

The specified information does not exist.

#### User action

Verify the configuration information in the Virtual Storage Window (View and Create).

## ssvsc0506



---

**ssvsc0506: The virtualization switch is not initialized.****Explanation**

The virtualization switch is not initialized.

**User action**

Use the `vsccreateconfigfile` command of VSC Engine to initialize the virtualization switch.

**ssvsc0507**

---

**ssvsc0507: Failed to restoring of the trace level of VSC Engine. Code = {0}****Explanation**

The VSC Engine trace level could not be set because an error occurred in a virtualization switch.

**Parameters**

0: VSC Engine error code

**User action**

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0508**

---

**ssvsc0508: Failed to restoring of virtualization switch composition data files. Code = {0}****Explanation**

The configuration information in the virtualization switch could not be re-created because an error occurred in a virtualization switch.

**Parameters**

0: VSC Engine error code

**User action**

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0509**

---

**ssvsc0509: Failed to stopping VSC Engine.****Explanation**

VSC Engine could not be stopped because an error occurred in a virtualization switch.

**User action**

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0510**

---

**ssvsc0510: Failed to change of the virtual enclosure BoxID. Code = {0}****Explanation**

The virtual enclosure BoxID could not be changed because an error occurred in a virtualization switch.

**Parameters**

0: VSC Engine error code

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0511**

---

#### **ssvsc0511: The virtualization switch is not registered as devices for management. Host name = {0}**

## Explanation

The virtualization switch is not registered as a device to be managed.

## Parameters

0: Host name of the virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

## User action

On the ESC Resource Management Window, search for and add the device to be managed. If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0512**

---

#### **ssvsc0512: The information of devices for management of a virtualization switch is error. Host name = {0}**

## Explanation

The managed device information for the virtualization switch is incorrect.

## Parameters

0: Host name of the virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

## User action

On the Resource Management Window, perform the following procedures:

1. Delete the device to be managed.
2. Select Delete in the Replace Device message.
3. Add and delete the device to be managed.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### **ssvsc0513**

---

#### **ssvsc0513: Failed to getting virtualization switch. Code = {0}**

## Explanation

Information could not be obtained because an error was generated at the virtualization switch.

## Parameters

0: VSC Engine error code

## User action

Refer to "6.3 Collecting Data" and collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0514

---

### ssvsc0514: Failed to getting virtualization switch. Code = {0} Host name = {1}

#### Explanation

Information could not be obtained because an error was generated at the virtualization switch.

#### Parameters

0: VSC Engine error code

1: Host name of Virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

#### User action

Refer to "[6.3 Collecting Data](#)" and collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0515

---

### ssvsc0515: The virtual storage resources relevant to the specified virtualization switch exists. When you perform virtualization switch exchange, please perform again after invalidating the specified virtualization switch. Please perform again after deleting all the resources of virtual storage relevant to the specified virtualization switch, when performing virtualization switch delete.

#### Explanation

Virtual configuration information for the virtualization switch already exists.

#### Parameters

0: Virtualization switch name (host name)

#### User action

To replace the virtualization switch, use the Virtual Storage window (Maintenance) to disable the virtualization switch, and then execute the processing again.

To delete the virtualization switch, delete all of the resources for the virtual storage device associated with the specified virtualization switch, and then execute the processing again.

## ssvsc0516

---

### ssvsc0516: Failed to getting the host name of a virtualization switch.

#### Explanation

The host name of the virtualization switch could not be acquired.

#### User action

If the user has attempted to use the virtualization function start settings to register a switch that has an application function other than the VS900 series, no action is required because only VS900 virtualization switches are supported. These switches can still be used as normal switches without making any changes.

If the user has attempted to use the virtualization switch function start settings to register a VS900 series virtual switch, check the settings for the virtualization switch. If the problem persists, collect the data necessary for troubleshooting and contact a Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

## ssvsc0517

---

**ssvsc0517: The slot position of the virtualization blade may be different from a position of registered information. Host name = {0}****Explanation**

The virtualization blade may have been inserted into the wrong slot.

**Parameters**

0: Virtualization switch name (host name)

**User action**

Check the insertion position for the virtualization blade.

Otherwise, update the management status of physical resources to the latest status, and then execute the processing again

If the problem persists, collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

**ssvsc0518**

---

**ssvsc0518: A serial number of the virtualization blade is different from a serial number of registered information. Host name = {0}****Explanation**

The user has attempted to either stop or disable the virtualization switch function for a virtualization blade, but the serial number for the virtualization blade that has been inserted in the slot does not match the registered information.

**Parameters**

0: Virtualization switch name (host name)

**User action**

Check the slot position and settings for the virtualization blade.

Otherwise, update the management status of physical resources to the latest status, and then execute the processing again

If the problem persists, collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

**ssvsc0519**

---

**ssvsc0519: The virtual storage resources relevant to the specified virtualization switch exists.****Explanation**

Virtual configuration information for the virtualization switch already exists.

**User action**

To replace the virtualization switch, use the Virtual Storage window (Maintenance) to disable the virtualization switch, and then execute the processing again.

To delete the virtualization switch, delete all of the resources for the virtual storage device associated with the specified virtualization switch, and then execute the processing again.

**ssvsc0521**

---

**ssvsc0521: Login failed for Virtualization Switch. IP address = {0}****Explanation**

The login name or password is incorrect.

## Parameters

0: IP address of Ethernet port for virtualization control of the connection destination virtualization switch

## User action

Check the login name and password for the connection destination.

## ssvsc0522

---

### ssvsc0522: Connect failed for Virtualization Switch. IP address = {0}

## Explanation

Failed in the connection to the virtualization switch.

## Parameters

0: IP address of Ethernet port for virtualization control of the connection destination virtualization switch

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Has the virtualization switch registered in ETERNUS SF Storage Cruiser been powered up?
- Has the IP address of the virtualization switch registered in ETERNUS SF Storage Cruiser been changed?
- Is there a fault in the network environment?

## ssvsc0523

---

### ssvsc0523: Connect timeout for Virtualization Switcth. IP address = {0}

## Explanation

A timeout occurred during connection to the virtualization switch.

## Parameters

0: IP address of Ethernet port for virtualization control of the connection destination virtualization switch

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Has the virtualization switch registered in ETERNUS SF Storage Cruiser been powered up?
- Is there a fault in the network environment?

## ssvsc0524

---

### ssvsc0524: Network error for Virtualization Switch. IP address = {0}

## Explanation

A communication fault occurred during connection to the virtualization switch.

## Parameters

0: IP address of Ethernet port for virtualization control of the connection destination virtualization switch

## User action

Check if there is a fault in the network environment, and then repeat the operation that resulted in issue of this error message.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0525

---

**ssvsc0525: Denied connection for Virtualization Switch. IP address = {0}****Explanation**

The connection to the virtualization switch was refused.  
There may already be two names logged in as admin users to the virtualization switch.

**Parameters**

0: IP address of Ethernet port for virtualization control of the connection destination virtualization switch

**User action**

Check if login restrictions have been set for the connection destination IP address of Ethernet port for virtualization control.  
If you are logged into the virtualization switch as an admin user, log out and then repeat the operation that resulted in issue of this error.

**ssvsc0526**

---

**ssvsc0526: Failed to getting Firmware Information.****Explanation**

An error occurred during acquisition of the firmware information.

**User action**

Refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0527**

---

**ssvsc0527: Failed to getting License Information.****Explanation**

License information acquisition failed because an error occurred during acquisition of the firmware information.

**User action**

Refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0528**

---

**ssvsc0528: Connect Failed for FTP server. IP address = {0}****Explanation**

Connection to the FTP server failed.

**Parameters**

0: IP address of the connection destination FTP server

**User action**

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Is the IP address of the specified FTP server correct?
- Is the FTP server activated?

**ssvsc0529**

---

**ssvsc0529: Login failed for FTP server. IP address = {0}****Explanation**

Login to the FTP server failed.

## Parameters

0: IP address of the connection destination FTP server

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Are the specified user name and password correct?
- Are the specified user name and password set as an FTP server account?
- Do the FTP server access settings prohibit to access to the FTP server by the specified user?
- Do the FTP server access settings prohibit to access to the FTP server by the IP address of Ethernet port for virtualization control of the virtualization switch?

## ssvsc0530

---

### ssvsc0530: Connection timeout for FTP server. IP address = {0}

## Explanation

A timeout occurred during connection to the FTP server.

## Parameters

0: IP address of the connection destination FTP server

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Is the FTP server activated?
- Is there a fault in the network environment?

## ssvsc0531

---

### ssvsc0531: Network error for FTP server. IP address = {0}

## Explanation

A communication error occurred during connection to the FTP server.

## Parameters

0: IP address of the connection destination FTP server

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Is the FTP server activated?
- Is there a fault in the network environment?

## ssvsc0532

---

### ssvsc0532: The specified directory doesn't exist. Directory = {0}

## Explanation

The specified directory could not be found.

## Parameters

0: Specified directory

## User action

Check the following points, and then repeat the operation that resulted in issue of this error message:

- Is the specified directory correct?
- Does the specified directory exist in the connection destination FTP server?

## ssvsc0533

---

### ssvsc0533: Failed to input information of the backup of the VSC Engine environment.

#### Explanation

The value entered for backup of the VSC Engine environment settings is incorrect.

#### User action

Check the following points, and then repeat backup of the VSC Engine environment settings:

- Is the FTP server activated?
- Is the FTP server IP address correct?
- Are the FTP server login name and password correct?
- Do the FTP server access settings prohibit to access to the FTP server by the specified user name?
- Do the FTP server access settings prohibit to access to the FTP server by the IP address of Ethernet port for virtualization control of the virtualization switch?
- Does the backup directory for the VSC Engine environment settings exist?
- Is writing to the backup directory for the VSC Engine environment settings permitted?
- Is there enough free space in the backup directory for the VSC Engine environment settings?

## ssvsc0534

---

### ssvsc0534: The maximum number of the backup files was exceeded in the specified directory.

#### Explanation

The VSC Engine configuration information could not be backed up because the maximum number of backup files stored under the specified directory has been exceeded.

#### User action

Delete backup files under the specified directory, or change the backup destination directory.

## ssvsc0535

---

### ssvsc0535: Failed to input information of firmware installation. *Firmware = {0}*

#### Explanation

The information required for firmware installation is incorrect.

#### Parameters

0: Type of firmware being installed (FOS, SAS, VSC Engine)

#### User action

The information required for installation of the firmware might have changed during firmware installation. Check the following information and then install the firmware again:

- Storage directory of the FOS firmware, and the stored FOS firmware
- Storage directory of the SAS firmware, and the stored SAS firmware
- Storage directory of the VSC Engine firmware, and the stored VSC Engine firmware
- FOS configuration filename being backed up
- Backup directory of the VSC Engine configuration file

## ssvsc0536

---

### ssvsc0536: Input value of the FOS configuration is invalid.

#### Explanation

An incorrect value was entered for backup of the FOS settings information.



## User action

Check the following points, and then execute backup of the FOS settings information again.

- Is the FTP server activated?
- Is the IP address of the FTP server correct?
- Are the FTP server login name and password correct?
- Does the FTP server configuration prohibit access by the specified user name?
- Does the FTP server configuration prohibit access by the IP address of Ethernet port for virtualization control of the virtualization switch?
- Does the backup directory for the VSC configuration file exist?
- Is writing to the backup directory for the VSC configuration file permitted?
- Is there enough space in the backup directory for the VSC settings information?

## ssvsc0537

---

### ssvsc0537: Input value of the VSC Engine environment is invalid.

## Explanation

An incorrect value was entered for restoration of the VSC Engine environment settings.

## User action

Check the following points, and then execute restoration of the VSC Engine environment settings again:.

- Is the FTP server activated?
- Is the IP address of the FTP server correct?
- Are the FTP server login name and password correct?
- Does the FTP server configuration prohibit access by the specified user name?
- Does the FTP server configuration prohibit access by the IP address of Ethernet port for virtualization control of the virtualization switch?
- Does the VSC Engine configuration file being restored exist in the specified directory?

## ssvsc0538

---

### ssvsc0538: Failed to creating the backup file of the VSC Engine environment. *File name = {0}*

## Explanation

Backup file generation failed for the VSC Engine environment settings.

## Parameters

0: Filename

## User action

Check whether the file exists.

Check whether writing to the directory is permitted.

A backup file that does not have the host name attached to the start of the filename may be generated. Such a file is not a valid backup file of the VSC Engine environment settings. Therefore, do not use such a file to restore the VSC Engine environment settings.

## ssvsc0539

---

### ssvsc0539: Firmware version doesn't supported. *Version = {0}*

## Explanation

The FOS firmware version is not supported.

## Parameters

0: FOS firmware version

## User action

Check the FOS firmware version.

If the FOS firmware version is not supported, then install one supported by the virtualization switch.

## ssvsc0540

---

### ssvsc0540: Firmware update is operating.

#### Explanation

Firmware installation is in progress.

#### User action

Wait until installation of the firmware ends, then try again.

## ssvsc0541

---

### ssvsc0541: Failed to executing command. *Command = {0}*

#### Explanation

Execution of FOS and VSC Engine command failed.

#### Parameters

0: Name of executed command

#### User action

- If *command* is *vscrestore*:

Restore the VSC Engine configuration, then reactivate the virtualization switch in order to apply the VSC Engine configuration to it.

- If *command* is not *vscrestore*:

Re-execute the operation for which this error message was displayed.

If recovery is not possible after the above action, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0542

---

### ssvsc0542: Failed to setting of the virtualization function because no adjustment of the state of the VSC Engine was detected.

#### Explanation

The virtualization function settings failed because an incompatibility was detected in the VSC Engine status.

#### User action

Refresh the virtual storage window (Maintenance window).

Then, configure the virtualization function again.

## ssvsc0543

---

### ssvsc0543: Failed to setting of the virtualization function because the VSC Engine is working.

#### Explanation

The following virtualization function settings could not be set because the VSC Engine is operating:

- Virtualization function settings for the local switch
- Virtualization function settings for the redundancy switch
- Port number setting

## User action

Execute the following procedures:

1. On the virtual storage window (Maintenance window), click <Enable> and set the logical status of the virtualization switch to "Enabled".
2. On the virtual storage window (Maintenance window), click <Stop> to stop the VSC Engine.
3. On the virtual storage window (Maintenance window), click <Disable> and set the logical status of the virtualization switch to "Disabled".
4. Configure the virtualization function again.

## ssvsc0544

---

### ssvsc0544: Failed to login the Switch.

## Explanation

Completion confirmation processing for the firmware installation terminated abnormally.

## User action

Reactivate the virtualization switch, and then check the firmware version number.

## ssvsc0546

---

### ssvsc0546: The input value for the restoring of the FOS configuration is not correct.

## Explanation

An incorrect value was entered for restoration of the FOS settings information.

## User action

Check the following points, and then execute restoration of the FOS settings information again:

- Is the FTP server activated?
- Is the IP address of the FTP server correct?
- Are the FTP server login name and password correct?
- Does the FTP server configuration prohibit access by the specified user name?
- Does the FTP server configuration prohibit access by the IP address of Ethernet port for virtualization control of the virtualization switch?
- Does the FOS configuration file being restored exist in the specified directory?

## ssvsc0548

---

### ssvsc0548: Failed to transferring and registering SSH key.

## Explanation

The SSH key settings failed.

## User action

Check the status of the targeted switch on the ESC resource management window, then check for a password error. If there was a password error, then update the ESC registration information (for details, refer to the "ETERNUS SF Storage Cruiser User's Guide", section "Environment Configuration" > "Fibre Channel Switch" > "SN200 (Brocade) Fibre Channel switch" > "Problem handling (FAQ)", item "A warning for a device is displayed (in yellow)").

Then, take the following actions:

- Firmware installation

Restore the VSC Engine configuration, then reactivate the virtualization switch in order to apply the VSC Engine configuration to it.

- Virtualization function settings

Wait a few moments, then execute the virtualization function settings again.

- Restoration of VSC Engine configuration

Restore the VSC Engine configuration, then reactivate the virtualization switch in order to apply the VSC Engine configuration to it.

If recovery is not possible after the above action, then collect the data needed for troubleshooting as explained in "[6.3 Collecting Data](#)", a contact your Fujitsu engineer (CE or SE).

## **ssvsc0549**

---

### **ssvsc0549: The input value for the basic setting of virtualization switch is not correct.**

#### **Explanation**

An incorrect value was entered in the basic settings for the storage virtualization function.

#### **User action**

Check for incorrect values entered in the basic settings of the storage virtualization function.

## **ssvsc0550**

---

### **ssvsc0550: File name is not specified.**

#### **Explanation**

The file name is not specified.

#### **User action**

Check whether the file name was specified in the entered values.

## **ssvsc0551**

---

### **ssvsc0551: The specified value already exists same directory name on the FTP server.**

#### **Explanation**

A folder with the specified name already exists in the FTP server.

#### **User action**

Check the following points, and then repeat the operation for which this error message was issued:

- Is the entered value correct?
- Is a directory on the FTP server the same as the file name?

## **ssvsc0552**

---

### **ssvsc0552: Failed to collection of log information. Failed module = {0}**

#### **Explanation**

Log information could not be collected.

#### **Parameters**

0: Module for which collection not possible (CP, CP0, CP1, VSCEngine)

#### **User action**

Check the following points, and then execute collection of log information again:

- Is the FTP server activated?
- Is the IP address of the FTP server correct?
- Are the FTP server login name and password correct?
- Does the FTP server configuration prohibit access by the specified user name?

- Does the FTP server configuration prohibit access by the IP address of Ethernet port for virtualization control of the virtualization switch?
- Does the log information backup destination directory exist?
- Is writing to the log information backup destination directory permitted?
- Is there enough space in the log information backup destination directory?

#### **ssvsc0554**

---

#### **ssvsc0554: The log remote directory of VSC engine is not correct. Remote directory = {0}**

##### Explanation

VSC log information could not be collected to the specified directory because it is incorrect. The log information may have been collected to the FTP server home directory.

##### Parameters

0: Log information storage directory

##### User action

Check whether the log information was collected to the FTP server home directory.  
If it was not, then check the value entered as the log collection directory and try again.

#### **ssvsc0555**

---

#### **ssvsc0555: Firmware update is failed. Firmware = {0}**

##### Explanation

The firmware update failed.

##### Parameters

0: Firmware type for which firmware update was executed (FOS, SAS, VSC Engine)

##### User action

- If Firmware = FOS

Execute installation of the FOS, SAS, and VSC Engine firmware again.

- If Firmware = SAS

Execute installation of the SAS and VSC Engine firmware again.

- If Firmware = VSC Engine

Execute installation of the VSC Engine firmware again.

If recovery is not possible after the above action, then collect the data needed for troubleshooting as explained in "6.3 Collecting Data", a contact your Fujitsu engineer (CE or SE).

#### **ssvsc0556**

---

#### **ssvsc0556: It failed in the existence check of the backup file of the VSC Engine environment. File name = {0}**

##### Explanation

A backup file was created for the VSC Engine environment settings but the file existence check terminated abnormally.

##### Parameters

0: Filename of the VSC Engine environment settings that were backed up

## User action

- Firmware installation

Check the following points, and then repeat the backup of the VSC Engine environment settings:

- Does the VSC Engine configuration backup directory exist?
- Is writing to the VSC Engine configuration backup directory permitted?
- Is there enough space in the VSC Engine configuration backup directory?

After checking the above points, repeat installation of the firmware.

If the same message is displayed despite taking the above action, then collect the data needed for troubleshooting as explained in "[6.3 Collecting Data](#)", a contact your Fujitsu engineer (CE or SE).

- Backup of VSC Engine environment settings

Check the following points:

- Does the VSC Engine configuration backup directory exist?
- Is writing to the VSC configuration backup directory permitted?
- Is there enough space in the VSC Engine configuration backup directory?

After checking the above points, repeat the backup of the VSC Engine environment settings.

## ssvsc0600

---

**ssvsc0600: Because the number of VSC Engine of farm versions is old, this function cannot be executed.**

### Explanation

The firmware version of the VSC Engine concerned does not meet the requirement for this function to be executed.

### User action

Refer to the VSC Engine manual and upgrade the firmware of the VSC Engine.

## ssvsc0700

---

**ssvsc0700: Unable to read a composition data files of virtual storage.**

### Explanation

Failed to read the configuration information file.

### User action

Confirm the status of the vsccompose file in the following directory.

Platform	Directory that vsccompose exists
Windows	\$TMP_DIR\Manager\var\opt\FJSVssmgr\current (\$TMP_DIR means "Work Directory" specified at the Manager installation.)
Solaris OS, Linux	/var/opt/FJSVssmgr/current

- No disk error has occurred.
- The directory does not contain another directory.
- The directory contains only files with extension .repository.
- The directory contains a file.

If no file exists, use the commit script to restore the backup virtual storage configuration information into the following directory. After restoration, restart the manager.

- Solaris OS, Linux: /vsccompose
- Windows: \vsccompose

When all the conditions above are met, the configuration information file may be corrupt.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0701

---

### ssvsc0701: Unable to update a configuration file of virtual storage.

#### Explanation

The configuration information file could not be written to the directory specified.

Or, the update process of configuration information to VSC Engine failed.

#### User action

Take the following procedures to make checks.

1. Update the Virtual Storage Window (Maintenance) screen to check the latest status of the virtualization switch.
  - If the virtualization switch is stopped:  
Check if the virtualization switch has been started. If not, proceed to step 2.
  - If the virtualization switch is working:  
Proceed to step 3.
2. Take the following procedures.
  1. Log into the virtualization switch by the username "admin" and enter the `vsccreateconfigfile` command to initialize the configuration information.
  2. Log into the virtualization switch by the username "admin" and enter the `reboot` command to reboot the virtualization switch.
  3. After the virtualization switch has been rebooted, proceed to step 3.
3. Once again update the Virtual Storage Window (Maintenance) screen to the latest status to check the status of the configuration information.
  - When the state of the composition data is Inconsistent  
Refer to "[6.2.3.3 Restoring the configuration information of a virtualization switch](#)" to restore the configuration information.
  - When the state of the composition data is consistent  
Confirm the status of the `vsccompose` file in the following directory.

Platform	Directory that vsccompose exists
Windows	\$TMP_DIR\Manager\var\opt\FJSVssmgr\current (\$TMP_DIR means "Work Directory" specified at the Manager installation.)
Solaris OS, Linux	/var/opt/FJSVssmgr/current

- No disk error has occurred.
- The directory or file is not write-protected.
- The file system of the directory has sufficient free disk space.

If migration or replication is in progress, cancel copying that has ended abnormally in the copying status view.

When all the conditions above are met, the configuration information file may be corrupt.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0702

---

### ssvsc0702: Copy-log file does not exist.

#### Explanation

The copy log file in the configuration data file is incorrect.

#### User action

Confirm the status of the vsalog file in the following directory.

Platform	Directory that vsalog exists
Windows	\$TMP_DIR\Manager\var\opt\FJSVssmgr\current (\$TMP_DIR means "Work Directory" specified at the Manager installation.)
Solaris OS, Linux	/var/opt/FJSVssmgr/current

- The directory or file has not been moved or deleted.

After confirming, restart VSC Manager.

### ssvsc0703

---

### ssvsc0703: Failed to updating of the copy-log file.

#### Explanation

The copy log file could not be written to the directory specified.

#### User action

Confirm the status of the vsalog file in the following directory.

Platform	Directory that vsalog exists
Windows	\$TMP_DIR\Manager\var\opt\FJSVssmgr\current (\$TMP_DIR means "Work Directory" specified at the Manager installation.)
Solaris OS, Linux	/var/opt/FJSVssmgr/current

- No disk error has occurred.
- The directory or file is not write-protected.
- The file system has sufficient free disk space.

When all the conditions above are met, the copy log file may be corrupt. Move or delete the copy log file.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0705

---

### ssvsc0705: Failed to updating of the trace file.

#### Explanation

Failed to write to the log file.

#### User action

Confirm the status of the vsalog file in the following directory.



Platform	Directory that vsalog exists
Windows	\$TMP_DIR\Manager\var\opt\FJSVssmgr\current (\$TMP_DIR means "Work Directory" specified at the Manager installation.)
Solaris OS, Linux	/var/opt/FJSVssmgr/current

- No disk error has occurred.
- The directory or file is not write-protected.
- The file system has sufficient free disk space.

When all the conditions above are met, the copy log file may be corrupt. Move or delete the copy log file.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0800

---

**ssvsc0800: A network socket error occurred in communication with a virtualization switch. Host name = {0}**

#### Explanation

An error occurred in communication with the virtualization switch.

#### Parameters

0: Name of the virtualization switch used for communication

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

#### User action

Confirm that:

- VSC Engine starts
- The network environment is normal

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0801

---

**ssvsc0801: The host name is invalid in virtualization switch. Host name = {0}**

#### Explanation

Failed to communicate with the virtualization switch because the host name of the virtualization switch is invalid.

#### Parameters

0: Host name of the virtualization switch used for communication

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

#### User action

Confirm that:

- The port number of VSC Engine is correct.
- VSC Engine is running.

- Confirm that the network environment is normal.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0802

---

### ssvsc0802: The specified physical disk is in a busy state.

#### Explanation

The specified physical disk returned a busy status.

#### User action

Execute the command again.

## ssvsc0803

---

### ssvsc0803: VSC Engine is in an unusual state.

#### Explanation

The virtualization switch encountered an internal error.

#### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0804

---

### ssvsc0804: A network timeout error occurred in communication with a virtualization switch. Host name = {0}

#### Explanation

In communication with the virtualization switch, the wait time (three minutes) was exceeded.

#### Parameters

0: Host name of the virtualization switch used for communication

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

#### User action

Confirm that:

- The virtualization switch specified as %HostName is operating.
- The network environment is normal.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0805

---

### ssvsc0805: The unusual state occurred in the communication during a virtualization switch.

#### Explanation

The communication between virtualization switches failed.

#### User action

Confirm that the network environment is normal.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0806

---

**ssvsc0806: A network socket error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in making = {1}/{2}units**

#### Explanation

An error occurred during communication with the virtualization switch.

#### Parameters

0: Host name of the virtualization switch to communicate with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Number of units created successfully

2: Specified number of units

#### User action

Confirm that:

- VSC Engine starts
- The network environment is normal

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0807

---

**ssvsc0807: The host name is invalid in virtualization switch. Host name = {0} The number of succeeded in making = {1}/{2}units**

#### Explanation

Communication with the virtualization switch failed because the host name of the virtualization switch was invalid.

#### Parameters

0: Host name of the virtualization switch to communicate with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Number of units created successfully

2: Specified number of units

#### User action

Ensure that:

- The port number of the VSC Engine is valid.
- The VSC Engine is active.
- The network environment contains no error.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

### ssvsc0808

---

**ssvsc0808: The specified physical disk is in a busy state. The number of succeeded in making = {0}/{1}units**

## Explanation

The busy status was reported from the specified physical disk.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Reenter the command.

## ssvsc0809

---

**ssvsc0809: VSC Engine is in an unusual state. The number of succeeded in making = {0}/{1}units**

## Explanation

An internal error occurred on the visualization switch.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0810

---

**ssvsc0810: A network timeout error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in making = {1}/{2}units**

## Explanation

In communication with the virtualization switch, the wait time (three minutes) was exceeded.

## Parameters

- 0: Host name of the virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Number of units successfully created
- 2: Specified number of units

## User action

Ensure that:

- The virtualization switch that was set by %HostName is active.
- The network environment contains no error.

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0811

---

**ssvsc0811: The unusual state occurred in the communication during a virtualization switch. The number of succeeded in making = {0}/{1}units**

## Explanation

Communication between visualization switches failed.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Check for errors in the network environment.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0812

---

**ssvsc0812: A network socket error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in deleting = {1}/{2}units**

## Explanation

Communication between visualization switches failed.

## Parameters

- 0: Host name of the virtualization switch to communicate with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Number of units successfully deleted
- 2: Specified number of units

## User action

Confirm that:

- VSC Engine starts
- The network environment is normal

If the problem persists, refer to "[6.3 Collecting Data](#)" "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0813

---

**ssvsc0813: The host name is invalid in virtualization switch. Host name = {0} The number of succeeded in deleting = {1}/{2}units**

## Explanation

Communication with the virtualization switch failed because the host name of the virtualization switch was invalid.

## Parameters

- 0: Host name of the virtualization switch to communicate with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Number of units successfully deleted
- 2: Specified number of units

## User action

Ensure that:

- The port number of the VSC Engine is valid.
- The VSC Engine is active.

- The network environment contains no error.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0814**

---

**ssvsc0814: The specified physical disk is in a busy state. The number of succeeded in deleting = {0}/{1}units**

##### Explanation

The busy status was reported from the specified physical disk.

##### Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

##### User action

Reenter the command.

#### **ssvsc0815**

---

**ssvsc0815: VSC Engine is in an unusual state. The number of succeeded in deleting = {0}/{1}units**

##### Explanation

An internal error occurred in the visualization switch.

##### Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

##### User action

Referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

#### **ssvsc0816**

---

**ssvsc0816: A network timeout error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in deleting = {1}/{2}units**

##### Explanation

In communication with the virtualization switch, the wait time (three minutes) was exceeded.

##### Parameters

- 0: Host name of the virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Number of units successfully deleted
- 2: Specified number of units

##### User action

Ensure that:

- The virtualization switch that was set by %HostName is active.
- The network environment contains no error.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0817

---

**ssvsc0817: The unusual state occurred in the communication during a virtualization switch. The number of succeeded in deleting = {0}/{1}units**

### Explanation

Communication between virtualization switches failed.

### Parameters

- 0: Number of units successfully deleted
- 1: Specified number of units

### User action

Check for errors in the network environment.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0818

---

**ssvsc0818: The specified physical disk is in a busy state. LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

### Explanation

Busy Status was returned from the specified physical disk.

### Parameters

- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

### User action

Execute the command again.

## ssvsc0819

---

**ssvsc0819: The unusual state occurred in the communication during a virtualization switch. LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

### Explanation

Communication between virtualization switches failed.

### Parameters

- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

### User action

Check the network environment for errors.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0820

---

**ssvsc0820: VSC Engine is in an unusual state. LogicalVolume = {1} The number of succeeded in making = {2}/{3}units****Explanation**

An internal error occurred in the virtualization switch.

**Parameters**

- 1: Physical disk information
- 2: Number of units successfully deleted
- 3: Specified number of units

**User action**

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0821**

---

**ssvsc0821: A network socket error occurred in communication with a virtualization switch. Host name = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units****Explanation**

An error occurred during communication with the virtualization switch.

**Parameters**

- 0: Host name of the virtualization switch to communicate with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units

**User action**

Confirm that:

- VSC Engine starts
- The network environment is normal

If the problem persists, refer to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

**ssvsc0822**

---

**ssvsc0822: The host name is invalid in virtualization switch. Host name = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units****Explanation**

Communication with the virtualization switch failed because the host name of the virtualization switch is invalid.

**Parameters**

- 0: Host name of the virtualization switch communicated with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

- 1: Physical disk information
- 2: Number of units successfully created
- 3: Specified number of units



## User action

Confirm that:

- The port number of VSC Engine is correct.
- VSC Engine is active.
- The network environment contains no error.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0823

---

**ssvsc0823: A network timeout error occurred in communication with a virtualization switch. Host name = {0} LogicalVolume = {1} The number of succeeded in making = {2}/{3}units**

### Explanation

A timeout (3 minutes) occurred during communication with the virtualization switch.

### Parameters

0: Host name of the virtualization switch communicated with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Physical disk information

2: Number of units successfully created

3: Specified number of units

## User action

Confirm that:

- The virtualization switch set with %HostName is active.
- The network environment contains no error.

If the problem persists, refer to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0824

---

**ssvsc0824: A network socket error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in processing = {1}/{2}units**

### Explanation

Communication with a virtualization switch failed.

### Parameters

0: Host name of virtualization switch in communication with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as “*virtualization switch name (host name)*”.

1: Number of units successfully processed

2: Number of units specified

## User action

Confirm that:

- VSC Engine starts
- The network environment is normal

If the problem persists, by referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0825

---

**ssvsc0825: The host name is invalid in virtualization switch. Host name = {0} The number of succeeded in processing = {1}/{2}units**

### Explanation

Communication with a virtualization switch failed because the host name of the virtualization switch is incorrect.

### Parameters

0: Host name of the virtualization switch in communication with

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

1: Number of units successfully processed

2: Number of units specified

### User action

Confirm that:

- VSC Engine port number is correct
- VSC Engine is running
- the network environment is normal

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0826

---

**ssvsc0826: VSC Engine is in an unusual state. The number of succeeded in processing = {0}/{1}units**

### Explanation

An internal error was generated with the virtualization switch.

### Parameters

0: Number of units successfully processed

1: Number of units specified

### User action

Referring to "6.3 Collecting Data", collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

## ssvsc0827

---

**ssvsc0827: A network timeout error occurred in communication with a virtualization switch. Host name = {0} The number of succeeded in processing = {1}/{2}units**

### Explanation

The communication timeout (3 minutes) for the virtualization switch has exceeded.

### Parameters

0: Host name of virtualization switch

For virtualization switches other than the VS900 Model 200, the name of the virtualization switch is displayed as "*virtualization switch name (host name)*".

1: Number of units successfully processed

2: Number of units specified

## User action

Confirm that:

- The virtualization switch specified with %HostName is activated
- The network environment is normal

If the problem persists, by referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0828

---

**ssvsc0828: The unusual state occurred in the communication during a virtualization switch. The number of succeeded in processing = {0}/{1}units**

### Explanation

Communication with a virtualization switch failed.

### Parameters

- 0: Number of units successfully processed
- 1: Number of units specified

## User action

Confirm that the network environment is normal.

If the problem persists, by referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc0829

---

**ssvsc0829: VSC Engine ends abnormally with error Code = {0}**

### Explanation

The operation terminated abnormally because an error was returned from the VSC Engine.

### Parameters

- 0: VSC Engine error code

## User action

Refer to "VSC Engine".

## ssvsc0830

---

**ssvsc0830: VSC Engine ends abnormally with error Code = {0} The number of succeeded in processing = {1}/{2}units**

### Explanation

The operation terminated abnormally because an error was returned from the VSC Engine.

### Parameters

- 0: VSC Engine error code
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Refer to "VSC Engine".

## ssvsc0902

---

### ssvsc0902: Command Started "{0}"

#### Explanation

The command started.

#### Parameters

0: Name of the command that started

#### User action

None

## ssvsc0903

---

### ssvsc0903: Command Terminated "{0}"

#### Explanation

The command ended.

#### Parameters

0: Name of the command that ended

#### User action

None

## ssvsc0905

---

### ssvsc0905: CommitScript error occurred. output={0}

#### Explanation

An error occurred in the commit script.

#### Parameters

0: Error information of the commit script

#### User action

Confirm that the commit script is correctly written.  
Confirm that the commit script runs normally by itself.

## ssvsc0906

---

### ssvsc0906: CommitScript does not exist. COMMIT\_SCRIPT = {0}

#### Explanation

The commit script file cannot be found in the specified folder.

#### Parameters

0: File name of the commit script

#### User action

Confirm that:

- the commit script file is stored in the specified folder

- the directory or file specified in the commit script is not write-protected.

### **ssvsc0907**

---

#### **ssvsc0907: CommitScript standard output={0}**

##### Explanation

The commit script output %Message to standard output.

##### Parameters

0: Message that was output

##### User action

None

### **ssvsc0908**

---

#### **ssvsc0908: CommitScript standard error. output={0}**

##### Explanation

The commit script output %Message to standard error output.

##### Parameters

0: Error message that was output

##### User action

Confirm that the commit script is correctly written.  
Confirm that the commit script runs normally by itself.

### **ssvsc0909**

---

#### **ssvsc0909: VSC Manager stopped normally.**

##### Explanation

VSC Manager stopped normally.

##### User action

None

### **ssvsc0913**

---

#### **ssvsc0913: Delete operation terminated. Because the device is used for Virtualization switch.**

##### Explanation

The specified device is used by virtual storage.

##### User action

The device cannot be deleted.  
To delete the device, release all physical disks of the specified device.

### **ssvsc1300**

---

#### **ssvsc1300: Mismatching is in the composition information on virtual storage.**

## Explanation

There is an inconsistency in the configuration information for the virtual storage device.

## User action

Collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

## ssvsc1301

---

### ssvsc1301: The virtual switch of a different switch group was specified. *Switch group = {0}*

## Explanation

A virtualization switch from a different switch group has been specified.

## Parameters

0: The specified switch group

## User action

Open the Virtual Storage window (Maintenance), specify all of the virtualization switches that belong to the same switch group, and then execute the command again.

## ssvsc1302

---

### ssvsc1302: It belongs to the same switch group and there is a virtual switch which is not specified. *Switch group = {0}*

## Explanation

A virtualization switch from a different switch group has been specified.

## Parameters

0: The specified switch group

## User action

Open the Virtual Storage window (Maintenance), specify all of the virtualization switches that belong to the same switch group, and then execute the command again.

## ssvsc1304

---

### ssvsc1304: The management information of the physical resource has latest possibilities.

## Explanation

The SAN management information or the relationship management information may not be in the latest status.

## User action

Update the SAN management information or the relationship management information to the latest.

Otherwise, check the connection cable of physical resources and the following settings of physical resources.

- host affinity of storage device
- virtualization switch zoning

If the problem persists, by referring to "[6.3 Collecting Data](#)", collect the necessary data for troubleshooting, and contact your Fujitsu engineer (CE or SE).

## ssvsc1305

---

**ssvsc1305: The specified LogicalVolume is connected with plural affinity groups. LogicalVolume = {0}****Explanation**

The logical volume is configured with multiple affinity groups.

**Parameters**

0: Specified logical volume

**User action**

Check the configuration of affinity groups related to the specified logical volume on the storage device.

**ssvsc1306**

---

**ssvsc1306: The specified LogicalVolume is connected with plural HostLUNs. LogicalVolume = {0}****Explanation**

The logical volume is configured with multiple Host LUNs.

**Parameters**

0: Specified logical volume

**User action**

Check the configuration of Host LUNs related to the specified logical volume on the storage device.

**ssvsc1307**

---

**ssvsc1307: The most suitable real disk where associated CM was considered cannot be elected on the specified virtual disk.****Explanation**

A virtual disk that is optimal in terms of assigned CMs cannot be configured for the specified virtual disk because it consists of physical disks with different assigned CMs.

**Parameters**

0: VSC Engine error code

**User action**

Take one of the following actions:

Select the physical disks directly, without using the [Candidate Selection] or [Automatic Creation] button.

Use the migration function to increase the capacity of the disk.

**ssvsc1308**

---

**ssvsc1308: Failed to liberate assignment of a virtual disk. Code = {0}****Explanation**

The allocation for the virtualization disk failed to be released because an error occurred on the virtualization switch.

**Parameters**

0: VSC Engine error code

**User action**

Collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

### **ssvsc1309**

---

#### **ssvsc1309: The specified copy security group name already exists.**

##### Explanation

It is not possible to create multiple copy security groups with the same name.

##### User action

Use the Virtual Storage window (View and Create) to check the names of the existing copy security groups, and specify a copy security group name that is not being used.

### **ssvsc1310**

---

#### **ssvsc1310: The maximum number of creating copy security group was exceeded.**

##### Explanation

No more copy security groups can be created.

##### User action

Delete any copy security groups that are no longer required, and then execute the processing again.

Refer to Appendix D, "[Appendix D Limit Values](#)" for information about the number of copy security groups that can be created.

### **ssvsc1311**

---

#### **ssvsc1311: The specified copy security group does not exist.**

##### Explanation

Either there is a problem with the copy security group, or the copy security group does not exist.

##### User action

Use the Virtual Storage window (View and Create) to check the name of the copy security group.

### **ssvsc1312**

---

#### **ssvsc1312: The virtual enclosure is registered with the specified copy security group. *Copy security group name = {0}***

##### Explanation

Copy security groups where virtual enclosures have been registered cannot be deleted.

##### Parameters

0: Name of the copy security group

##### User action

Use the Virtual Storage window (View and Create) to check whether there are virtual enclosures in the copy security group to be deleted.

### **ssvsc1313**

---

#### **ssvsc1313: The specified virtual enclosure is already registered with the copy security group. *Virtual enclosure name = {0}***

##### Explanation

The specified virtual enclosure has already been registered with the copy security group.



## Parameters

0: Name of the virtual enclosure

## User action

Use the Virtual Storage window (View and Create) to check which virtual enclosures have been registered with the copy security group.

### **ssvsc1314**

---

**ssvsc1314: The maximum number of virtual enclosure that can be registered to the copy security group is exceeded.**

## Explanation

No more virtual enclosures can be registered with the copy security group.

## User action

Delete any virtual enclosures in the copy security group that are no longer required, and then execute the processing again.

Refer to Appendix D, "[Appendix D Limit Values](#)" for information about the number of virtual enclosures that can be registered in each copy security group.

### **ssvsc1315**

---

**ssvsc1315: The specified virtual enclosure is not registered with the copy security group. *Virtual enclosure name = {0}***

## Explanation

The specified virtual enclosure has not been registered with the specified copy security group.

## Parameters

0: Name of the virtual enclosure

## User action

Use the Virtual Storage window (View and Create) to check the copy security group.

### **ssvsc1316**

---

**ssvsc1316: The specified virtual enclosure was not able to be released.**

## Explanation

A virtual disk in the specified virtual enclosure may be being used by an ETERNUS SF AdvancedCopy Manager replication.

## User action

Use the Virtual Storage window (Copy) to check whether an ETERNUS SF AdvancedCopy Manager replication is being performed.

### **ssvsc1317**

---

**ssvsc1317: The specified copy security group is already registered. *Copy security group name = {0}***

## Explanation

The specified copy security group has already been registered with the virtual enclosure.

## Parameters

0: Name of the copy security group

## User action

Use the Virtual Storage window (View and Create) to check which copy security groups have been registered with the virtual enclosure.

### **ssvsc1318**

---

**ssvsc1318: The specified copy security group is not registered with the virtual enclosure. Copy security group name = {0}**

## Explanation

The specified virtual enclosure has not been registered with the specified copy security group.

## Parameters

0: Name of the copy security group

## User action

Use the Virtual Storage window (View and Create) to check the copy security group.

### **ssvsc1319**

---

**ssvsc1319: The specified copy security group was not able to be released.**

## Explanation

It is possible that a virtual disk in a virtual enclosure that has been registered with the specified copy security group is being used by an ETERNUS SF AdvancedCopy Manager replication.

## User action

Use the Virtual Storage window (Copy) to check whether an ETERNUS SF AdvancedCopy Manager replication is being performed.

### **ssvsc1320**

---

**ssvsc1320: The specified number of maximum copy sessions is not effective values.**

## Explanation

An invalid value has been specified for the maximum number of copy sessions.

## User action

Specify a valid value and then execute the processing again.

Refer to Appendix D, "[Appendix D Limit Values](#)" for information about valid values.

### **ssvsc1321**

---

**ssvsc1321: A value that is less than the number under executions of copy sessions cannot be set.**

## Explanation

The value specified for the maximum number of copy sessions cannot be set because it is lower than the number of copy sessions currently in progress.

## User action

Use the Virtual Storage window (Copy) to check the number of copy sessions currently in progress, and then make the setting again.

Refer to "Max copy multiplicity" in Appendix D, "[Appendix D Limit Values](#)" for information about the maximum number of copy sessions.

### **ssvsc1322**

---

**ssvsc1322: The limitation value of the copy permission virtual enclosure that can be registered in a virtual enclosure is exceeded.**

**Explanation**

There are too many virtual enclosures that permit ETERNUS SF AdvancedCopy Manager replications that can be registered with virtual enclosures.

**User action**

Use the Virtual Storage window (Copy) to check the copy security groups registered with the virtual enclosure.

**ssvsc1323**

---

**ssvsc1323: Because the copy security group is registered with the specified virtual enclosure, it is not possible to delete it. *Virtual enclosure name = {0}***

**Explanation**

Virtual enclosures where copy security groups have been registered cannot be deleted.

**User action**

Release all of the copy security groups that have been registered with the virtual enclosure.

**ssvsc1324**

---

**ssvsc1324: Because the specified virtual enclosure is registered with the copy security group, it is not possible to delete it. *Virtual enclosure name = {0}***

**Explanation**

Virtual enclosures that have been registered with copy security groups cannot be deleted.

**Parameters**

0: Name of the virtual enclosure

**User action**

Release the virtual enclosure from all of the copy security groups with which it has been registered.

**ssvsc1325**

---

**ssvsc1325: Because the copy operates by the specified virtual enclosure, a virtual enclosure cannot be deleted.**

**Explanation**

The specified virtual enclosure cannot be deleted because one of its virtual disks is being used by an ETERNUS SF AdvancedCopy Manager replication.

**User action**

Use the Virtual Storage window (Copy) to check whether an ETERNUS SF AdvancedCopy Manager replication is being performed.

**ssvsc1326**

---

**ssvsc1326: The specified copy security group does not exist. *The number of succeeded in processing = {0}/{1}units***

**Explanation**

Either there is a problem with the copy security group, or the copy security group does not exist.

## Parameters

- 0: Number of units successfully created
- 1: Specified number of units

## User action

Use the Virtual Storage window (View and Create) to check the name of the copy security group.

### **ssvsc1327**

---

**ssvsc1327: The virtual enclosure is registered with the specified copy security group. Copy security group name = {0} The number of succeeded in processing = {1}/{2}units**

## Explanation

Copy security groups where virtual enclosures have been registered cannot be deleted.

## Parameters

- 0: Name of the copy security group
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Use the Virtual Storage window (View and Create) to check whether there are virtual enclosures in the copy security group to be deleted.

### **ssvsc1328**

---

**ssvsc1328: Because the copy security group is registered with the specified virtual enclosure, it is not possible to delete it. Virtual enclosure name = {0} The number of succeeded in processing = {1}/{2}units**

## Explanation

Virtual enclosures where copy security groups have been registered cannot be deleted.

## Parameters

- 0: Name of the virtual enclosure
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Release all of the copy security groups that have been registered with the virtual enclosure.

### **ssvsc1329**

---

**ssvsc1329: Because the specified virtual enclosure is registered with the copy security group, it is not possible to delete it. Virtual enclosure name = {0} The number of succeeded in processing = {1}/{2}units**

## Explanation

Virtual enclosures that have been registered with copy security groups cannot be deleted.

## Parameters

- 0: Name of the virtual enclosure
- 1: Number of units successfully created
- 2: Specified number of units

## User action

Release the virtual enclosure from all of the copy security groups with which it has been registered.

## **ssvsc1330**

---

**ssvsc1330: Because the copy operates by the specified virtual enclosure, a virtual enclosure cannot be deleted. The number of succeeded in processing = {0}/{1}units**

### Explanation

The specified virtual enclosure cannot be deleted because one of its virtual disks is being used by an ETERNUS SF AdvancedCopy Manager replication.

### Parameters

- 0: Number of units successfully created
- 1: Specified number of units

### User action

Use the Virtual Storage window (Copy) to check whether an ETERNUS SF AdvancedCopy Manager replication is being performed.

## **ssvsc1331**

---

**ssvsc1331: HostLUN number of the specified physical disk is different between VSC engines.**

### Explanation

The HostLUN number for the specified physical disk is not the same on all VSC Engines.

### User action

Check the configuration of the storage device and the virtualization switch.

If the problem persists, collect the necessary data for troubleshooting, then contact your Fujitsu engineer (CE or SE).

Refer to "[6.3 Collecting Data](#)".

## **ssvsc1332**

---

**ssvsc1332: The specified physical disk is different switch group of copying source virtual disk.**

### Explanation

The specified physical disk does not belong to the same switch group as the copy source virtual disk.

### User action

Check whether the specified physical disk belongs to the same switch group as the copy source virtual disk.

## **ssvsc1336**

---

**ssvsc1336: Some paths for LogicalVolume are using same CM. LogicalVolume = {0}**

### Explanation

The configuration is not recommended for a virtual storage environment because some logical volume paths use the same CM.

### Parameters

- 0: Targeted logical volume number

### User action

Correct the storage configuration and physical connections so that the same CM is not used. For details on the recommended configurations, refer to the "ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System Build Procedure".

## **ssvsc1337**

---

## ssvsc1337: Some virtualization switches are using same CM between the virtualization switch and the storage. CM number = {0}

### Explanation

The configuration is not recommended for a virtual storage environment because the paths between virtualization switches and storage include paths where more than one virtualization switch uses a CM.

### Parameters

0: Targeted CM number

### User action

Correct the storage configuration and physical connections so that the same CM is not used. For details on the recommended configurations, refer to the "ETERNUS SN200 Model 540 Fibre Channel Switch Virtualization Blade and VS900 Model 300 Virtualization Switch System Build Procedure".

---

## E.2 Virtual Storage Window

---

This appendix describes the messages output by the Virtual Storage Window.

Either English or Japanese messages are output as specified by environment variable LANG.

Messages from the Virtual Storage Window are output to the admin client window as dialogs.

Table E.2 Items in message text

Item	Description
Message text	Text of a message to be output. Each message is output in the following formats: Message ID "Message text (Japanese)" "Message text (English)"
Explanation	Explains why this message is output.
Message type	Indicates the message type. Information: Indicates the reason why to discontinue ongoing processing. Error: Indicates that processing cannot continue. Confirmation: Indicates confirmation before processing. Operation procedure: Prompts the input of necessary information for processing. Result notification: Reports the processing result.
System processing	Explains the system processing after message output.
User action	Explains the action to be taken in response to this message.

## ssgui4000

---

### ssgui4000

A network socket error occurred in communication with a VSC Manager.

### Explanation

Communication with the admin server failed.

### Message type

Error

## System processing

Does not start the Virtual Storage Window.

## User action

Confirm that the admin server is operating normally.  
Also, confirm that the admin server is connected normally to the network.

## **ssgui4001**

---

### **ssgui4001**

Failed to start Virtual Storage Window.

## Explanation

An internal error was detected during Virtual Storage Window startup.

## Message type

Error

## System processing

Does not start the Virtual Storage Window.

## User action

Collect the necessary data for troubleshooting and contact your Fujitsu service engineer (CE or SE).

## **ssgui4002**

---

### **ssgui4002**

Failed to show the information.

## Explanation

An internal error was detected during the display of information.

## Message type

Error

## System processing

Displays no information in the Virtual Storage Window.

## User action

Collect the necessary data for troubleshooting and contact your Fujitsu service engineer (CE or SE).

## **ssgui4003**

---

### **ssgui4003**

The virtualization switch is not registered. Please register it into the administrative server.

## Explanation

Since the virtualization switch is not registered, stopped, under abnormal conditions, or the virtualization switch function is stopped, the Virtual Storage Window cannot request processing.

Alternatively, the information for VS900 is not entered correctly in the host's file of the administrative server.

## Message type

Error

## System processing

Rejects requests issued to the Virtual Storage Window.

## User action

Verify that the virtualization switch is registered with ESC.

Verify that the virtualization switch is operating normally.

Verify that the virtualization function of switch is started.

Verify that the information for VS900 is entered correctly in the host's file of the administrative server.

## **ssgui4006**

---

### **ssgui4006**

There is no information to display.

## Explanation

Since there is no information to display, the Virtual Storage Window displays no information.

## Message type

Information

## System processing

Does not process requests.

## User action

Create resources for virtual storage and retry processing.

## **ssgui4010**

---

### **ssgui4010**

Failed to get the information.

## Explanation

Failed to acquire data.

## Message type

Error

## System processing

Does not process requests.

## User action

Collect the necessary data for troubleshooting and contact your Fujitsu service engineer (CE or SE).

## **ssgui4050**

---

### **ssgui4050**

The web browser is not registered.



## Explanation

Web browser is not registered.

## Message type

Error

## System processing

Cannot open the manual.

## User action

Register a web browser.

## ssgui4081

---

### ssgui4081

The disk type was changed. *Before={0},After={1}*

## Explanation

No physical disks match the encryption attribute and disk type specified in the configuration conditions, therefore the disk type has been changed to one that a physical disk belongs to.

## Parameters

0: The old disk type

1: The new disk type

## Message type

Information

## System processing

Does not process the request.

## User action

Check whether there are any physical disks that match the encryption attribute and disk type that were specified in the configuration conditions.

## ssgui4082

---

### ssgui4082

The encryption attribute was changed. *Before={0},After={1}*

## Explanation

No physical disks match the encryption attribute and disk type that were specified in the configuration conditions, therefore the encryption attribute has been changed to one that a physical disk belongs to.

## Parameters

0: Old encryption attribute

1: New encryption attribute

## Message type

Information

## System processing

Does not process the request.

## User action

Check whether there are any physical disks that match the encryption attribute and disk type that were specified in the configuration conditions.

## **ssgui4099**

---

### **ssgui4099**

The program error was detected.

## Explanation

An internal error occurred in the Virtual Storage Window.

## Message type

Error

## System processing

Does not process requests.

## User action

Collect the necessary data for troubleshooting and contact your Fujitsu service engineer (CE or SE).

## **ssgui4109**

---

### **ssgui4109**

Are you sure you want to delete the virtual storage pool?

## Explanation

This message confirms whether you want to delete the virtual storage pool.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4112**

---

### **ssgui4112**

The virtual storage pool which can be deleted does not exist.

## Explanation

Either there are no virtual storage pools where a physical disk has not been registered, or there are no virtual storage pools associated with the specified switch group in the switch group selection.

## Message

Information

## System processing

Does not process requests.

## User action

Release all the physical disks that are registered in the virtual storage pool you want to delete, or open the [Select Switch Group] window, and check whether the specified switch group is correct.

## **ssgui4116**

---

### **ssgui4116**

Are you sure you want to release the physical disk?

## Explanation

This message confirms whether you want to release the selected physical disk from the virtual storage pool.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4117**

---

### **ssgui4117**

The physical disk which can be registered does not exist.

## Explanation

There is no physical disk that can be registered in the virtual storage pool selected.

No storage device is registered. Alternatively, all the physical disks of storage devices have already been registered.

## Message type

Information

## System processing

Does not process requests.

## User action

Use ESC to check whether a storage device to be used as virtual storage is registered.

In the View and Create window, check whether all physical disks are registered in the virtual storage pool.

## **ssgui4118**

---

### **ssgui4118**

The physical disk which can be released does not exist.

## Explanation

Every physical disk in the selected virtual storage pool constitutes a virtual disk.

Only a physical disk that does not constitute a virtual disk can be released.

## Message type

Information

## System processing

Does not process requests.

## User action

Check the virtual storage pool for physical disks.

## **ssgui4121**

---

### **ssgui4121**

Are you sure you want to convert?

## Explanation

This message requests confirmation to execute batch conversion.

## Message type

Confirmation

## System processing

Waits until the reply button is clicked.

## User action

Click the reply button.

## **ssgui4122**

---

### **ssgui4122**

The physical disk of other storage is already selected.

## Explanation

A physical disk belonging to another storage unit has already been selected.

All selected physical disks must belong to the same storage unit.

## Message type

Information

## System processing

Does not process requests.

## User action

A physical disk cannot be selected from any storage unit other than the one to which the selected physical disk belongs.

To select a physical disk belonging to another storage unit, cancel the selections of all physical disks currently selected and select the physical disks again.

## **ssgui4123**

---

### **ssgui4123**

The physical disk which can be converted does not exist.

## Explanation

The selected virtual storage pool contains no physical disk that can be registered.

The storage unit may not be registered, or all physical disks in the storage unit may already be registered.

## Message type

Information

## System processing

Does not process requests.

## User action

Using ESC, check whether the storage unit used for virtual storage is registered.

In the "View and Create" window, check whether all the physical disks are already registered in the virtual storage pool.

## **ssgui4124**

---

### [ssgui4124](#)

The physical disk which is in agreement with the selected condition does not exist.

## Explanation

No physical disks matched the selected condition when physical disks were being selected.

## Message type

Information

## System processing

Does not process requests.

## User action

Select another condition when selecting physical disks.

## **ssgui4125**

---

### [ssgui4125](#)

You cannot set the capacity with the selected condition.

## Explanation

The capacity input in the physical disk selection conditions exceeds the total capacity of physical disks to be selected using the selected condition.

## Message type

Information

## System processing

Does not process requests.

## User action

Select another RAID level and storage when selecting physical disks.

Alternatively, change the capacity.

## **ssgui4127**

---

### **ssgui4127**

Is it good though security decreases when non-encryption volume exists together to the encryption volume?

#### **Explanation**

Confirm if you want to create the virtual disk even though the security level will deteriorate.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4211**

---

### **ssgui4211**

The total assigned capacity is out of range.  
Please select a physical disk to become a right capacity.

#### **Explanation**

The total capacity of the physical disks selected to create a virtual disk exceeds the permissible capacity of the virtual disk.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Select the physical disks and retry processing to set the total capacity within the permissible capacity of the virtual disk.

## **ssgui4215**

---

### **ssgui4215**

The addition of capacity is not made to the virtual disk because it is created by the maximum capacity.

#### **Explanation**

You cannot add capacity to the virtual disk since maximum disk capacity has already been reached.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

You cannot add capacity to the virtual disk.

## **ssgui4217**

---

### **ssgui4217**

Are you sure you want to add capacity to the virtual disk?

#### **Explanation**

This message confirms whether you want to add capacity to the virtual disk.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4219**

---

### **ssgui4129**

Are you sure you want to delete the virtual disk?

#### **Explanation**

This message confirms whether you want to delete the virtual disk.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4221**

---

### **ssgui4221**

Are you sure you want to assign the virtual disk?

#### **Explanation**

This message confirms whether you want to assign the virtual disk to the virtual target.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4230**

---

### **ssgui4230**

The inputted VTHL is already used.

#### **Explanation**

The input value is already used as VTHL.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Enter the value that is not used as VTHL and retry processing.

## **ssgui4231**

---

### **ssgui4231**

The physical disk which is suitable for conditions does not exist.

#### **Explanation**

There is no suitable physical disk for the input conditions.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Change the input conditions and retry processing.

## **ssgui4233**

---

### **ssgui4233**

The physical disk which can be added capacity to the virtual disk does not exist.

#### **Explanation**

There is no physical disk that can add capacity to the virtual disk.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Register a physical disk in the virtual storage pool to which the virtual disk belongs.  
Alternatively, increase the amount of free space on a registered physical disk.



## **ssgui4236**

---

### **ssgui4236**

The physical disk which can constitute the virtual disk does not exist.

#### **Explanation**

There is no suitable physical disk for the input conditions.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Register a physical disk in the virtual storage pool to which the virtual disk belongs.  
Alternatively, increase the amount of free space on a registered physical disk.

## **ssgui4238**

---

### **ssgui4238**

The virtual disk which can be assigned to and released from the virtual target does not exist.

#### **Explanation**

There is no virtual disk that can be assigned to and released from the virtual target.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Create virtual disks that can be assigned to the virtual target.

## **ssgui4239**

---

### **ssgui4239**

This virtual disk cannot be changed VTHL because it is assigned to the other virtual target.

#### **Explanation**

The virtual disk is already assigned to another virtual target.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Change the VTHL after releasing the virtual disk from the other virtual target.

## **ssgui4240**

---

### **ssgui4240**

The same VTHL is already used.

#### **Explanation**

A virtual disk of the same VTHL is already assigned.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Select another VTHL or change the assigned virtual disk VTHL.

## **ssgui4241**

---

### **ssgui4241**

The number of VTHL to be assigned is insufficient.

#### **Explanation**

There is not sufficient VTHL to be assigned.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Reduce the number of virtual disks to be assigned or select a smaller VTHL.

## **ssgui4242**

---

### **ssgui4242**

The duplicate VTHL is going to be assigned.

#### **Explanation**

The VTHL of the virtual disk to be assigned is duplicated.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Select the virtual disks to avoid VTHL duplication.

## **ssgui4309**

---

### **ssgui4309**

Are you sure you want to delete the virtual enclosure?

#### **Explanation**

This message confirms whether you want to delete the virtual enclosure.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4312**

---

### **ssgui4312**

The virtual enclosure which can be deleted dose not exist.

#### **Explanation**

The following explanations are possible:

- Every virtual enclosure contains a virtual target, or
- There are no virtual enclosures associated with the specified switch group in the switch group selection, or
- The virtual enclosure to be deleted has been registered with a copy security group, or
- A copy security group has been registered with the virtual enclosure to be deleted.

#### **Message type**

Information

#### **System processing**

Does not process requests.

#### **User action**

Depending on the cause, see Explanation above, users can take the following action:

- Delete all the virtual targets that have been created in the virtual enclosure you want to delete, or
- Open the [Select Switch Group] window and check whether the specified switch group is correct, or
- Release the virtual enclosure to be deleted from the copy security group, or
- Release any copy security groups from the virtual enclosure to be deleted.

## **ssgui4317**

---

### **ssgui4317**

The virtual enclosure which is related to the same switch group does not exist.

#### **Explanation**

No virtual enclosure belongs to the same switch group as that of the virtualization switch associated with the selected virtual storage pool.

## Message type

Information

## System processing

Does not process requests.

## User action

In the "View and Create" window, check for any virtual enclosure belonging to the same switch group as that of the virtualization switch associated with the selected virtual storage pool.

## **ssgui4320**

---

### [ssgui4320](#)

The copy security group which can be deleted does not exist.

## Explanation

Either of the following is a possible explanation:

- There are no copy security groups where a virtual enclosure has not been registered, or
- The copy security groups have been registered with virtual enclosures.

## Message type

Information

## System processing

Does not process requests.

## User action

Depending on the cause, see Explanation above, users can take the following action:

- Release all of the virtual enclosures that have been registered with the copy security groups to be deleted, or
- Release the copy security groups from any virtual enclosures where they have been registered.

## **ssgui4321**

---

### [ssgui4321](#)

Are you sure you want to delete the copy security group?

## Explanation

This message confirms whether to execute deletion processing for copy security groups.

## Message type

Confirmation

## System processing

Does not process requests.

## User action

Select the reply button.

## **ssgui4322**

---

## ssgui4322

The virtual enclosure which can be registered does not exist.

### Explanation

There are no virtual enclosures that can be registered with the selected copy security group.  
The following are possible reasons why there are no virtual enclosures that can be registered:

- All of the virtual enclosures have already been registered with the selected copy security group, or
- There are no virtual enclosures.

### Message type

Information

### System processing

Does not process requests.

### User action

Check whether there are any virtual enclosures in the [View and Create] window.

Alternatively, check whether all of the virtual enclosures have already been registered with the selected copy security group.

---

## ssgui4323

### ssgui4323

Are you sure you want to release the virtual enclosure?

### Explanation

This message confirms whether to execute the processing to release the selected virtual enclosure from the copy security group.

### Message type

Confirmation

### System processing

Does not process requests.

### User action

Select the reply button.

---

## ssgui4324

### ssgui4324

The copy security group which can be registered does not exist.

### Explanation

There are no copy security groups that can be registered with the selected virtual enclosure.

The following are possible reasons why there are no copy security groups that can be registered:

- All of the copy security groups have already been registered with the selected virtual enclosure, or
- There are no copy security groups.

### Message type

Information

## System processing

Does not process requests.

## User action

Check whether there are any copy security groups in the [View and Create] window.

Alternatively, check whether all of the copy security groups have already been registered with the selected virtual enclosure.

## **ssgui4325**

---

### **ssgui4325**

The copy security group which can be released does not exist.

## Explanation

No copy security groups have been registered with the selected virtual enclosure.

## Message type

Information

## System processing

Does not process requests.

## User action

Check whether any copy security groups have been registered with the virtual enclosure.

## **ssgui4326**

---

### **ssgui4326**

Are you sure you want to release the copy security group?

## Explanation

This message confirms whether to execute the processing to release the selected copy security group from the virtual enclosure.

## Message type

Confirmation

## System processing

Does not process requests.

## User action

Select the reply button.

## **ssgui4327**

---

### **ssgui4327**

Are you sure you want to change the number of maximum copy sessions? .

## Explanation

This message confirms whether to execute the processing to change the maximum number of copy sessions.

## Message type

Confirmation

## System processing

Does not process requests.

## User action

Select the reply button.

## **ssgui4409**

---

### [ssgui4409](#)

Are you sure you want to delete the virtual target?

## Explanation

This message confirms whether you want to delete the virtual target.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4410**

---

### [ssgui4410](#)

The virtual target which can constitute the redundant configuration with the specified virtual target does not exist.

## Explanation

There is no virtual target that can constitute a redundant configuration with the specified virtual target. Otherwise, a virtual disk is already assigned to the copy destination virtual target.

## Message type

Information

## System processing

Does not process requests.

## User action

Create a virtual disk that can constitute a redundant configuration with the specified virtual target, and then retry processing.

Check whether any virtual disk is already assigned to the copy destination virtual target. If you find any assigned virtual disk, release it from this target. Then, retry processing.

## **ssgui4413**

---

### [ssgui4413](#)

Are you sure you want to make the virtual target redundant?

## Explanation

This message confirms whether you want to make the virtual target redundant.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4414**

---

### **ssgui4414**

The number of virtual targets of SCSI command cues exceeds the limitation value of CA. Is processing continued?

## Explanation

This message confirms whether to execute processing (such as allocating a virtual disk, increasing the capacity of a virtual disk, redundancy processing for the virtual target, or migration startup processing) even though the number of SCSI command queues exceeds the limit for the CA.

## Message type

Confirmation

## System processing

Waits until the reply button is clicked.

## User action

If the <OK> button is clicked, disk read or write performance may deteriorate. Consider possible performance degradations before clicking the reply button.

## **ssgui4416**

---

### **ssgui4416**

The virtual target which can be deleted does not exist.

## Explanation

At least one virtual disk is allocated to every virtual enclosure.

## Message type

Information

## System processing

Does not process requests.

## User action

Delete all virtual disks that have been allocated to the virtual target you want to delete.

## **ssgui4502**

---

### **ssgui4502**

The physical disk which is suitable for conditions does not exist.



## Explanation

There is no suitable physical disk for the input conditions.

## Message type

Information

## System processing

Does not process requests.

## User action

Change the input conditions and retry processing.

## **ssgui4505**

---

### **ssgui4505**

"Hold Migration Backup Disk" cannot be released because of indispensability.

## Explanation

If the capacity of a virtual disk to be migrated cannot completely be divided by the MB, "Hold Migration Backup Disk" becomes indispensable and cannot be released.

## Message type

Information

## System processing

"Hold Migration Backup Disk" cannot be released.

## User action

Start the migration with "Hold Migration Backup Disk" checked.

## **ssgui4508**

---

### **ssgui4508**

Are you sure you want to start the migration?

## Explanation

This message confirms whether you want to perform migration.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4509**

---

### **ssgui4509**

The specified virtual disk has the backup disk.  
Are you sure you want to delete it?

## Explanation

There is a backup disk of previous migration processing on the virtual disk you want to use for performing migration. This message confirms whether you want to delete the backup disk.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4510**

---

### **ssgui4510**

Are you sure you want to stop the migration?

## Explanation

This message confirms whether you want to stop migration.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4511**

---

### **ssgui4511**

Are you sure you want to change the migration?

## Explanation

This message confirms whether you want to switch the physical disk that constitutes the virtual disk.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4512**

---

### **ssgui4512**

Are you sure you want to restore the migration backup disk?

## Explanation

This message confirms whether you want to return the physical disk that constitutes the virtual disk to the backup disk.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4513**

---

### **ssgui4513**

Are you sure you want to delete the migration backup disk?

## Explanation

This message confirms whether you want to delete the backup disk created in migration processing.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4515**

---

### **ssgui4515**

The migration destination virtual storage pool does not exist.

## Explanation

Migration processing cannot be started because there is no migration destination virtual storage pool.

## Message type

Information

## System processing

Does not display the "Select Migration Destination" dialog box.

## User action

In the View and Create window, confirm the migration destination virtual storage pool.

## **ssgui4516**

---

### **ssgui4516**

Failed to get the physical disk information.

## Explanation

Failed to acquire the information for the copy (migration, replication, or ACM) source or destination physical disk.

## Message type

Information

## System processing

Does not process requests.

## User action

Collect the necessary data for troubleshooting and contact your Fujitsu engineer (CE or SE).

## **ssgui4518**

---

### **ssgui4518**

The migration source virtual disk does not exist.

## Explanation

Either migration processing cannot be started because there is no migration source virtual disk, or there is no migration source virtual disk associated with the switch group specified for the switch group selection.

## Message type

Information

## System processing

Does not process requests.

## User action

Check in the View and Create window whether there is a virtual disk that can be migrated, or open the [Select Switch Group] window, and check whether the specified switch group is correct.

## **ssgui4521**

---

### **ssgui4521**

It is not in agreement with the real disk storage capacity of a migration place and a migration source.

## Explanation

- When it was specified to not retain a migration backup disk  
The capacity of the migration destination physical disk must be the same as that of the migration source physical disk.
- When it was specified to retain a migration backup disk  
The capacity of the migration destination physical disk must be equal to or greater than that of the migration source physical disk.

## Message type

Information

## System processing

Does not process requests.

## User action

- When it was specified to not retain a migration backup disk  
Match the capacity of the migration destination physical disk with that of the migration source physical disk and then execute migration.
- When it was specified to retain a migration backup disk  
Make the capacity of the migration destination physical disk equal or greater than that of the migration source physical disk and then execute migration.

## **ssgui4522**

---

### **ssgui4522**

The information of migration backup disk does not exist.

## Explanation

Either migration backup disk list information was not found, or there were no migration backup disks associated with the switch group specified for the switch group selection.

## Message type

Information

## System processing

Does not process requests.

## User action

Check the information on the virtual disk in the View and Create window to see whether the virtual disk is a migration backup disk, or open the [Select Switch Group] window, and check whether the specified switch group is correct.

## **ssgui4523**

---

### **ssgui4523**

You cannot set the capacity with the selected condition.

## Explanation

The capacity input in the conditions for selecting migration destination physical disks exceeds the total capacity of physical disks to be selected using the selected condition.

## Message type

Information

## System processing

Does not process requests.

## User action

Select another condition when selecting physical disks.

Alternatively, change the capacity.

## **ssgui4524**

---

### **ssgui4524**

The physical disk which is in agreement with the selected condition does not exist.

## Explanation

No physical disks matched the selected condition when migration destination physical disks were being selected.

## Message type

Information

## System processing

Does not process requests.

## User action

Select another condition when selecting the physical disks.

## **ssgui4525**

---

### **ssgui4525**

After the migration is executed, a virtual disk in the migration destination is encrypted.  
Are you sure you want to start the migration?

## Explanation

Confirm if you want to execute the migration processing even though the virtual disk in the migration destination will be encrypted.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4526**

---

### **ssgui4526**

After the migration is executed, a virtual disk in the migration destination is not encrypted.  
Are you sure you want to start the migration?

## Explanation

Confirm if you want to execute the migration processing even though the virtual disk in the migration destination will not be encrypted.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4527**

---

### **ssgui4527**

The composition condition of recommending it does not suffice for the capacity of a migration source virtual disk.

## Explanation

The total capacity of the physical disks that meet the recommended configuration conditions in the migration destination is not sufficient for the capacity of the virtual disk in the migration source. Therefore, the physical disks in the migration destination cannot be selected under the recommended configuration conditions.

## Message type

Information

## System processing

Moves to the selection screen of the migration destination (physical disks).

## User action

Change the configuration condition and select the physical disks.

Alternatively, change the capacity.

## **ssgui4529**

---

### [ssgui4529](#)

The migration backup disk that cannot be restored has been selected.

## Explanation

Some of the migration backup disks selected for restoration could not be restored because of an error.

This means that it is not possible to restore from these backup disks.

## Message type

Information

## System processing

Does not process requests.

## User action

Select the migration backup disks to be restored again, and then perform the restoration again.

## **ssgui4530**

---

### [ssgui4530](#)

Are you sure you want to stop the replication?

## Explanation

This message confirms whether you want to stop replication processing.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4540**

---

### **ssgui4540**

Are you sure you want to stop the ACM?

#### **Explanation**

This message confirms whether you want to stop the backup processing started from the ACM.

#### **Message type**

Confirmation

#### **System processing**

Waits until the reply button is selected.

#### **User action**

Select the reply button.

## **ssgui4550**

---

### **ssgui4550**

The retrieval item was not found.

#### **Explanation**

In forward matching, no more names in the copy history list match the input retrieval name.

#### **Message type**

Information

#### **System processing**

Waits until the reply button is clicked.

#### **User action**

Click the reply button.

## **ssgui4551**

---

### **ssgui4551**

There is no information of copy history.

#### **Explanation**

Either no copy history information was found, or there is no copy history information associated with the switch group specified for the switch group selection.

#### **Message type**

Information

#### **System processing**

Waits until the reply button is clicked.

#### **User action**

Click the reply button, then open the [Select Switch Group] window and check whether the specified switch group is correct.



## **ssgui4560**

---

### **ssgui4560**

The VS900 management area does not exist.

#### **Explanation**

No VS900 management area was found.

Either no physical disks have been registered in the virtual storage pool, or there is no VS900 management area associated with the switch group specified for the switch group selection.

#### **Message type**

Information

#### **System processing**

Waits until the reply button is clicked.

#### **User action**

Register a physical disk in the virtual storage pool, or open the [Select Switch Group] window, and check whether the specified switch group is correct.

## **ssgui4561**

---

### **ssgui4561**

All the VS900 management areas have been created.

#### **Explanation**

Either no more VS900 management areas can be created because VS900 management areas have been created for all CA ports, or there are no CA ports associated with the switch group specified for the switch group selection.

#### **Message type**

Information

#### **System processing**

Waits until the reply button is clicked.

#### **User action**

Click the reply button.

## **ssgui4562**

---

### **ssgui4562**

The VS900 management area which can be deleted does not exist.

#### **Explanation**

No VS900 management area can be deleted because no management area has been created, or management areas are in use in copy processing.

Alternatively, there is no VS900 management area associated with the switch group specified for the switch group selection.

#### **Message type**

Information

## System processing

Waits until the reply button is clicked.

## User action

Click the reply button, then open the [Select Switch Group] window and check whether the specified switch group is correct.

## **ssgui4563**

---

### [ssgui4563](#)

Are you sure you want to delete the VS900 management area?

## Explanation

This message requests confirmation to delete the VS900 management area.

## Message type

Information

## System processing

Waits until the reply button is clicked.

## User action

Click the reply button.

## **ssgui4566**

---

### [ssgui4566](#)

The physical disk where the VS900 management area can be created does not exist.

## Explanation

There is no physical disk on which a VS900 management area can be created.

It is likely that no physical disk is registered in the virtual storage pool, or there are no CA ports associated with the switch group specified for the switch group selection.

## Message type

Information

## System processing

Waits until the reply button is clicked.

## User action

Register a physical disk in the virtual storage pool, or open the [Select Switch Group] window, and check whether the specified switch group is correct.

## **ssgui4567**

---

### [ssgui4567](#)

Failed to create the VS900 management area.

## Explanation

A VS900 management area could not be created.

A list of CA ports in which no VS900 management area could be created is displayed, with detailed error information.

## Message type

Error

## System processing

Waits until the reply button is clicked.

## User action

Select a CA port from the list of CA ports in which no VS900 management area could be created and check the detailed error information.

## **ssgui4568**

---

### **ssgui4568**

Failed to delete the VS900 management area.

## Explanation

A VS900 management area could not be deleted.

A list of CA ports from which a VS900 management area could not be deleted is displayed, with detailed error information.

## Message type

Error

## System processing

Waits until the reply button is clicked.

## User action

Select a CA port from the CA ports from which a VS900 management area could not be deleted and check the detailed error information.

## **ssgui4599**

---

### **ssgui4599**

The information on the copy status is being acquired.

## Explanation

Information cannot be updated or manipulated while copy status is being acquired at every monitoring period set in the operating environment window.

## Message type

Information

## System processing

Information cannot be updated or manipulated until the acquisition of copy status is completed.

## User action

Wait a while and then execute the processing before display of this message.

## **ssgui4902**

---

### **ssgui4902**

Are you sure you want to stop the VSC Engine?

## Explanation

This message confirms whether you want to stop the engine program running on the virtualization switch.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4903**

---

### [ssgui4903](#)

Are you sure you want to recreate the composition data?

## Explanation

This message requests confirmation to integrate the virtualization switch configuration information stored on the admin server with the virtualization switch configuration information stored in VSC Engine.

## Message type

Confirmation

## System processing

Waits until the reply button is clicked.

## User action

Click the reply button.

## **ssgui4905**

---

### [ssgui4905](#)

Are you sure you want to change the tracelevel?

## Explanation

This message confirms whether you want to change the level of trace collected by the engine program running on the virtualization switch.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4912**

---

### [ssgui4912](#)

Are you sure you want to change the BOXID?

## Explanation

This message confirms whether you want to change the BOXID.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4914**

---

### **ssgui4914**

A virtual enclosure does not exist in the virtualization switch.

## Explanation

The virtualization switch is not associated with the virtual enclosure specified, or there is no VS900 management area associated with the switch group specified for the switch group selection.

## Message type

Information

## System processing

Does not process requests.

## User action

BOXID can be edited only when the virtual enclosure is associated with a virtualization switch. Check the specified virtual enclosure, then open the [Select Switch Group] window and check whether the specified switch group is correct.

## **ssgui4915**

---

### **ssgui4915**

Are you sure you want to invalidate the virtual switch?

## Explanation

This message confirms whether to disable the virtualization switch.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4916**

---

### **ssgui4916**

Are you sure you want to validate the virtual switch?

## Explanation

This message confirms whether to enable a virtualization switch.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4919**

---

### **ssgui4919**

Are you sure you want to execute the installation of the firmware?

Attention: It takes very long time to install the firmware.

*The following firmwares are installed = {0}*

## Explanation

Message asking for confirmation of firmware installation.

Note that installing the firmware takes long time.

## Parameters

0: Firmware that is being installed

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4920**

---

### **ssgui4920**

The stop of the VSC Engine failed.

## Explanation

Failed to stop the VSC Engine.

## Message type

Information

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4921**

---

### ssgui4921

The backup of the VSC Engine environment failed.

#### Explanation

Backup of the VSC Engine configuration failed.

#### Message type

Information

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### ssgui4922

---

### ssgui4922

The deletion of an unnecessary file of the VSC Engine failed.

#### Explanation

Failed to delete unnecessary VSC Engine files.

#### Message type

Information

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### ssgui4923

---

### ssgui4923

The installation of the firmware failed.

*Firmware that failed in installation = {0}*

*Firmware that succeeded in installation = {1}*

#### Explanation

Firmware installation failed.

#### Parameters

0: Firmware for which installation failed

1: Firmware for which installation succeeded

#### Message type

Information

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### **ssgui4924**

---

#### [ssgui4924](#)

The backup of the FOS configuration failed though the installation of the FOS firmware succeeded.

#### Explanation

FOS firmware installation succeeded, but backup of the FOS configuration failed.

#### Message type

Information

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### **ssgui4925**

---

#### [ssgui4925](#)

Restoring of the VSC Engine environment failed though the installation of the firmware succeeded.

#### Explanation

The firmware installation succeeded, but restoration of the VSC Engine configuration failed.

#### Message type

Information

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### **ssgui4926**

---

#### [ssgui4926](#)

Rebooting the virtualization switch failed though the restoring of the VSC Engine environment and the installation of the firmware succeeded.

#### Explanation

The firmware installation and restoration of the VSC Engine environment settings both succeeded, but reactivation of the virtualization switch failed.

#### Message type

Information

#### System processing

Waits until the reply button is selected.



#### User action

Select the reply button.

### **ssgui4928**

---

#### [ssgui4928](#)

Are you sure you want to backup the VSC Engine environment?

#### Explanation

Message asking for confirmation of the VSC Engine configuration backup.

#### Message type

Confirmation

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### **ssgui4931**

---

#### [ssgui4931](#)

Are you sure you want to restore the VSC Engine environment?

#### Explanation

Message asking for confirmation of the VSC Engine configuration restore.

#### Message type

Confirmation

#### System processing

Waits until the reply button is selected.

#### User action

Select the reply button.

### **ssgui4933**

---

#### [ssgui4933](#)

Are you sure you want to reboot the virtualization switch?

#### Explanation

Message asking for confirmation of the virtualization switch reactivation.

#### Message type

Confirmation

#### System processing

Waits until the reply button is selected.

## User action

Select the reply button.

### **ssgui4934**

---

#### **ssgui4934**

IP address is illegal. Please input correct IP addresss.

## Explanation

An illegal IP address was entered.

## Message type

Error

## System processing

The request to the virtual storage window is not accepted.

## User action

Enter the correct IP address.

### **ssgui4935**

---

#### **ssgui4935**

IP address is illegal. Please input correct IP addresss. *Item name = {0}*

## Explanation

An illegal IP address was entered.

## Parameters

0: Item name for which illegal IP address was entered

## Message type

Error

## System processing

The request to the virtual storage window is not accepted.

## User action

Enter the correct IP address.

### **ssgui4941**

---

#### **ssgui4941**

Are you sure you want to collect switch logs and virtualization function logs?

## Explanation

Message asking for confirmation of virtualization switch log information collection.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4944**

---

### [ssgui4944](#)

Are you sure you want to backup the FOS configuration?

## Explanation

Message asking for confirmation of the virtualization switch FOS configuration backup.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4947**

---

### [ssgui4947](#)

Are you sure you want to restore the FOS configuration?

## Explanation

Message asking for confirmation of the virtualization switch FOS configuration restore.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## **ssgui4950**

---

### [ssgui4950](#)

Are you sure you want to set the login information on virtualization management port?

## Explanation

Message asking for confirmation of the port login information for virtualization management setting.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## ssgui4953

---

### ssgui4953

Are you sure you want to set the virtualization function?

## Explanation

Message asking for confirmation of the virtualization function information setting.

## Message type

Confirmation

## System processing

Waits until the reply button is selected.

## User action

Select the reply button.

## ssgui4960

---

### ssgui4960

The login name and the password of the virtualization management port are not set.  
Please set the login name and the password by input of login information dialog.

## Explanation

The port login name and password for virtualization management are not entered.

## Message type

Error

## System processing

The request to the virtual storage window is not accepted.

## User action

Check whether the port login name and password for virtualization management have been entered in the login information input dialog box.

## E.3 VSC Engine

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This appendix describes the VSC Engine codes.

Table E.3 List of VSC Engine Codes

Code (Hexadecimal)	Explanation	Action
0001	VSC Engine received an undefined command code.	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version

Code (Hexadecimal)	Explanation	Action
		number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0002	VSC Engine detected the following errors in the command received: <ul style="list-style-type: none"> <li>• Command length</li> <li>• Command format</li> </ul>	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0003	VSC Engine detected the following error in the command received: <ul style="list-style-type: none"> <li>• Command version</li> </ul>	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0004	VSC Engine detected an argument error in the command received.	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0010	VSC Engine received a command with an invalid transaction ID.	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0012	VSC Engine received events that exceeded the maximum number allowed within a transaction.	Confirm that the first 4 digits in the Version field of firmware in the "Maintenance" window are "0102". If they are not "0102", ask the Fujitsu engineer (CE) to change the version number of firmware. Upon confirming "0102", see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0020	VSC Engine received an I/O error report from storage while processing the command received.	An error has occurred in storage containing the physical disk registered in the virtual storage pool. Investigate the storage.
0021	VSC Engine received an error report from XPathOS while processing the command received.	Check for any error in the virtualization switch.  If no error occurred, see <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine. Then contact your Fujitsu engineer (CE or SE).
0022	Memory assignment failed while VSC Engine was processing the command received.	See <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine. Then contact your Fujitsu engineer (CE or SE).
0023	VSC Engine detected an error (internal conflict) while processing the command received.	See <a href="#">"6.3 Collecting Data"</a> to collect investigation data about VSC Engine. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
0030	VSC Engine failed to detect the specified physical disk.	<p>Confirm that the physical disk specified in "Register Physical Disk" or "Create Virtual Disk" is correct.</p> <p>See "<a href="#">3.4.1.1 Using the zoning function of a virtualization switch</a>" to confirm that zoning between the virtual initiator of the virtualization switch and the storage is correct. Make sure that the WWN for the virtual initiator of any other virtualization switch is not registered, and that the WWN of the channel adaptor (CA) connected to the other virtualization switch is not registered.</p>
0031	VSC Engine attempted to perform I/O operation on the specified physical disk, but storage was not ready.	<p>Confirm that the storage containing the physical disk specified in "Register Physical Disk" or "Create Virtual Disk" is turned on, and that the FC cable from the virtualization switch to storage is correctly connected.</p> <p>When using the host table setting (affinity setting), confirm that the WWNs for the virtual initiator of the virtualization switch registered to storage and zoning are correct. (See "<a href="#">3.4.1.2 Using the host table settings mode of ETERNUS and GR.</a>")</p>
0032	The specified physical disk is storage not supported by VSC Engine.	Confirm that the physical disk specified in "Register Physical Disk" or "Create Virtual Disk" is in VSC Engine-supported storage.
0033	VSC Engine attempted to perform I/O operation on the specified physical disk, but Busy status was returned from storage.	<p>Busy status was returned from storage containing the physical disk specified in "Register Physical Disk" or "Create Virtual Disk".</p> <p>Wait a while and retry operation.</p>
0044	<p>VSC Engine detected an error in the transaction sequence.</p> <p>(An attempt to manipulate the object with the specified transaction ID failed.)</p>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0045	VSC Engine detected a communication error while communicating with a remote VSC Engine in redundant configuration via a network.	Confirm that the virtualization switch constituting the redundant configuration is turned on. Also, check for any problems, such as disconnected Ethernet cable. Then contact your Fujitsu engineer (CE or SE).
0046	In a redundant configuration, one VSC Engine detected that its version is inconsistent with that of the other VSC Engine.	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data about VSC Engine. Then contact your Fujitsu engineer (CE or SE).
0050	VSC Engine was blocked for some reason.	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine. Then contact your Fujitsu engineer (CE or SE).</p> <p>Then, turn on the virtualization switch.</p>
0110	<p>VSC Engine detected the following condition while checking the storage connection:</p> <ul style="list-style-type: none"> <li>• Detected more channel adapters than those allowed in storage connectable to the virtualization switch.</li> </ul>	<p>For the number of channel adapters of storage connectable to a virtualization switch, see "<a href="#">D.3 Storage Connected to a Virtualization Switch.</a>"</p> <p>Review the system configuration.</p>
0111	A physical disk with a capacity that is outside the range of capacities supported by the VSC engine has been detected.	Check whether there are any physical disks whose size exceeds the "Maximum physical disk size" as defined in " <a href="#">Appendix D Limit Values</a> ".

Code (Hexadecimal)	Explanation	Action
0112	A physical disk that is not supported by the VSC engine has been detected.	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0200	VSC Engine detected the following error while creating a virtual target: <ul style="list-style-type: none"> <li>The specified WWN is reserved by VSC Engine. (It is not available to the user.)</li> </ul>	Check whether the first four digits in the firmware version column in the "Maintenance" window are "0102". If the digits are not "0102", ask your Fujitsu engineer (CE) to change the firmware version. If the digits are "0102", see " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0201	VSC Engine detected the following error while creating a virtual target: <ul style="list-style-type: none"> <li>The specified WWN is already assigned to the virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0202	VSC Engine detected the following condition while creating a virtual target: <ul style="list-style-type: none"> <li>An attempt is made to create more virtual targets than allowed in a virtual enclosure.</li> </ul>	For the number of virtual targets that can be created in a virtual enclosure, see " <a href="#">D.1 Virtual Storage Resources</a> ".
0203	VSC Engine detected the following condition while creating a virtual target: <ul style="list-style-type: none"> <li>An attempt was made to create more virtual targets than can be created in a virtualization switch.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the number of virtual targets that the virtualization switch can create.
0300	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk already exists.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0301	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The RAID type of physical disk specified as a component configuring the virtual disk and that of the actual physical disk do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0302	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk capacity and total capacity of all physical disks specified to constitute the virtual disk do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0303	VSC Engine detected the following conditions while creating a virtual disk: <ul style="list-style-type: none"> <li>The number of physical disks configuring the virtual disk exceeded the maximum number.</li> <li>The number of extents configuring the virtual disk exceeded the maximum number.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the maximum numbers and extents of physical disks that constitute a virtual disk. Change the physical disks configuring the virtual disk.

Code (Hexadecimal)	Explanation	Action
0305	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The number of mirrors specified as components configuring the virtual disk exceeded the specified value.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0306	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The number of mirrors specified as components configuring the virtual disk and that of the actually specified physical disks do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0307	VSC Engine detected the following error while creating a virtual disk: <ul style="list-style-type: none"> <li>The area of the physical disk specified as components configuring the virtual disk is already assigned to another one.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0308	VSC Engine detected the following condition while creating a virtual disk: <ul style="list-style-type: none"> <li>An attempt was made to create more virtual disks than can be created.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the number of virtual disks that can be created.
0309	VSC Engine detected the following condition while creating a virtual disk: <ul style="list-style-type: none"> <li>The number of multi-paths connectable to one virtual disk exceeded the maximum number.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the number of multi-paths of a virtual disk that the virtualization switch can create.
0310	VSC Engine detected the following condition while checking the physical disks and creating a virtual disk: <ul style="list-style-type: none"> <li>An attempt was made to register more physical disks than the number of physical disks that can be registered with one virtualization switch.</li> </ul>	For the number of physical disks that can be used by a virtualization switch, see " <a href="#">D.1 Virtual Storage Resources</a> ".
0320	VSC Engine detected the following error while checking the specified WWN: <ul style="list-style-type: none"> <li>There is no virtual target with the specified WWN.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0400	VSC Engine detected the following error while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0401	VSC Engine detected the following errors while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>The specified virtualization switch does not exist.</li> <li>There is no redundant configuration with the specified virtualization switch.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).



Code (Hexadecimal)	Explanation	Action
0402	VSC Engine detected the following error while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>The number of shared information items of the virtual disk is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0403	VSC Engine detected the following error while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>All composition data held by each of the multiple virtualization engines, that constitute the redundant configuration, does not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0404	VSC Engine detected the following condition while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
0405	VSC Engine detected the following condition while setting shared information of the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	Wait for a while and then perform the operation. Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.
0600	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0601	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified virtual disk is already assigned to another virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0602	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified virtual target does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0603	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>Another virtual disk is already assigned to the specified virtual target LUN.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0604	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified LUN is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0605	VSC Engine detected the following condition while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>An attempt was made to assign more virtual disks than the maximum number assignable to the specified virtual target.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " to check the number of virtual disks assignable to a virtual target.

Code (Hexadecimal)	Explanation	Action
0607	VSC Engine detected the following error while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The backup disk created in migration processing is specified.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0608	VSC Engine detected the following condition while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified virtual disk cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	Wait a few minutes and then perform the operation.  Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.
0609	VSC Engine detected the following condition while assigning the virtual disk to the virtual target: <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
0610	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
0611	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1100	VSC Engine detected the following error while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1102	VSC Engine detected the following error while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>After adding capacity, that of the virtual disk and the total capacity of all physical disks configuring the virtual disk do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1103	VSC Engine detected the following conditions while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The number of physical disks configuring the virtual disk exceeded the maximum number.</li> <li>The number of extents configuring the virtual disk exceeded the maximum number.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the maximum numbers of physical disks and extents that constitute a virtual disk.
1104	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The number of physical disks configuring the virtual disk added to increase the capacity and information for the physical disks do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
1106	VSC Engine detected the following error while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The number of mirrors specified as components configuring the virtual disk and that of the actually specified physical disks do not match.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1107	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>An error was detected after adding capacity and while changing information for the virtual disk.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1108	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>An error was detected while information about the virtual disk before capacity was added was being deleted.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
1109	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The number of multi-paths exceeded that connectable to one virtual disk.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the number of multi-paths of a virtual disk that the virtualization switch can create.
1110	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
1111	VSC Engine detected the following condition while adding capacity to the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	Wait for a while and then perform the operation. Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.
2100	VSC Engine detected the following error while deleting virtual disks from the virtual target: <ul style="list-style-type: none"> <li>The specified virtual target does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2101	VSC Engine detected the following error while deleting virtual disks from the virtual target: <ul style="list-style-type: none"> <li>A specified virtual disk does not exist in the specified virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2102	VSC Engine detected the following condition while deleting virtual disks from the virtual target: <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
2300	VSC Engine detected the following error while deleting the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
2301	VSC Engine detected the following error while deleting the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk is assigned to the virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2302	VSC Engine detected the following condition while deleting the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
2303	VSC Engine detected the following error while deleting the virtual disk: <ul style="list-style-type: none"> <li>The specified virtual disk is assigned to a virtual target on another virtualization switch constituting a redundant configuration.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2400	VSC Engine detected the following error while deleting the virtual target: <ul style="list-style-type: none"> <li>The specified virtual target does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2401	VSC Engine detected the following error when deleting the virtual target: <ul style="list-style-type: none"> <li>A virtual disk is still assigned to the specified virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
2402	VSC Engine detected the following error when deleting the virtual target: <ul style="list-style-type: none"> <li>The user has attempted to delete a virtual target where HP-UX has been specified as the operating system used.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3100	VSC Engine detected the following errors when starting migration or replication: <ul style="list-style-type: none"> <li>The virtual disk specified for migration does not exist.</li> <li>The virtual disk specified as the replication source does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3101	VSC Engine detected the following errors when starting migration or replication: <ul style="list-style-type: none"> <li>The virtual disk specified for migration does not exist.</li> <li>The virtual disk specified as the replication destination does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3102	VSC Engine detected the following error when starting migration or replication: <ul style="list-style-type: none"> <li>The migration destination is incorrectly specified.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3103	VSC Engine detected the following error when starting migration or replication:	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
	<ul style="list-style-type: none"> <li>The processing code is incorrect.</li> </ul>	
3104	<p>VSC Engine detected the following error when starting migration or replication:</p> <ul style="list-style-type: none"> <li>The priority is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3105	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>No session ID was assigned.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3106	<p>VSC Engine detected the following error when starting migration or replication:</p> <ul style="list-style-type: none"> <li>Migration or replication with the specified session ID already exists.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3107	<p>VSC Engine detected the following error when starting migration or replication:</p> <ul style="list-style-type: none"> <li>The replication source virtual disk and replication destination virtual disk are the same.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3108	<p>VSC Engine detected the following conditions when starting migration or replication:</p> <ul style="list-style-type: none"> <li>Failed to associate the source and destination of migration.</li> <li>Failed to associate the source and destination of replication.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3109	<p>VSC Engine detected the following error when starting migration or replication:</p> <ul style="list-style-type: none"> <li>The replication destination virtual disk is already assigned to the virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3110	<p>VSC Engine detected the following conditions when starting migration or replication:</p> <ul style="list-style-type: none"> <li>The area of the migration destination overlaps with that of the destination of other migration or replication.</li> <li>The area of replication destination overlaps with that of the destination of other migration or replication.</li> <li>Another replication is operating in the migration conversion destination area.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3111	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>Failed to create a work virtual disk for migration or replication.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3112	<p>VSC Engine detected the following error when starting migration or replication:</p> <ul style="list-style-type: none"> <li>The specified session does not exist in migration or replication.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
3113	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• A conflict was detected in internal management information.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3114	<p>VSC Engine detected the following conditions when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified as the migration source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	<p>Wait a few minutes and then perform the operation.</p> <p>Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.</p>
3115	<p>VSC Engine detected the following conditions when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• The storage containing the physical disk specified as the migration destination is not ready.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	<p>Wait for a while and then perform the operation.</p> <p>Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.</p>
3116	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• The physical disks configuring the virtual disk before migration and those specified as the migration destination do not have matching path connection configurations. For example, paths from all virtualization switches constituting a redundant configuration are connected to the physical disks configuring the virtual disk before migration, but are connected to the virtual disks after migration from only some parts of the virtualization switches.</li> </ul>	<p>Check the system configuration.</p> <p>The path configuration (FC cable connection between the virtualization switch and storage) of the physical disks configuring the virtual disk before migration and that of the physical disks for the migration destination must be identical. The path connection configurations must be identical (including the virtualization switch constituting the redundant configuration).</p>
3117	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• An attempt was made to perform more migration or replication processes than simultaneously possible.</li> </ul>	<p>See "<a href="#">D.1 Virtual Storage Resources</a>" for simultaneously performing multiple copy operations.</p>
3118	<p>VSC Engine detected the following condition when starting migration or replication:</p> <ul style="list-style-type: none"> <li>• The specified migration process failed to exclude other migration or replication processes.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client.</p>
3119	<p>The VSC engine has detected the following status when starting migration or replication:</p>	<p>The maximum simultaneous multiple processes for one virtual disk is 4.</p>

Code (Hexadecimal)	Explanation	Action
	An attempt was made to execute a migration or replication process in excess of the maximum simultaneous multiple processes for one virtual disk.	Check the number of migration and/or replication processes simultaneously executed.
3200	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client.
3201	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3202	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The migration destination is incorrectly specified.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3203	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The disk type of virtual disk specified for migration is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3204	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The capacity of the physical disk specified as the migration destination is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3205	VSC Engine detected the following error when starting migration: <ul style="list-style-type: none"> <li>• The configuration of the physical disk specified as the migration destination is incorrect.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3206	VSC Engine detected the following conditions in the virtual disk configuration after starting migration: <ul style="list-style-type: none"> <li>• The number of physical disks configuring the virtual disk exceeded the maximum number.</li> <li>• The number of extents configuring the virtual disk exceeded the maximum number of those of physical disks configuring the virtual disk.</li> </ul>	See " <a href="#">D.1 Virtual Storage Resources</a> " for the maximum number and extents of physical disks configuring a virtual disk.
3300	VSC Engine detected the following errors while acquiring the status of migration or replication: <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication source does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).



Code (Hexadecimal)	Explanation	Action
3301	<p>VSC Engine detected the following errors while acquiring the status of migration or replication:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication destination does not exist.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3302	<p>VSC Engine detected the following error while acquiring the status of migration or replication:</p> <ul style="list-style-type: none"> <li>• The migration destination is incorrectly specified.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3400	<p>VSC Engine detected the following errors while canceling migration or replication:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication source does not exist. VTLUN of the migration source does not exist.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3401	<p>VSC Engine detected the following errors while canceling migration or replication:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication destination does not exist.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3402	<p>VSC Engine detected the following error while canceling migration or replication:</p> <ul style="list-style-type: none"> <li>• The migration destination is incorrectly specified.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3403	<p>VSC Engine detected the following error while canceling migration or replication:</p> <ul style="list-style-type: none"> <li>• The processing code is incorrect.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3500	<p>VSC Engine detected the following errors when stopping access from the host of the virtual disk:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication source does not exist. VTLUN of the migration source does not exist.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3501	<p>VSC Engine detected the following conditions when stopping access from the host of the virtual disk:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified as the migration source cannot be used because the status</li> </ul>	<p>Wait a few minutes and then perform the operation.</p> <p>Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.</p>



Code (Hexadecimal)	Explanation	Action
	<p>of physical disks configuring the virtual disk is being checked.</p> <ul style="list-style-type: none"> <li>• The storage containing the physical disk specified as the migration destination is not ready.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	
3600	<p>VSC Engine detected the following errors while restarting access from the host of the virtual disk:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified for migration does not exist.</li> <li>• The virtual disk specified as the replication source does not exist. VTLUN of the migration source does not exist.</li> </ul>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3601	<p>VSC Engine detected the following error while restarting access from the host of the virtual disk:</p> <ul style="list-style-type: none"> <li>• The specified migration process failed to exclude other migration or replication processes.</li> </ul>	<p>Wait a few minutes and then perform the operation.</p> <p>If no improvement results, see "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>
3602	<p>VSC Engine detected the following conditions while restarting access from the host of the virtual disk:</p> <ul style="list-style-type: none"> <li>• The virtual disk specified as the migration source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> <li>• The storage containing the physical disk specified as the migration destination is not ready.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> <li>• The virtual disk specified as the replication source cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	<p>Wait for a while and then perform the operation.</p> <p>Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.</p>
3702	<p>VSC Engine detected the following error while releasing the synchronized state:</p>	<p>See "<a href="#">6.3 Collecting Data</a>" to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).</p>

Code (Hexadecimal)	Explanation	Action
	<ul style="list-style-type: none"> <li>The specified session ID cannot be specified because the session was started from a transaction server.</li> </ul>	
3703	<p>VSC Engine detected the following error while releasing the synchronized state:</p> <ul style="list-style-type: none"> <li>The migration destination is incorrectly specified.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3704	<p>VSC Engine detected the following error while releasing the synchronized state:</p> <ul style="list-style-type: none"> <li>The specified session ID is currently being synchronized.</li> </ul>	Perform the operation after being synchronized.
3800	<p>VSC Engine detected the following error while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>The virtual disk specified for migration does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3801	<p>VSC Engine detected the following error while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>The virtual disk specified for migration does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3802	<p>VSC Engine detected the following error while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>The migration destination is incorrectly specified.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3803	<p>VSC Engine detected the following condition while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>An error was detected from the virtual disk specified for migration while information for the physical disks configuring the virtual disk was being registered with the migration destination physical disks.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3804	<p>VSC Engine detected the following condition while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>An error was detected from the virtual disk specified for migration while information for the physical disk configuring the virtual disk before migration was being deleted.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3805	<p>VSC Engine detected the following condition while finishing (detaching) migration:</p> <ul style="list-style-type: none"> <li>The specified session is still synchronized.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3900	<p>VSC Engine detected the following error:</p> <ul style="list-style-type: none"> <li>There is no virtual disk with the specified virtual disk number.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3901	<p>VSC Engine detected the following error:</p>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
	<ul style="list-style-type: none"> <li>The virtual disk number (before being changed) is incorrect.</li> </ul>	
3902	<p>VSC Engine detected the following error:</p> <ul style="list-style-type: none"> <li>A virtual disk with the virtual disk number (after being changed) already exists.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3903	<p>VSC Engine detected the following condition:</p> <ul style="list-style-type: none"> <li>The specified virtual disk is in the process of migration or replication.</li> </ul>	Perform the operation after migration or replication is completed.
3904	<p>VSC Engine detected the following error:</p> <ul style="list-style-type: none"> <li>The specified virtual disk is already assigned to a virtual target of another virtualization switch constituting a redundant configuration.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3906	<p>VSC Engine detected the following error:</p> <ul style="list-style-type: none"> <li>The specified virtual disk is assigned to the virtual target.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
3907	<p>VSC Engine detected the following condition:</p> <ul style="list-style-type: none"> <li>The specified virtual disk cannot be used because the status of physical disks configuring the virtual disk is being checked.</li> </ul>	<p>Wait a few minutes and then perform the operation.</p> <p>Physical disks configuring the virtual disk may not be ready for such reason as the storage configuring the virtual disk not being turned on. Confirm that the storage containing the physical disks is turned on and that the FC cable from the virtualization switch to the storage is correctly connected.</p>
3B00	<p>VSC Engine detected the following error:</p> <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data concerning VSC Engine and VSC Manager. Then contact your Fujitsu engineer (CE or SE).
3C00	<p>VSC Engine detected the following condition:</p> <p>The VS900 management area with the specified ID does not exist.</p>	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data concerning VSC Engine and VSC Manager. Then contact your Fujitsu engineer (CE or SE).
3C01	<p>VSC Engine detected the following condition:</p> <p>The VS900 management area with the specified ID already exists.</p>	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data concerning VSC Engine and VSC Manager. Then contact your Fujitsu engineer (CE or SE).
3C02	<p>VSC Engine detected the following condition:</p> <p>The specified physical disk area has already been allocated to another virtual disk or VS900 management area.</p>	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data concerning VSC Engine and VSC Manager. Then contact your Fujitsu engineer (CE or SE).
3C03	<p>VSC Engine detected the following condition:</p> <p>The VS900 management area to be deleted is being used in a copy session.</p>	Perform the operation after migration processing or replication processing is complete.
3C04	<p>VSC Engine detected the following condition:</p> <p>To delete a VS900 management area, an attempt was made to reallocate a VS900 management area but no usable VS900 management area was found.</p>	<p>For a session in which a VS900 management area cannot be reallocated, create another VS900 management area in the same switch group as that of the specified VS900 management area, then execute the command again.</p> <p>For a session in which a VS900 management area can be reallocated, create another VS900 management area in the same</p>

Code (Hexadecimal)	Explanation	Action
		switch group as that of the specified VS900 management area, then execute the command again.
3C05	VSC Engine detected the following condition: Reallocating a VS900 management area to delete a VS900 management area failed.	Referring to " <a href="#">6.3 Collecting Data</a> ", collect investigation data concerning VSC Engine and VSC Manager. Then contact your Fujitsu engineer (CE or SE).
4400	VSC Engine detected the following error while acquiring a list of virtual disks: <ul style="list-style-type: none"> <li>The specified virtual target does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
4600	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
4700	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified virtual disk does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5100	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified transaction already exists.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5101	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>An attempt was made to generate more transactions than the maximum number that can be generated.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5300	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified transaction does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5301	VSC Engine detected the following condition and was blocked: <ul style="list-style-type: none"> <li>An error occurred while composition data was being reflected in the virtualization switch.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5400	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified transaction does not exist.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
5401	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>An error occurred while an operation was being rolled back.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6100	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>An error was reported from XPathOS.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6101	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>No reply was returned from XPathOS after waiting the specified period of time.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6200	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>Failed to perform command processing.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

Code (Hexadecimal)	Explanation	Action
6201	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>An error occurred at command processing startup.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6400	VSC Engine detected the following condition and was blocked: <ul style="list-style-type: none"> <li>An error occurred while composition data was being reflected in the virtualization switch.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6500	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6501	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6502	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>Copy security information failed to be set because a copy was running on the specified virtual enclosure</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6503	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The value specified for the maximum number of copy sessions is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6504	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6600	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>Copy security information failed to be deleted because there was no copy security information for the specified virtual enclosure.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6601	VSC Engine detected the following condition: <ul style="list-style-type: none"> <li>Copy security information failed to be deleted because a copy was running on the specified virtual enclosure.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).
6700	VSC Engine detected the following error: <ul style="list-style-type: none"> <li>The specified parameter is invalid.</li> </ul>	See " <a href="#">6.3 Collecting Data</a> " to collect investigation data about VSC Engine, VSC Manager, and the admin client. Then contact your Fujitsu engineer (CE or SE).

# Glossary

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## Automatic switching function

When migration is performed without retaining any backup disk, this function automatically switches physical disks immediately after data is copied to a destination physical disk.

## Backup disk

A source physical disk used and retained for recovery purpose during migration.

## BOX-ID

Information that identifies a virtual enclosure for recognition by a SCSI interface.

## Commit script

A script executed by VSC Manager when saving the configuration information each time the resource status of virtual storage is changed and configuration information is updated.

## Configuration information

A database that stores the relationship between resources in virtual storage, and which is the most important information of virtual storage. VSC Manager (which manages all configuration information) constantly checks the consistency between this information and each item of configuration information stored in a virtualization switch.

## Copy log

A file that records information on the start, stop, execution result, and other aspects of migration or replication.

## Copy security group

A group of virtual enclosures that are subject to ETERNUS SF AdvancedCopy Manager copy security.

## ETERNUS SF AdvancedCopy Manager

Software that links to Fujitsu's storage system ETERNUS and uses the advanced copy functions to perform high-speed backup, restore, and replication operations.

## FOS

The Fabric OS (FOS) firmware that provides fibre channel switch functions.

## IP address of Ethernet port for switch control

It is IP address to communicate with ETERNUS SF Storage Cruiser. This Internet Protocol address is specified by "Device search" of ETERNUS SF Storage Cruiser.

## IP address of Ethernet port for virtualization control

It is IP address to do the communication between VSC Engine and the VSC manager.

## Max number of copy sessions

The maximum number of copy sessions for virtual enclosures that are subject to ETERNUS SF AdvancedCopy Manager copy security.

## Migration

A function that copies a physical disk that makes up a virtual disk(s) to another physical disk. The virtualization switch copies data from the source to the destination disk during migration.

## Migration completion instruction

Refers to switching physical disks after data is copied to a destination physical disk.

## Number of SCSI command queues

The number of SCSI commands that a channel adapter (CA) for storage unit can accept concurrently

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## Physical disk

A logical unit (LUN) allocated from a disk unit. A physical disk is a storage medium that actually stores data and an element that makes up a virtual disk.

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## Physical disk registration

Refers to adding a physical disk to a virtual storage pool.

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## Physical disk release

Refers to removing a physical disk from a virtual storage pool.

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## Redundant Virtual target

A function that copies the information of another virtual target (to which virtual disks are attached) into an arbitrary virtual target. This function is used for building a virtual disk environment in a multipath configuration.

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## Replication

A function that creates a copy of a virtual disk. The virtualization switch is used to copy data to a destination virtual disk.

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## Resources

A generic term for resources that are required to use the virtual storage function (virtual storage pools, virtual enclosures, virtual targets, virtual disks, and physical disks).

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## SAS

The program interface between Fabric OS and the VSC Engine.

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## SMI Agent

Brocade agent program required by SMI-S for managing a virtualization switch.

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## Synchronization maintained

A status in which the transaction server write request is executed to both the source and destination physical disks (during migration) to maintain data synchronization between these two disks.

It also refers to a status in which the transaction server write request is executed to both the source and destination virtual disks (during replication) to maintain data synchronization between these two disks.

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## Transaction server

A generic term for servers that run applications for accessing data on the connected virtual disks.

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## Virtual disk

A logical volume independent of the physical attribute and size of a physical disk.

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## Virtual enclosure

A logical enclosure for integrating virtual disks into an arbitrary unit.

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## Virtual initiator

A virtual WWPN used by a virtualization switch to access a storage device.

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## Virtual storage

A generic term for the function that allows you to make a volume of an arbitrary size, independently of the attributes (e.g., size, RAID group) of logical units created on a disk unit.

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## Virtual storage pool

A logical device that stores physical disks for constituting virtual disks.

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### Virtual storage window

A generic term for the operation interface (GUI) for the virtual storage function.

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### Virtual target

An access path for connecting a transaction server and a virtual disk.

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### Virtual target allocation

Act of attaching a virtual disk to a virtual target.

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### Virtualization switch

A generic term for the "ETERNUS VS900 Model 200 Virtualization Switch" and "ETERNUS VS900 Model 300 Virtualization Switch", and "SN200 Model 540 Virtualization Blade", a fibre channel switch with the storage virtualization function.

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### Virtualization switch group

A generic term for multiple groups (pairs) of virtualization switches in redundant configurations.

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### VSC Engine

Firmware that runs on a virtualization switch. This firmware processes various requests regarding a virtual disk according to instructions from VSC Manager.

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### VSC Manager

Manages the configuration information to form the foundation of the virtual storage function, handles and forwards processing requests issued via the virtual storage window to VSC Engine that runs on the target virtualization switch. VSC Manager runs on an admin server.

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### VS900 management area

A necessary management area for using the replication suspend/resume function of ETERNUS SF AdvancedCopy Manager.

The suspend/resume function is enabled by using the area for virtual storage.

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### VTHL

A number used to allocate a virtual disk to a virtual target. The VTHL number is the number of a disk recognized by a transaction server.